Regional Wetlands

CONCEPT PLAN

EMERGENCY WETLANDS RESOURCES ACT

SOUTHEAST REGION

U.S. FISH AND WILDLIFE SERVICE

AUGUST 1992

United States Department of the Interior
FISH AND WILDLIFE SERVICE
75 SPRING STREET, S.W.
ATLANTA, GEORGIA
30303

September 30, 1992

Dear Reader:

The enclosed Regional Wetlands Concept Plan (Regional Plan) is provided for your information and use in helping to protect and conserve our Nation's wetlands. This Regional Plan was prepared by the U.S. Fish and Wildlife Service (Service), Southeast Region, under authority of the Emergency Wetlands Resources Act of 1986 (Public Law 99-645). The Regional Plan complements the National Wetlands Priority Conservation Plan (National Plan) prepared by the Service's National Office and Statewide Comprehensive Outdoor Recreation Plans (SCORP's) prepared by States within the Southeast Region.

Using evaluation criteria developed in the National Plan, the Regional Plan identifies over 5.8 million acres of wetlands and associated habitat (Alabama, Arkansas, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico, and Virgin Islands) that warrant protection because of their resource value, scarcity, and vulnerability. These areas are candidates for acquisition by the Service or others with access to Land and Water Conservation Fund appropriations. Whether or not any of the sites identified will be acquired depends on available funds, as well as the acquisition policies, procedures, and priorities of the Service, State agencies, and other agencies or groups.

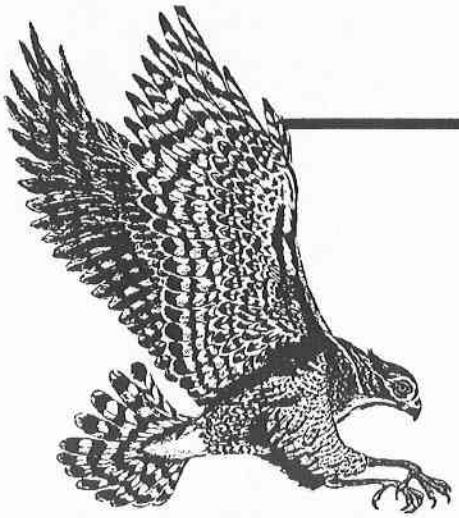
In developing the lists of important wetlands included in this Regional Plan, we have solicited information from other Federal agencies, State agencies, and interested parties. Additional sites may be added at any time provided the evaluation criteria are met. Clearly, the Service alone cannot identify, protect, and conserve all the important wetlands in the Southeast Region, and the cooperative efforts of all interested parties are needed. Should you need additional copies or have questions, please refer to Appendix D of this document for the nearest Service office and point of contact.

My staff and I look forward to working together with you to protect and restore our Nation's wetlands.

Sincerely yours,

James W. Pulliam, Jr.
Regional Director

Enclosure



REGIONAL WETLANDS CONCEPT PLAN
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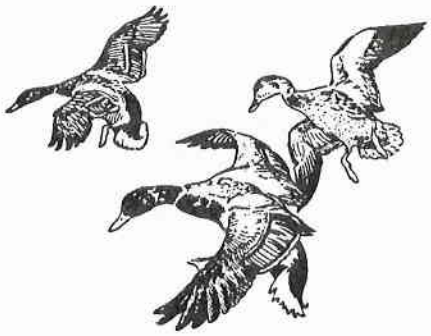

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The Emergency Wetlands Resources Act of 1986 (Act) mandated in Section 301 that the Secretary of the Interior establish and periodically review and revise a National Wetlands Priority Conservation Plan (National Plan). This task was delegated to the U.S. Fish and Wildlife Service (Service). The National Plan was released to the public in April 1989, and is intended to provide consistent direction and guidance to Federal agencies and States in identifying the types and locations of wetlands and interests in wetlands warranting priority consideration for acquisition with funds appropriated through the Land and Water Conservation Fund.

Service implementation of the National Plan includes a step-down development of regional plans with lists of wetland sites and background data for the various States within Service regions. Thus, each Service region will prepare a Regional Wetlands Concept Plan (Regional Plan) that identifies wetland sites for potential acquisition, based on the threshold evaluation criteria presented in the National Plan. This includes for each site an evaluation of: (1) historic wetland losses, (2) threat of future loss, and (3) functions and values (See Appendix A).

Section 303 of the Act also requires States to prepare wetlands interest components as part of their Statewide Comprehensive Outdoor Recreation Plans (SCORP's). The SCORP process is administered by the National Park Service.

The Regional Plan prepared by the Service's Southeast Region complements and is consistent with State SCORP documents to the extent possible. However, the State SCORP's include wetlands projects only within the context of outdoor recreation initiatives. The Service's Regional Plan considers wetlands protection from a broader prospective than just outdoor recreation or other narrowly focused State or Federal program priorities. The Regional Plan considers all wetland functions and values as well as recommendations solicited from other Federal agencies, State agencies, and conservation groups.

Evaluation of wetland areas in the Southeast Region has revealed 411 sites totalling about 5.8 million acres (Table 1 and Appendix C) that have met the threshold evaluation criteria defined in the National Plan (Appendix A). About 50 percent of this acreage is associated with coastal ecosystems along the Gulf and Atlantic coasts. Completed threshold evaluation forms, including maps and site descriptions, are on file at the Service's Regional Office in Atlanta, Georgia. Additional sites (253) have been identified for further review, but more information is needed to complete the evaluation process (Table 1). If these, or other sites are found to meet the threshold evaluation criteria, they can be included in future revisions of the Regional Plan.

Although sites that have met the threshold test are potential candidates for acquisition with Land and Water Conservation Fund appropriations, this does not necessarily mean that they will be acquired. Any subsequent decision by the Service to acquire these areas will depend on many additional considerations, including internal prioritization of

projects. Similarly, the same is true for both State agencies and private organizations.

The Service's Regional Plan for the Southeast Region will be updated periodically. Nominations for wetland sites to be added to any future revision of the Regional Plan can be submitted at any time to any Service office within the Southeast Region (See Appendix D). Nominations should include all of the information requested in Appendix A of the Regional Plan.

Table 1. Important wetlands in the Southeast Region identified in Appendix C.

	AREAS MEETING WETLANDS ASSESSMENT CRITERIA[1]		AREAS IDENTIFIED BUT REQUIRING ADDITIONAL REVIEW[2]	
STATE/COMMONWEALTH	NO.	ACRES*	NO.	ACRES*
Alabama	8	203,300	21	--
Arkansas	60	948,400	--	--
Florida	47	622,700	96	390,000
Georgia	54	653,350	11	6,900
Kentucky	8	60,800	39	79,900
Louisiana	89	2,415,850	--	--
Mississippi	72	299,300	2	--
North Carolina	20	222,300	48	39,900
Puerto Rico	11	20,350	21	--
South Carolina	15	318,300	--	--
Tennessee	24	104,300	3	20,000
Virgin Islands	4	650	12	1,300
TOTALS	412	5,869,600	253	538,000+

[1] Wetland Assessment Threshold Criteria and instructions are presented in Appendix A.

[2] Additional information and evaluation are needed to determine compliance with the Wetlands Assessment Threshold Criteria in Appendix A.

* Acreages are approximate.

INTRODUCTION

The Emergency Wetlands Resources Act (Act) of 1986 (Public Law 99-645) was enacted to promote the conservation of the Nation's wetlands in order to maintain the public benefits they provide. The Act is also intended to help fulfill international migratory bird treaties and conventions by:

(1) intensifying cooperative efforts among private interests and local, State, and Federal governments for the management and conservation of wetlands; and (2) intensifying wetland protection efforts through acquisition in fee, easements, or other interests and methods by local, State, and Federal governments and the private sector. Further, the Act recognizes and addresses wetland functions and values and provides direction for protecting wetlands based on consideration of all functions and values, past wetland losses, and future threat of loss (Appendix E).

Section 301 of the Act requires that the Secretary of the Interior establish and periodically review and revise a National Wetlands Priority Conservation Plan (National Plan). This task was delegated to the U.S. Fish and Wildlife Service (Service). The National Plan was developed in consultation with the Administrator of the Environmental Protection Agency (EPA), the Secretary of Commerce, the Secretary of Agriculture, and the Chief Executive Office of each State. The National Plan was also coordinated with the U.S. Army Corps of Engineers and environmental groups. The National Plan was released to the public in April 1989, and is intended to provide consistent direction and guidance to Federal agencies and States in identifying the types and locations of wetlands and interests in wetlands warranting priority consideration for acquisition with funds appropriated through the Land and Water Conservation Fund.

Implementation of the National Plan by the Service includes a step-down process requiring the development of Regional plans, with lists of wetland sites and background information for the various States within Service Regions. The Regional Wetlands Concept Plan (Regional Plan) prepared by the Service's Southeast Region includes information for 10 States (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee), the Commonwealth of Puerto Rico, and the Virgin Islands Territory. Unless otherwise noted, wetland sites or areas identified in Appendix C of the Regional Plan meet the "Wetlands Assessment Threshold Criteria" provided in the National Plan (Appendix A of this Regional Plan). The assessment for each site includes an evaluation of: (1) historic wetland losses, (2) threat of future loss, and (3) functions and values. For those sites that meet the threshold criteria, Appendix C tables for each State, Commonwealth, or Territory provide summary information, including the name, location, and approximate size; major wetland types; and comments about the site's ecological significance.

Section 303 of the Act also requires States to prepare wetlands interest components as part of their Statewide Comprehensive Outdoor Recreation Plan (SCORP). The SCORP process is administered by the National Park Service, also within the Department of the Interior.

To the extent reasonably possible, the Service's Regional Plan is intended to complement and be consistent with State SCORP documents. However, SCORP's include wetland sites that must compete for available funding with other outdoor recreation projects. Wetland sites identified in SCORP's have been included in the Regional Plan (Appendix C), with annotations of those meeting the threshold criteria (Appendix A), and those requiring additional evaluation to determine conformity with the threshold criteria. Completed threshold evaluation forms, including maps and site descriptions, are on file at the Service's Regional Office in Atlanta, Georgia.

In addition to important wetland sites identified in SCORP's, the Service's Regional Plan includes important wetland sites or areas identified by Service personnel throughout the Region, and other sites identified as a result of coordination with other agencies and groups. This approach helps to ensure that national priorities for wetlands protection are considered from a broader prospective than just outdoor recreation or other narrowly defined State or Federal program priorities. The Service's Regional Plan considers all wetland functions and values, as well as the recommendations provided by other agencies and interested parties.

The important wetland sites identified in Appendix C of the Regional Plan should not be interpreted to mean that these are the only important wetland sites in the Southeast Region that are worthy of protection. Although the Service solicited information and coordinated with other agencies and interested parties in developing the information in Appendix C, we expect additional sites will be identified over time. The Service will add additional sites to future revisions of this document, provided that adequate information is available to complete the threshold evaluation (Appendix A) for each new site.

It is important to understand that wetland sites identified in the Regional Plan may never be acquired by the Service or other agencies or groups. The wetlands identified in the Regional Plan will comprise a "feeder list" of potential acquisition areas in that they are eligible for funding through the Land and Water Conservation Fund when they meet the threshold evaluation criteria in Appendix A, and possibly through other funding processes such as those defined under the North American Wetlands Conservation Act of 1989 (U.S. Congress 1989). Any subsequent decision by the Service or others to pursue acquisition will depend on additional considerations and prioritization by the action agency.

This Regional Plan is intended to broaden public information and support for protection of the truly important wetland ecosystems within the Southeast Region, and hopefully will lead to new and innovative ideas and ways to achieve the goals of the Act.

AN OVERVIEW OF PREVIOUS LOSSES, FUTURE THREATS, AND FUNCTIONS AND VALUES OF WETLANDS OF THE SOUTHEAST REGION

Introduction

The Southeast Region of the U.S. Fish and Wildlife Service, comprised of ten southern States, Puerto Rico, and the U.S. Virgin Islands, boasts a rich and diverse wetland heritage. Broad floodplains and wide coastal zones of low relief, combined with abundant rainfall (from 40 to over 200 inches annually in the rain forest of Puerto Rico) have resulted in extensive wetland formation. With the exception of Alaska, no other Region approaches the vast wetland acreages found in the Southeast. Although the mainland portion of the Region comprises only 16 percent of the land surface of the conterminous States, nearly 50 percent of the nation's wetlands are found here.

Wetlands of the Southeast have long been regarded as exceptional places to hunt and fish. From unsurpassed waterfowl hunting in the flooded bottomlands of Arkansas to the fast action of largemouth bass and crappie fishing along the marshes of Lake Okeechobee in Florida, the wetlands provide great opportunities for recreational enjoyment. On the other hand, landowners also recognized that by clearing and draining wetlands, they could be converted to productive farmlands. For example, the Everglades of Southern Florida has been reduced by 65 percent, primarily for the cultivation of sugar cane (Kushlan 1986). Similarly, over 80 percent of the 25-million-acre Mississippi River Alluvial Floodplain wetlands have been converted to agriculture (MacDonald et al. 1979), with loss of some or most of the hydrologic characteristics and associated functions and values of these wetlands. In addition, wetlands have been destroyed for navigation, roadways, mining, housing, and other types of development.

Scientists now understand that the value of wetlands to society goes well beyond good hunting and fishing to include water-quality improvement, flood protection, food chain support and many other benefits (Kusler and Brooks 1987). Wetland resources are also extremely limited, comprising only 5 percent of the nation's land surface (Tiner 1984). Although wetland losses have slowed somewhat over the past decade, they continue to take place at an alarming rate (Dahl et al. 1991).

Wetland Types

The diversity among the approximately 47 million acres of wetland within the Southeast is astounding. Extensive salt marshes (estuarine intertidal emergent wetlands) dominated by smooth cordgrass and black needlerush occur on both the Atlantic and Gulf Coasts. Mangrove swamps (estuarine intertidal forest and scrub-shrub), unique to tropical and subtropical shores world-wide, fringe the coastlines of peninsular Florida, Puerto Rico, Virgin Islands, and to a lesser extent that of Louisiana (Cowardin et al. 1979).

Palustrine (freshwater) wetlands; however, are by far the most abundant, occurring throughout the Region. Freshwater marshes, scattered throughout

the region, are most common in Florida and coastal Louisiana. In fact, the Everglades of South Florida, once comprising nearly 3,600 square miles, is the largest fresh marsh in the United States.

Unique to the Southeast are evergreen shrub bogs (palustrine scrub-shrub) known locally as pocosins. This wetland type, vegetated by a variety of fire tolerant shrubs, is prevalent in eastern North Carolina, comprising about 50 percent of the State's freshwater wetlands.

Palustrine forested wetlands are greatest in extent of all wetland types. These wetlands include, but are not limited to, bottomland hardwoods, cypress and tupelo swamps and ponds, and bay swamps. Most forested wetlands occur on broad floodplains such as those along major rivers like the Mississippi, Pearl, Apalachicola, Altamaha, and Roanoke. Other less common palustrine wetlands are pitcher plant bogs, hillside seeps, wet prairies, wet flatwoods and mountain bogs. A list of wetland plant communities for the Southeast is included as Appendix B.

Previous Losses

A national study of wetland trends by the U.S. Fish and Wildlife Service revealed that by the 1980's about 117 million acres of wetlands have been lost in the United States since the 1780's; this represents about 53 percent of the presettlement wetlands, excluding Alaska (Dahl 1990). For the 20-year study period from 1954 to 1974, 458,000 acres of wetlands were damaged or destroyed annually (Frayer et al. 1983). More importantly, nearly all of the impacts to wetlands during this 20-year study period, 8 million out of 9 million acres, took place in the Southeast Region (Hefner and Brown 1984). Palustrine wetlands were lost primarily due to conversion to agriculture, while estuarine wetlands were most often changed to open water by a variety of forces. Other reasons for wetland losses included residential and commercial developments, ports and harbors, roads, water development projects, erosion and inundation, mining for mineral resources, livestock grazing, and other activities.

Destruction or degradation of wetlands eliminates or reduces some of their functions and values. Use of the term "wetland loss" herein refers to either situation; that is, loss of all functions and values of the wetland (destruction) or loss of some of the functions and values (degradation). For the large losses attributed to agriculture, some functions and values may still remain, depending primarily on the degree of hydrologic modification. For example, clearing and draining wetlands for various agricultural uses such as pasture or some types of crop production would significantly alter some wetland functions and values (e.g., loss of natural vegetation and associated wildlife habitat, reduction in ability to improve water quality and reduce flooding), but may not totally convert the wetlands to uplands or non-wetlands. Such degraded wetlands may be able to recover the functions and values that are lost should crop production be abandoned. Thus, degraded wetlands, including those that have lost some of their hydrology through ditching and drainage may have potential for being restored or having their functional values reestablished.

Although wetland losses were not evenly distributed across the region or among wetland types, every state in the Southeast has experienced alarming declines. Arkansas and Kentucky have lost 72 and 81 percent of their wetlands, respectively, while six other southeastern States (Alabama, Florida, Louisiana, Mississippi, North Carolina, and Tennessee) have lost from 46 to 59 percent of their wetlands. Georgia and South Carolina have experienced the least percentage loss; 23 and 27 percent, respectively (Dahl 1990). Generally, estuarine wetlands fared better than palustrine wetlands. Palustrine forested wetlands, the most prevalent type in the region, have suffered, and continue to suffer, great losses -- over 5.5 million acres or 92 percent of the national loss for this type (Hefner and Brown 1985).

Particularly disturbing wetland losses have been recorded in four areas: the Lower Mississippi River Valley, coastal Louisiana, the Everglades Region of Florida, and eastern North Carolina. Due to drainage and clearing for agricultural conversion of the Lower Mississippi River Valley, only about 5 million acres of a once extensive 25-million-acre wetland resource remains (MacDonald et al. 1979).

A wetland loss rate of 39 square miles per year has been estimated for the coastal region of Louisiana (Fruge 1982) due to an interaction of natural and man-induced forces. Here both estuarine and palustrine coastal marshes are declining because of sea-level rise, subsidence, the physical processes of growth and deterioration of the Mississippi River Delta, channelization and construction of levees on the Mississippi River, dredging of canals for oil and gas exploration, and extraction of oil and gas reserves and groundwater.

Palustrine evergreen scrub/shrub wetlands, locally called pocosins, covered as much as 2.2 million acres in eastern North Carolina during the late 1950's (Wilson 1962); this comprised about 70 percent of the nation's pocosins. By 1980 only about 695,000 acres remained in their natural state, with losses due primarily to clearing and draining for agriculture, forestry, industry or other use (Richardson et al. 1981).

Florida has lost the most wetland acreage (9.3 million acres) over the past 200 years (Dahl 1990). Wetland drainage, filling, and water manipulation has been ongoing in South Florida for over 100 years. By the early 1970's, 32 percent of the wetlands or about 2 million acres of habitat had been lost over an area encompassing south Florida and the Kissimmee River Basin (Browder et al. 1977). Most of this area has been converted to pasture and agricultural fields producing sugar cane and winter truck crops, although considerable encroachment by urbanization has also taken place.

National trend studies conducted by the Service have not evaluated wetlands on Puerto Rico or the U.S. Virgin Islands. For several centuries Puerto Rico's freshwater wetlands (marshes, savannahs and floodplains) have been drained and used for the production of sugar cane and cattle grazing. However, in recent years, the economy has not been favorable for the Puerto Rican sugar industry and many fields have been abandoned and are reverting to natural wetlands. On the other hand, the island's estuarine wetlands have come under tremendous developmental pressure.

Mangrove swamps and adjacent intertidal flats, comprising a very small portion of the Puerto Rican landscape, have been dredged and filled for residential and hotel development, ports and airports, marinas, highways, factories, and related support facilities.

Because of the geomorphology of the U.S. Virgin Islands, the wetland resources there are even more limited. In fact, one can easily visit every wetland site in just a few hours. Because the wetlands are among the only flat areas and are located in sheltered embayments, they have been prime locations for siting of recreational marinas and ancillary facilities.

Future Threats

Wetlands continue to be threatened with loss or degradation due to such human activities as agricultural, commercial and residential development, drainage and filling, road building, water development projects, groundwater withdrawal, loss of instream flows, water pollution, and vegetation removal. Other threats may include natural changes in coastal ecosystems brought about by sea-level rise, storm events, and shoreline erosion. During the study period for the National Wetlands Inventory trends study (Frayer et al. 1983), agriculture was responsible for about 87 percent of the man-induced wetland losses. Residential and commercial development accounted for most of the remaining losses.

Since the mid-1980's, indications are that wetlands losses are slowing (Dahl et al. 1991). Most likely, any slowing of wetland losses can be attributed to changes in the public perception of the value of natural wetlands together with a variety of Federal and State efforts to protect and regulate wetland losses, and possibly because fewer wetlands remain to be impacted (i.e., many of the most economically attractive wetland areas have already been altered). Another contributing factor thought to be significant to the decline in the rate of wetland loss is the decline in agricultural commodity prices, especially soybeans. Should agricultural commodity prices increase substantially in the future, additional increases in the rate of wetlands conversion may occur. Overall, it is commonly recognized that wetland losses are continuing at an undefined, but significant rate, and that there is no comprehensive national legislation to protect wetlands.

Current regulatory efforts have numerous exemptions that have allowed many wetlands to be lost or altered. For example, although Section 404 of the Clean Water Act of 1977 does provide considerable protection to the nation's wetlands, the level of protection is limited to "the discharge onto wetlands of dredged or fill material." Wetlands are altered in many ways other than discharging of dredged or fill material, including excavation, drainage, clearing, or flooding. Thus, under Section 404 protection about 80 percent of the nation's wetland losses are not covered, including most agricultural operations (Congressional Research Service 1982).

As another example, the swampbuster provisions of the Food Security Act of 1985, were initially highly proclaimed as a regulatory means of removing incentives for developing wetlands for agricultural purposes by

eliminating most agricultural subsidies to persons who produce agricultural commodities on wetlands converted after December 23, 1985. However, under the 1985 Act, the penalty was not invoked until a commodity crop was planted, and benefits were lost only for the year or years the commodity crop was planted. The effect of this situation was that many landowners converted wetlands without any penalty. If market prices were high they could plant a commodity and forgo subsidy benefits for that year only; or, if market prices were low, elect to receive the subsidy benefits. The result was that wetlands were often not protected. This situation was corrected in the 1990 Farm Act which places the landowner in violation as soon as the wetland is cleared or otherwise converted for the purpose of producing an agricultural commodity (Vonk 1990). Also, there were several major exemptions in the 1985 swampbuster provisions, which collectively resulted in very few swampbuster penalties being invoked by the U.S. Department of Agriculture as of 1990 (Soil and Water Conservation Society 1990).

Clearly wetlands in the Southeast will continue to be under considerable developmental pressure. According to the National Planning Association, an economic research organization in Washington, the Southeast can expect increased population growth. Florida, North Carolina, Georgia, and Tennessee were named among the top ten States that will experience a rapid rise in population over the next two decades. Some estimates show Florida growing at a rate of nearly 1,000 people daily. Current conflicts between wetlands and development interests in major southeastern population centers like New Orleans, Mobile, Atlanta, and Charleston attest to continuing pressures.

Equally significant are estimates that nearly 75 percent of the population will live within 50 miles of the U.S. Coast. This is particularly relevant since the land surface of many coastal counties is more than 50 percent wetlands. Even if residential development could be limited to upland locations, support facilities such as highways, water and sewer plants, electrical generating plants, and airports would likely destroy or degrade considerable wetland acres.

Through a combined effort of State and Federal programs, estuarine wetlands have been afforded some protection. However, losses even to these wetlands can be expected to continue; some losses will be uncontrollable, while others will be deemed unavoidable. Of the southeastern States, only Florida has protective State legislation for freshwater wetlands. Although a number of other States have entertained similar bills, strong lobbying by agricultural, timber, real estate, and other interests have blocked their passage. If wetlands are to be protected, creative approaches to addressing conflicting land-use problems will have to be devised.

Functions and Values

Wetlands in their natural condition provide a variety of services to mankind virtually free of charge. Tiner (1984) divides wetland benefits into three basic categories: 1) fish and wildlife values, 2) environmental quality values, and 3) socio-economic values (Table 2).

Table 2. List of Major Wetland Values.

FISH AND WILDLIFE VALUES

- Fish and Shellfish Habitat
- Waterfowl and Other Bird Habitat
- Furbearer and Other Wildlife Habitat
- Endangered and Threatened Species Habitat

ENVIRONMENTAL QUALITY VALUES

- Water Quality Maintenance
  - Pollution Filter
  - Sediment Removal
  - Oxygen Production
  - Nutrient Recycling
  - Chemical and Nutrient Absorption
- Aquatic Productivity
- Microclimate Regulator
- World Climate (Ozone layer)

SOCIO-ECONOMIC VALUES

- Flood Control
- Wave Damage Protection
- Erosion Control
- Water Supply and Quality
- Timber and Other Natural Products
- Energy Source (Peat)
- Livestock Grazing
- Fishing and Shellfishing
- Hunting and Trapping
- Recreation
- Aesthetics
- Education and Scientific Research

A few significant functions and values of wetlands of the southeastern United States are highlighted in the following examples.

Both inland and coastal wetlands are critical to the maintenance of healthy fish populations. In the Southeast, nearly all commercial fisheries are wetland dependent during at least one phase of their lifecycle. Wetlands are particularly important as nursery and spawning grounds because of the large amounts of organic detritus they produce. For example, 53 species of fish use flooded bottomland forests for spawning and/or rearing young, or feeding (Turner 1977, 1981, 1982; Wharton et al. 1981). As much as 98 percent of the commercial, and 70 percent of the recreational, fisheries resources in the Southeast are estuarine dependent (Chandler et al. 1989, Peters et al. 1979).

Southeastern wetlands also provide wintering habitat for more than 50 percent of the nation's huge numbers of migratory bird species. Prior to recent declines caused by poor nesting success in the prairies, the wetlands of the Lower Mississippi River Valley wintered an average of 1.5 million mallards, along with large numbers of wood ducks, ring-necked ducks, and lesser scaup (Bellrose 1980). Currently, well over 1.1 million mallards and 450 thousand geese are censured annually in the Lower Mississippi River Valley (Gamble 1991). Marshes along the Gulf Coast from Alabama to Louisiana also provide winter habitat for another 400,000 geese and 3 million ducks (Mississippi Flyway Council 1991).

Wetlands are important habitat for other migratory birds as well. About one-third of the North American bird species are wetland associates, including bald eagles, ospreys, hawks, egrets, herons, kingfishers, and a variety of shore, marsh and passerine birds (Council on Environmental Quality 1989). Forested wetlands in Louisiana provide winter habitat for ten times as many birds as the surrounding pinelands (Harris 1984). Also, more than 874,000 colonial waterbirds, representing 26 species, nest in the saltwater marshes and barrier islands of Louisiana, Alabama, and Mississippi (Chandler et al. 1989).

Numerous other animals reside in or use wetlands. Riverine wetlands serve as corridors for large, far-ranging species such as the Florida panther and black bear. Other wetlands-dependent mammals, include muskrats, beaver, marsh rice rats, swamp rabbits, otter, mink, raccoon, bobcat, and white-tailed deer. The furbearers such as the mink, river otter, raccoon, muskrat, and nutria, contribute significantly to the region's economy (Harris 1988, Council on Environmental Quality 1989).

A large number of reptiles and amphibians, including at least seven protected species of freshwater and sea turtles, occur in the Southeast. The Southeast is home for the nation's largest freshwater turtle, the alligator snapping turtle, which grows to over 200 pounds. The very largest reptiles in the U.S., the alligator and the American crocodile, also occur here. The alligator is quite common in some locations while the crocodile, an endangered species, is limited to the coastal waters of Florida Bay (U.S. Fish and Wildlife Service 1991). Even the smallest wetlands seasonally support tremendous numbers of amphibians. Scientists counted 1,600 salamanders and 3,800 frogs using a Georgia wetland less than 100-feet-wide (Wharton 1978).

A variety of the federally protected or rare plants are also associated with southeastern wetlands, including Long's bulrush (marshes along the Atlantic coast), sensitive joint vetch (tidal marshes of North Carolina), skullcap (brackish marshes of Louisiana), green pitcher plant (seepage bogs, streambanks and pine flatwoods; Alabama and Georgia), Harper's beauty (pineland bogs and roadside ditches; Florida), and swamp pink (a variety of wetlands; South Carolina, North Carolina, Georgia) (U.S. Fish and Wildlife Service 1991, Chandler et al. 1989).

Wetlands help maintain good water quality and improve degraded waters by removing nutrients, processing chemical and organic wastes, and reducing sediment loads (Kusler and Brooks 1987, Tiner 1984). Wetlands seem to perform the biochemical transformation processes that take place in water treatment plants and in septic tanks (Brinson and Westall 1983, Stewart 1990). Wharton (1970) estimated that a single 2,300-acre Georgia swamp naturally provides pollution control services worth $1 million annually. Recognizing these benefits, 29 Florida communities currently discharge or are seeking permits to discharge wastewater into wetlands to take advantage of their water purification capabilities.

Wetlands are widely recognized as among the most productive ecosystems in the world, rivaling man's most productive agricultural enterprises. Wetlands therefore provide the basis for numerous terrestrial and aquatic food chains, and have been called natural protein factories producing animal biomass at 3.5 times the rate of terrestrial systems (Council on Environmental Quality 1989, Turner 1982). This productivity results in an abundant harvest of seafood, fisheries and wildlife in the Southeast.

Other socio-economic values of wetlands are extremely important. For example, in their natural condition wetlands temporarily store flood waters protecting downstream property owners from damage. They also buffer land from storm wave damage (Council on Environmental Quality 1989, Mitsch and Gosselink 1986). A fringe of salt marsh only 8-feet-wide can reduce wave energy by over 50 percent (Knudson et al. 1982). Wetland vegetation also reduces erosion by (1) binding sediments, (2) dampening waves, and (3) slowing currents.

Currently, there is considerable debate over the role of wetlands in ground-water recharge (Kusler et al. 1988). However, depressional wetlands like cypress domes in Florida are known to contribute to ground-water recharge (Heimburg 1984). Also, it is well documented that the Everglades is the recharge area for the Biscayne Aquifer, which provides water for 2.5 million residents of South Florida. Floodplain wetlands also may have a recharge function through overbank water storage (Mundorff 1950, Klopatek 1978).

A variety of natural products are produced by wetlands, including timber, fish and shellfish, wildlife, peat, cranberries, blueberries, and wild rice. Most of the commercial forested wetlands are located in the Southeast. The standing values of southern wetland forests have been estimated to be $8 billion (Langdon et al. 1980).

In the Southeast, nearly all commercial fisheries are wetland dependent. Four southeastern States (Louisiana, Mississippi, North Carolina, and

Florida) are among the top 10 in marine fisheries landings. Louisiana is second only to Alaska in volume of commercial fishery landings with a harvest of over 1.2 million pounds and a value of $264 million in 1989 (National Marine Fisheries Service 1991). Commercial catches in Louisiana and other coastal areas typically include a variety of estuarine-dependent species such as menhaden, Atlantic croaker, seatrout, spot, red drum, blue crab, brown shrimp, white shrimp, and eastern oyster (Chandler et al. 1989, Fruge 1981).

Wetland related freshwater fisheries are also important to the region. For example, commercial and recreational limb-line and trot-line fishermen catch large numbers of catfish in flooded bottomlands in the spring. Unique to the Southeast is the harvest of crayfish from southern swamps (Chandler et al. 1989). Louisiana's Atchafalaya Basin produces more than 40 million pounds of crayfish annually (Harris 1984).

Nationally, furs from beaver, muskrat, mink, nutria, and otter yielded roughly $35.5 million in 1976 (Demms and Pursley 1978). Louisiana has long been the largest fur-producing state, where nearly all furs come from wetland animals. Louisiana's fur harvest has accounted for about 40 percent of the nation's wild furs and hides, worth about $11 million annually (U.S. Army Corps of Engineers 1988).

Thanks to strong State and Federal protection, increasing alligator populations have allowed for controlled harvests in Louisiana and recently in Florida. In 1988, 7,631 alligators worth $3.8 million were taken by licensed trappers in Florida. Virtually all parts of the alligator have sales value. Meat sells for $5 per pound and hides have reached a high of almost $56 per linear foot (Jennings et al. In Press).

Although of a lesser dollar value, many other products are obtained from southern wetlands. Beehives are placed in swamps for the production of tupelo honey. Wetland plants, like lotus and cattails are collected for decorative arrangements. Frog legs are served in many southern restaurants. Several turtle species are harvested for their meat, some of which are exported to Europe and Japan. Tree frogs are collected for the pet trade. Salamanders and golden shiners are sold for sport fishing bait.

Wetlands in the Southeast afford residents and visitors limitless recreational opportunities. Hunting and fishing are particularly popular in or near wetlands. In 1985, 5 million people spent $1.1 billion on hunting waterfowl and other migratory birds (U.S. Department of the Interior 1988). Even greater numbers of people enjoy fishing. Also during 1985, recreational fishermen spent $3.4 billion on saltwater angling in the Southeast (Chandler et al. 1989). In Florida alone 3 million people saltwater fished while another 2 million people fished the State's freshwaters. Floridians alone spent $2.7 billion fishing that year (U.S. Department of the Interior 1988).

Other recreation in wetlands is largely non-consumptive and involves activities like hiking, nature observation and photography, canoeing and other boating.

The fact that Everglades National Park, America's largest wetland park, hosts 1 million visitors each year attests to people's curiosity or interest in wetlands. It is also of interest that of the 100 National Wildlife Refuges in the Southeast Region administered by the Service about 70 percent of the approximately 2.3 million acres is wetland habitat (U.S. Department of the Interior 1989; Personal Communication, March 5, 1990, Refuges and Wildlife Division, Atlanta, Georgia).

Summary

Wetlands are an integral part of our Southern cultural heritage. From the extensive Georgia salt marshes, immortalized by the poet Sidney Lanier, to the once vast Mississippi bottomlands hunted by Teddy Roosevelt; from Florida's "River of Grass" where native Americans found refuge during the Indian Wars of 19th century, to the cartoon Pogo's misadventures in the "Land of the Trembling Earth"; all this, and much more celebrates life attuned to the natural cycles of the region's wetlands and their important role in shaping the life and lore of the South. The relationship of southerners to wetlands has been one of both love and hate. While some view wetlands as dismal places, infested by mosquitos, poisonous snakes, and alligators, to be drained and filled in the name of progress; others view wetlands as natural wonders of tremendous benefit to society.

Until recently, the conversion of wetlands to what seemed to be a more financially rewarding land use was common place. As a result, today less than half of the nation's wetlands remain and many of these are under threat of conversion. Although strengthened Federal programs along with some new State initiatives have slowed the loss of wetlands, they continue to decline. If losses continue, the numerous services provided virtually free of charge by wetlands will disappear.

Some services provided by wetlands could be irreplaceable; for instance specialized wildlife habitats may defy artificial replication or certain evolutionally established food chains may be irreparably broken. However, other services will need to be replaced at great public and private expense. Polluted water could be purified in costly treatment facilities. Shorelines could be protected by bulkheads and rip rap. Insurance premiums could be increased to pay for recurring and greater flood damages. Use of limited supplies of groundwater could be closely monitored and eventually rationed. Hunting and fishing could be replaced by other forms of outdoor recreation. These are only a few expenditures that might be necessary if wetlands are not adequately protected. Perhaps greater or more serious concern should be given to zoning development out of most wetland and flood-prone areas.

Wetlands are a fragile and finite resource. We are only recently beginning to understand how important they are to the environmental health and the quality of life of the nation. Clearly, it is to the benefit of every American to protect this dwindling resource. The Regional Wetlands Concept Plan identifies what is believed to be outstanding examples of southeastern wetlands and should be used as a beginning step in bolstering wetland preservation efforts in the Southeast.

RELATIONSHIP OF REGIONAL WETLANDS CONCEPT PLAN TO NATIONAL WETLANDS PRIORITY CONSERVATION PLAN AND STATEWIDE COMPREHENSIVE OUTDOOR RECREATION PLANS

Section 301 of the Emergency Wetlands Resources Act (Act) of 1986, mandated to the Secretary of the Interior the responsibility for preparing a National Wetlands Priority Conservation Plan (National Plan). The National Plan was to provide consistent direction and guidance to Federal agencies and States in identifying the types and locations of wetlands and interests in wetlands warranting priority consideration for Federal or State acquisition. The Secretary assigned the preparation of the National Plan to the Fish and Wildlife Service (Service).

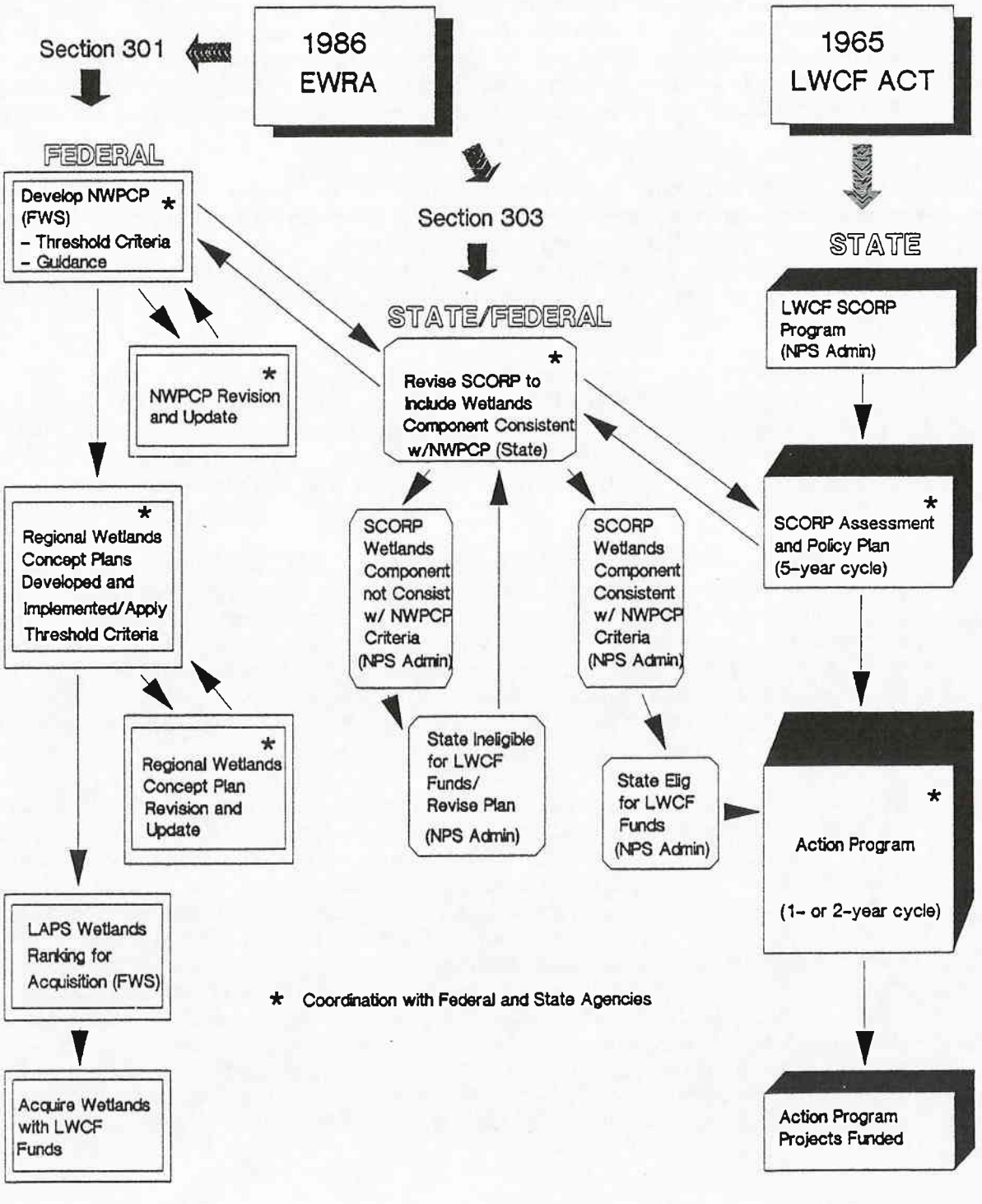
Section 303 of the Act requires States to prepare wetlands interest components as part of their Statewide Comprehensive Outdoor Recreation Plans (SCORP). The National Park Service, within the Department of the Interior, is the lead Federal agency for administering the SCORP process and directing Land and Water Conservation Fund appropriations to States with approved projects.

The final National Plan, prepared by the Service, was released in April 1989, and provided the guidance needed for Service Regions to proceed with preparation of Regional Plans. Thus, implementation of the National Plan includes a step-down development of lists of wetland sites that are determined to be candidates for acquisition within each of the seven Service Regions.

The Regional Plan for the Southeast Region identifies wetland sites for potential acquisition based on consideration of the threshold evaluation criteria presented in the National Plan. Through extensive coordination efforts within each State and Commonwealth, and to the extent reasonably possible, the Regional Plan is intended to complement and be consistent with wetland sites identified in SCORP's. Sites identified in the Regional Plan will provide a feeder list of areas for potential acquisition by the Service, States, or others.

One may question the necessity of a Regional Plan prepared by the Service that also addresses wetland sites identified by States in their SCORP's. SCORP's are rather limited in that the wetland acquisition interests must compete for the limited funding available from the Land and Water Conservation Fund appropriation with all other outdoor recreation projects identified. The Regional Plan considers wetland acquisition from a broader prospective than just outdoor recreation or other narrow purposes. The Regional Plan considers all wetland function and values, as well as the recommendations of other agencies and conservation groups. Furthermore, it may prove to be a very important document in broadening public recognition and support for protection and acquisition of the important wetlands within the Southeast Region. An overview of the relationships discussed are presented in Figure 1.

Figure 1. The Emergency Wetlands Resources Act (EWRA) and relationship to the National Wetlands Priority Conservation Plan (NWCP), Regional Wetlands Concept Plan, and Statewide Comprehensive Outdoor Recreation Plan (SCORP) (other acronyms used are: LWCF = Land and Water Conservation Fund; FWS = Fish and Wildlife Service; LAPS = Land Acquisition Priority System, and NPS = National Park Service).



U.S. FISH AND WILDLIFE SERVICE
LAND ACQUISITION PROCESS

The Service pursues land acquisition projects under five basic target program areas. These are: (1) migratory birds, (2) endangered species, (3) nationally significant wetlands, (4) significant biodiversity, and (5) fishery resources. Each target area is further defined by an earlier planning document. For example, endangered species recovery plans guide land acquisition projects under this target. Possible migratory bird targets are first listed in draft concept plans and later specific acquisition proposals are identified through Joint Venture projects under the auspices of the North American Waterfowl Management Plan. Lands identified in the Regional Wetlands Concept Plan are candidates for acquisition by the Service under the nationally significant wetland target, and may also be candidates under another target (e.g., migratory birds).

Proposals for the acquisition of lands by the Service come from many and varied sources. These include proposals being put forward by Service personnel, other government agencies (including both State and Federal), conservation organizations, congressional delegations, and private landowners and other individuals. The Service evaluates each of these proposals in relation to its potential contribution to the Service mission and goals. If the proposal meets Service criteria, planning is initiated.

There are three stages of planning between the identification of a project proposal and land acquisition in the Southeast Region. These stages are: (1) the pre-proposal investigation (PPI), (2) the preliminary project proposal (PPP), and (3) the decision document (DD). (Figure 2).

The Southeast Region has established the PPI to consider, to the greatest extent possible, all aspects of a proposed land acquisition. Areas of concern, beyond the primary project purpose to be considered, include other resources in close proximity, management/enforcement problems, administrative boundary questions, and operations and maintenance costs. All of these can and do directly affect the viability of the site as a National Wildlife Refuge that would be administered under the authority of the National Wildlife Refuges Administration Act of 1966. The PPI is an informal, internal, first line of review. The intent is to assure adequate analysis of acquisition proposals and to delete from further consideration those not meeting high priority Service objectives, to assure multiple value versus single purpose/value considerations, and to eliminate avoidable management problems. A PPI normally takes 6 to 8 weeks to complete.

If the project is recommended for further consideration and planning, a PPP is then developed. This is a conceptual document that expands on the information developed in the PPI and forms a formal recommendation by the Regional Director to the Service's Director in Washington. The PPP includes the following information: location and size, habitat description, major wildlife values, related resources, site threat, potential contaminants or hazardous waste problems, public attitude and

involvement, and proposed estimate of initial and annual costs. The PPP generally take 3 to 4 months from initiation to completion.

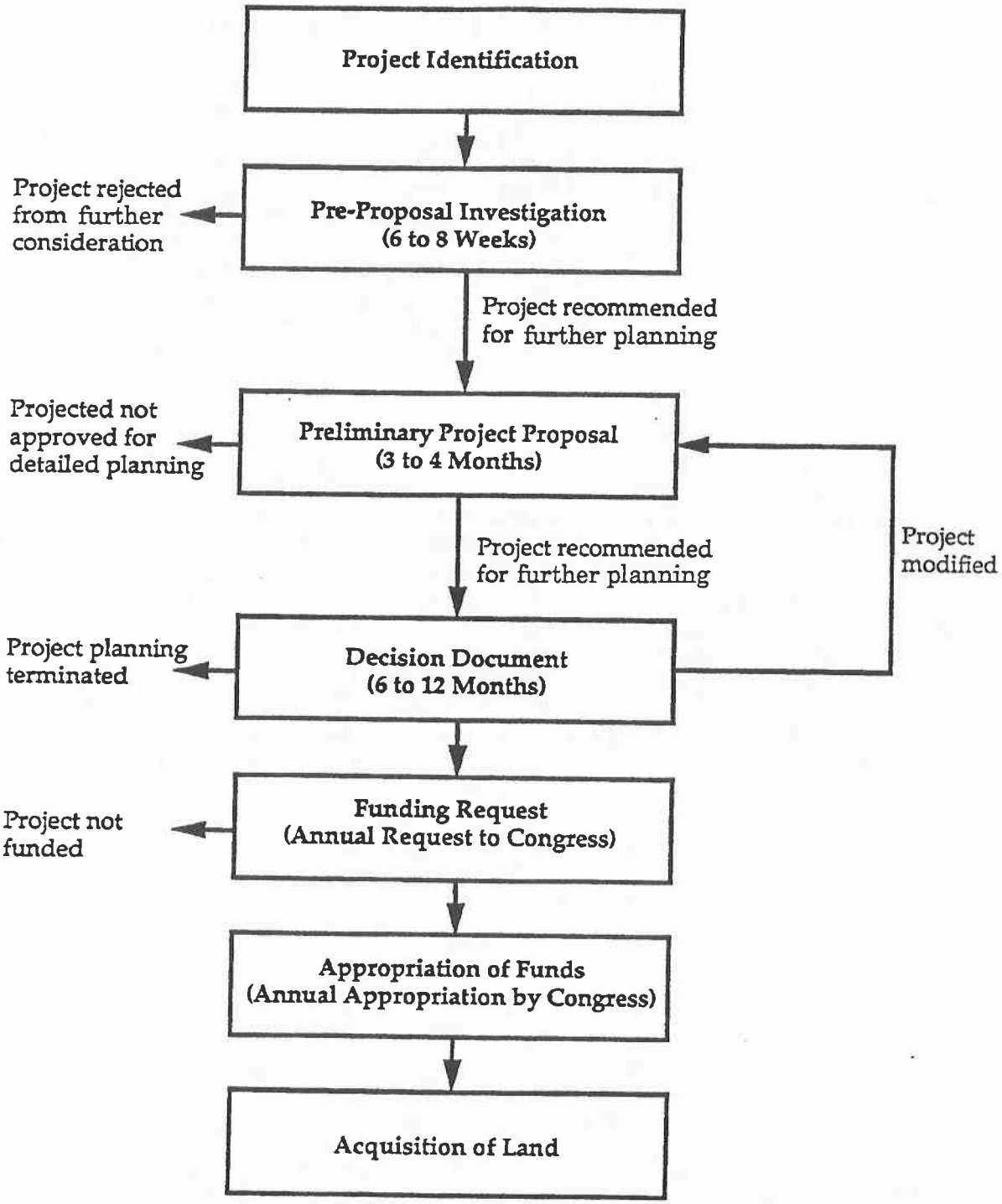
If the Director approves the PPP, the Regional Director is then authorized to undertake development of the Decision Document. The DD is a group of documents comprising the detailed planning process and requirements pertaining to the National Environmental Policy Act. They include: environmental assessment/impact statement, Section 7 compliance; (Endangered Species Act); preliminary engineering report; realty feasibility report; cultural resources clearance; compliance certification for Executive Orders on flood plain management, protection of wetlands, and inter governmental review; contaminant and hazardous waste evaluations; public meetings if appropriate; and land protection plans. Upon completion of all required documents, the Regional Director then signs a Decision Memorandum. Because of its complexity and the level of coordination required, from 6 to 12 months are typically required to complete the DD.

After completion of the planning process, funding must be sought through the normal budgeting process. Land acquisition funding requests are usually initiated two years prior to the actual appropriation of funds and may be developed any time after the Director's approval of the PPP. Thus successful coordination can result in funds being available for land acquisition about the time planning is completed.

The Service uses the Land Acquisition Priority System (LAPS) to establish the acquisition priority of projects for which funding is being requested. This is a computer based system that assigns numeric values to various project criteria based on biological and sociological parameters and then compares the project "scores" to establish ranked acquisition priorities. A project's priority can be further refined at the Director's discretion to reflect program thrusts such as the North American Waterfowl Management Plan or the National Wetlands Priority Conservation Plan. The LAPS is used to generate a consolidated list of Service land acquisition projects for which funding is being requested.

The Service land acquisition process described above provides for an organized development of each proposal that will result in assuring compliance with all applicable laws, regulations, and policies. It also assures that each project will be thoroughly reviewed by all interested and affected parties. Finally, at each control or decision point in the process, the Service is provided an opportunity to reevaluate the project in light of any changing conditions, the specific merits of the project, and its contribution to the Service's resource management goals.

Figure 2. **U.S. Fish and Wildlife Service**
Land Acquisition Planning and Budgeting



RELATIONSHIP OF SITES LISTED IN THE REGIONAL WETLANDS CONCEPT PLAN TO THE LAND ACQUISITION PROCESS OF THE FISH AND WILDLIFE SERVICE

Section 304 of the Emergency Wetlands Resources Act of 1986 authorizes the Secretary of the Interior to purchase wetlands or interests in wetlands with Land and Water Conservation Fund (LWCF) appropriations. Further, LWCF monies may be provided to States for land acquisition and facilities. Current policy mandates that in order to use LWCF monies to acquire wetlands or interests in wetlands where the primary purpose is wetlands protection, each wetland site identified must meet or be consistent with the threshold evaluation criteria detailed in the National Wetlands Priority Conservation Plan (National Plan). Also, the North American Wetlands Conservation Act of 1989 (U.S. Congress 1989) has established a nine-member Council, which shall include the Director of the Service, to review and recommend wetlands conservation projects to the Migratory Bird Conservation Commission. One of the criteria that must be considered by the Council is whether or not proposed projects are consistent with the National Plan developed under Section 301 of the Emergency Wetlands Resources Act.

Sites listed in the Regional Wetlands Concept Plan (Regional Plan) that are identified as having met the threshold evaluation criteria (i.e., wetland loss, threat, and wetland functions and values; See Appendix A) are therefore eligible for LWCF appropriations and are considered by the Service to be candidates for acquisition by the Service, or by an appropriate State or other Federal agency having access to the LWCF. However, if a wetland site is identified in the Regional Plan, this does not necessarily mean that it will be acquired by the Service or other entity. Any subsequent decision by the Service to acquire property will depend on many additional considerations and prioritization as explained in the previous summary of the Service's land acquisition process. Similarly, States and other Federal agencies have their own land acquisition processes and procedures for establishing priorities.

REVIEW AND REVISION

The Service obtained information about the wetland sites identified in Appendix C from a variety of sources, including other Federal agencies, State fish and wildlife and parks and recreation programs, and from Service offices located throughout the Southeast Region.

The Service does not expect to have included all important wetlands in this initial Regional Plan; only those that were identified during the coordination process and were determined to have met the "Wetlands Assessment Threshold Criteria" in Appendix A, or those that may meet the criteria following receipt of additional information and further evaluation.

Additional sites for inclusion in the Regioanl Plan may be nominated at any time by forwarding a completed Wetlands Assessment Threshold Criteria package (Appendix A) to Service offices listed in Appendix D. Following verification of the information provided, these additional sites will be eligible for funding under Land and Water Conservation Fund appropriations, and will be included in future revisions of the Regional Plan.

Comments on the Regional Plan should be forwarded to the Assistant Regional Director, Fish and Wildlife Enhancement, U.S. Fish and Wildlife Service, Richard B. Russell Federal Building, 75 Spring Street, SW., Atlanta, Georgia 30303.

APPENDICES

APPENDIX A -- WETLANDS ASSESSMENT THRESHOLD CRITERIA

APPENDIX B -- COMMON WETLAND TYPES FOUND IN THE SOUTHEAST REGION

APPENDIX C -- IMPORTANT WETLANDS IN SOUTHEAST REGION BY STATE, COMMONWEALTH, OR TERRITORY

- C.1 -- CODES USED IN APPENDIX C
- C.2 -- ALABAMA
- C.3 -- ARKANSAS
- C.4 -- FLORIDA
- C.5 -- GEORGIA
- C.6 -- KENTUCKY
- C.7 -- LOUISIANA
- C.8 -- MISSISSIPPI
- C.9 -- NORTH CAROLINA
- C.10 -- PUERTO RICO
- C.11 -- SOUTH CAROLINA
- C.12 -- TENNESSEE
- C.13 -- VIRGIN ISLANDS

APPENDIX D -- LOCATION OF U.S. FISH AND WILDLIFE SERVICE OFFICES FOR OBTAINING INFORMATION ABOUT NOMINATING SITES FOR INCLUSION IN THE REGIONAL WETLANDS CONCEPT PLAN

APPENDIX E -- EMERGENCY WETLANDS RESOURCES ACT OF 1986

APPENDIX F -- DISTRIBUTION LIST FOR REGIONAL WETLANDS CONCEPT PLAN

APPENDIX A

WETLANDS ASSESSMENT THRESHOLD CRITERIA*

*(Source: U.S. Department of the Interior, Fish and Wildlife Service. 1989. National Wetlands Priority Conservation Plan APPENDIX 1.)

NATIONAL WETLANDS PRIORITY CONSERVATION PLAN
WETLANDS ASSESSMENT THRESHOLD CRITERIA

INSTRUCTIONS: Complete this page to determine whether a wetland site (refer to Wetlands Profile guidance) qualifies for acquisition consideration under the National Wetlands Priority Conservation Plan.

Use the attached guidance for estimating wetland losses, threats and functions, and values thresholds. The guidance is organized in the same sequence as the threshold criteria and will direct the user to an appropriate conclusion. Complete all questions and statements.

1. WETLANDS PROFILE:

   a. Wetland Site Name:_____ File No:_____

   b. USGS 1:24,000 Map Quadrangle Name:_____

   c. Township:_____; Section:_____

   d. Longitude:_____; Latitude:_____

   e. City:_____; County:_____; State:_____

   f. Ecoregion:_____ (refer to Cowardin et al., 1979, p. 27).

   g. Size:_____(acres). Date of wetlands assessment:_____

2. WETLAND LOSS PRIORITY: (circle one) 1 2 3 4 5

   Must be priority level 1, 2, or 3 to meet threshold.

3. IS THE WETLAND SITE THREATENED? (refer to the attached guidance under Wetland Threats) Must be circled "yes" to meet threshold.

   YES NO

4. WETLAND FUNCTIONS AND VALUES

   Check all that apply. Must check at least two to meet threshold.

   _____ a. Wildlife

   _____ b. Fisheries

   _____ c. Water Supply/Quality, Flood and Erosion Protection

   _____ d. Outdoor Recreation

   _____ e. Other Areas or Concerns _____

5. CONCLUSION

_____ Yes, wetland site meets all threshold criteria and qualifies for acquisition conservation under provisions of the National Wetlands Priority Conservation Plan.

_____ No, wetland site does not meet all threshold criteria, and therefore, does not qualify for acquisition conservation under provisions of the National Wetlands Priority Conservation Plan.

GUIDANCE FOR ESTIMATING WETLAND LOSSES, THREATS AND VALUES THRESHOLDS

1. WETLANDS PROFILE

Complete items (a) through (g) to give a name and address to each wetland site.

For purpose of the National Wetlands Priority Conservation Plan, a wetland site is an identifiable property, tract, area, or region containing wetlands or a complex (aggregation) of physically- or functionally-related wetlands. A wetland site may contain a variety of wetland types, interspersed habitat of other types, and associated upland buffer area. The boundary of the site should be specific and as geographically restricted as practical, determined by application of sound acquisition principles. In other words, regardless of size, a wetland site should be treated in terms of a unit which would generally fit the acquisition goals, process, and needs of the user.

2. WETLAND LOSSES

Wetlands will be classified as follows: System, subsystem, class, and water regime according to Cowardin et al., 1979 (refer to key on next page). Estimate percent of site for each type.

	TYPE					PERCENT OF SITE
	system	subsystem	class		water regime	
a.	____:	____:	____	____:	____	_____%
b.	____:	____:	____	____:	____	_____%
c.	____:	____:	____	____:	____	_____%
d.	____:	____:	____	____:	____	_____%
e.	____:	____:	____	____:	____	_____%
f.	____:	____:	____	____:	____	_____%
g.	____:	____:	____	____:	____	_____%
h.	____:	____:	____	____:	____	_____%
i.	____:	____:	____	____:	____	_____%
j.	____:	____:	____	____:	____	_____%
k.	Upland			Total	100%	_____%

Example:

	System:	Estuarine
E:2:E M:N	Subsystem:	Intertidal
	Class:	Emergent
	Water Regime:	Regularly Flooded

Letter and number key for classification of wetlands to the level of water regime:

SYSTEMS AND SUBSYSTEMS

M Marine
- 1 Subtidal
- 2 Intertidal

E Estuarine
- 1 Subtidal
- 2 Intertidal

P Palustrine
- No Subsystem

R Riverine
- 1 Tidal
- 2 Lower Perennial
- 3 Upper Perennial
- 4 Intermittent
- 5 Unknown Perennial

L Lacustrine
- 1 Limnetic
- 2 Littoral

Upland

CLASSES

AB Aquatic Bed	RS Rocky Shore
EM Emergent	SB Streambed
FO Forested	SS Scrub-Shrub
ML Moss/Lichen	UB Unconsolidated Bottom
RB Rocky Bottom	US Unconsolidated Shore
RF Reef	

WATER REGIME MODIFIERS

A Temporary	J Intermittently Flooded
B Saturated	L Subtidal
C Seasonal	M Irregularly Exposed
F Semipermanent	N Regularly Flooded
G Intermittently Exposed	P Irregularly Flooded
H Permanent	

Wetland losses by type. Determine whether the wetland types identified above are decreasing, stable, or increasing. Apply to the formula and priority table on the next page.

If supportable information is available to substantiate trends for various wetland types other than that shown by the NWI trends study, this information may be used to support departures from the trends groupings presented above.

Explain: _____

_____

_____

_____

_____

In the absence of more reliable data, the following conclusions based on Frayer et al. (1983) may be used:

Decreasing: Palustrine emergent
Palustrine forested
Palustrine scrub-shrub
Estuarine intertidal emergent
Estuarine intertidal forested
Estuarine intertidal scrub-shrub
Marine intertidal

Stable: Estuarine intertidal non-vegetated
Estuarine subtidal
Lacustrine

Increasing: Palustrine open water
Palustrine unconsolidated shore
Palustrine non-vegetated

Decreasing wetland types	_____% OF SITE X 1 =	_____
Stable wetland types	_____% OF SITE X 2 =	_____
Increasing wetland types	_____% OF SITE X 3 =	_____
Uplands	_____% OF SITE X 3 =	_____
	TOTAL	_____

a. Priority 1 (0-139)
b. Priority 2 (140-179)
c. Priority 3 (180-219)
d. Priority 4 (220-259)
e. Priority 5 (260-300)

WETLAND LOSS PRIORITY = _____

3. WETLANDS THREATS

For the purpose of the National Wetlands Priority Conservation Plan, threat is defined as the likelihood that a wetland site, or portion thereof, will be destroyed or degraded, directly or indirectly, through human actions.

In establishing the threat threshold, a wetland site is considered to be threatened if an estimated > 10 percent of the site's wetland functions and values are likely to be destroyed or adversely affected through direct, indirect, or cumulative impacts over the next 10 years considering:

1. the array of potential wetland threats; and

2. the probable degree of protection provided by the various relevant laws, ordinances, and regulations.

At a minimum, the following items should be considered when evaluating wetland threat (indicate activities that either destroy or degrade wetlands at the site):

a. _____ Drainage or filling
b. _____ Agricultural conversion or use
c. _____ Livestock grazing
d. _____ Groundwater withdrawal/depletion
e. _____ Loss of instream flows
f. _____ Residential or commercial development
g. _____ Oil, gas, mineral development
h. _____ Power plants
i. _____ Transportation (roads and bridges)
j. _____ Navigation project, port, marina, or pier
k. _____ Water development projects(s)
l. _____ Water pollution
m. _____ Other, (e.g., timber or vegetation removal, mosquito control practices, diverse ownership with no individual commitment to protection):_____

_____

Indicate all laws, ordinances, or programs that have some degree of wetland protection potential for this site:

a. _____ Clean Water Act (Corps Section 404 regulatory program)
b. _____ River and Harbor Act (Corps Section 10 regulatory program)
c. _____ Endangered Species Act
d. _____ Water Resources Development Act of 1986
e. _____ Food Security Act of 1985
f. _____ Local zoning or ordinances (e.g., local wetland or floodplain zoning)
g. _____ State ordinances or authorities (e.g., State wetland protection laws, State permit program for activities in wetlands)
h. _____ Coastal Wetlands Protection Law
i. _____ Inland Wetlands Protection Law
j. _____ Owner(s) favors protection
k. _____ Other:_____

Considering the relative effectiveness of the combination of the above factors to protect the public values and services of the wetlands, is the wetland site threatened using the definition of threat?

YES NO

If yes, explain type, degree, and imminence of threat:_____

_____

_____

_____

_____

_____

4. WETLAND FUNCTIONS AND VALUES

It is assumed that virtually all wetlands provide important public benefits in several functions and values categories. Many wetlands, however, have been recognized, identified and/or listed as having certain of these functions and values. In order to lead to greater objectivity and provide a technique for use by persons of many disciplines, this wetlands assessment method relies on documented data or information rather than allowing for interpretation by users across many disciplines.

Indicate all functions and values which can be attributed to the wetland site. If any of the statements within a category (wildlife, fisheries, water supply/quality, flood and erosion protection, outdoor recreation and other areas or concerns) is affirmative, check that category on the cover sheet, under item 4.

A. Wildlife (endangered and threatened species, migratory birds and resident species)

1. Y N Are Federal or State threatened or endangered plants or animals known to use the wetland site on a regular basis? If yes, list speciesnames:_____
_____
_____

2. Y N Have any wildlife resources of the wetland site been recognized, identified, or listed by a Federal or State agency, conservation organization, institution (educational or research) or private group due to specific legislation, designations or management or planning documents (e.g., high wildlife value, declining populations/numbers, edge of range , Audubon Blue List, list(s) or species of special concern or emphasis)? If yes, list recognition:_____
_____
_____

3. Y N Has the wetland site been specially designated, or is it part of a region specially designated, by a Federal or State agency or private group as important for migratory birds or resident wildlife (e.g., referenced in the North American Waterfowl Management plan or a State Waterfowl Concept Plan or on a list maintained by The Nature Conservancy? If yes, list designation:_____
_____
_____
_____

B. Commercial and Sport Fisheries

1. Y N Does commercial fishing occur on the site? If so, name the fishery:_____
_____

2. Y N Does sport fishing occur on the site? If so, name the fishery:

_____

_____

3. Y N Does the wetland site have fishery resource value(s) (e.g., anadromous fishery, spawning, nursery, juvenile, or foraging habitat) that is recognized, identified, or listed by a Federal or State agency, conservation organization, institution, or private group due to specific legislation, designations management or planning documents? If so, name recognition:

_____

_____

_____

C. Surface and Ground Water Quality and Quality and Flood Control

1. Y N Are the groundwater recharge and/or discharge (water supply) functions of the wetland site recognized, identified, or listed by a Federal, State, or local agency, conservation organization, institution, or private group due to specific legislation, designations, or management or planning documents (e.g., sole source aquifer, municipal water supply)? If so, name recognition:_____

_____

_____

2. Y N Are the water quality functions (e.g., nutrient assimilation, sediment trapping, toxic substance uptake, and transformation) of the wetland site recognized, identified, or listed by a Federal, State, or local agency, conservation organization, institution, or private group due to specific legislation, designations, or management or planning documents (e.g., presence of a downstream dredged channel or reservoir which requires periodic dredging, eutrophic waterbodies downstream, low dissolved oxygen problems, fish kills)? If so, name recognition:_____

_____

_____

3. Y N Are the flood control, erosion and/or shoreline damage reduction functions of the wetland site recognized, identified, or listed by a Federal, State, or local agency, conservation organization, institution, or private group due to specific legislation, designations, or management or planning documents (e.g., flood control project, wetland site within the 100-year floodplain, identified by a city as important for coastal shoreline protection)? If so, name recognition:_____

_____

_____

D. Outdoor Recreation

1. Y N Is there a recognized or documented demand for the recreational opportunities available in the wetland site? If yes, explain:

_____

_____

2. Y N Is the wetland site within 50 miles of a Metropolitan Statistical Area or within 50 miles of a tourist area receiving more than 100,000 visitors per year? If yes, name location:

_____

_____

E. Other Areas of Concern

1. Y N Does the wetland site have ecological or geological features consistently considered by regional scientists to be rare for wetlands in the region (e.g., fens in the midwest, cypress swamps in northern States, spring communities in various regions)? If yes, name the feature:_____

_____

_____

2. Y N Is the wetland site included in a national or statewide listing of historical or archaeological sites? If yes, name list:_____

_____

_____

3. Y N Is the wetland site being used, or could it be used, for educational or research purposes (e.g., used by a nature center, school, camp, or college, essential to an ongoing environmental research or monitoring program)? If yes, name use:_____

_____

4. Y N Does the wetland site have other public values of concern to the Secretary of the Interior? If yes, name and document:

_____

_____

5. Conclusion

To qualify for acquisition consideration under the provisions of the National Wetlands Priority Conservation Plan, a wetland site must: (1) include predominantly (50 percent or greater) wetland types which are rare or declining in the ecoregion; (2) be threatened with loss and/or degradation; and (3) offer important values to society in two identifiable functional categories. References, literature citations, agency contacts and personal communications must be provided to support the assessment and conclusions made in this checklist.

6. Map of Wetland Site

Reproduce and submit a USGS guadrangle map, National Wetlands Inventory Map, or other appropriate map delineating the wetland site, its principal features where appropriate (e.g., bald eagle nest sites) and other relevant features of the assessment area where appropriate (e.g., downstream municipal water supply or public access point).

APPENDIX B

COMMON WETLAND TYPES FOUND IN THE SOUTHEAST REGION

WETLANDS OF THE SOUTHEASTERN REGION

Estuarine Wetlands

Wetland Type	Dominance Type(s)	Common Associates	Water Regime	Ecoregion*	Range	NWI Classif.*
Seagrass Meadows	Cymodocea filiformis Halodule wrightii Halophila spp. Najas marina Ruppia maritima Thalassia testudinum		Irreg. exposed	4110,2311	FL,NC AL,LA MS,PR VI	E2ABM
Mangrove Swamps	Avicennia germinans Laguncularia racemosa Rhizophora mangle	Distichlis spicata Juncus roemerianus Conocarpus erecta Eleocharis cellulosa Salicornia spp. Spartina spartinae Sesuvium portulacastrum Batis maritima Borrichia frutescens	Reg. flooded to irreg. flooded	4110,2311	FL,LA PR,VI	E2FON/P E2SSN/P
Salt Flats	Batis maritima Salicornia virginica	Sueda linearis Distichlis spicata Fimbristylis castanea Spartina bakeri Spartina patens	Irreg. flooded	4110,2311 2320,2312	SC,GA FL,AL MS,LA PR,VI	E2EMP E2USP
Low Salt Marsh (Atlantic)	Spartina alterniflora	Aster tenufolius Juncus roemerianus Limonium carolinianum	Reg. flooded	2311,2320	NC,SC GA,FL AL,MS LA	E2EMN

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*Refer to Keys at end of listings.

Wetland Type	Dominance Type(s)	Common Associates	Water Regime	Ecoregion*	Range	NWI Classif.*
High Salt Marsh (Atlantic)	Juncus roemerianus Salicornia spp. Spartina patens Distichlis spicata Sporobolus virginicus	Aster tenuifolius Batis maritima Borrichia frutescens Cladium jamaicense Iva frutescens Limonium carolinianum Scirpus pugens Scirpus robustus Solidago sempervirens Spartina cynosuroides Typha angustifolia Typha domingensis	Irreg. flooded	2311,2320	NC,SC GA,FL	E2EMP
Brackish Marsh (Atlantic)	Juncus roemerianus Spartina cynosuroides Scirpus spp. Typha spp.	Spartina alterniflora Spartina patens Aster tenuifolius Zizania aquatica Zizaniopsis miliacea Cladium jamaicense	Reg. and Irreg. flooded	2320,2311	NC,SC GA,FL	E2EMP E2EMN
High Salt Marsh (Gulf)	Juncus roemerianus Spartina patens Distichlis spicata	Spartina alterniflora Spartina cynosuroides Scirpus americanus Salicornia spp. Batis maritima Phragmites australis Baccharis halimifolia Iva frutescens	Irreg. flooded	2311	FL,LA MS,AL	E2EMP
Saline Marsh (Gulf)	Spartina alterniflora	Distichlis spicata Juncus roemerianus Spartina patens Batis maritima	Reg. flooded	2311,2312	LA,MS AL,FL	E2EMN

Wetland Type	Dominance Type(s)	Common Associates	Water Regime	Ecoregion*	Range	NWI Classif.*
Brackish Marsh (Gulf)	Spartina patens	Distichlis spicata Juncus roemerianus Scirpus americanus Spartina alterniflora	Irreg. flooded	2311,2312	LA,MS AL,FL	E2EMP
Interm. Marsh (Gulf)	Spartina patens	Bacopa monnieri Paspalum vaginatum Phragmites australis Sagittaria falcata	Irreg. flooded	2311,2312	LA,MS AL	E2EMP
		Palustrine Wetlands				
Tidal Freshwater Marsh (Gulf)	Panicum hemitomon	Sagittaria falcata Eleocharis spp. Alternanthera philoxeroides	Semipermanently flooded-tidal	2311,2312	LA,MS	PEMT
Tidal Freshwater Marsh (Atlantic)	Zizaniopsis miliacea Zizania aquatica Leersia oryzoides Peltandra virginica Echinochloa walteri Pontederia cordata	Typha spp. Spartina cynosuroides Scirpus spp. Sagittaria spp. Polygonum spp. Carex spp. Bidens spp. Hibiscus spp. Phragmites australis	Semipermanently flooded-tidal	2320,2311	NC,SC GA,FL	PEMT
Deep Marsh	Peltandra virginica Pontederia cordata Sagittaria lancifolia Thalia geniculata Typha domingensis	Colocasia esculenta Cladium jamaicense Sagittaria latifolia Nuphar luteum Nymphaea odorata Scirpus californicus	Semipermanently flooded	2311	FL	PEMF

Wetland Type	Dominance Type(s)	Common Associates	Water Regime	Ecoregion*	Range	NWI Classif.*
Deep Marsh	Typha spp. Scirpus cyperinus Erianthus giganteus Panicum hemitomon Rhynchospora spp. Cyperus spp. Carex spp.	Several hundred possible	Seasonally to semipermanently flooded	2320,2311	NC,SC GA,AL MS,LA	PEMC PEMF
Deep Marsh	Typha domingensis Cladium jamaicense Blechnum serrulatum Eleocharis spp. Rhyncospora spp.	Leersia hexandra Sacchiolepis striata Sagittaria lancifolia Thalia geniculata Thelypteris spp. Cyperus spp. Scirpus spp.	Semipermanently flooded	---	PR,VI	PEMF
Picher Plant Bog	Sarracenia spp. Drosera spp.	Pinguicula spp. Xyris spp. Eriocaulon spp. Lachnocaulon spp. Polygala spp. Rhynchospora spp. Habenaria spp. Calapogon spp. Ctenium aromaticum	Saturated	2311,2320	NC,SC GA,FL AL,MS LA	PEMB
Fern Sedge Bog	Woodwardia virginica Carex walteriana	Sphagnum spp. Iris virginica	Saturated	2320,2311	SC,GA	PEMB

Wetland Type	Dominance Type(s)	Common Associates	Water Regime	Ecoregion*	Range	NWI Classif.*
Wet Meadows	Carex spp. Cyperus spp. Juncus spp. Eleocharis spp.	Rubus spp. Rumex spp. Panicum spp. Cirsium spp. Ranunculus spp. Bidens spp. Polygonum spp. Paspalum spp.	Temp. flooded	2311,2312 2320,2211 2214,2215	FL,GA SC,NC KY,TN MS,AL AR,LA	PEMA
Everglades	Muhlenbergia spp. Eragrostis spp. Spartina bakeri Eleocharis cellulosa Cladium jamaicense	Salix caroliniana Cephalanthus occidentalis Rhynchospora tracyi Centella asiatica Pluchea odorata	Temp. to seasonally flooded	4110	FL	PEMA PEMC
Wet Pine Flatwoods	Pinus taeda	Acer rubrum Nyssa sylvatica Quercus phellos Quercus nigra Quercus falcata var. pagodafolia Liriodendron tulipifera Pinus serotina Pinus elliottii Quercus laurifolia	Temp. flooded	2320,2311	NC,SC GA,FL AL,MS LA,AR	PFOA

Wetland Type	Dominance Type(s)	Common Associates	Water Regime	Ecoregion*	Range	NWI Classif.*
Wet Pine Flatwoods	Pinus palustris Pinus elliottii	Taxodium spp. Nyssa sylvatica Nyssa aquatica Liquidambar styraciflua Cyrilla racemiflora Cliftonia monophylla Smilax spp. Lyonia lucida Lyonia mariana Clethra alnifolia Hypericum hypercoides Ilex coriacea Vaccinium spp. Rubus spp.	Temp. flooded	2320,2311	LA,MS AL,FL GA,SC	PFOA
Pine Savannah	Pinus palustris or Pinus serotina	Aristida stricta Rhynchospora spp.	Saturated	2320,2311	NC,SC GA,FL AL,MS	PFOA
Savannah	Paspalum spp. Cyperus spp. Brachiaria purpurascens Eriochloa spp.	Panicum laxum Ludwigia octavalis Sesbania sericea Eleocharis spp.	Seasonally flooded	---	PR	PEMC
Evergreen Shrub Bog (Pocosin)	Cyrilla racemiflora Zenobia pulverulenta Lyonia lucida	Gordonia lasianthus Pinus serotina Ilex coriacea Ilex glabra Smilax laurifolia Persea borbonia Magnolia virginiana	Saturated	2320,2311	NC,SC GA	PSSB

Wetland Type	Dominance Type(s)	Common Associates	Water Regime	Ecoregion*	Range	NWI Classif.*
Titi Swamp	Cliftonia monophylla Cyrilla racemiflora	Lyonia lucida Leucothoe racemosa Myrica cerifera Ilex cassine Ilex coriacea Clethra alnifolia Pinus serotina	Saturated	2320,2311	SC,GA FL,AL	PSSB
Pine Bog	Pinus serotina	Pinus elliottii Pinus taeda Taxodium spp. Nyssa sylvatica var. biflora Magnolia virginiana Gordonia lasianthus Acer rubrum Liquidambar styraciflua Persea borbonia	Saturated	2320,2311	NC,SC GA,FL AL	PFOB
Bay Forest	Magnolia virginiana Persea borbonia Gordonia lasianthus	Cyrilla racemiflora Lyonia lucida Woodwardia virginica Ilex spp. Taxodium ascendens Pinus serotina Acer rubrum Nyssa sylvatica var. biflora	Saturated	2320,2311	NC,SC GA,FL AL,MS	PFOB

Wetland Type	Dominance Type(s)	Common Associates	Water Regime	Ecoregion*	Range	NWI Classif.*
Pin Oak Flats	Quercus palustris Liquidambar styraciflua	Acer rubrum Ulmus americana Nyssa sylvatica Quercus bicolor Quercus phellos Quercus lyrata Quercus macrocarpa Fraxinus pennsylvanica Quercus nuttallii Quercus michauxii Quercus alba Carya ovata Carya laciniosa	Temp. to seasonally flooded	2215,2312	KY,TN AR	PFOA PFOC
Bottomland Hardwoods	Betula nigra Platanus occidentalis	Salix nigra Liquidambar styraciflua Populus spp. Acer rubrum Acer saccharinum Acer negundo Celtis occidentalis Ulmus americana Juglans nigra Juglans cinerea	Temp. flooded	2311,2312 2320,2211 2214,2215	FL,GA SC,NC KY,TN MS,AL AR,LA	PFOA

Wetland Type	Dominance Type(s)	Common Associates	Water Regime	Ecoregion*	Range	NWI Classif.*
Bottomland Hardwoods	Populus deltoides or Populus heterophylla	Salix nigra Salix exigua Platanus occidentalis Celtis laevigata Carya illinoensis Acer negundo Acer rubrum Acer saccharinum Ulmus americana Morus rubra Forestiera acuminata Cornus drummondii	Seasonally flooded	2320,2311 2312,2215	NC,SC GA,FL AL,MS LA,AR TN,KY	PFOC
Bottomland Hardwoods	Quercus phellos Quercus nigra Quercus laurifolia	Quercus nuttallii Acer rubrum Fraxinus pennsylvanica Liquidambar styraciflua Carya cordiformis Gleditsia tricanthos Carya aquatica Gleditsia aquatica Quercus lyrata	Temp. to seasonally flooded	2320,2311 2312	NC,SC GA,FL AL,MS LA,AR	PFOA PFOC
Bottomland Hardwoods	Liquidambar styraciflua Quercus phellos	Celtis laevigata Fraxinus pennsylvanica Ulmus americana Quercus nutallii	Temp. flooded	2312,2311 2320	AR,LA MS,AL	PFOA
Bottomland Hardwoods	Celtis laevigata Ulmus americana Fraxinus pennsylvanica	Carya aquatica Quercus nuttallii Quercus phellos Quercus nigra Quercus lyrata Liquidambar styraciflua Acer negundo	Temp. flooded	2311,2312 2320,2215	KY,TN FL,GA NC,SC LA,MS AL,AR	PFOA

Wetland Type	Dominance Type(s)	Common Associates	Water Regime	Ecoregion*	Range	NWI Classif.*
Bottomland Hardwoods	Platanus occidentalis Liquidambar styraciflua Ulmus americana	Fraxinus pennsylvanica Celtis laevigata Acer negundo Acer saccharinum Populus spp. Salix nigra Quercus nigra Carya illinoensis	Temp. flooded	2320,2311 2312,2311	NC,SC GA,AL MS,LA AR,TN KY	PFOA
Bottomland Hardwoods	Salix nigra Salix spp.	Populus spp. Fraxinus pennsylvanica Platanus occidentalis Diospyros virginiana Gelditsia aquatica Ulmus americana Taxodium distichum Acer rubrum Celtis laevigata Acer negundo	Seasonally flooded	2320,2311 2312,2215	NC,SC GA,FL AL,MS LA,AR TN,KY	PFOC
Bottomland Hardwoods	Quercus lyrata Carya aquatica	Fraxinus pennsylvanica Celtis laevigata Ulmus americana Gleditsia aquatica Acer rubrum	Seasonally flooded	2215,2311 2312,2320	NC,SC GA,FL AL,MS AR,TN LA	PFOC
Pterocarpus forest	Pterocarpus officinalis	Roystmea sp. Minillcara Gidentata Paullinia pinnata Bucida sp. Cydista acquinoctialis Geophila herbacea	Semipermantently flooded	---	PR	PFOF

Wetland Type	Dominance Type(s)	Common Associates	Water Regime	Ecoregion*	Range	NWI Classif.*
Cypress Swamp, Strand, Head	Taxodium distichum	Nyssa aquatica Nyssa sylvatica var. biflora Taxodium ascendens Salix nigra	Semipermanently flooded	2215,2311 2312,2320 4110	KY,TN LA,AL MS,FL GA,NC SC,AR	PFOF
Cypress/Tupelo Swamp	Taxodium ascendens Nyssa sylvatica var. biflora Nyssa aquatica	Acer rubrum Salix nigra Fraxinus tomentosa Fraxinus caroliniana Populus heterophylla Planera aquatica Gleditsia aquatica	Semipermanently flooded	2320,2311 2312,2215	NC,SC GA,FL AL,MS LA,AR TN,KY	PFOF
Tupelo Swamp	Nyssa aquatica	Taxodium distichum Acer rubrum Salix nigra Fraxinus caroliniana Fraxinus tomentosa Populus heterphylla Planera aquatica Gleditsia aquatica	Semipermanently flooded	2311,2312 2320	NC,SC GA,FL AL,MS LA,AR TN	PFOF
White Cedar Swamps	Chamaecyparis thyoides	Pinus serotina Pinus elliotti Persea borbonis Nyssa sylvatica var. biflora Magnolia virginiana Gordonia lasianthus Taxodium distichum	Saturated	2320,2311	NC,SC GA,FL AL,MS	PFOB

Wetland Type	Dominance Type(s)	Common Associates	Water Regime	Ecoregion*	Range	NWI Classif.*
Hydric Hammock	Sabal palmetto Juniperus silicicola Acer rubrum Magnolia virginiana	Quercus virginiana Liquidambar styraciflua Taxodium distichum Quercus laurifolia Quercus nigra Quercus michauxii Myrica cerifera	Seasonally flooded	2311	FL	PFOC
Mountain Bog	Kalmia angustifolia var. carolina Kalmia latifolia Spirea alba Spirea tomentosa Rhododendron maximum	Sphagnum spp. Osmunda cinnamomea Drosera rotundifolia Alnus serrulata Myrica gale Viburnum cassinoides Salix sericea	Saturated	2214	NC,TN GA,KY	PSSB

Key to National Wetlands Inventory (NWI) Symbols.

I. Wetland types are identified according to the Cowardin et al. 1979 classification system (see reference section for complete citation).

Example:

	System:	Estuarine
E:2:E M:N	Subsystem:	Intertidal
	Class:	Emergent
	Water Regime:	Regularly Flooded

Letter and number key for classification of wetlands to the level of water regime:

SYSTEM AND SUBSYSTEMS

M Marine
- 1 Subtidal
- 2 Intertidal

E Estuarine
- 1 Subtidal
- 2 Intertidal

P Palustrine
- No Subsystem

R Riverine
- 1 Tidal
- 2 Lower Perennial
- 3 Upper Perennial
- 4 Intermittent
- 5 Unknown Perennial

L Lacustrine
- 1 Limnetic
- 2 Littoral

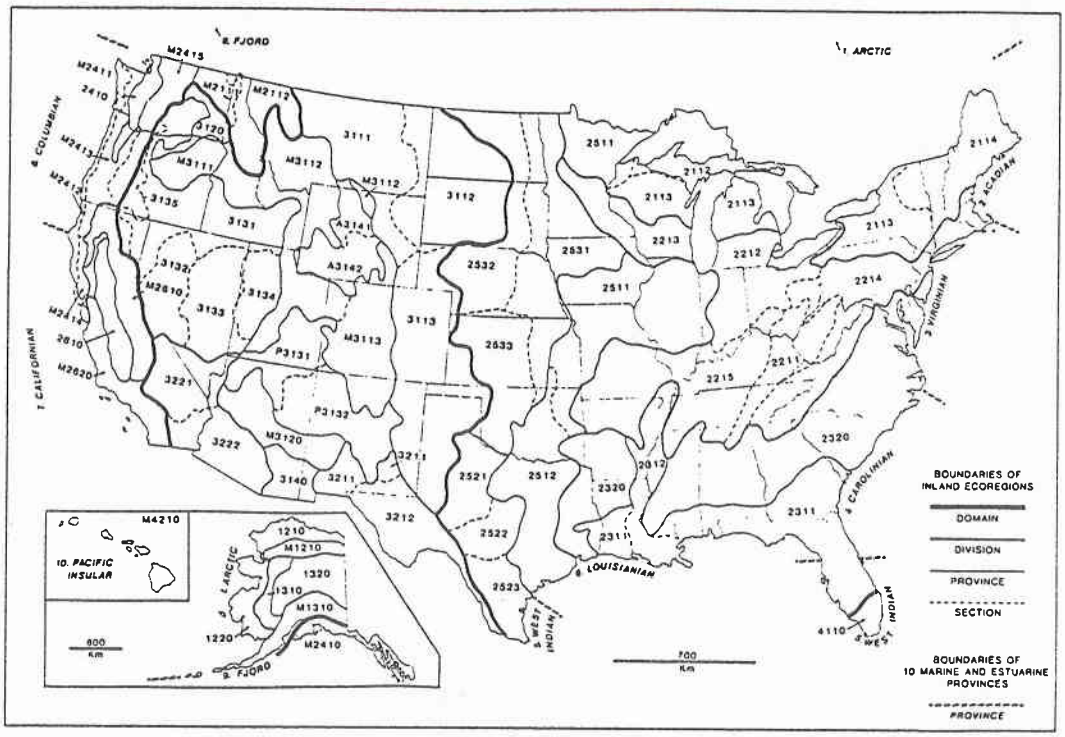
Upland

CLASSES

- AB Aquatic Bed
- EM Emergent
- FO Forested
- ML Moss/Lichen
- RB Rocky Bottom
- RF Reef
- RS Rocky Shore
- SB Streambed
- SS Scrub-Shrub
- UB Unconsolidated Bottom
- US Unconsolidated Shore

WATER REGIME MODIFIERS

- A Temporary
- B Saturated
- C Seasonal
- F Semipermanent
- G Intermittently Exposed
- H Permanent
- J Intermittently Flooded
- L Subtidal
- M Irregularly Exposed
- N Regularly Flooded
- P Irregularly Flooded



[a]Domains, Divisions, Provinces and Sections used on Bailey's (1976) map and described in detail in Bailey (1978). Highland ecoregions are designated, M mountain, P plateau, and A altiplano.

1000 Polar
- 1200 Tundra
  - 1210 Arctic Tundra
  - 1220 Bering Tundra
- M1210 Brooks Range
- 1300 Subarctic
  - 1320 Yukon Forest
- M1310 Alaska Range

2000 Humid Temperate
- 2100 Warm Continental
  - 2110 Laurentian Mixed Forest
    - 2111 Spruce-Fir Forest
    - 2112 Northern Hardwoods-Fir Forest
    - 2113 Northern Hardwoods Forest
    - 2114 Northern Hardwoods-Spruce Forest
  - M2110 Columbia Forest
    - M2111 Douglas-fir Forest
    - M2112 Cedar-Hemlock-Douglas-fir Forest
- 2200 Hot Continental
  - 2210 Eastern Deciduous Forest
    - 2211 Mixed Mesophytic Forest
    - 2212 Beech-Maple Forest
    - 2213 Maple-Basswood Forest + Oak Savanna
    - 2214 Appalachian Oak Forest
    - 2215 Oak-Hickory Forest
- 2300 Subtropical
  - 2310 Outer Coastal Plain Forest
    - 2311 Beech-Sweetgum-Magnolia-Pine-Oak
    - 2312 Southern Floodplain Forest
  - 2320 Southeastern Mixed Forest

2000 Humid Temperate
- 2400 Marine
  - 2410 Willamette-Puget Forest
  - M2410 Pacific Forest (in conterminous U.S.)
    - M2411 Sitka Spruce-Cedar-Hemlock Forest
    - M2412 Redwood Forest
    - M2413 Cedar-Hemlock-Douglas-fir Forest
    - M2414 California Mixed Evergreen Forest
    - M2415 Silver fir-Douglas-fir Forest
  - M2410 Pacific Forest (in Alaska)

2500 Prairie
- 2510 Prairie Parkland
  - 2511 Oak-Hickory-Bluestem Parkland
  - 2512 Oak + Bluestem Parkland
- 2520 Prairie Brushland
  - 2521 Mesquite-Buffalo Grass
  - 2522 Juniper-Oak-Mesquite
  - 2523 Mesquite-Acacia
- 2530 Tall-Grass Prairie
  - 2531 Bluestem Prairie
  - 2532 Wheatgrass-Bluestem-Needlegrass
  - 2533 Bluestem-Grama Prairie
- 2600 Mediterranean (Dry-summer Subtropical)
  - 2610 California Grassland
  - M2610 Sierran Forest
  - M2620 California Chaparral

3000 Dry
- 3100 Steppe
  - 3110 Great Plains-Shortgrass Prairie
    - 3111 Grama-Needlegrass-Wheatgrass
    - 3112 Wheatgrass-Needlegrass
    - 3113 Grama-Buffalo Grass

3000 Dry
- 3100 Steppe
  - M3110 Rocky Mountain Forest
    - M3111 Grand fir-Douglas-fir Forest
    - M3112 Douglas-fir Forest
    - M3113 Ponderosa Pine-Douglas-fir Forest
  - 3120 Palouse Grassland
  - M3120 Upper Gila Mountains Forest
  - 3130 Intermountain Sagebrush
    - 3131 Sagebrush-Wheatgrass
    - 3132 Lahontan Saltbush-Greasewood
    - 3133 Great Basin Sagebrush
    - 3134 Bonneville Saltbush-Greasewood
    - 3135 Ponderosa Shrub Forest
  - P3130 Colorado Plateau
    - P3131 Juniper-Pinyon Woodland + Sagebrush Saltbush Mosaic
    - P3132 Grama-Galleta Steppe + Juniper-Pinyon Woodland Mosaic
  - 3140 Mexican Highland Shrub Steppe
  - A3140 Wyoming Basin
    - A3141 Wheatgrass-Needlegrass-Sagebrush
    - A3142 Sagebrush-Wheatgrass
- 3200 Desert
  - 3210 Chihuahuan Desert
    - 3211 Grama-Tobosa
    - 3212 Tarbush-Creosote Bush
  - 3220 American Desert
    - 3221 Creosote Bush
    - 3222 Creosote Bush-Blur Sage

4000 Humid Tropical
- 4100 Savanna
  - 4110 Everglades
- 4200 Rainforest
  - M4210 Hawaiian Islands

Key: Ecoregions of the United States after Bailey (1976) with the addition of 10 marine and estuarine provinces (Taken from Cowardin *et al.* 1979, page 27).

APPENDIX C

IMPORTANT WETLANDS IN SOUTHEAST REGION: STATES, COMMONWEALTH, TERRITORY

APPENDIX C.1. CODES USED IN APPENDIX C.

I. Wetland types are identified according to the Cowardin et al. 1979. classification system (see reference section for complete citation).

Example:

	System:	Estuarine
E:2:EM:N	Subsystem:	Intertidal
	Class:	Emergent
	Water Regime:	Regularly Flooded

Letter and number key for classification of wetlands to the level of water regime:

SYSTEM AND SUBSYSTEMS

M Marine
- 1 Subtidal
- 2 Intertidal

E Estuarine
- 1 Subtidal
- 2 Intertidal

P Palustrine
- No Subsystem

R Riverine
- 1 Tidal
- 2 Lower Perennial
- 3 Upper Perennial
- 4 Intermittent
- 5 Unknown Perennial

L Lacustrine
- 1 Limnetic
- 2 Littoral

Upland

CLASSES

AB	Aquatic Bed	RS	Rocky Shore
EM	Emergent	SB	Streambed
FO	Forested	SS	Scrub-Shrub
ML	Moss/Lichen	UB	Unconsolidated Bottom
RB	Rocky Bottom	US	Unconsolidated Shore
RF	Reef		

WATER REGIME MODIFIERS

A	Temporary	J	Intermittently Flooded
B	Saturated	L	Subtidal
C	Seasonal	M	Irregularly Exposed
F	Semipermanent	N	Regularly Flooded
G	Intermittently Exposed	P	Irregularly Flooded
H	Permanent	R	Seasonally Flooded-Tidal
		T	Semipermenantly Flooded-Tidal

SPECIAL MODIFIER

f Farmed

II. Other Codes

FWS -- U.S. Fish and Wildlife Service

NWR -- National Wildlife Refuge

WMA -- Wildlife Management Area

ES -- Endangered/threatened species use

FNS - Fishery nursery, spawning, feeding area

WQ -- Important water quality or supply benefits (e.g., flood storage, filtering agricultural run-off)

MT -- Major Threats Noted

AC -- Agricultural conversion (includes any draining or filling)

ITM -- Improper timber management

OGM -- Oil, gas, mineral development

RCD -- Residential or commercial development

SI -- Saltwater intrusion

T -- Transportation (e.g., construction of roads and bridges)

WDP -- Water development projects

WDS -- Waste disposal site

WQP -- Water-quality problems noted (erosion, sedimentation, run-off from agricultural operations or farm animals)

OD -- Other development activities noted (other drainage or filling, livestock/grazing, etc.)

APPENDIX C.2. IMPORTANT WETLANDS: ALABAMA

WETLAND VALUES AND TRENDS IN ALABAMA*

Two broad categories of wetlands are found in Alabama; the interior wetlands and the coastal wetlands.

The predominant wetland types in Alabama's interior wetlands are Palustrine Forested and Palustrine Emergent, typically associated with riverine and stream systems. Coastal wetlands of major significance are classified as Estuarine Intertidal Emergent.

1. Wetland Loss: Most of the remaining interior wetlands are of the two types identified above. Service trend studies showed that Alabama lost about 10 percent of its interior wetlands in the period 1956-1979. Primary causes for the loss were agricultural conversion of wetlands to croplands, silvicultural conversion of bottomland hardwoods to pine culture, and reservoir construction and inundation. Coastal estuarine wetlands encompassed about 12,000 acres in 1979 and had suffered a 35 percent reduction in the period 1956-1979. Primary reasons for this loss were industrial-commercial development (24 percent - 2,900 acres), residential-commercial development (20 percent - 2,400 acres), erosion-subsidence (17 percent - 2,100 acres), and natural succession of plant communities from wetlands to uplands (30 percent - 3,600 acres). A more recent evaluation of wetland losses from the 1780's through the 1980's revealed that Alabama may have lost as much as 50 percent of its historical wetlands. Estimates of existing wetlands circa 1980's are about 3.8 million acres.

2. Wetland Threats: The interior wetlands continue to be threatened by agricultural-silvicultural conversions, although at a reduced rate of loss from those experienced in the 1970's. Both Palustrine Forested and Palustrine Emergent types are threatened by these conversions. Industrial-commercial development continues to pose a cumulative threat on a statewide basis. Coastal wetland loss caused by man's activities also has been reduced from loss rates experienced in the 1960's and 70's. However, it is believed that natural causes are contributing to coastal wetland loss at escalating rates, principally through erosion and subsidence as well as sea-level rise.

3. Wetland Functions and Values: Wetlands in the interior of Alabama provide important public values including fish and wildlife habitat; surface and groundwater supply; water quality improvement; flood, erosion, and storm damage reduction; outdoor recreation; and research and education. Primary wintering habitat for waterfowl in Alabama is found in these areas.

* See bibliography for references, especailly Frayer et al. (1983), Hefner and Brown (1985), and Dahl (1990).

Coastal wetlands provide many of the same values with the exception of water supply. In addition, coastal wetlands are extremely important to production associated with Alabama's $50 million (dockside value) commercial fishing industry and $80 million dollar coastal sport fishery. Over 90 percent of the species associated with these two industries are dependant on coastal wetland habitat for at least a portion of their life history requirements.

Figure AL-1. Generalized location of two major categories of wetlands in Alabama.

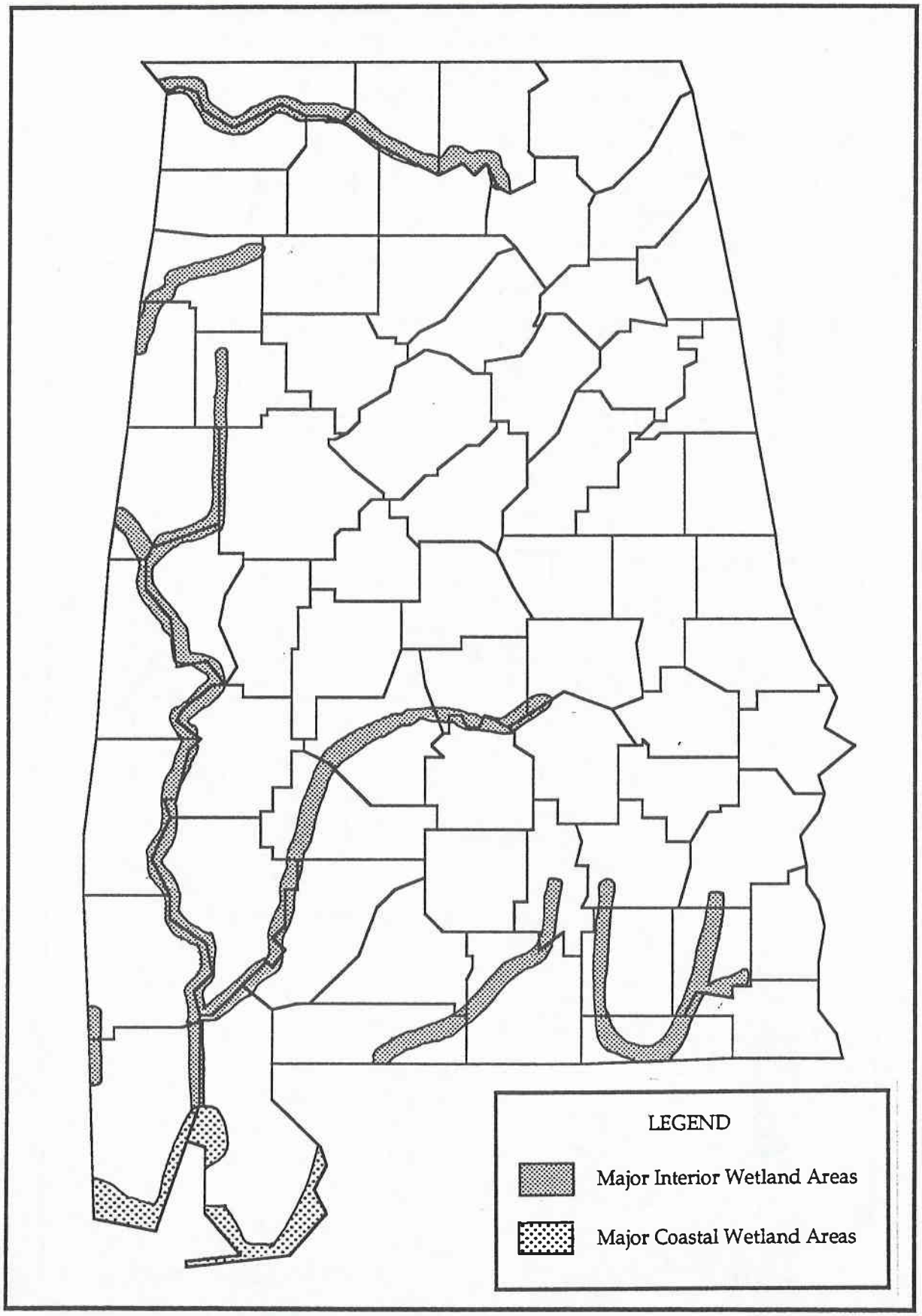


Figure AL-2. Generalized location of priority wetlands in Alabama (See Table C.2).

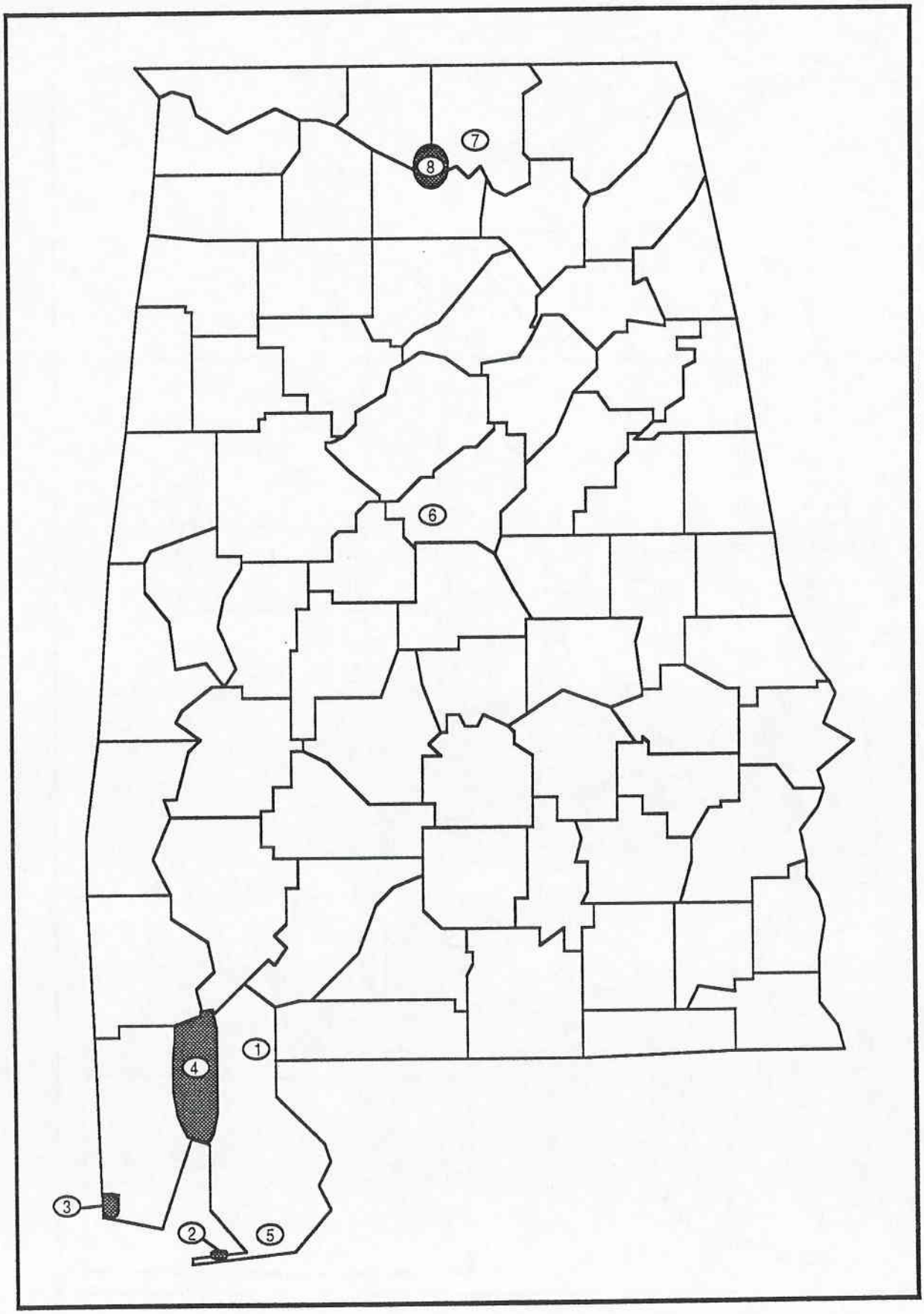


Table C.2. Important Wetlands in Alabama Meeting Wetlands Assessment Criteria[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
1	Packer Bog	Baldwin	450	P:EM:B P:SS:B	Largest and best quality seepage bog in State. Contains rare pitcher plant and orchid species.[4] MT:RCD, OD.
2	Little Point Clear and Vicinity	Baldwin, Mobile	7,650	E2:EM:P P:EM P:SS	Relatively undisturbed tract of tidal marsh and other important habitat within acquisition boundary of Bon Secour NWR.[4]* ES, FNS, WQ. MT:RCD, OGM, WDP, T, OD.
3	Grand Bay Savannah	Mobile (also into Jackson Co., Mississippi)	5,910	P:EM:B P:SS:B	One of largest remaining areas of Gulf Coast savannah occurring in Alabama and Mississippi.[4,5] Within FWS acquisition and planning area for Grand Bay NWR.* ES, WQ. MT:AC, RCD, OGM, T, OD.
4	Mobile-Tensaw Delta**	Baldwin, Mobile, Washington	185,000	E2:EM:P P:FO:C R2:UB:H	Area accounts for a significant amount of the State's remaining coastal zone tidal marshes and a large part of the remaining forested wetlands.[4,5] ES, FNS, WQ. MT:AC, ITM, OGM, RCD, T, WDP, WQP, OD.
5	Oyster Bay	Baldwin	1,000	E2:EM:P	Area contains some of the only salt marsh in Alabama. Is within the acquisition boundary of the Bon Secour NWR.[4] ES, FNS, WQ. MT:RCD, OGM, WQP, OD.

Table C.2. (Page 2 of 3). Important Wetlands in Alabama Meeting Wetlands Assessment Criteria[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
6	Forrest Crim Swamp	Shelby	320	P:FO:F	This site is unusual because it is a disjunct tract of pure tupelo forest. FNS. MT: RCD, OD.
7	Byrd Spring Swamp	Madison	650	P:FO:C/F	An area of tupelo gum and bottomland forest that is spring-fed from a karst cave system. FNS, WQ. MT:RCD, T.
8	Wheeler Wetlands	Morgan, Madison	2,290	P:FO:C/F	Seven tracts of tupelo gum and bottomland swamp adjacent to Wheeler NWR. FNS. MT:RCD, T.

Footnotes:

1 Wetland Assessment Threshold Criteria and instructions are presented in Appendix A.

2 Site identifier does not imply priority rank. See Figure AL-2 for general location of areas corresponding to site identifier.

3 In addition to any species and resources specifically listed, all sites exhibited a diversity of other fish and wildlife resources of interest to the Service and State, as well as important outdoor recreation, educational, and public use opportunities or potential opportunities.

4 Site identified as an ecologically significant wetland site in the Alabama Statewide Comprehensive Outdoor Recreation Plan (Volume 2, Alabama Wetlands Addendum, July 1988).

5 Site identified by Fish and Wildlife Service as a Joint Venture area under the North American Waterfowl Management Plan. Portions of area being acquired by U.S. Army Corps of Engineers as part of the Tennessee-Tombigbee mitigation lands.

Table C.2. (Page 3 of 3). Important Wetlands in Alabama Meeting Wetlands Assessment Criteria[1]

Footnotes (Con't.):

* FWS (1990). "Land Acquisition Briefing Book, FY 1991." A portion of area included in Unit Q-01 of the Coastal Barrier Resources System.

** Mobile Bay area is a U.S. Environmental Protection Agency "Advanced Identification Area."

Table C.2.1. Potential Priority Wetlands in Alabama.[1]

Name of Area	County	Description/Notes
Bear Creek Swamp*	Autauga	Approximately 2,500-acre swamp with excellent diversity of species.
D'Olive Bay	Baldwin	Forested swamp and intertidal marsh.
Lillian Swamp*	Baldwin	Possibly the largest coastal swamp in Alabama.
Perdido Bay*	Baldwin and Escambia, Florida	Estuarine bay, intertidal marsh, forested wetlands.
Wolf Bay*	Baldwin	Estuarine bay, intertidal marsh.
Yancey Branch	Baldwin	Forested swamp, intertidal marsh.
Clayton Swamp	Barbour	Forested wetlands.
Lily Shoals	Bibb	Free-flowing river, fresh marsh.
Forks of Rivers Swamp*	Clarke	Large, natural forested wetland and swamp.
Yellow River	Covington	Forested wetland.
Lake Jackson Swamp	Covington	Forested wetland and fresh marsh.
Blue-Gurth Swamp*	Dallas	Large, forested wetland swamp.

Table C.2.1. (Page 2 of 2) Potential Priority Wetlands in Alabama.[1]

Name of Area	County	Description/Notes
Sipsey River Swamp*	Fayette	About 10,000 acres of forested wetland and fresh marsh along the Sipsey River.
Abbie Creek	Henry	Forested wetlands.
Belle Fontaine Bog*	Mobile	This area supports a small seepage bog, forested wetlands, and rookery.
Dauphin Island* Airport Swamp	Mobile	Intertidal marsh and mud flat system.
Dauphin Swamp*	Mobile	Swamp forest.
Fowl River Bog*	Mobile	Intact seepage shrub bog.
Dobine Creek	Perry	Fresh marsh.
Perry Lake	Perry	Swamp forest.
Oakmulgee Swamp*	Perry	Large, natural swamp.

Footnotes:

[1] Areas listed require additional information to complete evaluation of "Wetlands Assessment Threshold Criteria;" See Appendix A.

* Site identified as an ecologically significant wetland site in the Alabama Statewide Comprehensive Outdoor Recreation Plan (Volume 2, Alabama Wetlands Addendum, July 1988).

APPENDIX C.3. IMPORTANT WETLANDS: ARKANSAS

WETLAND VALUES AND TRENDS IN ARKANSAS*

Three major wetland areas are found in Arkansas: Lower Mississippi River Alluvial Valley, Arkansas River, and Red-Little River. The predominant wetland types in each of the three major wetland areas are Palustrine Forested, Palustrine Scrub-Shrub, and Palustrine non-vegetated.

1. Wetland Loss: Most of the Palustrine Forested Wetlands in the Lower Mississippi River Alluvial Valley have been converted to agricultural use. In 1937, there were approximately 4,900,000 acres of bottomland hardwood and scrub-shrub wetlands. This was reduced to about 875,000 acres by 1987. For the Arkansas River Valley, existing data are insufficient to determine historical acreage and extent of loss. Available data for the Red River-Little River Valley are also insufficient, although losses are believed to be considerably less than the losses in the Lower Mississippi River Valley. Overall, the historical loss of wetlands in Arkansas from the 1780's to the 1980's is about 72 percent. In each of the major wetland areas, practically all of the "cleared wetlands" are being farmed, with substantial areas being marginal for crop production because of flooding hazards. As some of these marginal farmlands remain idle, they revert to shrub-scrub. Losses of bottomland hardwoods in Arkansas have decelerated significantly due primarily to a decline in the agricultural economy.

   Also, the value of bottomland forests as recreational land has increased dramatically. Overall, the "swampbuster" provisions of the Food Security Act of 1985 have been inconsequential in their effect on wetland conversions in Arkansas.

2. Wetland Threats: In each of the three major wetland areas, remaining Palustrine Forested Wetlands have a continuing threat of clearing by agricultural interests. These wetlands are also threatened by one or more of the following activities:

   - o Drainage and flood protection projects
   - o Dredging and stream channelization
   - o Conversion from one wetland type to another
   - o Diversion of drainage patterns
   - o Construction of dikes and levees
   - o Discharge of pollutants
   - o Erosion

   In Arkansas, either prolonged flooding or the lack of periodic flooding as influenced by various water projects have seriously impacted some of the important remaining bottomland forests.

* See bibliography for references, especially Frayer et al. (1983), Hefner and Brown (1985), and Dahl (1990).

3. Wetland Functions and Values: Wetlands in each of the three major wetland areas provide important public values including fish and wildlife habitat, surface and groundwater supply, water quality improvement, flood storage, erosion control, outdoor recreation, and research and education. Wetlands in the Lower Mississippi River Alluvial Valley, Arkansas River Valley, and Red River-Little River Valley are identified as priority waterfowl migration and wintering habitat in the North American Waterfowl Management Plan.

Figure AR-1. Generalized location of major wetland areas in Arkansas.

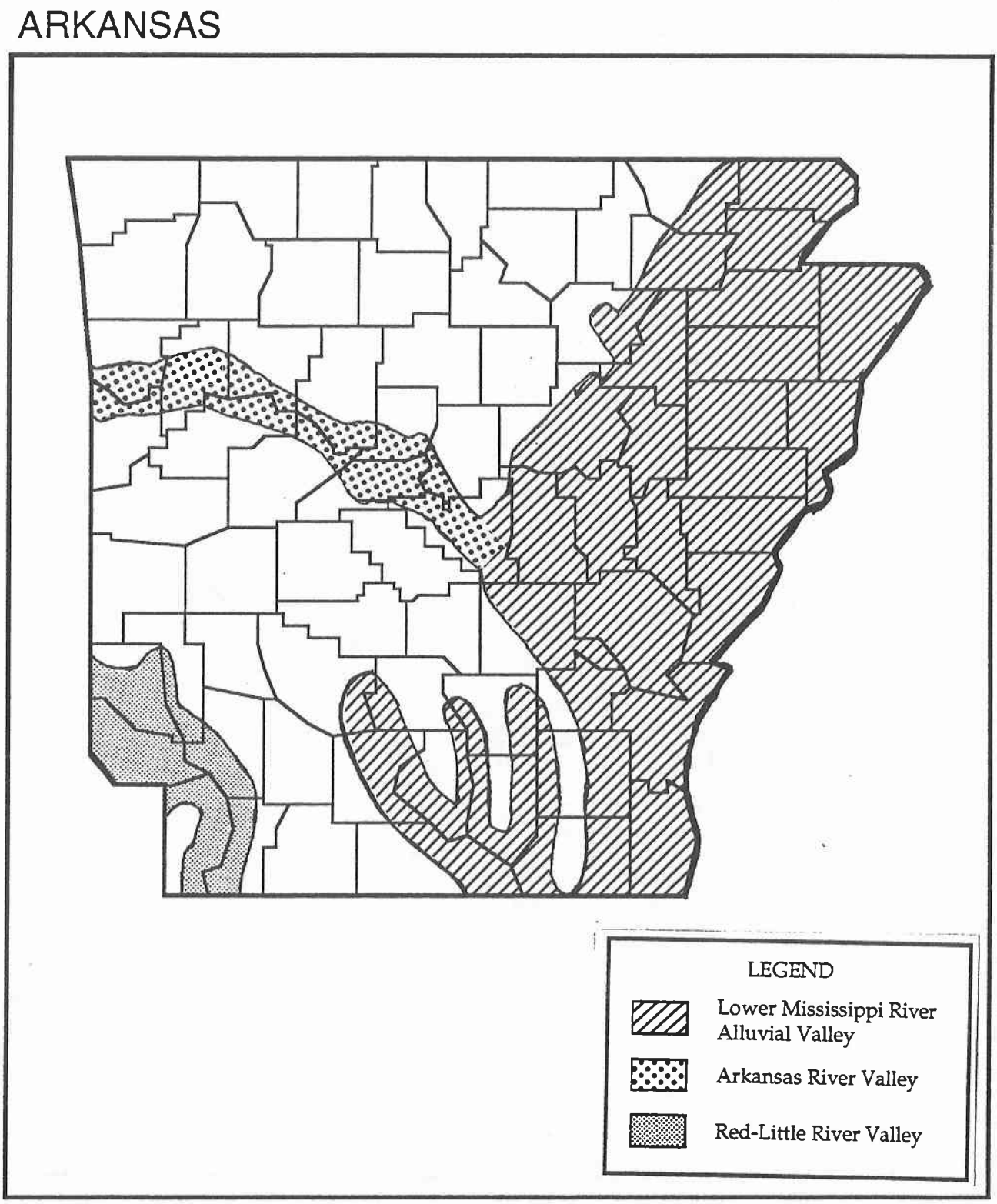


Figure AR-2. Generalized location of priority wetlands in Arkansas (See Table C.3).

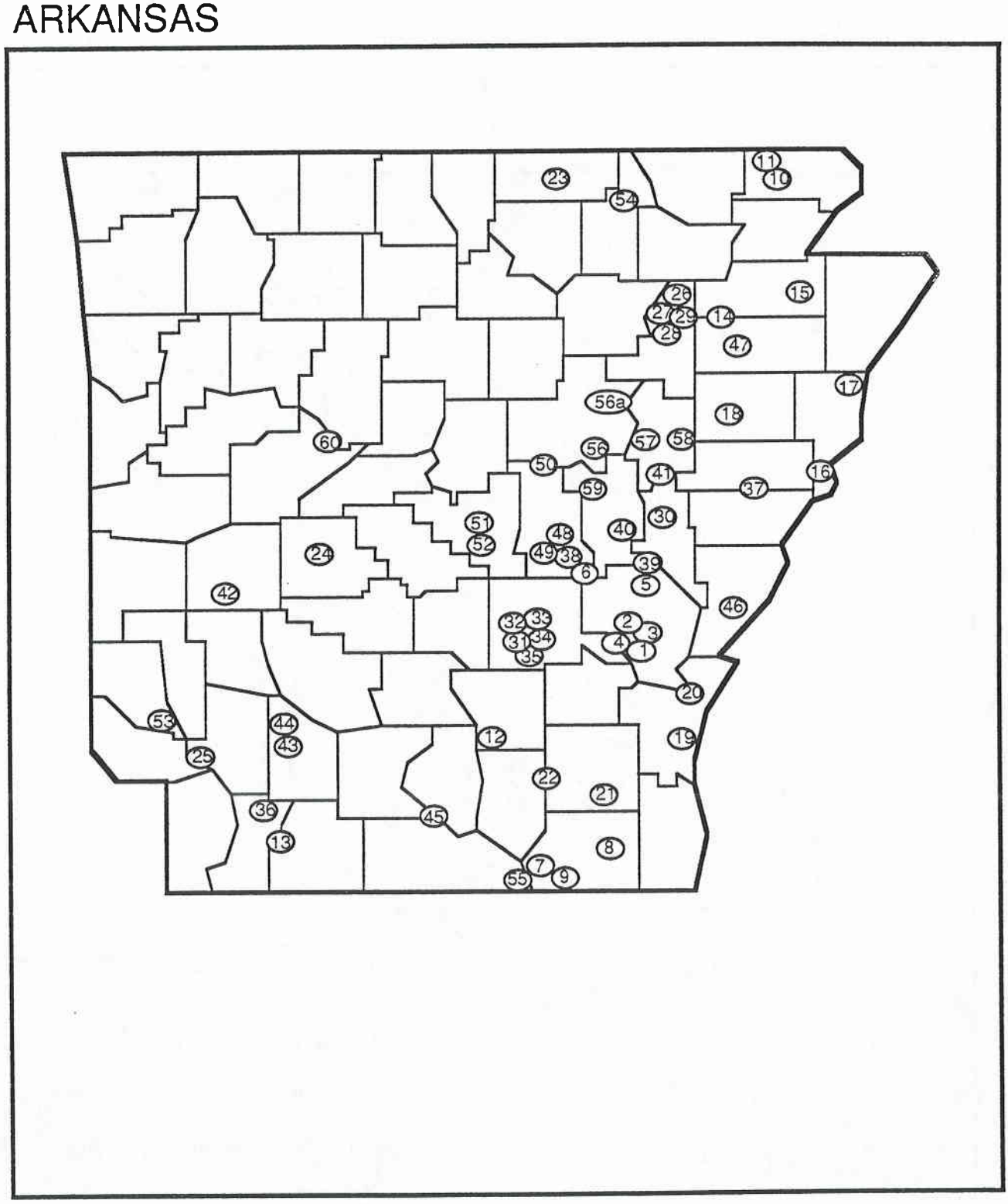


Table C.3. Important Wetlands in Arkansas Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
1	Dismal Swamp	Arkansas	8,300	P:FO:C/A P:SS:F	Important waterfowl and migratory bird area.[4] Near Trusten Holder State WMA. FNS, WQ. MT:AC, WQP, ITM.
2	Goose Lake	Arkansas	1,500	P:FO:A/C L2:UB:H	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, WQP, ITM.
3	Mill Bayou	Arkansas	10,000	P:FO:A/C P:SS:F P:EM:F L2:UB:H	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, WQP, ITM.
4	Little Bayou Meto	Arkansas, Jefferson	15,000	P:FO:A/C P:EM:F R2:UB:H L2:AB:H	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, WQP, ITM.
5	Lagrue Bayou	Arkansas, Monroe, Prairie	6,000	P:FO:A/C R2:UB:H P:EM:F	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, WQP, ITM.
6	Bayou Meto	Arkansas, Prairie, Lonoke	12,000	P:FO:A P:SS:F	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, WQP.
7	Coffee Prairie	Ashley	100	P:FO:C P:SS:C	Includes plant species of special concern to the State.[5] Site is an inholding within the Lower Ouachita State WMA. MT:OGM, WDP, OD.

Table C.3. (Page 2 of 11). Important Wetlands in Arkansas Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
8	Overflow Creek and Vicinity	Ashley	7,520	P:FO:A P:SS:F R2:UB:H P:f**	Important waterfowl and migratory bird area.[4] Includes FWS planning and proposed acquisition for the Overflow NWR.* Includes habitat for the Federally protected bald eagle. MT:AC, ITM.
9	Three Beach Prairie	Ashley	300	P:FO:C P:SS:C	Includes plant species of special concern to the State.[5] Site is within the Lower Ouachita State WMA. MT:OGM, ITM, WQP, OD.
10	Black River	Clay	16,525	P:FO:A/C P:SS:H R2:UB:H	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, WQP.
11	Hartwig Pondberry	Clay	160	P:FO:C	Includes plant species of special concern to the State.[5] Site adjacent to State-owned natural area across State line in Missouri. MT:AC, ITM, WQP, OD.
12	Moro Bottoms	Cleveland, Calhoun	750	P:FO:C	Includes plant species of special concern to the State.[5] Good example of natural bottomland forest in this portion of State. MT:OGM, ITM, WQP.
13	Dorcheat Bayou	Columbia, Lafayette	60,000	P:FO:C	FNS, WQ. MT:AC, OGM, RCD, WDP, ITM, WQP.[5]

Table C.3. (Page 3 of 11). Important Wetlands in Arkansas Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
14	Crain Farm	Craighead, Poinsett	5,000	P:FO:A/C P:EM:F L1:UB:H	Important waterfowl and migratory bird area.[4] Includes habitat for the Federally protected bald eagle. Adjacent to Bayou De View State WMA. FNS, WQ. MT:AC, ITM, WQP.
15	St. Francis	Craighead, Poinsett, Greene, Cross	16,000	P:FO:A/C P:SS:F L2:UB:H R2:UB:H	Important waterfowl and migratory bird area.[4] Includes habitat for the Federally protected bald eagle. Intermingled with St. Francis Sunken Lands State WMA. FNS, WQ. MT:AC, WQP, ITM.
16	Five Lakes Hunting Club	Crittenden	1,000	P:FO:A L2:UB:H	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, WQP, ITM.
17	Brandywine Island	Crittenden, Tipton (Tennessee)	9,300	P:FO:A L2:UB:H	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:ITM, WQP, AC.
18	Brushy Creek	Cross	6,000	P:FO:A/C P:EM:F	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, WQP.
19	Choctaw Island	Desha	5,350	P:FO:A L2:UB:H	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, ITM, WQP.

Table C.3. (Page 4 of 11). Important Wetlands in Arkansas Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
20	Big Island and Vicinity	Desha, Arkansas	140,000	P:FO:C/F R2:UB:H	Includes habitat for the Federally protected Least tern and bald eagle. Important waterfowl and migratory bird area.[4,5] FNS, WQ. MT:AC, T, WDP, ITM, WQP, OD.
21	Seven Devils Swamp	Drew	4,450	P:FO:A/C P:SS:F L2:UB:H	Important waterfowl and migratory bird area.[4,5] Just South of White River NWR. FNS, WQ. MT:AC, ITM, WQP.
22	Lower Saline River	Drew, Cleveland, Grant, Bradley, Ashley	160,000	P:FO:C R2:UB:H	FNS, WQ. MT:AC, OGM, RCD, WDP, ITM, WQP, OD.[5]
23	Garrison Fen	Fulton	40	P:SS:B	Includes plant species of special concern to the State. One of the best examples of a fen community in the State.[5] MT:AC, RCD, WDP, WQP, OD.
24	Meyer's Creek	Garland	200	P:FO:B	Includes plant species of special concern to the State. One of the largest and most diverse acid-seep communities in the State.[5] MT:RCD, OGM, T, ITM, OD, WQP.
25	Lower Little River	Hempstead, Little River	27,000	P:FO:A/C R2:UB:H P:EM:F	Important waterfowl and migratory bird area.[4,5] FNS, WQ. MT:AC, WDP, ITM, WQP.

Table C.3. (Page 5 of 11). Important Wetlands in Arkansas Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
26	Arnold Cemetery Road Pondberry	Jackson	200	P:FO:C	Includes plant species of special concern to the State. Site exhibits a unique geologic feature.[5] MT:AC, RCD, ITM, WQP, OD.
27	Centerville Pondberry	Jackson	40	P:FO:C	Includes plant species of special concern to the State. Site exhibits a unique geologic feature.[5] MT:AC, RCD, ITM, WQP, OD.
28	Otter Lake	Jackson	2,800	P:FO:A/C L2:UB:H	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, ITM, WQP.
29	Swifton Sand Ponds	Jackson	100	P:FO:C	Includes plant species of special concern to the State. Site exhibits a unique geologic feature.[5] MT:AC, RCD, ITM, WQP, OD.
30	Cache River	Jackson, Woodruff, Prairie, Monroe	55,000	P:FO:A/C P:SS:F R2:UB:H P:f**	Important waterfowl and migratory bird area.[4] Includes FWS planning and proposed acquisition for the Cache River NWR.* Includes habitat for the Federally protected bald eagle. FNS, WQ. MT:AC, WDP, WQP.
31	Bayou Bartholomew	Jefferson	1,800	P:FO:C	FNS, WQ.[5] MT:AC, RCD, T, WDP, WQP, ITM.

Table C.3. (Page 6 of 11). Important Wetlands in Arkansas Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
32	Caney Bayou	Jefferson	3,000	P:FO:C/F	FNS, WQ.[5] MT:AC, RCD, WDP, WQP, ITM.
33	McGeorge-Five Forks	Jefferson	5,000	P:FO:A L2:UB:H	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, ITM, WQP.
34	Prairie Wings	Jefferson	1,200	P:FO:A	Important waterfowl and migratory bird area.[4] MT:AC, ITM, WQP.
35	Salt Bayou	Jefferson	10,000	P:FO:A P:SS:F P:EM:F L2:UB:H	Important waterfowl and migratory bird area.[4] Near Bayou Meta State WMA. FNS, WQ. MT:AC, ITM, WQP.
36	Bodcau Creek	Lafayette	2,500	P:FO:A/C R2:UB:H	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, OGM, WQP.
37	L'Anguille	Lee, St. Francis	20,000	P:FO:A/C P:EM:F	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, WDP, ITM, WQP.
38	Seaton Dump	Lonoke	3,700	P:FO:A/C P:SS:F R2:UB:H L2:AB:H	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, ITM, WQP.

Table C.3. (Page 7 of 11). Important Wetlands in Arkansas Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
39	Maddox Bay	Monroe, Arkansas Prairie	86,000	P:FO:A/C P:SS:F R2:UB:H L2:UB:H	Important waterfowl and migratory bird area.[4] Includes habitat for the Federally protected bald eagle. Adjacent to White River NWR. FNS, WQ. MT:AC, WDP, ITM, WQP.
40	DeVall's Bluff	Monroe, Prairie	18,000	P:FO:A/C P:SS:F R3:UB:H L2:UB:H	Important waterfowl and migratory bird area.[4] Adjacent to Wattensaw State WMA. FNS, WQ. MT:AC, ITM, WQP, OD.
41	Bayou De View	Monroe, Woodruff	13,000	P:FO:A/C P:SS:F R2:AB:H	Important waterfowl and migratory bird area.[4] Adjacent to Dagmar State WMA. FNS, WQ. MT:AC, WQP.
42	Buttermilk Spring	Montgomery	40	P:FO:F	Groundwater seep-spring community.[5] MT:AC, RCD, WDP, ITM, WQP.
43	Caney Creek	Nevada	4,000	P:FO:A/C P:SS:F R2:UB:H	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, ITM, WQP.
44	Terre Rouge Creek	Nevada	4,200	P:FO:A/C R2:UB:H	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, ITM, WQP.
45	Ouachita River (Camden to Felsenthal	Ouachita, Bradley, Calhoun, Union	90,000	P:FO:C R2:UB:H	FNS.[5] MT:AC, OGM, T, WDP, ITM, WQP.

Table C.3. (Page 8 of 11). Important Wetlands in Arkansas Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
46	Big Creek	Phillips	3,000	P:FO:A/C	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, WDP, WQP.
47	Claypool Reservoir	Poinsett	1,600	L1:UB:H L2:AB:H P:FO:A P:EM:F	Important waterfowl and migratory bird area.[4] MT:AC, WQP.
48	White River	Prairie	6,600	P:FO:A/C P:SS:F R2:UB:H	Important waterfowl and migratory bird area.[4] Includes habitat for the Federally protected bald eagle. Adjacent to Wattensaw State WMA. FNS, WQ. MT:AC, ITM, WQP.
49	Wingmead Farms	Prairie	7,380	P:FO:A L2:UB:H	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, WQP.
50	Raft Creek Bottoms	Prairie, White	19,000	P:EM:C P:FO:A R2:UB:H	Important waterfowl and migratory bird area.[4] Near Hurricane Creek and Bayou Des Arc State WMA's. MT:WQP.
51	Fourche Bottoms	Pulaski	4,000	P:FO:C	FNS, WQ.[5] MT:RCD, T, WDP, ITM, WQP.
52	Big Lake/ Lorance Creek	Pulaski, Sabine	2,000	P:FO:F L1:AB:F	Includes plant species of special concern to the State.[5] FNS, WQ. MT:RCD, OGM, ITM, WQP.

Table C.3. (Page 9 of 11). Important Wetlands in Arkansas Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
53	Pond Creek Bottoms	Sevier	15,000	P:FO:A/C P:SS:F P:EM:F R2:UB:H R2:AB:H	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, ITM, WQP.
54	Rock Creek Seep Fen	Sharp	750	P:FO:B	Includes plant species of special concern to the State.[5] Excellent example of the rare fen community type in Arkansas. A portion of the area is owned by the State. MT:RCD, ITM, WQP.
55	Clear Lake	Union, Ashley	13,000	P:FO:C P:SS:F L1:UB:H	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, RCD, ITM, WQP.
56	Bayou Des Arc	White, Prairie	6,000	P:FO:A/C P:SS:F R2:UB:H R2:AB:H	Important waterfowl and migratory bird area.[4] Adjacent to Bayou Des Arc State WMA. FNS, WQ. MT:AC, WQP.
56a	Bald Knob	White	14,000	P:FO:A/C P:SS:F R2:UB:H P:f**	Important waterfowl and migratory bird area.[4] Includes FWS planning and proposed acquisition for the Bald Knob NWR.* FNS, WQ. MT:AC, WQP, OD.
57	Fitzhugh Pondberry	Woodruff	20	P:FO:C	Includes plant species of special concern to the State. Site exhibits a unique geologic feature.[5] MT:AC, RCD, ITM, WQP.

Table C.3. (Page 10 of 11). Important Wetlands in Arkansas Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
58	Hillemann	Woodruff	5,000	P:FO:A/C R2:UB:H	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, ITM, WQP.
59	Taylor Bay	Jackson	14,000	P:FO:A/C P:SS:F L2:UB:H	Important waterfowl and migratory bird area. Near Hurricane Lake State WMA.[4] Includes habitat for the Federally protected bald eagle. FNS, WQ. MT:AC, ITM, WQP.
60	Holla Bend NWR	Yell, Pope	4,000	P:FO P:SS P:f**	Important waterfowl and migratory bird area. Includes FWS planning and proposed expansion acquisition to Holla Bend NWR.*

Footnotes:

1 Wetlands Assessment Threshold Criteria and instructions are presented in Appendix A.

2 Site identifier does not indicate or imply priority rank. See Figure AR-2 for general location of areas corresponding to the site identification number.

3 In addition to any species and resources specifically listed, all sites exhibited a diversity of other fish and wildlife resources of interest to the Service and State, as well as important outdoor recreation, educational, and public use opportunities or potential opportunities.

4 Site identified by the Fish an Wildlife Serivce as a key waterfowl and Lower Mississippi River Valley Joint Venture Area (Category 23A) under the North American Waterfowl Management Plan.

Table C.3. (Page 11 of 11). Important Wetlands in Arkansas Meeting Wetlands Assessment Criteria.1

Footnotes (Con't.):

§ Site has been identified by the Arkansas Nature Conservancy and the Natural Heritage Commission as deserving of priority protection.

* FWS (1990): "Land Acquisition Briefing Book, FY 1991."

** At least 50 percent of identified farmed wetlands would be restored to a wetland type recognized as declining in the Southeast Region (e.g., Palustrine Forested, Palustrine Emergent).

APPENDIX C.4. IMPORTANT WETLANDS: FLORIDA

WETLAND VALUES AND TRENDS IN FLORIDA*

Two broad categories of wetlands are found in Florida: Estuarine and Freshwater. Predominant wetland types in Florida's estuarine wetlands are Estuarine Intertidal Emergent Wetland, represented by salt marshes; and Intertidal Forested Wetland, represented by mangroves. Freshwater wetlands include all subsystems of the Riverine, Lacustrine, and Palustrine systems. Overall, Florida has lost as much as 46 percent of its wetlands over the past 200 years.

ESTUARINE WETLANDS

1. Wetland Loss: Florida lost nearly seven percent of its estuarine wetlands from the mid-1950's through the mid-1970's. These losses were mainly due to dredge and fill projects related to residential and commercial development. Losses in local developed areas were much greater; for example, 51 percent of the salt marshes in Charlotte Harbor are estimated to have been lost from 1945 to 1982.

2. Wetland Threats: Estuarine wetlands continue to be threatened by dredge and fill activities. Other serious threats include changes in the quality and quantity of fresh water entering these wetlands.

3. Wetland Functions and Values: Florida's estuarine wetlands are extremely productive biological systems. They provide food sources and nursery habitat for a variety of marine species, including many important sport and commercial fishes. They provide cover, nesting sites, and feeding habitat for many species of migratory birds, especially waterfowl. These wetlands also filter contaminants draining from developed upland habitats and provide storm protection to inland communities.

FRESHWATER WETLANDS

1. Wetland Loss: Based on Service estimates, Florida lost over 12 percent of its freshwater wetlands from 1953 to 1973. Very large areas were lost prior to this period; the history of Florida's development has involved extensive drainage and water management projects. At least 35 percent of Florida's wetlands are estimated to have been lost in the century following statehood, and much of this loss was freshwater wetlands.

* See bibliography for references, especially Frayer et al. (1983), Hefner and Brown (1985), and Dahl (1990).

2. Wetland Threats: Florida's remaining freshwater wetlands are threatened by residential and commercial development and agricultural and forestry practices. Several specific activities are responsible for continued wetland losses, including:

   - o dredge and fill for residential and commercial purposes; logging of forested wetlands, especially of cypress; peat and phosphate mining,
   - o changes in hydrology associated with water management; conversion to agriculture or pine plantations; and pollution from urban and agricultural runoff.

3. Wetland Functions and Values: Florida's freshwater wetlands provide important fish and wildlife habitat, water storage and aquifer recharge, flood control, water quality improvement, recreation, and educational, scientific, and aesthetic values.

Figure FL-1. Generalized location of two major categories of wetlands in Florida.

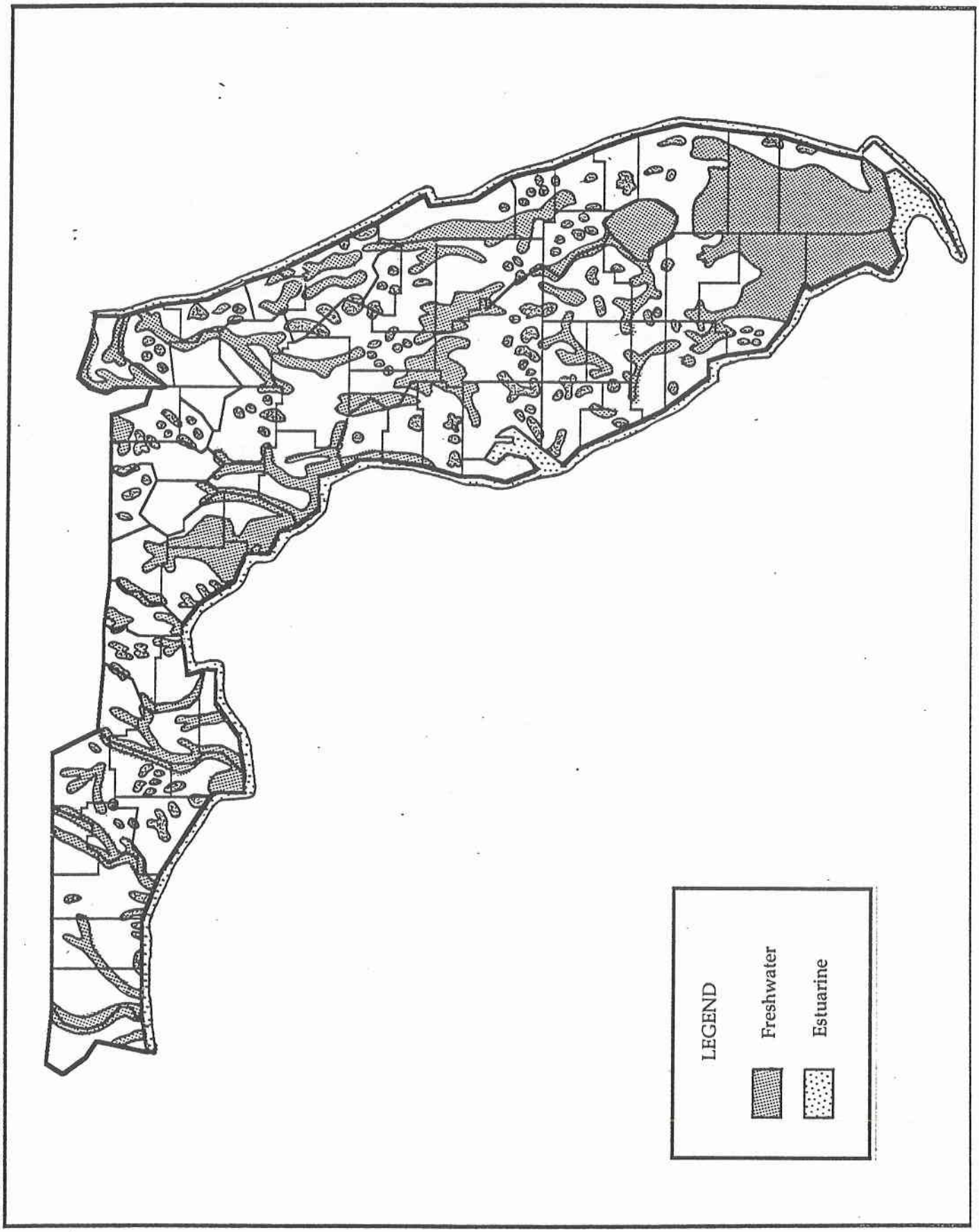


Figure FL-2. Generalized location of priority wetlands in Florida (See Table C.4).

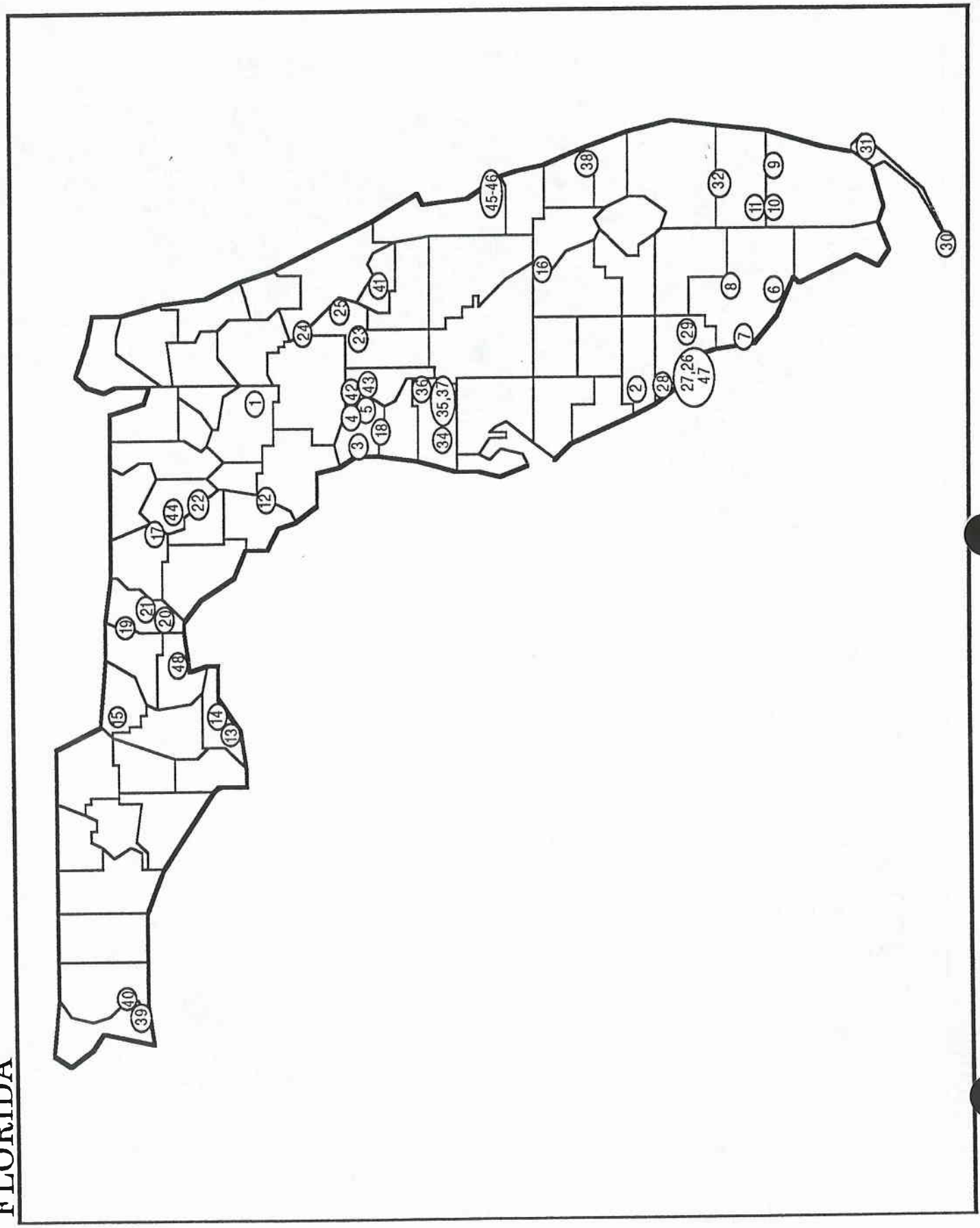


Table C.4. Important Wetlands in Florida Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
1	Lochloosa Lake	Alachua	17,050	P:FO:F/C L2:AB:H P:EM:G:H	Area includes a number of endangered bald eagles and active stork nesting colony, and eastern Indigo snakes.[4] FNS, WQ. MT:RCD, WDP, AC.
2	Charlotte Harbor	Charlotte	5,360	E2:SS:N	Proposed State Reserve Area.[4] ES, FNS, WQ. Portions of area occur within Unit P-20 of the Coastal Barrier Resources System. Would provide buffer to Island Bay NWR. MT:RCD, WQ.
3	Crystal River	Citrus	5,990	P:FO:F/C P:EM:H	Provides habitat for the endangered West Indian manatee and bald eagle. Within FWS proposed acquisition and planning area of Crystal River NWR.** FNS, WQ. MT:RCD, WQP, T, WDP.
4	Dee River Ranch	Citrus	7,600	L2:AB:H P:EM:F/G P:FO:A/C	Includes habitat fo the Federally protected wood stork and eastern Indigo snake.[4] WQ. MT:AC, WQP, OD.
5	Flying Eagle Ranch	Citrus	5,900	P:FO:F/A/C L2:AB:M P:EM:F P:AB:H P:SS:A	Includes habitat for the Federally protected wood stork and bald eagle.[4] FNS, WQ. MT:RCD, T, WQP.

Table C.4. (Page 2 of 11). Important Wetlands in Florida Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
6	Fakahatchee Strand	Collier	5,110	P:FO:C P:EM:A	Includes habitat for the Federally protected Florida panther, wood stork,and bald eagle.[4] Adjacent to State Preserve and Big Cypress National Preserve. Adjacent to Florida Panther NWR; within FWS acquisition planning area.** FNS, WQ. MT:RCD, WQP.
7	Rookery Bay	Collier	10,850	E2:SS:N	Includes habitat for the Federally protected manatee, wood stork, and bald eagle.[4] Within Unit P-16 of Coastal Barrier Resources System. Adjacent to National Estuarine Research Reserve. FNS, WQ. MT:RCD, WQP.
8	Save Our Everglades	Collier	77,770	P:FO:C P:EM:C	Includes habitat for Federally protected Florida panther, wood stork, and bald eagle. Adjacent or near to Big Cypress National Preserve and Florida Panther NWR.[4] FNS, WQ. MT:RCD, T, WQP, A, OD.
9	Dade Broward Levee	Dade	12,000	P:EM:C P:FO:C	Includes habitat for the Federally protected wood stork and Everglades kite.[4] FNS, WQ. MT:RCD, WQP.

Table C.4. (Page 3 of 11). Important Wetlands in Florida Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
10	East Everglades*	Dade	71,920	P:EM:C P:SS:C	Includes habitat for the Federally protected Florida panther, wood stork, and Everglades kite. Proposed addition to everglades National Park.[4] FNS, WQ. MT:AC, WQP.
11	Everglades Water Conservation Area*	Dade, Broward, Palm Beach	219,700	P:EM:F P:SS:F	Includes habitat for the Federally protected Florida panther, wood stork, and Everglades kite.[4] FNS, WQ. MT:WQP, OGM.
12	Lower Suwannee Planning Area	Dixie	17,760	P:FO:C/F E2:FO:P	Includes habitat for the Federally protected wood stork, manatee, and bald eagle; and proposed Gulf strain of the Atlantic sturgeon. Adjacent to Lower Suwannee NWR; within FWS acquisition planning area.** FNS, WQ.[4,5] MT:ITM, RCD, T, OD.
13	Apalachicola River and Bay	Franklin	774	P:FO:C/A E2:EM:P P:SS:P	Includes habitat for the Federally protected bald eagle, several endangered sea turtles, and Gulf strain of the Atlantic sturgeon.[4,5] Portions of area may be included in Unit FL-90 of the Coastal Barrier Resources System. FNS, WQ. MT:RCD, T, WDP, WQP.

Table C.4. (Page 4 of 11). Important Wetlands in Florida Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
14	Lower Apalachicola	Franklin	9,308	E2:EM:P P:FO:A/C P:EM	ES, FNS, WQ.[4] MT:RCD, AC, OD.
15	Gadsen County Glades	Gadsen	1,240	P:FO:A/C	Recognized by State as important area.[4] MT:RCD, OD.
16	Kissimmee River Floodplain	Glades, Highlands, Okeechobee, Polk	41,960	P:EM	Includes habitat for several Federally listed species including bald eagle and Eastern Indigo snake.[4] FNS, WQ. MT:WQP, OD.
17	Riverbend Area	Hamilton, Madison, Suwannee	6,870	P:FO:A/C P:EM:F	Includes important habitat for Gulf shortnose sturgeon. FNS, WQ.[4,5] MT:RCD, WQP.
18	Chassahowitzka Swamp	Hernado	6,700	P:FO:F/C E:EM:N/P	Includes habitat for Federally protected wood stork, Eastern Indigo snake, and other endangered species. Adjacent to existing State WMA.[4] FNS, WQ. MT:RCO, OD.
19	Letchworth Mounds	Jefferson	244	P:FO:C/F P:EM:A/F	Recognized by State as an important area.[4] WQ. MT:RCD, AC, OD.
20	Wacissa and Aucilla	Jefferson	6,915	P:FO:C/A	Portions of area are under management by State game and fish agency.[4] FNS, WQ. MT:RCD, AC, OD.

Table C.4. (Page 5 of 11). Important Wetlands in Florida Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
21	Wacissa Swamp	Jefferson	17,600	P:FO:F/C P:SS:F/C	Includes habitat for the Federally protected wood stork.[4] Area included in State WMA. FNS, WQ. MT:ITM, RCD.
22	River Springs Area	Lafayette	3,800	R2:UB:H P:FO:A/C P:EM:A/C	Portion of Suwannee River and floodplain; major spawning area for sturgeon. ES, FNS, WQ.[4,5] MT:RCD, WQP, OD.
23	B. M. K. Ranch	Lake, Orange	2,630	P:FO:C P:EM:C/F P:SS:C/F	Includes habitat for the Federally protected wood stork, Sherman's fox squirrel, and other species.[4] ES, FNS. MT:RCD, ITM, T, OD.
24	St. Johns River	Lake	6,200	P:FO:A/C/F P:EM:C/G R2:AB/UB/H	St. Johns River is critical habitat for the manatee. The area is an important migrating corridor for black bears.[4] ES, FNS, WQ. MT:RCD, WQP. OD.
25	Seminole Spring	Lake	8,280	P:FO:A/C P:EM:F/C	Includes habitat for the Federally protected wood stork and Eastern Indigo snake; also several candidate plant species.[4] WQ. MT:RCD, T, WQP.

Table C.4. (Page 6 of 11). Important Wetlands in Florida Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
26	Eastero Bay	Lee	5,500	E2:SS:N	Includes habitat for the Federally protected manatee and bald eagle. Area included within Unit P-17 of Coastal Barrier Resources System. Proposed aquatic preserve.[4] FNS, WQ. MT:RCD, WDP, WQP.
27	Gulf Island	Lee	2,700	E2:SS:N E2:EM:N E1:UB:L	Includes habitat for the Federally protected manatee and bald eagle.[4] FNS, WQ. MT:RCD, WDP, WQP, OD.
28	Jossylyn Island	Lee	48	E2:SS:L P:EM:A	Includes habitat for the Federally protected wood stork and bald eagle. Site included on National Register of Historic Places; important archaeological area.[4] FNS, WQ. MT:RCD, WDP, OD.
29	Six Mile Cypress Slough	Lee	950	P:FO:C	Includes habitat for the Federally protected wood stork and bald eagle. Proposed State Park area.[4] FNS, WQ. MT:RCD, WQP.
30	Key West Salt Ponds	Monroe	440	E2:US:M E2:SS:M	FNS, WQ. Potential County Park area.[4] MT:RCD, T, WDP, WQP.

Table C.4. (Page 7 of 11). Important Wetlands in Florida Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
31	North Key Largo Hammocks	Monroe	2,820	E2:FO:SS E2:AB:M E1:AB:L	Includes habitat for the Federally protected American crocodile, Key Largo wood rat, and several others.[4] Within FWS proposed acquisition and planning area for Crocodile Lake NWR.** Portion of area within Unit FL-35 of Coastal Barrier Resources System. ES, FNS, WQ. MT:RCD, WDP, T, WQP, OD.
32	Rotenberger	Palm Beach, Broward	20,200	P:SS:C	Includes habitat for the Federally protected wood stork. Adjacent area part of State WMA.[4] FNS, WQ. MT:AC, WQP.
33	Strazzulla ^	Palm Beach	1,225	P:EM:F P:SS:C P:FO:C	Includes habitat for the Federally protected Everglades kite, Florida panther, and wood stork. 4 FNS, WQ. MT:AC, WQP.
34	Cypress Creek	Pasco	2,975	P:FO:F/C	Includes habitat for the Federally protected wood stork and bald eagle.[4] WQ. MT:RCD, WQP.
35	Withlacoochee Riverine, Corridor A	Pasco, Polk, Sumter	700	P:FO:F/A/C P:EM:F R2:UB:H	Includes habitat for the Federally protected wood stork, Eastern Indigo snake, and bald eagle.[4] WQ. MT:RCD, T, WQP, ITM.

Table C.4. (Page 8 of 11). Important Wetlands in Florida Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
36	Withlacoochee Riverine, Corridor B	Paso	270	P:FO:F/C/A P:EM:F	Includes habitat for the Federally protected wood stork, Eastern Indigo snake, and bald eagle.[4] WQ. MT:RCD, T, WQP, ITM.
37	Withlacoochee Riverine, Corridor D	Pasco	2,030	P:FO:F/C P:EM:C	Includes habitat for the Federally protected wood stork, Eastern Indigo snake, and bald eagle.[4] WQ. MT:RCD, T, WQP, ITM.
38	Savannas	St. Lucie, Martin	1,600	P:EM:F/C	Include habitat for several Federally protected species.[4] ES, WQ. MT:RCD, WQP, OD.
39	Garcon Point	Santa Rosa	2,560	P:EM:A/C/F E2:EM:P/N	State endangered plant known to be in area.[5] Much of area included in Unit FL-101 of Coastal Barrier Resources System. FNS. MT:RCD, T. OD.
40	Pond Creek	Santa Rosa	2,360	P:FO:C/B P:EM:B	ES, FNS. MT:RCD, T, AC, WQP, ITM.
41	Spring Hammock	Seminole	340	P:FO:C/A P:SS:C P:EM:F P:UB:H	Includes habitat for the Federally protected wood stork and Eastern Indigo snake. Last major hydric hammock in county.

Table C.4. (Page 9 of 11). Important Wetlands in Florida Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
42	Carlton Half-Moon Ranch	Sumter	4,750	P:FO:F/C P:EM:F/G P:AB:H P:UB:H R2:UB:H	Includes habitat for the Federally protected wood stork and Eastern Indigo snake.[4] FNS, MT:RCD, WQP.
43	Panasoffkee Project	Sumter	700	P:FO:F/C	Includes habitat for the Federally protected wood stork, Eastern Indigo snake, and bald eagle.[4] WQ. MT:RCD, T, WQP, ITM.
44	Peacock Slough	Suwannee	330	P:FO:A/F P:SS:A P:AB:H	[4,5] FNS, WQ. MT:OD.
45	Archie Carr	Brevard, Indian River	500	M2:US	Area exhibits highest density nesting beach in Western Hemisphere for the endangered loggerhead sea turtle. Within Service proposed acquisition area for the Archie Carr NWR.** Portions of area within Units P-09A and P-10 of Coastal Barrier Resources System. ES. MT:RCD, OD.

Table C.4. (Page 10 of 11). Important Wetlands in Florida Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
46	Pelican Island NWR Expansion	Brevard, Indian River	364	E2:FO E2:SS P:EM R2:UB:H	Includes important breeding habitat for the endangered wood stork and lagoon habitat for the endangered manatee and sub adult sea turtles. Within FWS proposed acquisition for Pelican Island NWR.** Portions of area within Unit P-10 of Coastal Barrier Resources System. ES. MT:RCD, OD.
47	J.N. "Ding" Darling NWR Expansion	Lee	127	E2:FO E2:SS P:FO	Includes habitat for several Federally protected species. The West Indian tropical hammock community is unique to southern Florida. Area is within FWS proposed acquisition.** Portions of area may be within Unit P-18 of Coastal Barrier Resources System. ES. MT:RCD, OD.
48	St. Marks NWR Expansion***	Wakulla	900	E2:EM:P P:EM:F P:FO:F	Includes habitat for at least 12 Federally protected species and a large number of other species of special interest to the FWS. ES, FNS, WQ. MT:RCD, OD.

Table C.4. (Page 11 of 11). Important Wetlands in Florida Meeting Wetlands Assessment Criteria.[1]

Footnotes:

1 Wetlands Assessment Threshold Criteria and instructions are presented in Appendix A.

2 Site identifier does not indicate or imply priority rank. See Figure FL-2 for general location of areas corresponding to the site identification number.

3 In addition to any species and resources specifically listed, all sites exhibited a diversity of fish and wildlife resources of interest to the Service and State, as well as important outdoor recreation, educational, and public use opportunities or potential opportunities.

4 Site identified as a priority wetland area in the State planning document entitled "Wetlands In Florida: An Addendum to Florida's Comprehensive Outdoor Recreation Plan," Florida Department of Natural Resources, Division of Park and Recreation, 1988; and/or, "Save Our Rivers Program: 1990 Five Year Plan."

5 Recognized by State as an "Outstanding Florida Water."

* Portion of area under evaluation by U.S. Environmental Protection Agency as an "Advanced Identification Area."

** FWS (1990). "Land Acquisition Briefing Book, FY 1991."

*** FWS (1990). "Preliminary Project Proposal to Expand St. Marks NWR: Wakulla County, Florida."

^ This area was recently acquired through the State's Save Our Rivers Project.

Table C.4.1. (Page 2 of 6). Potential Priority Wetlands in Florida.[1]

Name of Area	County	Estimated Wetland Acres
Corkscrew Regional Ecosystem Watershed (Bird Rookery Swamp)	Collier, Lee	50,000
Clam Pass	Collier	11
Horr's Island	Collier	19
Big Shoals Corridor	Columbia, Hamilton	40
Big Shoals Planning Area	Columbia, Hamilton	7,360
East Everglades/ Canal-111	Dade	2,900
East Everglades/ North and West	Dade	26,350
Southwest Biscayne Bay*	Dade	Unknown
Big Bend Coast Tract	Dixie	15,600
Steinhatchee Planning Area	Dixie, Taylor	120
Big Talbot Island	Duval	50
Julington/Durbin Creeks	Duval	1,485
Washington Oaks	Flagler	1
Apalachicola River Floodplain	Franklin, Gulf Liberty	9,500
Bald Point Road	Franklin	2,800
Lake Talquin/ Davis Exchange	Gadsden	5
Three Rivers Planning Area	Gilchrist, Lafayette, Suwannee	860
Fisheating Creek	Glades	28,000

Table C.4.1. (Page 3 of 6). Potential Priority Wetlands in Florida.[1]

Name of Area	County	Estimated Wetland Acres
Paradise Run	Glades, Okeechobee	4,100
St. Joseph Peninsula	Gulf	130
Alapaha Planning Area	Hamilton,	970
Withlacoochee Planning Area	Hamilton, Madison	3,070
Paynes Creek Addition	Hardee	20
Bluehead Ranch	Highlands	24,200
Hillsborough Riverine Corridor C	Hillsborough	2,090
Lower Hillsborough Flood Detention	Hillsborough	330
Choctawhatchee River Floodplain	Holmes, Walton	9,500
Aucilla Planning Area	Jefferson	5,660
Wacissa Planning Area	Jefferson	1,320
Emerald Marsh	Lake	2,250
Cayo Costa	Lee	230
Jug Creek	Lee	<2
Sandpiper Cove	Lee	850
Andrews Tract	Levy	60
Cedar Key Scrub	Levy	1,390
Aucilla Planning Area	Madison, Taylor	1,970
Manatee Estech	Manatee	3,675
Samson Point	Marion	580
Silver River	Marion	20

Table C.4.1. (Page 4 of 6). Potential Priority Wetlands in Florida.[1]

Name of Area	County	Estimated Wetland Acres
Alex's Beach	Martin	1
Fletcher Beach	Martin	3
South Fork/St. Lucie River	Martin	84
Loxahatchee River	Martin, Palm Beach	980
Pal-Mar	Martin, Palm Beach	23,000
Big Pine Key/ Coupon Bight	Monroe	320
Salt Ponds Hammock	Monroe	7
Ft. Clinch	Nassau	380
Shingle Creek	Orange	850
Reedy Creek Swamp	Osceola	30,000
Friedland Property/ Old Leon Moss Ranch	Palm Beach	2,300
Cotee Point	Pasco	60
Gills Tract	Pasco	40
Brooker Creek	Pinellas	530
Cooper's Point	Pinellas	285
Green Swamp Riverine Corridor	Polk	9,400
Lake Marion Creek	Polk	15,000
Saddle Blanket Lakes	Polk	110
Warm Mineral Springs	Sarasota	5
Fort Mosa	St. John's	20
St. Augustine Beach	St. John's	10

Table C.4.1. (Page 5 of 6). Potential Priority Wetlands in Florida.[1]

Name of Area	County	Estimated Wetland Acres
St. Johns Forest*	St. John's	6,000
Avalon Tract	St. Lucie	170
Fort Pierce Inlet	St. Lucie	10
Hutchinson Island	St. Lucie	325
North Fork/St. Lucie River	St. Lucie	2,000
Carlton Tract	Sumter	50
Withlacoochee	Sumter	3,315
Beacon Point	Volusia	1
DeLeon Springs	Volusia	375
Lighthouse Point	Volusia	80
North Peninsula	Volusia	75
Stark Tract	Volusia	530
Woody Property	Volusia	290
Wakulla Springs	Wakulla	90
Grayton Dunes	Walton	<1
Topsail Hill	Walton	840‡

Footnotes:

1 Sites listed are identified as priority wetland areas in the State planning document entitled "Wetlands In Florida: An Addendum to Florida's Comprehensive Outdoor Recreation Plan," Florida Department of Natural Resources, Division of Parks and Recreation, 1988; or, in the "Save Our Rivers Program: 1990 Five Year Plan." Additional information and evaluation of these areas are needed to determine compliance with the "Wetlands Threshold Assessment Criteria" in Appendix A.

Table C.4.1. (Page 6 of 6). Potential Priority Wetlands in Florida.[1]

Footnotes con't.

' Area under evaluation by U.S. Environmental Protection Agency as an "Advanced Identification Area."

** Within Unit P-31 of the Coastal Barrier Resources System.

^ Part of area may be within Unit P-31 of Coastal Barrier Resources System.

0 Part of area may be within Unit P-27A of Coastal Barrier Resources System.

- Within Unit P-30 of the Coastal Barrier Resources System.

‡ Within Unit P-31A of the Coastal Barrier Resources System.

APPENDIX C.5. IMPORTANT WETLANDS: GEORGIA

WETLAND VALUES AND TRENDS IN GEORGIA*

Georgia is one of the leading States in wetland resources containing about 5.3 million-acres of freshwater wetlands and saltmarshes, which represents about 77 percent of Georgia's wetland acreage circa 1780's (6.8 million acres). Georgia's estimated 23 percent loss of original wetlands is the lowest in the Southeast Region and the third lowest nationwide.

Georgia's wetlands are diverse due to physiography, climate, tidal regime, and other factors. The northern portion of the State, including the Ridge and Valley, Blue Ridge, and Piedmont provinces, has relatively few wetlands, while the Coastal Plain has extensive wetlands. Between the mid-1950's and mid-1970's, Georgia experienced an average loss of 7,300 acres of wetlands per year. Although not substantiated, this rate may have increased for certain wetland types since the 1970's, because of increases in irrigated lands, increases in the demand for forest products leading to the conversion of hardwood bottomlands to pines, and the increased rate of urban development. Simply for convenience in summarizing wetlands in Georgia, the major wetland types are categorized below to include Coastal Wetlands, Interior Wetlands, and the Okefenokee Swamp.

COASTAL WETLANDS

An extensive belt of coastal saltwater marshland separates the coastal barrier islands from the mainland of Georgia. The predominant wetland type in these saltmarshes is Estuarine Emergent, vegetated predominantly with Spartina alterniflora. Palustrine Emergent Wetlands are vegetated with a variety of freshwater marsh species occurring as a continuum from the saltmarsh up the coastal rivers.

1. Wetland Loss: Georgia's tidal marshes and swamps are well preserved in comparison with other coastal States. Recent estimates for tidal marshes are 382,247 acres of brackish and salt marshes, 47,047 acres of freshwater tidal marshes, and 46,000 acres of tidal swamps (475,294 total). Between the mid-1950's and mid-1970's, seven percent of the estuarine wetlands in the southeast were lost. Major losses or alternations of these wetlands are associated with transportation and navigation projects and impoundments for agriculture, aquaculture, and waterfowl management. Currently, about 20,000 acres of tidal lands have functional water-control structures. Loss rates of estuarine wetlands in Georgia are believed to be very low, primarily as a result of an effective State/Federal permitting process.

* See bibliography for references, especially Frayer et al. (1983), Hefner and Brown (1985), and Dahl (1990).

2. Wetland Threats: Actual and potential threats to the coastal marsh system include urban and second-home development pressure, industrial activities, dredging and filling for maintenance of navigation channels and harbors, and alterations of the coastal riverine systems which interact with the marsh system.

3. Wetland Functions and Values: Georgia's tidal wetlands and nearshore waters support a diverse sport and commercial fishery. Data (1989) revealed commercial fish landings valued at about 20.6 million dollars. Georgia's sport fishery is believed to be even greater than the commercial harvests. The freshwater system provides an influx of nutrients to the marsh as well as providing important waterfowl and wildlife habitat. Several endangered birds, turtles, and fish species occur in coastal marshes.

INTERIOR WETLANDS

Interior wetlands include predominately Palustrine Forested and Palustrine Emergent, typically associated with riverine and stream systems, isolated depressions in flatwoods, Carolina bays, limesinks, and sag ponds. Major rivers in Georgia flow in a north-south or easterly direction. In the northern part of the State, rivers change from rapidly flowing, white-water streams in the northern mountains to larger sediment-laden rivers in the Piedmont. Floodplains in the northern part of the State are narrow, steep- sided valleys, usually less than one-half mile wide. In the coastal plain, rivers are slow and meandering with floodplains that are broad (extending several miles in width) and flat bottomed.

1. Wetland Loss: The bulk of the wetland losses in Georgia have been in freshwater wetlands. The vast majority of wetland conversions have occurred in the coastal plain, and between 80 and 90 percent of the conversions have been caused by agricultural and forestry processes.

2. Wetland Threats: In the northern half of Georgia, major threats are urban and residential development and dam construction for water supply reservoirs, hydroelectric power, flood control, and recreational lakes. Severe development pressure is being exerted along the Chattahoochee River in Atlanta and along streams in the north Georgia mountains. In the southern part of the State, drainage of wetlands for conversion to pine and agricultural production remains the greatest current and future threat. Pollution of lime sinks from agricultural runoff threatens the aquifer in southwest Georgia.

3. Wetland Functions and Values: Interior wetlands, such as bottomland forests, are characterized by the import and export of soil and organic matter which make these systems very biologically productive for maintaining plant and animal diversity. Also, more than 1,000 Carolina Bays occupying about 250,000 acres have been mapped by the Georgia Geologic Survey. These wetlands support a variety of biotic communities. Lime sinks are important as groundwater recharge sites for southwest Georgia's water supply.

OKEFENOKEE SWAMP

1. Wetland Loss: The Okefenokee Swamp encompasses 467,157 acres of Palustrine Emergent, Palustrine Scrub-Shrub, and Palustrine Forested Wetlands in southeast Georgia. It is separated from other wetlands in the State, receiving about 83 percent of its water from rainfall and only 15 percent from surface water. Much of the swamp has been previously drained and logged. Approximately 85 percent of the swamp is included in the Okefenokee National Wildlife Refuge.

2. Wetlands Threats: The major portion of the swamp is protected under the National Wildlife Refuge System. However, drainage outside the swamp boundaries for conversion to pine plantations threaten the hydrological regime within the swamp.

3. Wetlands Functions and Values: Okefenokee Swamp is a haven for wildlife, including deer, black bear, turkeys, sandhill cranes, ibises, egrets, woodstorks, migratory birds, and numerous reptiles and amphibians. The Refuge also attracts a large number of visitors and recreational users each year. The Okefenokee is designated as a U.S. Ramsar Site of International Importance.

Figure GA-1. Generalized location of coastal and interior wetlands and the Okefenokee Swamp in Georgia (Modified from Kundell and Woolf 1986).

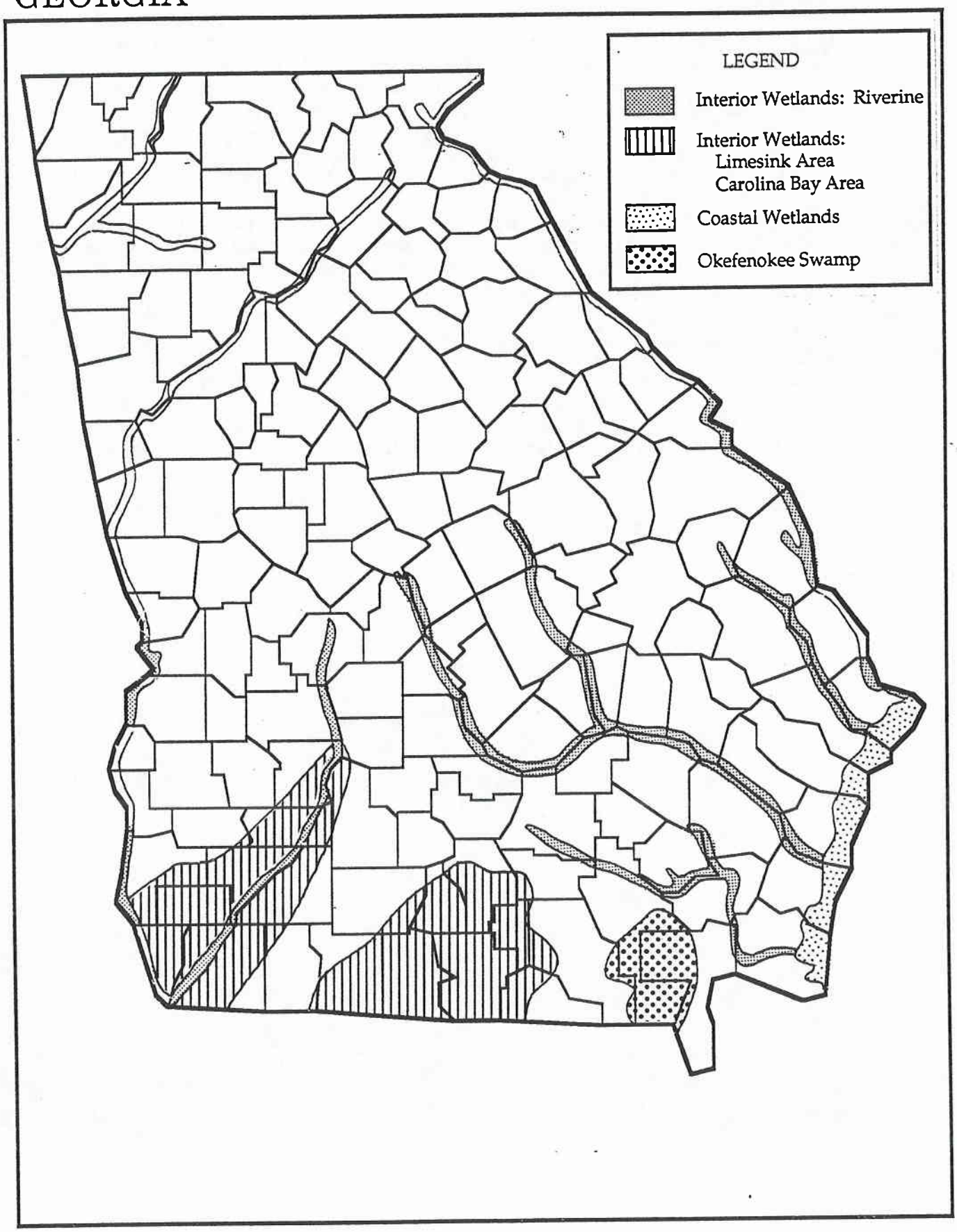


Figure GA-2. Generalized location of priority wetlands in Georgia (See Table C.5).

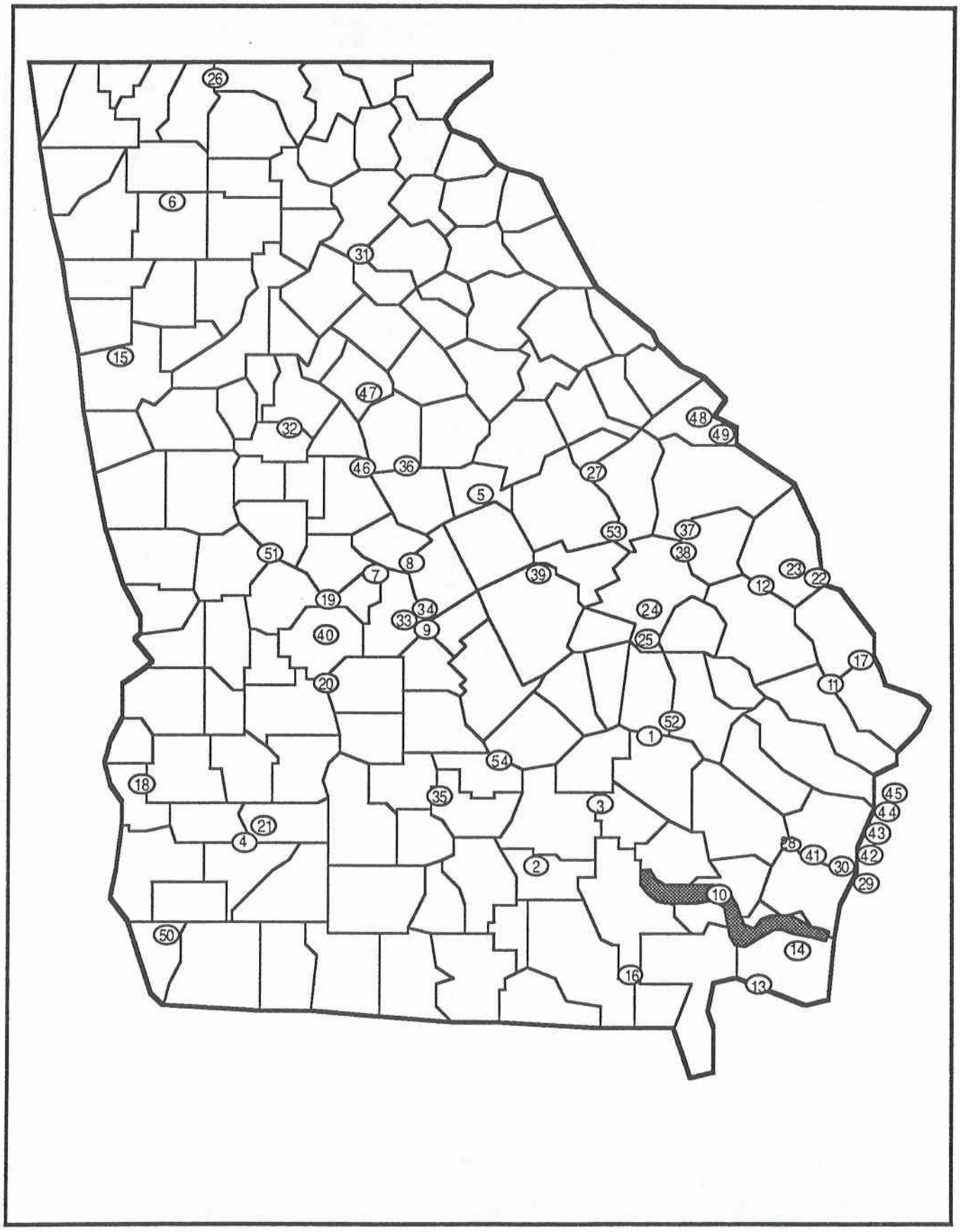


Table C.5. Important Wetlands in Georgia Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
1	Upper Altamaha River Swamp	Appling, Tattnall, Tombs	25,000	P:FO:C P:SS:C R2:SB:H	Considered, along with the Lower Altamaha, to be the most diverse and productive river swamp in Georgia. Area supports the endangered shortnose sturgeon. Immediately upstream from proposed Lower Altamaha NWR.[4] FNS, WQ. MT:RCD, T, WDP, WQP, OD.
2	Roundabout Swamp	Atkinson	2,000	P:FO:B P:SS:B	An existing and degraded Carolina Bay of recognized importance.[4] FNS. MT:RCD, ITM.
3	Little Hurricane Creek	Bacon	2,000	P:FO:C	Provides habitat used by several Federally protected species.[4] ES, FNS, WQ. MT:WDP, WQP, OD.
4	Swamp of TOA/ Chickasaw-Hatchie Swamp	Baker, Calhoun, Dougherty	40,000	P:FO P:EM	The most extensive lime sink area in Georgia. Includes habitat for the Federally protected wood stork, bald eagle, and possibly other species. The rare Georgia blind cave salamander also occurs on the site.[4,5] ES, FNS, WQ. MT:WQP, AC, RCD, T, OD.
5	Indian Island Club	Baldwin	1,300	P:FO:F/C	Includes habitat for the Federally protected bald eagle.[4] FNS. MT:OGM, OD.

Table C.5 (Page 2 of 13). Important Wetlands in Georgia Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
6	Sag Ponds	Bartow	10	P:EM:H P:SS:F P:FO:F	An unusual area with flora persisting from the Pleistocene; also significant fossils. The site is a National Natural Landmark.[4] WQ. MT:WQP, RCD, OD.
7	Echeconne Creek	Bibb, Houston, Peach	3,260	P:FO:C P:EM:C	Includes habitat used by Federally protected bald eagle.[4] FNS. WQ. MT:RCD, WDP.
8	Bond Swamp Area	Bibb, Twiggs	2,816	P:FO:C P:EM:F	Area provides habitat used by several Federally protected species. A portion of the swamp has been acquired into the National Wildlife Refuge System.[4] Within FWS proposed acquisition for Bond Swamp NWR.* ES, FNS, WQ. MT:RCD, T, WQP, OGM, OD.
9	Ocmulgee River	Bleckley, Houston, Twiggs	15,000	P:FO:C R2:UB:H	Includes habitat for the Federally protected bald eagle. Included in State WMA System. Municipal water supply for Macon and other cities.[4] FNS, WQ. MT:ITM, RCD.

Table C.5 (Page 3 of 13). Important Wetlands in Georgia Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
10	Lower Satilla River	Brantley, Ware, Pierce, Charlton, Camden	65,000	P:FO:C E2:EM:P P:EM:C P:SS:C R2:UB:H	Includes habitat for a number of Federally protected species. State listed hooded-pitcher plant occurs in area; also, largest bird rookery along Georgia coast. Site is a recommended National Natural Landmark; the river is a proposed "National Wild and Scenic River."[4] ES, FNS, WQ. MT:RCD, WQP, OD.
11	Lower Ogeechee River	Bryan	40,000	P:FO:A/C E2:EM:P R2:UB:H	An important river for anadromous fish species, including the Federally protected shortnose sturgeon. Proposed "National Wild and Scenic River."[4] FNS, WQ. MT:ITM, RCD, WQP.
12	Middle Ogeechee River	Bulloch	40,000	P:FO P:EM R2:UB:H	Includes habitat for a number of Federally protected species. Important remote remnant of Ogeechee River forested floodplain.[4] ES, FNS, WQ. MT:RCD, ITM, WQP, OD.
13	St. Marys River	Camden, Charlton, Ware, Brantley	50,000	P:FO:F/C P:EM:C E2:EM:N R2:UB:H	Includes habitat for a number of Federally protected species, including anadromous fish. Proposed "National Wild and Scenic River."[4] ES, FNS, WQ. MT:RCD, WQP, ITM.

Table C.5 (Page 4 of 13). Important Wetlands in Georgia Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
14	Black Hammock	Camden	200	P:SS:C P:FO:C P:EM:C	Site contains nesting wood storks (endangered) and is one of only six rookeries in Georgia.[4] MT:RCD.
15	Buffalo Swamp	Carrol	800	P:FO:C/A P:SS:F	FNS, WQ.[4] MT:RCD, OD.
16	Suwannee River	Charlton, Ware, Clinch, Echols	8,000	P:FO:C P:SS:F R2:UB:H	Includes habitat for the Federally protected bald eagle, wood stork, and Eastern indigo snake. Contains lime sinks and Carolina bays. Adjacent to Okefenokee NWR. Has been nominated as a "National Wild and Scenic River."[4] FNS, WQ. MT:RCD, ITM, WQP.
17	Mulberry Grove	Chatham	1,200	P:FO:F P:EM:F	Includes habitat for the Federally protected wood stork and shortnose sturgeon. Important habitat for anadromous fish.[4] Adjacent to Savannah NWR. FWS, WQ. MT:T, WQP, OD (Navigation Project).

Table C.5 (Page 5 of 13). Important Wetlands in Georgia Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
18	Cemochechobee Creek	Clay	1,500	P:FO:C P:SS:C	Includes habitat for the Federally protected bald eagle and wood stork. Also, site exhibits unusual plant diversity and includes the endangered relict Trilluim. Area also includes an important geologic feature--the Blue Marl Ravine. Adjacent to Walter F. George State WMA.[4] FNS, WQ. MT:ITM, RCD, WQP.
19	Miona Bottoms	Crawford, Taylor, Macon	15,000+	P:FO:C/F P:SS:F P:AB:H	Includes habitat for the Federally protected Eastern indigo snake and bald eagle.[4] FNS, WQ. MT:WDP, OD.
20	Hogcrawl Creek Bottoms	Dooly, Macon, Sumter	15,000+	P:FO:C/F R2:UB:H	Includes habitat for the Federally protected Eastern indigo snake and bald eagle.[4] FNS, WQ. MT:WDP, ITM.
21	Cooleewahee Creek and Limesink Ponds	Dougherty	12,000	P:FO:F/C/A	Includes habitat for the Federally protected wood stork and bald eagle. Blind crayfish and the rare Georgia blind salamander are known to occur in the lime sink region. The lime sink is part of underground aquifer system that supplies drinking water for parts of State. FNS, WQ. MT:RCD, WQP.

Table C.5 (Page 6 of 13). Important Wetlands in Georgia Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
22	Bear Island I and II	Effingham	5,900	P:FO:C	Contains probably the best unprotected virgin bottomland hardwood community in Georgia. Endangered bald eagle nests near site. Adjacent to Savannah NWR. Previously recommended as a National Natural Landmark.[4] ES, FNS, WQ. MT:ITM, WQP, WDP.
23	Ebenezer Swamp	Effingham	1,500	P:FO:C/A/B	Swamp is highly natural and undisturbed, containing a virgin cypress forest.[4] Near Savannah NWR. ES, FNS, WQP. MT:RCD, WQP, ITM.
24	Camp Boyd	Emanuel	500	P:FO:C/A/F	Includes habitat for the endangered Eastern indigo snake and State-listed gopher tortoise. Area is currently owned by the Georgia-Carolina Boy Scout Council and is a designated National Natural Landmark.[4] FNS, WQ. MT:ITM, OD.
25	Ohoopee/Little Ohoopee Rivers	Emanuel	30,000	P:FO:C/F/A R2:UB:H	Includes habitat for the Federally protected Eastern indigo snake, red-cockaded woodpecker, and bald eagle. A portion of the area (267 acres) is a designated National Natural Landmark.[4] FNS, WQ. MT:ITM, RCD.

Table C.5 (Page 7 of 13). Important Wetlands in Georgia Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
26	Jacks/Conasuaga River	Fannin	30,000	P:FO:A R3:RB:H	River supports the endangered Conasuaga Logperch. Good trout stream.[4] Adjacent to the Cohutta Wilderness Area. Both rivers have been named as potential "National Wild and Scenic Rivers." WQ. MT:ITM, WQP, T, RCD, WDP.
27	Chalker Swamp	Glascock, Washington	5,000	P:FO:C R2:UB:H	Ogeechee River is known to support the endangered shortnose sturgeon.[4] FNS, WQ. MT:ITM, T, WQP, OD.
28	Lower Altamaha River Swamp	Glynn, Long, McIntosh, Wayne	60,000 +	P:FO:C P:EM:C R2:UB:H E2:EM:P	Largest river-swamp systems in State. Includes habitat for a number of Federally protected species.[4] Much of area included within FWS proposed acquisition for the Altamaha NWR.* ES, FNS, WQ. MT:ITM, T, OD.
29	St. Simons Island Rookery	Glynn	200	P:FO:C/F/A P:SS:C P:AB:H P:EM:C	Identified as one of only six known endangered wood stork rookeries in State.[4] Area has been recently disturbed. MT:RCD, T.
30	Grantley Tract	Glynn	600	P:EM:R P:FO	Providing habitat for several Federally protected species. Adjacent to Altamaha State Waterfowl Management Area.[4] ES, FNS. MT:RCD, OD.

Table C.5 (Page 8 of 13). Important Wetlands in Georgia Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
31	North Oconee River Swamp	Hall	20	P:FO	FNS, WQ.[4] MT:ITM, RCD.
32	Towaliga River/ Thompson Creek	Henry	660	P:FO:C P:EM:F P:SS:F	FNS, WQ.[4] MT:WDP, OD.
33	Big Indian Mossy Creek	Houston	1,210	P:FO:C/F/A	FNS, WQ.[4] MT:ITM, RCD, WQP.
34	Big Grocery Creek	Houston	720	P:FO:C/A	FNS, WQ.[4] MT:ITM, RCD, WQP.
35	Crystal Lake/ Alapaha River	Irwin	2,000	P:FO	Associated sandhill ecosystem includes habitat for endangered Eastern indigo snake. Area includes relic stunted cypress and Ogeechee lime.[4] FNS, WQ. MT:ITM, OD.
36	Monticello Bottom-land Woods	Jasper	4,500	P:FO:C/F	Site has been identified as a potential ecological natural landmark for the Piedmont Region.[4] FNS, WQ. MT:ITM, OGM, WQP.
37	Big Dukes Pond	Jenkins	1,100	P:FO:C/A/B P:SS:A	Includes a major rookery for the endangered wood stork.[4] FNS, WQ. MT:ITM, OD.

Table C.5 (Page 9 of 13). Important Wetlands in Georgia Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
38	Kent's Landing Swamp	Jenkins	150+	P:FO:C/F	Area recognized as a critical off-river (Ogeechee River) striped bass refuge. Area includes habitat for several Federally protected species.[4] ES, FNS, WQ. MT:ITM, RCD.
39	Oconee River	Laurens, Wilkinson, Wheeler, etc.	100,000+	P:FO:C P:FO:A P:SS:A R2:UB:H	FNS, WQ.[4] MT. ITM, RCD, WQP.
40	Flint River	Macon, Dooly	5,000+	P:FO:C R2:UB:H	An area of very diverse habitat types and species. Area contains 47 rare species of plants and 10 endemic species of freshwater snails.[4] ES, FNS, WQ. MT:WDP, RCD, WQP, AC.
41	Buffalo Swamp	McIntosh	10,000	P:FO:A/N/B P:EM:A P:SS:F R2:UB:H	Includes habitat for the Federally protected wood stork and bald eagle. Adjacent to State WMA.[4] FNS, WQ. MT:ITM, OD.
42	Creighton Island	McIntosh	3,000	P:FO:A/C	A barrier island recognized as an important area for coastal wading and shore birds. Includes habitat for the endangered wood stork.[4] FNS. MT:RCD, OD.

Table C.5 (Page 10 of 13). Important Wetlands in Georgia Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
43	Julianton Plantation	McIntosh	2,230	E2:EM:N P:FO:A/C	Area including important rookery for the endangered wood stork and other species. Adjacent to Harris Neck NWR. One of few remaining undeveloped tracts on Georgia coast.[4] FNS, WQ. MT:RCD, ITM.
44	Oldnor Island	McIntosh	2,500	E2:EM:N/P E2:FO:P	Includes habitat for the Federally protected wood stork and other wading birds. Area is adjacent to two wildlife refuges, a State WMA, a National Estuarine Sanctuary, Gray's Reef Nation Marine Sanctuary, and St. Catherine's Island.[4] FNS, WQ. MT:RCD, OD.
45	Wahoo Island	McIntosh	2,500	E2:EM:P E2:US:N E2:FO:P E2:SS:P	A small, undeveloped barrier island adjacent to several recognized refuges and sanctuaries (See 44, above). Includes habitat for the Federally protected wood stork.[4] FNS, WQ. MT:RCD, OD.
46	Towaliga River	Monroe	15,000	P:FO R2:UB:H	FNS, WQ.[4] MT:ITM, RCD.

Table C.5 (Page 11 of 13). Important Wetlands in Georgia Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
47	Alcovy River Swamp	Newton	500	P:FO R2:UB:H	Area represents the northern most extension of Coastal bottomland hardwoods in the Piedmont Region. Area includes two disjunct coastal plain species; the birdvoiced tree frog and mole salamander.[4] FNS, WQ. MT:ITM, WQP, RCD.
48	Merry Brothers Pond	Richmond	11,000	P:EM:H P:FO:A P:UB:H P:RB:H	Recognized by several groups as an area of abundant waterfowl, herons and egrets, and rare birds. Adjacent to the Phinizy Swamp Mitigation Area, managed by State.[4] ES, FNS, WQ. MT:RCD, ITM, WQP, T, OGM.
49	Savannah River Swamp	Richmond, Screven	7,700	P:FO R2:UB:H	Includes habitat for several Federally protected species. Adjacent to several refuges and management areas.[4] FNS, WQ. MT:ITM, WQP, WDP, AC, OD.
50	Spooner Springs	Seminole	900	P:FO	One of the largest and least disturbed sinkhole wetlands in State. Included in National Registry of Natural Landmarks.[4] FNS, WQ. MT:ITM, RCD.

Table C.5 (Page 12 of 13). Important Wetlands in Georgia Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
51	Upper Flint River Shoals	Talbot, Upson	750	P:FO:F/C/A/G L2:UB:F L1:UB:H P:UB:F	Area supports the Federally protected Tillium and several State-listed plant species. Contains the unique Flint River bass.[4] FNS, WQ. MT:WDP, RCD, ITM.
52	Springfield Lake	Tattnall	4,800	P:FO:F L1:UB:H	FNS, WQ.[4] MT:ITM, WQP.
53	Williamson Swamp	Washington	3,200	P:FO:A/C	Extensive floodplain swamp, surrounded by agricultural lands. FNS, WQ. MT:AC, ITM.
54	Osciewitchee Springs	Wilcox	125	P:FO:A/C/F	Scarce and unique Coastal Plain spring.[4] FNS. MT:ITM, WQP.

Footnotes:

1 Wetland Assessment Threshold Criteria and instructions are presented in Appendix A.

2 Site identifier does not indicate or imply priority rank. See Figure GA-2 for general location of areas corresponding to the site identified number.

3 In addition to any species and resources specifically listed, all sites exhibited a diversity of other fish and wildlife resources of interest to the Service and State, as well as important outdoor recreation, educational, and public use opportunities or potential opportunities.

Table C.5 (Page 13 of 13). Important Wetlands in Georgia Meeting Wetlands Assessment Criteria.[1]

Footnotes (con't.):

[4] Site identified as a "Significant Wetland in Georgia" in the draft wetlands addendum (Chapter 6, "Wetlands in Georgia") to the Georgia Statewide Comprehensive Outdoor Recreation Plan (Georgia Department of Natural Resources 1990).

[5] Site identified as an "Advanced Identification Area" by the U.S. Environmental Protection Agency.

* FWS (1990). "Land Acquisition Briefing Book, FY 1991."

Table C.5.1. Potential Priority Wetlands in Georgia.[1]

Name of Area	County	Estimated Wetland Acres
McEver Swamp	Banks	180
Whitewater Creek	Fayette	410
Waycaster Swamp	Franklin	200
Flat Creek Swamp	Hall	40
Herds Pond	Johnson	1,000
Mud Swamp	Lowndes	3,000
Spring Creek Swamp	Miller	300
Big Haynes Creek	Newton	800
Long Creek	Oglethorpe	200
Oliver Swamp	Screven	450
Archers Lake	Washington	300

[1] Sites are identified as "Significant Wetlands in Georgia" in draft State planning document (Georgia Department of Natural Resources 1990). Additional information and evaluation of these areas are needed to determine compliance with the "Wetlands Threshold Assessment Criteria" in Appendix A.

APPENDIX C.6. IMPORTANT WETLANDS: KENTUCKY

WETLAND VALUES AND TRENDS IN KENTUCKY*

The major wetland region in Kentucky consists of the floodplains of the Mississippi and Ohio Rivers and their major tributaries in the western portion of the State. These tributaries are the Green, Tradewater, and East Fork Clark's Rivers, and Mayfield, Obion, and Bayou du Chien Creeks. The predominant wetland types are Palustrine Forested and Palustrine Scrub/Shrub. The predominance of extensive wetlands in this portion of the State, part of which lies in the Gulf Coastal Plain Province, is the result of the shallow water table, the poorly-drained nature of the soils, the frequent flooding that occurs, and other factors. In the central part of the State, extant wetlands are likely to be karst-associated or located on poorly drained floodplain or upland soils.

1. Wetland Loss: Circa the 1980's, Kentucky may have lost as much as 81 percent of its historical wetlands, with about 300,000 acres remaining of approximately 1,566,000 acres of "wet soils" circa the 1780's. Most of these wetland losses can be attributed to drainage for cropland and conversion to pastureland. Bottomland hardwood forests in the Mississippi Alluvial Plain have declined most dramatically, decreasing by 52 percent from 55,000 to 26,300 acres between 1957 and 1974. Palustrine Scrub/Shrub Wetlands have also decreased in total acreage, but have increased as a percentage of the wetlands remaining, probably due to stream channelization and soil erosion, which have caused swamping of bottomland hardwoods and subsequent evolution to a more permanent water regime.

2. Wetland Threats: The majority of wetland loss and degradation in Kentucky is attributable to four categories: (1) draining, dredging, and filling for agricultural purposes; (2) other hydrologic alterations; (3) coal mining; and (4) water pollution.

   Conversion of wetlands, especially bottomland hardwoods, to agricultural use has traditionally been the primary cause of wetland loss in the State. This loss continues, but at a much reduced rate from that of the 1960's and 1970's due to declining agricultural commodity prices, changes in government subsidy programs, and the scarcity of remaining wetlands.

   Wetland resources in Kentucky have also been impacted through man-made modifications to the hydrologic regime, such as ditching and channelization for flood control purposes, highway construction, and for industrial or commercial purposes. These losses continue, although changes in wetlands protection and mitigation policy on the part of Federal and State construction agencies have slowed the rate to some degree.

* See bibliography for references, especially Frayer et al. (1983), Hefner and Brown (1985), and Dahl (1990).

A significant portion of Kentucky's wetlands are found in the Western Kentucky Coal Field Province. A conflict of land-use interests exists between the protection of wetlands and the surface mining of coal.

The coal field encompasses approximately 2.9 million acres. It is estimated that surface mining disturbs 4,000 acres per year in the Region, and that there are approximately 114,000 acres of wetlands, mostly bottomland hardwoods, that are being impacted or could potentially be impacted by surface mining. The surface mining and wetland protection issue is a significant one that is currently receiving considerable attention in Kentucky.

Water pollution is another factor that serves to degrade or alter wetlands in the State. Acid-mine drainage from coal mines adjacent to wetlands is one such problem common to the Western Kentucky Coal Field. The outstanding filtration capability of wetlands is well-known; however, waters with a low pH and a high sulphur or iron content have caused, and continue to cause, severe damage to the natural flora and fauna of the State's wetlands.

3. Wetland Functions and Values: Wetlands in Kentucky provide a number of important benefits to the public. These include:

   - Filtration of pollutants and silt from the State's waters. This function is particularly important in protecting water quality in the Western Kentucky Coal Field region
   - Retardation of floodwaters, which recharges groundwater supplies and reduces downstream flooding during periods of heavy rainfall
   - Hardwood timber production
   - Stabilization of shorelines and riverbanks
   - High-quality fisheries and wildlife habitat, and preservation of natural diversity in the environment
   - Recreational opportunities including hunting, fishing, wildlife photography, birdwatching, hiking, and canoeing

Figure KY-1. Generalized location of major wetlands zone in Kentucky..

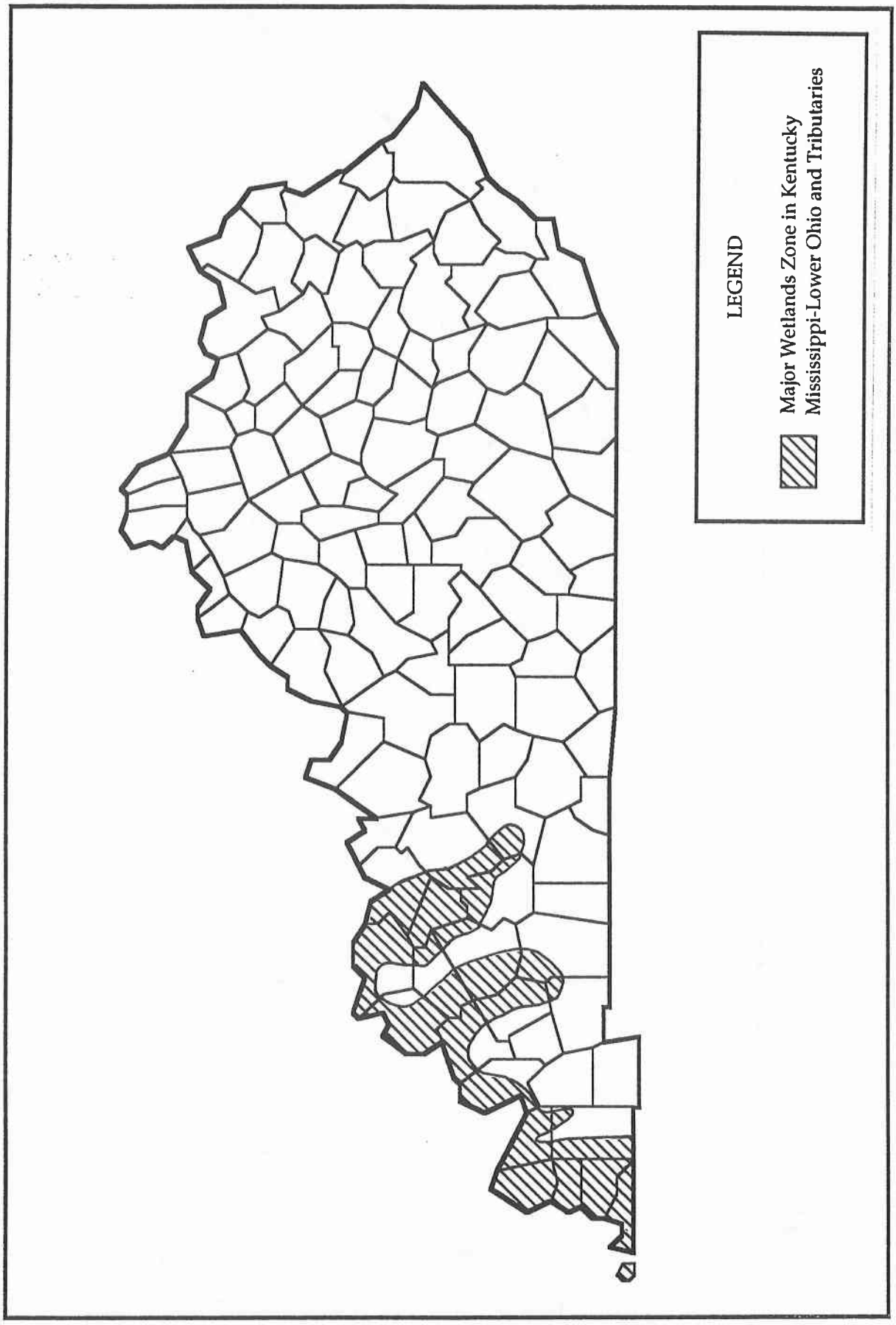


Figure KY-2. Generalized location of priority wetlands in Kentucky (See Table C.6).

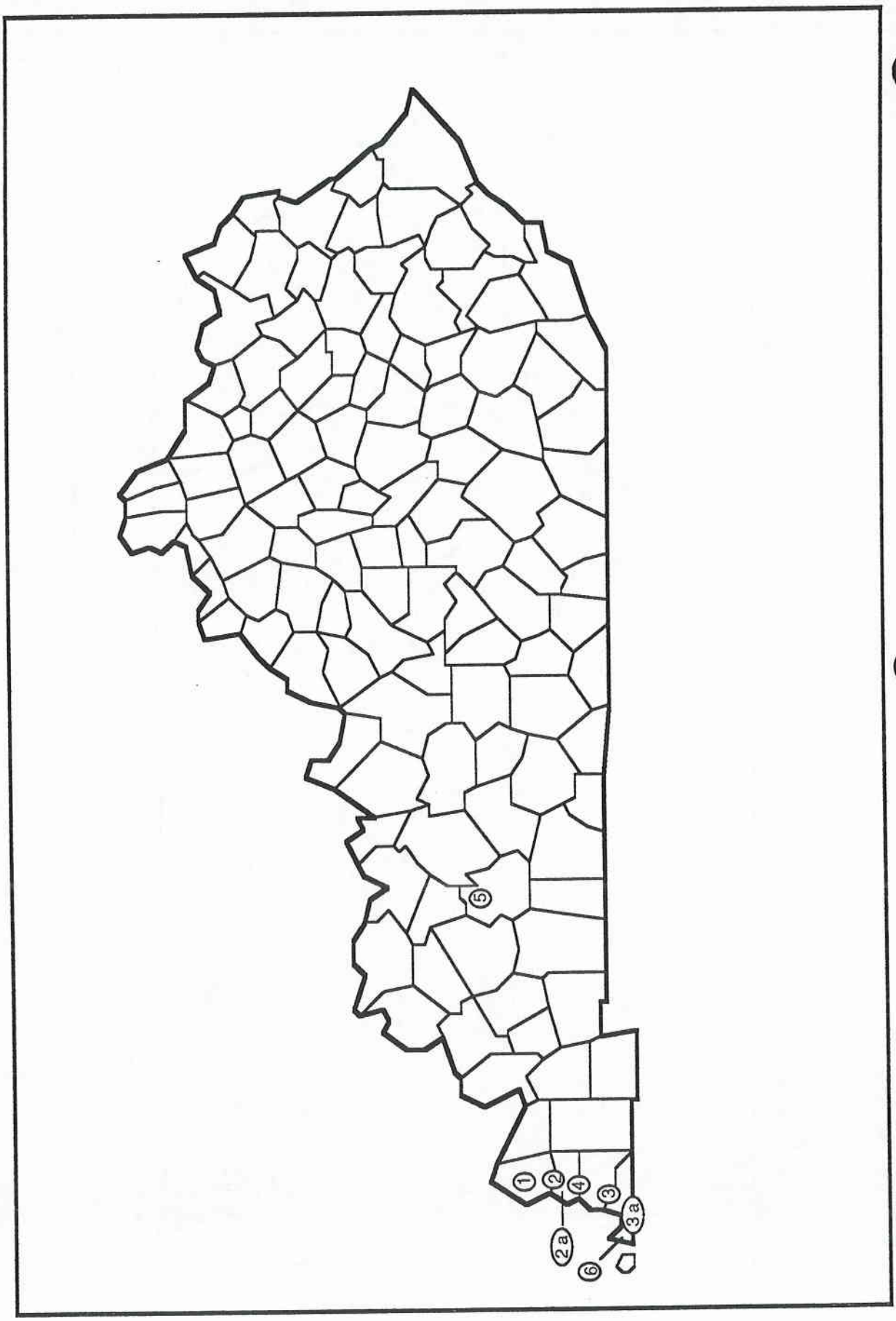


Table C.6. Important Wetlands in Kentucky Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
1	Ax Lake	Ballard	5,000	P:FO:F/C/A P:SS:A P:EM:C L2:AB:H	Important waterfowl and migratory bird area.[4] Contains largest remaining stand of cypress/tupelo in State. Area includes habitat for the Federally protected bald eagle, and supports six State endangered or threatened species. Area contains 19 known archaeological sites. Contains the largest Great Blue Heron rookery in State. Adjacent to Ballard and Swan Pond State WMA's. ES, FNS. MT:AC, ITM, WQP.
2	Mayfield Creek	Ballard, Carlisle, McCracken	13,720	P:FO:C/H P:SS:F R3:UB:H	Important waterfowl and migratory bird area.[4] Designated by State as an "Outstanding Water Resource Area." Contains 22 known archaeological sites.[5] ES, FNS, WQ. MT:AC, WDP, ITM, WQP.
2a	Columbus Bottom	Carlisle, Hickman	10,000	P:FO:C/H P:SS:F L2:AB:H P:f**	Important waterfowl and migratory bird area.[4] Includes FWS planning and proposed acquisition for the Kentucky NWR.* WQ. MT:AC, WQP, OD.

Table C.6. (Page 2 of 4). Important Wetlands in Kentucky Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
3	Bayou du Chien	Fulton, Hickman	9,650	P:FO:C/H P:SS:F P:EM:F R:UB:H	Important waterfowl and migratory bird area.[4] Designated by State as an "Outstanding Water Resource Area." Includes habitat for the Federally protected bald eagle. Contains 31 archaeological sites listed in the National Register of Historic Places, including a State Archaeological Landmark site.[5] ES, FNS, WQ. MT:AC, ITM, WQP, WDP.
3a	Reelfoot NWR Expansion*	Fulton	~4,300	P:FO:A/C P:SS P:EM	Important waterfowl and migratory bird area.[4] ES, FNS, WQ. MT:AC, WQP, RCD, OD.
4	Obion Creek	Hickman, Carlisle, Graves, Fulton	9,140	P:FO:C/H P:SS:F R:UB:H	Important waterfowl and migratory bird area.[4] Designated by State as an "Outstanding Water Resource Area." Contains numerous archeological sites. Contains 23 State-listed endangered or threatened species and provides habitat for several Federally protected species.[5] ES, FNS, WQ. MT:AC, WDP, ITM, WQP.

Table C.6. (Page 3 of 4). Important Wetlands in Kentucky Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
5	Cypress Creek	Muhlenberg	6,000	P:FO:F/G/A P:EM:F P:SS:C R:UB:H L1:UB:H	Recognized as an important area by the Kentucky Nature Preserves Commission. Includes habitat for several State-listed endangered or threatened species. Area contains five known archeological sites. A portion of the area has been designated as a State Natural Area.[5] ES, FNS, WQ. MT:AC, OGM, ITM, OD, WQP.
6	Lake #9	Fulton	3,000	P:FO:A/C P:SS P:EM	Important waterfowl and migratory bird area.[4] ES, FNS, WQ. MT:AC, WQP, OD.

Footnotes:

1 Wetlands Assessment Threshold Criteria and instructions are presented in Appendix A.

2 Site identifier does not indicate or imply priority rank. See Figure KY-2 for general location of areas corresponding to the site identification number.

3 In addition to any species and resources specifically listed, all sites exhibited a diversity of fish and wildlife resources of interest to the Service and State, as well as important outdoor recreation, educational, and public use opportunities or potential opportunities.

4 Site identified by the Fish and Wildlife Service as a key waterfowl and Lower Mississippi River Valley Joint Venture Area (Category 23A) under the North American Waterfowl Management Plan.

Table C.6. (Page 4 of 4). Important Wetlands in Kentucky Meeting Wetlands Assessment Criteria.[1]

Footnotes (con't.):

§ Site identified as a priority wetland in Kentucky (Kentucky Department of Local Government 1987, 1989).

* FWS (1990): "Land Acquisition Briefing Book, FY 1991."

** At least 50 percent of identified farmed wetlands would be restored to a wetland type recognized as declining in the Southeast Region (e.g., Palustrine Forested, Palustrine Emergent).

Table C.6.1. Potential Priority Wetlands in Kentucky.[1]

Name of Area	Approximate Acres
Allison Swamp	*
Blood River Bottoms and Vicinity	1,000
Brodhead Swamp	60
Charley Cheeks Swamp	700
Clarks River System	10,000
Clear Creek	15,000
Cypress Slough, Dixon Pond, etc.	4,400
Cypress Slough, Snakey Pond, etc.	200
Cypress Creek System (Tenn. River)	2,500
Deer Creek System	*
Fish Lake/Back Slough/Laketon Area	1,300
Green River (mainstem)	*
Highland Creek System	2,500
Humphrey Creek System	675
Hundred Acre Pond, etc.	*
Johnathan Creek Bottoms, etc.	1,000
Maud Swamp	*
McGaughey Swamp	*
Meadow Creek Swamp	320
Metropolis Lake Area	250
Mississippi River Islands and Bottoms	2,000
Mosley Pond	200
Mud River/Roundabout Swamp System	*
Muddy Creek/Little Muddy Creek	*
Ohio River Bottoms	
Henderson County	10,000
McCracken County	2,000
Union County	10,000
Panther Creek System	*
Pond River System	2,000
Pond Creek System	2,500
Richland Slough Area	600
Robey Swamp	*
Rough River	600
Running Slough, etc.	600
Salt River (Lower) Rolling Fork	*
Shawnee Creek System	*
Terrapin Creek System	700
Tradewater River System	7,500
Transient Lakes, etc.	1,300

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[1] Site identified as a priority wetland in Kentucky (Kentucky Department of Local Government 1987, 1989). Additional information and evaluation of these areas are needed to determine compliance with the "Wetlands Threshold Assessment Criteria" in Appendix A.

* Approximate acreage not available.

APPENDIX C.7. IMPORTANT WETLANDS: LOUISIANA

WETLAND VALUES AND TRENDS IN LOUISIANA*

Two major wetland regions are found in Louisiana: The Mississippi River Alluvial Plain (including the adjoining floodplains of the major tributaries of the Mississippi River) and the Louisiana Coastal Region. Overall, Louisiana has lost some or all of the functions and values on about 46 percent of its wetlands from the 1780's to the 1980's (loss of about 7.4 million acres).

MISSISSIPPI RIVER ALLUVIAL PLAIN

1. Wetland Loss: The predominant wetland types in this Region include Palustrine Forested Wetland; Palustrine Scrub-Shrub Wetland; and Palustrine Emergent Wetland, farmed. Those wetland types are commonly referred to as bottomland hardwood forest, shrub swamp, and farmed wetlands, respectively. On a statewide basis, Louisiana's forested wetlands declined from an estimated original 11.3 million acres to about 5.6 million acres by 1974 (about a 50 percent decline). In the Mississippi River Alluvial Plain, Palustrine Forested Wetlands and Palustrine Scrub-shrub Wetlands declined from about 4.3 million acres in 1957 to about 3.0 million acres in 1977, a reduction of over 30 percent. The vast majority of that loss is attributed to land clearing for row-crop production. Some of the forested wetlands that were converted to crop production still flood and thus retain some of their value to waterfowl and other wetland associated wildlife.

2. Wetland Threats: The remaining Palustrine Forested Wetlands and Palustrine Scrub-Shrub Wetlands are still threatened by conversion to agriculture. The rate of loss experienced between 1957 and 1977 (1.5 percent per year) has seemingly been slowed by the "Swampbuster" provisions of the Food Security Act of 1985 and, to a lesser extent, Section 404 of the Clean Water Act. However, the rate of decline is still believed to be substantial. Furthermore, Federal, State, local, and privately funded drainage projects continue to reduce the duration and extent of flooding of natural wetlands and farmed wetlands. Other threats include:

   - Oil and gas exploration
   - Lignite and gravel mining
   - Construction of catfish and crawfish ponds
   - Dredging and filling for residential and commercial development
   - Discharge of oilfield brine and other pollutants
   - Solid waste disposal (landfills)
   - Highway construction
   - Impoundments

* See bibliography for references, especially Frayer et al. (1983), Hefner and Brown (1985), and Dahl (1990).

3. Wetland Functions and Values: Wetlands in the Mississippi River Alluvial Plain serve a variety of important wetland functions. They provide habitat to numerous species of fish and wildlife, remove pollutants from agricultural runoff and adjacent waterbodies, serve as floodwater storage areas, reduce erosion, help to replenish groundwater supplies, and provide sites for high-quality outdoor recreation such as hunting, fishing, wildlife observation, and outdoor photography. The wetlands of this Region are part of the Lower Mississippi River Delta-Gulf Coast Priority Habitat Range recognized in the North American Waterfowl Management Plan for its international importance to migrating and wintering waterfowl.

LOUISIANA COASTAL REGION

1. Wetland Loss: Coastal Louisiana contains over 2.5 million acres of coastal marsh (Estuarine Intertidal Emergent Wetland and Palustrine Emergent Wetland). Those marshes are bordered by approximately 637,000 acres of forested wetlands (Palustrine Forested Wetland), most of which are actually part of the contiguous Mississippi River Alluvial Plain Region discussed above.

   More than 900,000 acres of Louisiana's coastal wetlands (primarily coastal marshes) have been lost since the beginning of the twentieth century; approximately 654,000 acres (73 percent) of that loss occurred between the 1950's and the 1970's. Current wetland loss rates in that area are approximately 40 to 60 square miles per year. The greatest loss has occurred in the fresh marshes (Palustrine Emergent Wetland), i.e., the coastal wetland type that is of greatest value to waterfowl and other wildlife.

2. Wetlands Threats: Louisiana's coastal wetlands are expected to continue to decline at a rapid rate. The Corps of Engineers has estimated that another 1 million acres of those wetlands will be lost by the year 2040 unless corrective action is taken.

   Coastal wetland loss is attributed to a combination of natural and human causes. Natural causes include subsidence, sea-level rise, erosion, and hurricanes. Excavation of canals for navigation and construction of levees along the Mississippi and Atchafalaya Rivers have greatly accelerated saltwater intrusion and subsidence. Conversion of marshes to open water represents the greatest adverse habitat change in coastal Louisiana. Existing wetlands are threatened by the following factors:

   - Drainage for conversion to crop production or pasture
   - Discharge of oilfield brine and other contaminants
   - Excavation of canals for oil and gas exploration, navigation, and pipeline installation
   - Disposal of dredged material
   - Installation of roads and drill pads for oil and gas exploration
   - Dredging, filling, and/or drainage for development
   - Highway construction
   - Construction of levees and dikes
   - Subsidence
   - Erosion
   - Hurricanes

3. Wetland Functions and Values: Louisiana's coastal wetlands winter 20 to 25 percent of North America's puddle duck populations. Those wetlands contain a substantial portion of the important waterfowl habitat found in the Lower Mississippi River Delta-Gulf Coast Priority Habitat Range, recognized in the North American Waterfowl Management Plan because of its international importance to migrating and wintering waterfowl. Louisiana's coastal wetlands also support large populations of wading birds, rails, gallinules, shorebirds, fur animals, and the American alligator. Over 40 active bald eagle nests were recorded there in a recent survey. Louisiana's coastal marshes, which serve as important breeding and nursery habitat by fishes and shellfishes, also produce the nation's largest seafood harvest and support an important saltwater sport fishery. Other functions served by those wetlands include water quality improvement and reduction in hurricane-related tidal surges. Those wetlands also provide important sites for outdoor recreation, research, and education.

Figure LA-1. Generalized location of two major categories of wetlands in Louisiana.

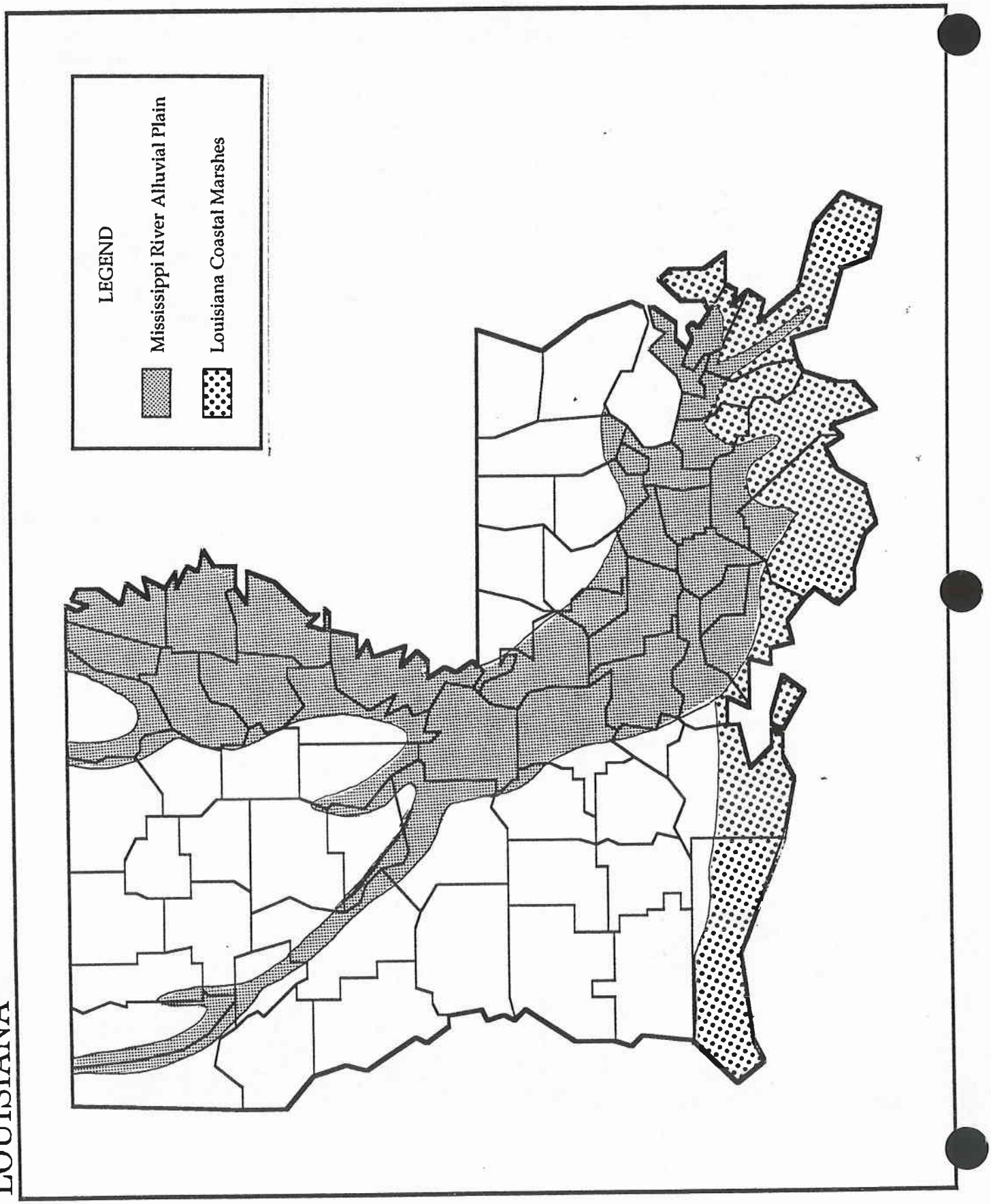
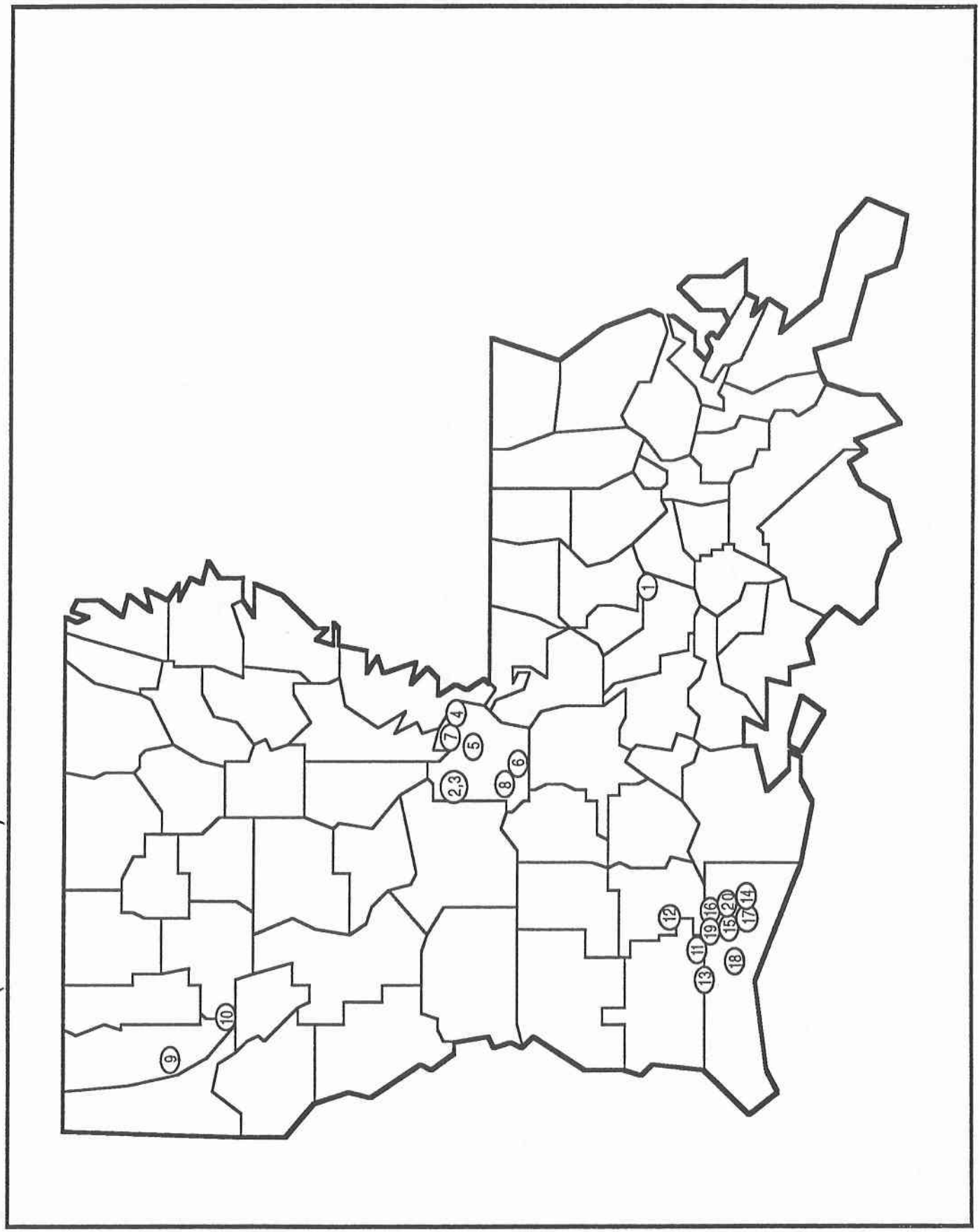
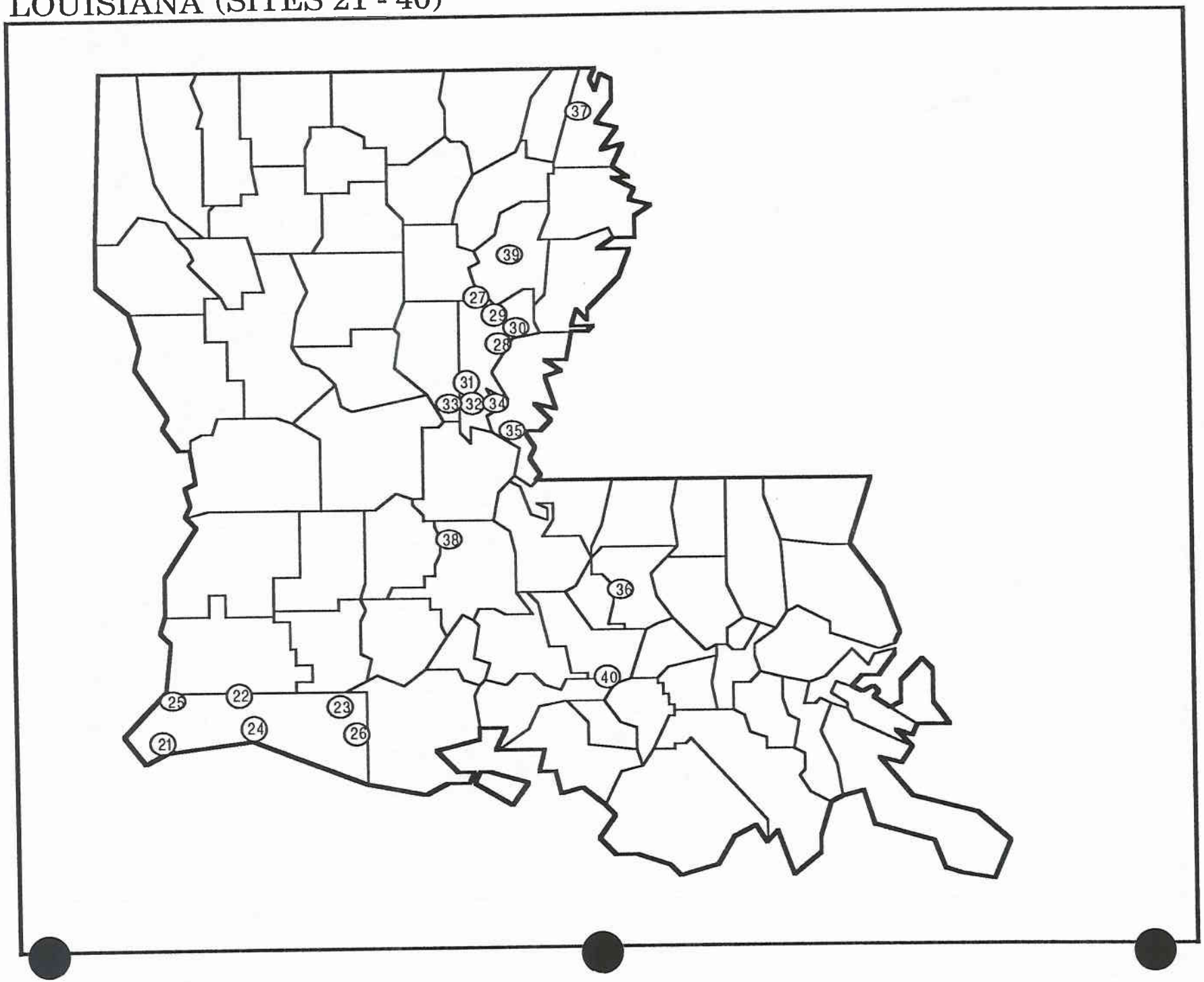


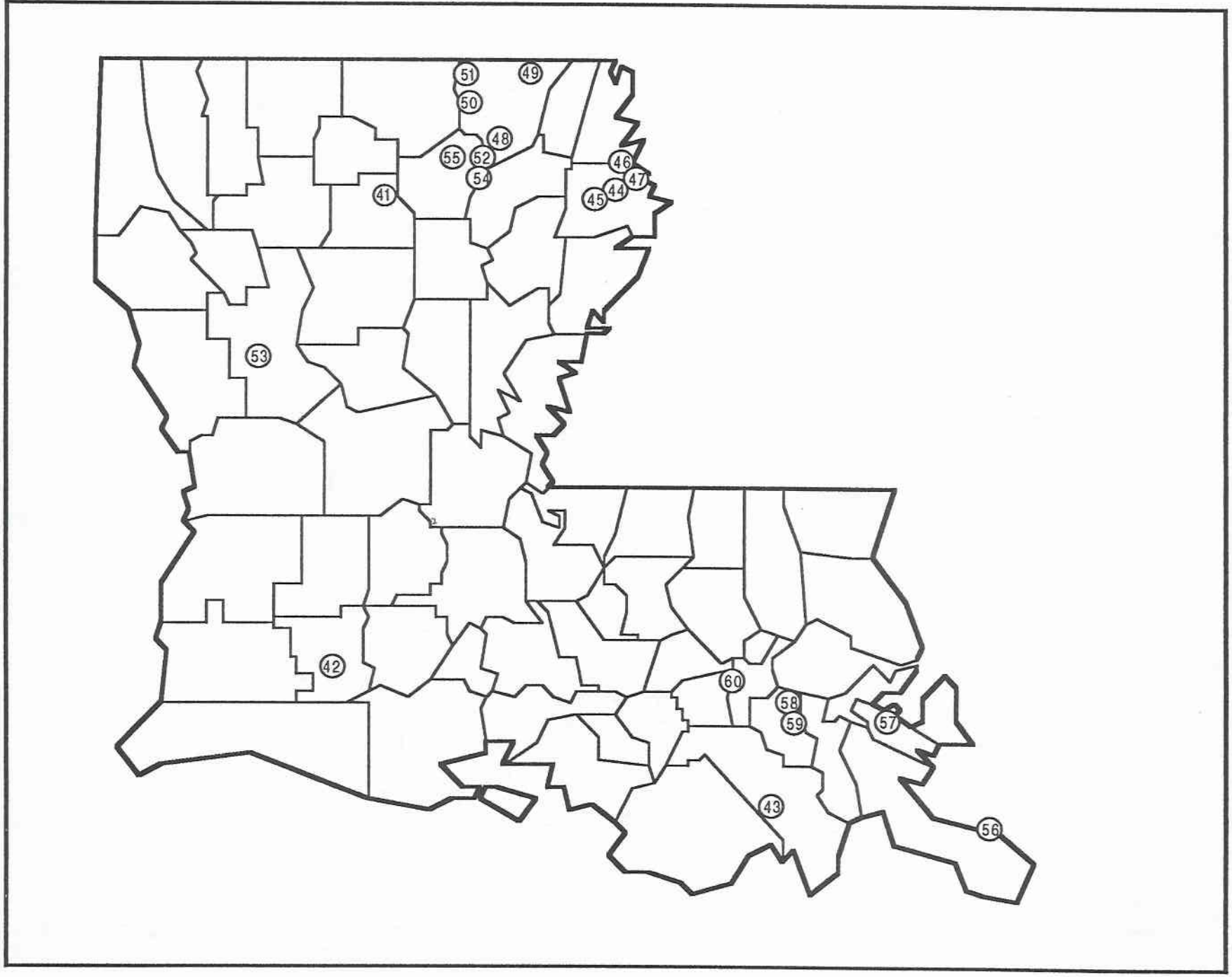
Figure LA-2. Generalized location of priority wetlands in Louisiana (See Table C.7).



LOUISIANA (SITES 21 - 40)



LOUISIANA (SITES 41 - 60)



LOUISIANA (SITES 61 - 88)

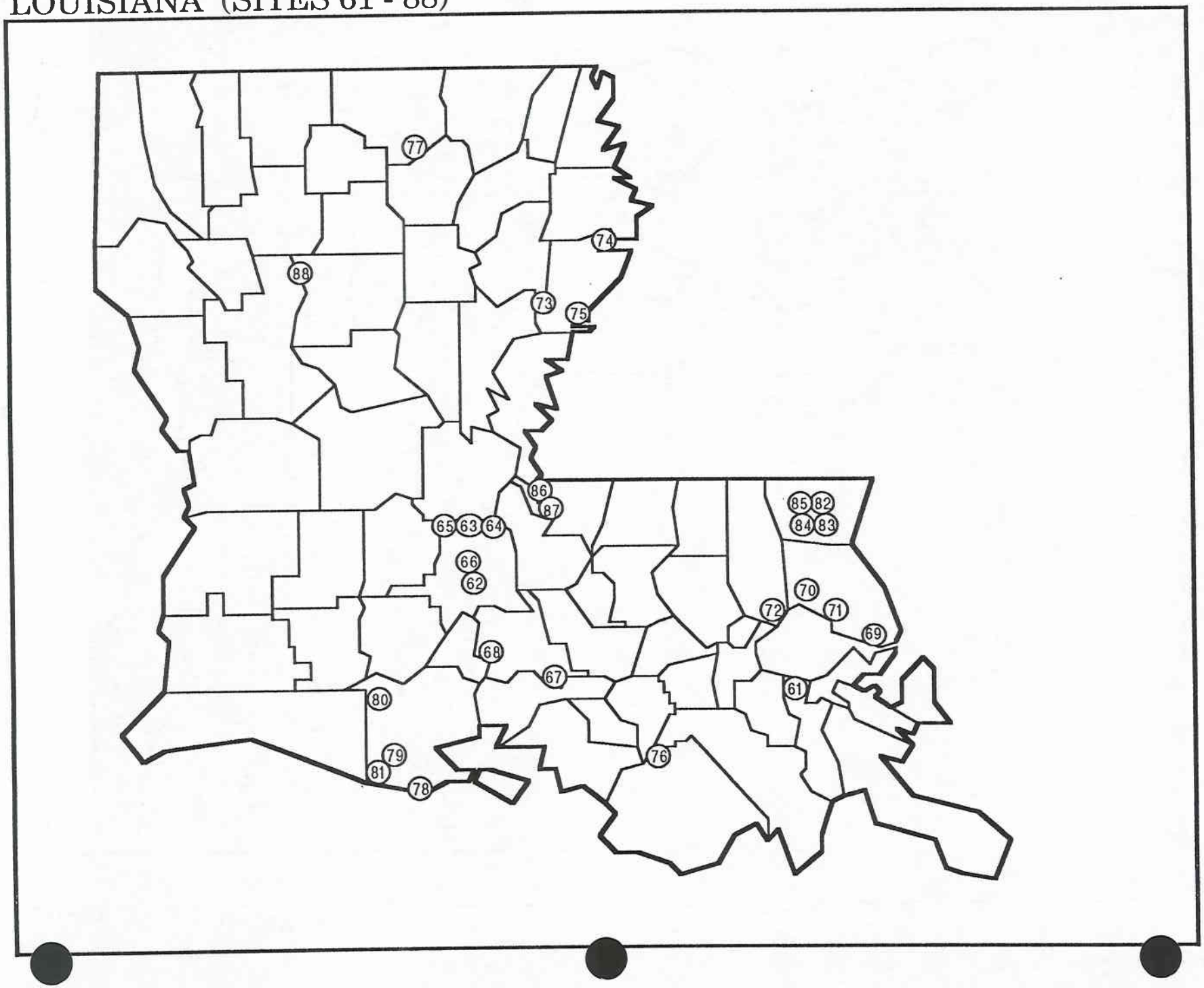


Table C.7. Important Wetlands in Louisiana Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	PARISH	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
1	Spanish Lake	Ascension, Iberville, East Baton Rouge	17,240	P:FO:F/A P:SS:F	Important waterfowl and migratory bird area.[4a] FNS, WQ. MT:AC, RCD, OGD, ITM, WDS.
2	Coco Farms*	Avoyelles	8,300	P:f** P:FO:A/F	Important waterfowl and migratory bird area, surrounded by agricultural lands.[4a] WQ. MT:AC.
3	Chatlin Lake*	Avoyelles, Rapides	9,500	P:f** P:FO:A/F	Important waterfowl and migratory bird area, surrounded by agricultural lands.[4a] WQ. MT:AC.
4	Red River Bay	Avoyelles	5,190	P:FO:F/A P:SS:F P:UB:H	Important waterfowl and migratory bird area.[4a] FNS, WQ. MT:AC, ITM.
5	Coco Lake/ Fish Bayou	Avoyelles	4,000	P:FO:A/F P:SS:F P:UB:H	Important waterfowl and migratory bird area.[4a] FNS, WQ. MT:AC, ITM.
6	Woodard Plantation	Avoyelles	19,000	P:FO:A/F P:f**	Important waterfowl and migratory bird area [4a] within West Atchafalaya floodplain. WQ. MT:AC.
7	Lake Ophelia	Avoyelles Catahoula	63,000 ***	P:f** P:FO:F/A	Important waterfowl and migratory bird area within floodplain of Red River.[4a,5] MT:AC.

Table C.7. (Page 2 of 17). Important Wetlands in Louisiana Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	PARISH	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
8	Lake Pearl	Avoyelles	3,600	P:FO:F/A P:SS:F P:UB:H	Important waterfowl and migratory bird area,[4a] surrounded by agricultural lands. Important commercial crawfish area. WQ. MT, AC.
9	Bodcau	Bossier	12,000	P:FO:C	Important waterfowl and migratory bird area; large relatively undisturbed area of bottomland hardwoods.[5,6] WQ. MT:AC.
10	Loggy Bayou	Bossier	4,200	P:FO:A	Large tract of bottomland forest adjacent to State-owned Loggy Bayou WMA.[5] WQ. MT:ITM, RCD.
11	Choupique Bayou	Calcasieu	15,400	P:EM:F P:f	Important Gulf Coast waterfowl and migratory bird area.[4b] WQ. MT:SI, AC.
12	Lacassine Bayou	Calcasieu, Jeff Davis	19,000	P:FO:A:F P:f	Important Gulf Coast waterfowl and migratory bird area.[4b] FNS, WQ. MT:AC, ITM.
13	Deatonville	Calcasieu	190	E2:EM:P	Brackish marsh that provides excellent nursery and spawning habitat for estuarine fish and shell-fish; good habitat for migratory birds.[5] MT:SI, WQP.

Table C.7. (Page 3 of 17). Important Wetlands in Louisiana Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	PARISH	APPROXIMATE ACREAGE		MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
14	Big Burn Unit	Cameron	59,300		P:EM:F E2:EM:P P:UB:H	Important Gulf Coast waterfowl and migratory bird area.[4b] Adjacent to Cameron Prairie NWR. Also, includes FWS planning areas for possible expansion of Lacassine NWR.[0] FNS. MT:SI, WQP, WDP.
15	Cameron Prairie	Cameron	22,000	****	P:f** P:EM:F	Important Gulf Coast waterfowl and migratory bird area.[4b] MT:AC.
16	Goose Island	Cameron	9,200		P:EM:F/A P:f**	Important Gulf Coast waterfowl and migratory bird area.[4b] FNS. MT:AC
17	Little Pecan Island	Cameron	12,300		E2:EM:P E1:UB:L	Important Gulf Coast waterfowl and migratory bird area;[4b] includes proposed Little Pecan Island NWR.[0] FNS. MT:SI, OGM.
18	Willow Lake-Sweet Lake	Cameron	25,200		E1:UB:L[0] E2:EM:P P:f	Important Gulf Coast waterfowl and migratory bird area.[4b] Includes about 480 acres of scarce coastal prairie.[6] FNS, WQ. MT:SI.
19	Illinois Plant	Cameron	9,200		P:f** P:EM:F	Important Gulf Coast waterfowl and migratory bird area.[4b] MT:AC.

Table C.7. (Page 4 of 17). Important Wetlands in Louisiana Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	PARISH	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
20	Mango Ridge	Cameron	7,500	P:EM:F P:f**	Important Gulf Coast waterfowl and migratory bird area.[4b] FNS. MT:AC.
21	Johnson's Bayou	Cameron	54,600	Ea:EM:P/N E1:UB:L	Important Gulf Coast waterfowl and migratory bird area.[4b,5,6,7] FNS. MT:SI, OGM, AC.
22	Black Bayou	Cameron	17,500	P:f** P:EM:F	Important Gulf Coast waterfowl and migratory bird area.[4b] MT:AC.
23	Maple Marsh	Cameron	25,600	P:EM:F P:UB:H P:f**	Important Gulf Coast waterfowl and migratory bird area.[4b] FNS. MT:AC.
24	Joyce Tract	Cameron	59,000	E2:EM:P/N E1:UB P:EM:F	Important Gulf Coast waterfowl and migratory bird area.[4b,7] FNS. MT:OGM, SI, AC.
25	Gum Cove	Cameron, Calcasieu	73,300	E2:EM:P P:EM:F P:FO:A	Important Gulf Coast waterfowl and migratory bird area.[4b,6] MT:SI, OGM, AC. P:UB:H
26	Pan Am Unit	Cameron, Vermilion	103,800	P:EM:F P:UB:H P:FO:F	Important Gulf Coast waterfowl and migratory bird area.[4b] FNS. MT:AC.

Table C.7. (Page 5 of 17). Important Wetlands in Louisiana Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	PARISH	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
27	Crowfield	Catahoula	8,000	P:f** P:FO:A P:UB:H	Important waterfowl and migratory bird area,[4a] surrounded by agricultural lands. WQ. MT:AC, WQP.
28	Means Lake	Catahoula	30,000	P:f** P:FO:A:F	Important waterfowl and migratory bird area,[4a] surrounded by agricultural lands. WQ. MT:AC, WQP.
29	Gastis-Rawson Creek	Catahoula	7,000	P:f** P:FO:A	Important waterfowl and migratory bird area,[4a] surrounded by agricultural lands. WQ. MT:AC, WQP.
30	Lake Lewis	Catahoula	10,000	P:FO:F P:SS:F P:f	Important waterfowl and migratory bird area,[4a] surrounded by agricultural lands. WQ. MT:AC, WQP.
31	Dempsey Lake	Catahoula	6,770	P:FO:F/A P:UB:H	Important waterfowl and migratory bird area,[4a] surrounded by agricultural lands. WQ. MT:AC, ITM.
32	Honey Brake-Louisiana Delta Plantation	Catahoula	80,000	P:f** P:FO:A/F	Important waterfowl and migratory bird area,[4a] surrounded by agricultural lands. FNS, WQ. MT:AC, ITM, WQP.

Table C.7. (Page 6 of 17). Important Wetlands in Louisiana Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	PARISH	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
33	Shad Lake	Catahoula	2,250	P:FO:A/F P:UB:H P:f	Important waterfowl and migratory bird area,[4a] surrounded by agricultural lands. FNS, WQ. MT:AC, ITM, WQP.
34	Bayou Cocodrie	Concordia	134,000	P:f** P:FO:A/F	Important waterfowl and migratory bird area,[4a] surrounded by agricultural land. Contains several large forested areas that are some of the only remaining large forested tracts in State. Within FWS planning area for proposed Bayou Cocodrie NWR.[0] WQ. MT:AC, WQP.
35	Yackey Bottomlands	Concordia	8,200	P:FO:A	large areas (7,000+ acres) of bottomland hardwoods adjacent to Mississippi River; important to waterfowl and other migratory birds.[5,6] WQ. MT:OGM, ITM, AC.
36	Bluebonnet Swamp	East Baton Rouge	65	P:FO:F/A	An old growth baldcypress swamp with some surrounding bottomland hardwoods and uplands located in a highly urbanized setting.[5,6] WQ. MT:RCD.
37	Elgin Tract	East Carroll	4,890	P:FO:A P:f	Important waterfowl and migratory bird area,[4a] surrounded by agricultural lands. FNS, WQ. MT:AC, ITM, WQP.

Table C.7. (Page 7 of 17). Important Wetlands in Louisiana Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	PARISH	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
38	Cazan Lake	Evangeline, St. Landry	12,000	P:f** P:FO:F/A	Important waterfowl and migratory bird area,[4a] surrounded by agricultural lands. WQ. MT:AC, WQP.
39	Turkey Creek	Franklin	4,000	P:FO:F/A P:UB:H	Important waterfowl and migratory bird area,[4a] surrounded by agricultural lands. FNS, WQ. MT:AC, ITM, WQP.
40	Indigo Island	Iberville	2,200	P:FO:F/A P:EM:F P:SS:F	Important waterfowl and migratory bird area on eastern edge of Atchafalaya Basin.[4a] WQ. MT: RCD, ITM.
41	Schoolhouse Springs	Jackson	74	R2:UB:H P:FO:F	Natural spring and surrounding bayhead that supports a number of endemic aquatic insects, as well as other important wildlife.[5,6] WQ. MT:OD.
42	Bayou Chene	Jeff Davis	7,500	P:FO:F/A P:f**	Important Gulf Coast waterfowl and migratory bird area,[4b] surrounded by agricultural lands. WQ. MT:AC, ITM, WQP.
43	Anderson Farms	Lafourche	1,800	P:f P:FO:F P:EM:F	Important coastal marsh area; potential acquisition area for Louisiana Department of Wildlife and Fisheries.[5] FNS, WQ. MT:AC, WQP.

Table C.7. (Page 8 of 17). Important Wetlands in Louisiana Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	PARISH	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
44	Alligator Brake	Madison	1,050	P:SS:F P:FO:F	Important waterfowl and migratory bird area.[4a] MT:AC, ITM.
45	Spring Bayou-McClemore	Madison, Tensas	12,900	P:FO:A/F P:f**	Important waterfowl and migratory bird area, adjacent to Tensas River NWR.[4a] Within FWS planning and proposed acquisition area for Tensas River NWR.[0] FNS, WQ. MT:AC, ITM, WQP.
46	Panther Lake	Madison	13,950	P:f** P:FO:A P:UB:H	Important waterfowl and migratory bird area.[4a,6] MT:AC.
47	Texas Lakes	Madison	3,500	P:f** P:FO:A/F P:UB:H P:SS:F	Important waterfowl and migratory bird area.[4a] WQ. MT:AC, ITM, WQP.
48	Coulee Bottom	Morehouse	4,500	P:f** P:SS:F P:UB:H	Important waterfowl and migratory bird area;[4a] portion of area leased by Louisiana Department of Wildlife and Fisheries. FNS, WQ. MT:AC, WQP
49	Merganser Farms	Morehouse	2,500	P:FO:A P:f**	Important waterfowl and migratory bird area, [4a] adjacent to agricultural lands. WQ. MT:AC, ITM, WQP.

Table C.7. (Page 9 of 17). Important Wetlands in Louisiana Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	PARISH	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
50	McGowen Brake	Morehouse	1,000	P:FO:SS/F P:f** P:UB:H	Important waterfowl and migratory bird area.[4a] FNS, WQ. MT:AC.
51	Mollicy Farms	Morehouse	25,000	P:f** P:SS:F P:EM:F	Important waterfowl and migratory bird area.[4a] WQ. MT:AC, WQP.
52	Bayou Lafourche	Morehouse, Quachita, Richland	9,300	P:FO:A P:UB:H P:EM:F	Important waterfowl and migratory bird area.[4a] MT:AC, RCD, WQP.
53	Kisatchie Bayou	Natchitoches	320	R2:UB:H P:FO:F	Designated as a Natural and Scenic Stream by State.[5] FNS. MT:ITM, OD.
54	Quachita East	Quachita, Richland	12,500	P:f** P:FO:A P:UB:H	Important waterfowl and migratory bird area,[4a] surrounded by agricultural lands. WQ. MT:AC, WQP.
55	Johnson's Brake	Quachita	1,000	P:FO:F/A	Important waterfowl and migratory bird area,[4a] surrounded by agricultural lands. MT:AC, ITM.
56	Baptiste Collette	Plaquemine	43,000	E2:EM:N E1:UB:L P:FO:A	Important Gulf Coast waterfowl and migratory bird area.[4b] FNS. MT:WQP.
57	Delocroix Marsh	St. Bernard	168,600	E2:EM:P E1:UB:L	Important Gulf Coast waterfowl and migratory bird area.[4b] FNS. MT:SI, WDP.

Table C.7. (Page 10 of 17). Important Wetlands in Louisiana Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	PARISH	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
58	LaBranche Wetlands	St.Charles	19,000	P:FO:F E2:EM:P P:UB:H	Important waterfowl and migratory bird area along the southern shore of Lake Pontchartrain.[4b] Two bayous within tract are designated as Natural and Scenic Streams by State. ES, WQ. MT:SI, WQP, OGM.
59	Bayou Bois Piquant Crevasse Swamp	St. Charles	7,250	P:EM:F P:FO:F/A	Important wetlands just south of New Orleans. Area supports a rare forested wetland ridge complex.[5,6] WQ. MT:RCD, WQP.
60	Lake Maurepas	St. James, SwampLivingston, Ascension, St. John	125,000	P:FO:F/A P:EM:F P:UB:H	Important waterfowl and migratory bird area located in alluvial floodplain of Mississippi River.[4b] Portion of area identified as potential State Preservation Area and noted as an excellent example of a forested wetland.[5,6] WQ. MT:OGM, ITM, WQP.
61	Ormand/Airline	St. John the Baptist	3,400	P:FO:F/C P:EM:F	Important area of forested wetland and fresh marsh between Mississippi River and Lake Pontchartrain.[5] FNS, WQ. MT:WDP.

Table C.7. (Page 11 of 17). Important Wetlands in Louisiana Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	PARISH	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
62	Swayze Lake	St. Landry	35,000	P:f** P:FO:A	Important waterfowl and migratory bird area within the West Atchafalaya Floodway.[4a] WQ. MT:AC, WQP, WDP.
63	Bayou Wauksha Bottoms	St. Landry, Avoyelles	35,500	P:f** P:FO:A	Important waterfowl and migratory bird area.[4a] WQ. MT:AC, WQP, WDP.
64	Bayou Jack	St. Landry	16,000	P:FO:A P:f**	Important waterfowl and migratory bird area within the West Atchafalaya Floodway.[4a] WQ. MT:AC, WDP, ITM.
65	Black Stump Lake	St. Landry	2,000	P:f** P:FO:F:A	Important waterfowl and migratory bird area within a swamp and surrounded by agricultural lands.[4a] WQ. MT:AC, ITM.
66	Thistlewaite Corp.	St. Landry	11,000	P:FO:A P:UB:H	Important bottomland hardwood area with sloughs and bayous.[5] FNS, WQ. MT:AC.
67	Catahoula Coulee	St. Martin	10,000	P:FO:A/F	Important waterfowl and migratory bird area.[4a] WQ. MT:ITM, RCD.

Table C.7. (Page 12 of 17). Important Wetlands in Louisiana Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	PARISH	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
68	Cypress Island	St. Martin	14,000	P:FO:A/F	Important waterfowl and migratory bird area.[4b,5,6] Includes largest rookery of white ibises in State. FNS, WQ. MT:AC, ITM, OD.
69	White Kitchen	St. Tammany	1,500	P:EM:F P:SS:F P:FO:F/A	Contains a wading bird rookery, bald eagle nesting territory, and wood duck habitat within a diversity of wetland types.[5,6] ES, WQ. MT:WDP.
70	Lake Ramsey	St. Tammany	1,700	P:EM:B	A wetland savannah (rare in Louisiana) that supports a number of rare plant species.[5,6] WQ. MT:AC, RCD, OD.
71	Madisonville/ Lewisburg Marshes	St. Tammany	2,700	E2:EM:N/P P:FO:F	Highly productive marsh and cypress swamp.[5] FNS, WQ. MT:RCD.
72	Ponchatoula Old-Growth Cypress	Tangipahoa	1,900	P:FO:F	A large area of swamp along the north shore of Lake Pontchartrain.[5,6] FNS, WQ. MT:ITM.
73	Big Hog Glade	Tensas	10,155	P:FO:F/A P:SS:F	Important waterfowl and migratory bird area,[4a] surrounded by agricultural lands. WQ. MT:AC, ITM.

Table C.7. (Page 13 of 17). Important Wetlands in Louisiana Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	PARISH	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
74	Somerset	Tensas	13,000	P:FO:A/F P:UB:H	Important waterfowl and migratory bird area between Tensas and Mississippi River.[4a] FNS, WQ. MT:AC, ITM.
75	Buckhorn	Tensas	12,000	P:f** P:FO:A/F	Important waterfowl and migratory bird area, surrounded by agricultural lands.[4a] FNS, WQ. MT:AC.
76	Terrebonne Marsh	Terrebonne	609,900	P:EM:F E2:EM:P E1:UB:L P:FO:A	Important Gulf Coast waterfowl and migratory bird area.[4b] Supports highest concentration of nesting bald eagles in State. ES, FNS, WQ. MT:RCD, SI, OGM, WQP.
77	Upper D'Arbonne	Union	5,000	P:FO:A/F P:UB:H	Important waterfowl and migratory bird area.[4a] FNS. MT:ITM, OD.
78	Cheniere au Tigre	Vermilion	16,000	E2:EM:P	An area of geologically stranded beaches surrounded by brackish marsh, important to waterfowl, other migratory birds, and many other species.[4b,5,6] FNS. MT:RCD, OGM, OD.

Table C.7. (Page 14 of 17). Important Wetlands in Louisiana Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	PARISH	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
79	Pecan Island Marsh	Vermilion	98,140	E2:EM:P E1:UB:L	Important Gulf Coast waterfowl and migratory bird area.[4b] FNS. MT:SI, OGM, WQP.
80	Florence Club	Vermilion, Cameron	14,300	P:EM:F P:f P:UB:H	Important Gulf coast waterfowl and migratory bird area.[4b,5,6] Includes FWS planning and acquisition areas for the proposed Latanier Bayou NWR.[0] MT:SI, OGM, WQP, OD.
81	Rockefeller Wildlife Refuge	Vermilion	1,200	E2:EM:P	Important area of coastal marsh just east of State-operated Rockefeller Wildlife Refuge.[5] MT:OGM, SI, WQP, OD.
82	Lawrence Creek Bottoms	Washington	560	P:FO:A R2:UB:H	The only known occurrence in the State of the plant species Lindera subcoriaceae (candidate for Federal listing)[5,6] WQ. MT:RCD, OGM, WQD.
83	Thigpen Creek	Washington	90	R2:UB:H P:FO:A	Isoetes louisianensis, a plant that is being considered for Federal listing as endangered, is found on this site.[5,6] WQ. MT:OD.

Table C.7. (Page 15 of 17). Important Wetlands in Louisiana Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	PARISH	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
84	Ed's Bog	Washington	20	P:SS:B	Supports a number of plant species listed as being rare by the Natural Heritage Program.[5,6] MT:RCD, OD.
85	Bogue Chitto	Washington, St. Tammany	1,500	R2:UB:H P:FO:C	Includes Bogue Chitto River. The Federally threatened ringed-sawback turtle is present in the River.[5,6] Includes planned and proposed acquisition areas for expansion of Bogue Chitto NWR.[6] FNS, WQ. MT:RCD, OGM, WQP, OD.
86	Raccourci Island	West Feliciana	16,000	P:FO:A/F P:UB:H	Important waterfowl and migratory bird area.[4a] One of few areas along Mississippi River not enclosed by levees. FNS, WQ. MT:AC, ITM, WQP.
87	Tunica Swamp	West Feliciana	36,000	P:FO:A/F P:UB:H	Important waterfowl and migratory bird area.[4a,5] One of few areas along the Mississippi River not enclosed within levees. FNS, WQ. MT:AC, ITM, WQP.
88	Saline Bayou	Winn, Natchitoches	40	R2:UB:H P:FO:A	This tract encompasses a nationally designated "wild and scenic river" and adjacent bottomland forest.[5] RCD, ITM, WQP.

Table C.7. (Page 16 of 17). Important Wetlands in Louisiana Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	PARISH	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
89	Bayou Sauvage	New Orleans	19,000	P:EM P:UB:H E2:EM L	Additional acquisition proposed for Bayou Sauvage NWR. Area provides important habitat for numerous fish and wildlife species. ES, FNS, WQ. MT:RCD, SI, WDP, WQP.

Footnotes:

1 Wetlands Assessment Threshold Criteria and instructions are presented in Appendix A.

2 Site identifier does not indicate or imply priority rank. See Figure LA-2 for general location of area corresponding to the site identification number.

3 In addition to any species and resources specifically listed, all sites exhibited a diversity of other fish and wildlife resources of interest to the Service and State, as well as important outdoor recreation, education, and public use opportunities or potential opportunities.

4a Site identified by the Fish and Wildlife Service as a key waterfowl and Lower Mississippi River Valley Joint Venture Area (Category 23A) under the North American Waterfowl Management Plan.

4b Site identified by the Fish and Wildlife Service as a key waterfowl and Gulf Coast Joint Venture area (Category 23B) under the North American Waterfowl Management Plan.

5 Site identified as a priority wetland area in the Louisiana Wetlands Priority Conservation Plan (1988).

6 Site, or a portion of the site, designated as a priority acquisition area by the Louisiana Nature Conservancy.

7 A portion of the area is within Unit S-11 of the Coastal Barrier Resources System.

Table C.7. (Page 17 of 17). Important Wetlands in Louisiana Meeting Wetlands Assessment Criteria.[1]

Footnotes (Con't.)

**** The Service has purchased a portion of this area to establish the Cameron Prairie NWR.

o The large extent of open water (75 percent) on this area resulted in a Wetland Priority Loss rating of 4. However, this area has been included because of its documented value to fish and wildlife and widely recognized importance of the area.

0 FWS (1990): "Land Acquisition Briefing Book, FY 1991."

APPENDIX C.8. IMPORTANT WETLANDS: MISSISSIPPI

WETLAND VALUES AND TRENDS IN MISSISSIPPI*

Two major wetland regions are found in Mississippi: Lower Mississippi River Alluvial Valley and Gulf Coast. Overall, Mississippi has lost some or all of the functions and values on as much as 59 percent of its wetlands from the 1780's to the 1980's (loss of about 5.8 million acres).

LOWER MISSISSIPPI RIVER ALLUVIAL VALLEY

The predominant wetland types in the alluvial valley are Palustrine Forested, Palustrine Scrub-Shrub, and Palustrine non-vegetated.

1. Wetland Loss: Most of the Palustrine Forested Wetlands have been converted to agriculture. In 1937, there were approximately 1,750,000 acres of bottomland hardwood wetlands. This had been reduced to about 600,000 acres in 1987. Practically all are being farmed with a substantial portion being marginal for crop production because of flooding hazards. As some of these marginal farmlands are allowed to lie idle, they revert to scrub-shrub. Losses of bottomland hardwoods are believed to have decelerated due primarily to a drop in soybean prices and possibly to the advent of "swampbuster" provisions in the Food Security Act of 1985.

2. Wetland Threats: Remaining Palustrine Forested Wetlands have a continuing clearing threat by agricultural developers. These wetlands are also threatened by one or more of the following activities:

   - o Drainage and flood protection projects
   - o Dredging and stream channelization
   - o Diversion of drainage patterns
   - o Construction of dikes and levees
   - o Discharge of pollutants
   - o Erosion

3. Wetland Functions and Values: Wetlands in the Alluvial Valley provide important public values including fish and wildlife habitat, surface and groundwater supply, water quality improvement, flood storage, erosion control, outdoor recreation, and research and education. The alluvial valley wetlands of Mississippi are identified as priority waterfowl migration and wintering habitat in the North American Waterfowl Management Plan.

* See bibliography for references, especially Frayer et al. (1983), Hefner and Brown (1985), and Dahl (1990).

GULF COAST

The predominant wetland types in the Mississippi Gulf Coast area are the Estuarine Emergent marshlands, Estuarine unconsolidated bottoms, and Palustrine Forested Wetlands. As of 1984, Mississippi's coastal area contained approximately 77,500 acres of marsh habitat, of which 99 percent were saline, brackish and intermediate marshes, and only one percent freshwater marshes. About 343,700 acres of Estuarine unconsolidated bottoms and 9,000 acres of cypress-tupelo swamp and bottomland forest were also present.

1. Wetland Loss: Industrial and urban development have been the major activities resulting in the loss of coastal wetlands in Mississippi. Since 1930, over 8,500 acres of coastal wetlands have been drained or filled. Since the State enacted a Coastal Wetlands Protection Act in 1973, the rate of wetland loss as a result of development activities has decreased. Erosion, resulting from sea-level rise, subsidence, and barrier island migration have also contributed to the loss of wetlands or changes in wetland types, although the magnitude of these events are not clearly documented.

2. Wetland Threats: The Mississippi Gulf Coast Estuarine Wetlands are threatened by one or more of the following:

   - o Dredging and filling
   - o Discharging of pollutants
   - o Erosion and sedimentation
   - o Bulkheading
   - o Alternation of water exchange patterns

3. Wetlands Functions and Values: Wetlands along the Mississippi Gulf Coast provide important public values including fish and wildlife habitat for nursery and feeding purposes, water quality improvement, flood and storm damage control, outdoor recreation, and research and education. Mississippi's coastal wetlands are instrumental in supporting an approximately $50 million seafood industry (dockside value) and a saltwater sport fishery industry of equal value. Several species listed as endangered or threatened also use the coastal wetlands (e.g., eastern brown pelican and bald eagle). The coastal wetlands also provide significant winter habitat for waterfowl and other migratory birds, and are identified as a priority habitat in the North American Waterfowl Management Plan.

Figure MS-1. Generalized location of major wetlands in Mississippi: Lower Mississippi River Alluvial Valley and Gulf Coast.

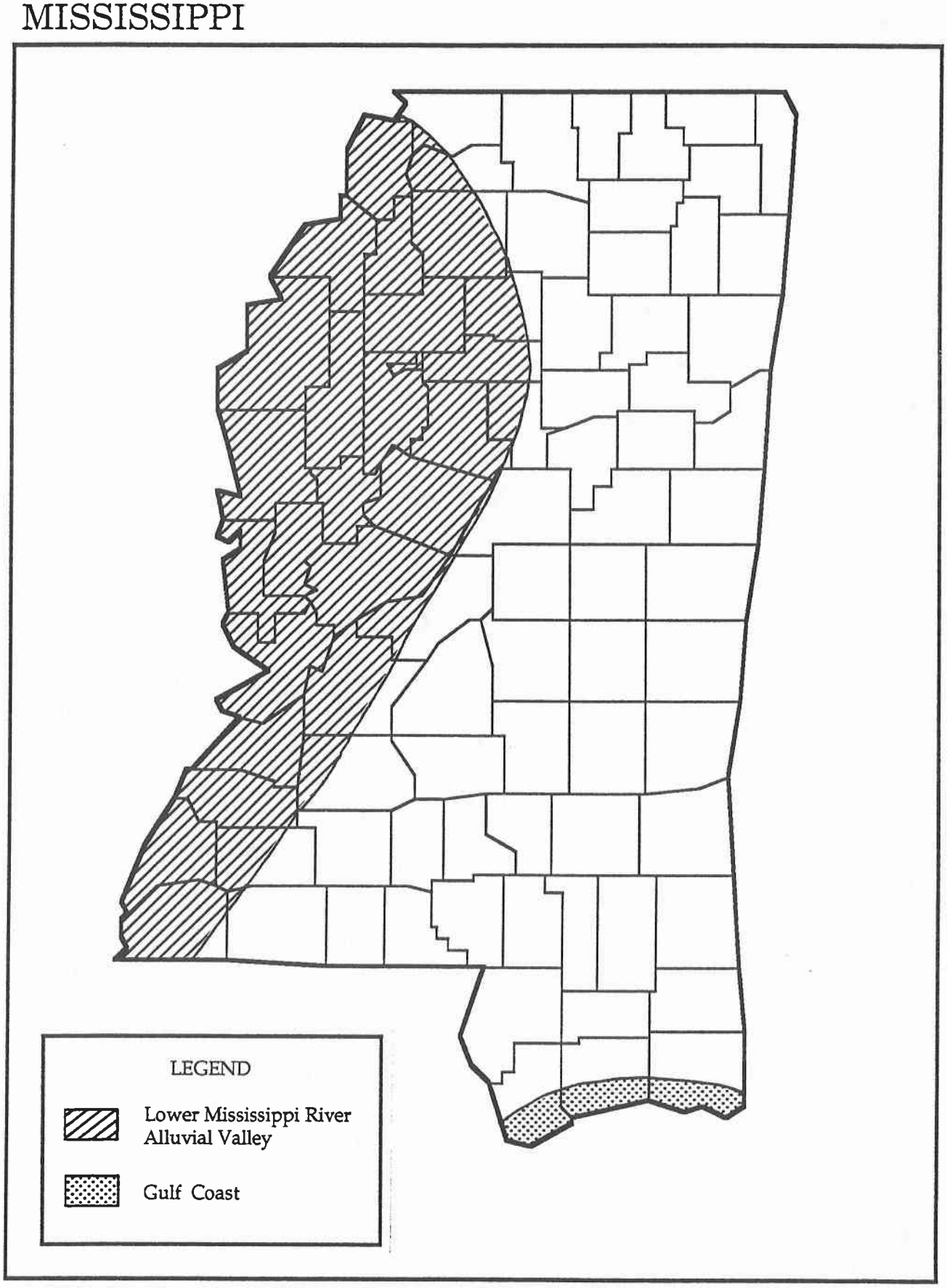


Figure MS-2. Generalized location of priority wetlands in Mississippi (See Table C.8).

MISSISSIPPI

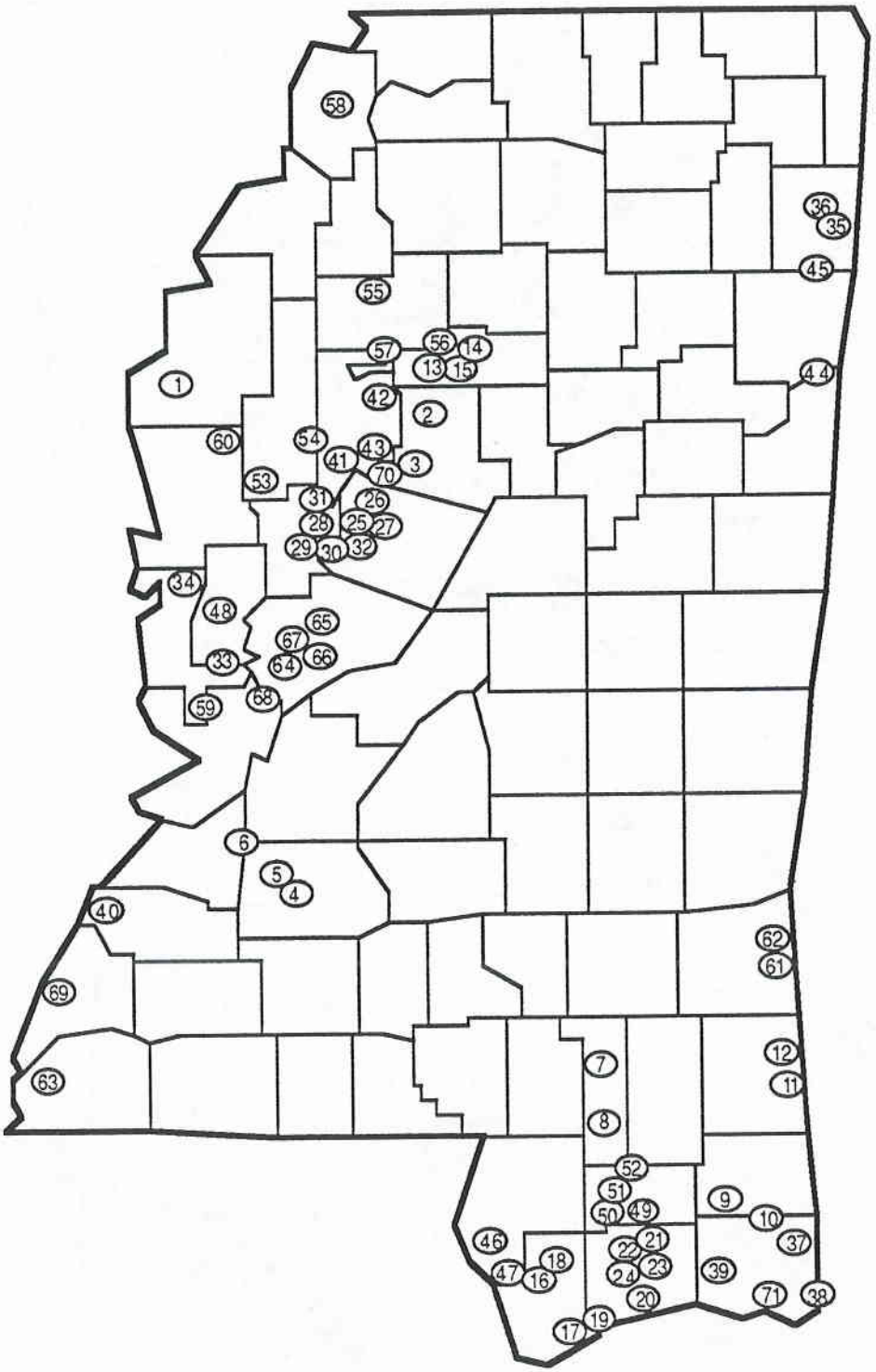


Table C.8. Important Wetlands in Mississippi Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
1	Dahomey Plantation	Bolivar	12,000	P:FO:C/A P:EM:C/B P:SS:B R3:SB:H	Important waterfowl and migratory bird area.[4] State recognized "Natural Area."[6] One of the few remaining large tracts of bottomland forest in the Mississippi Delta. Within FWS planning and acquisition area for proposed Dahomey NWR.* FNS, WQ. MT:AC, RCD, WQP, OGM, ITM.
2	Sharkey Bayou	Carroll	4,000	L2:UB:H P:FO:A/C P:SS:F	Important waterfowl and migratory bird area, [4] surrounded by agricultural lands.[5] ES, FNS, WQ. MT:AC, ITM, WQP.
3	Third Bridge Lake	Carroll	1,770	P:FO:C/A P:SS:F L2:UB:H	Important waterfowl and migratory bird area.[4,5] FNS, WQ. MT:AC, ITM, WQP.
4	Foster Creek	Copiah	700	P:UB:H P:RB:H P:FO:H	Includes habitat for the Federally protected Bayou darter and Crystal darter.[6] FNS, WQ. MT: OGM, T, WQP, WDP, ITM, OD.
5	Turkey Creek	Copiah	250	P:UB:H P:RB:H P:FO:H	Includes habitat for the Federally protected Bayou darter and Crystal darter.[6] FNS, WQ. MT:OGM, RCD, T, WQP, WDP, OD.

Table C.8. (Page 2 of 13). Important Wetlands in Mississippi Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
6	Bayou Pierre	Copiah/ Claiborne	1,700	R3:UB:H R3:RB:H P:FO:H	Includes habitat for the Federally protected Bayou darter and Crystal darter.[6] FNS, WQ. MT:RCD, OGM, T, WQP, WDP, OD.
7	Granny Creek Bay	Forrest	3	P:FO:H	Area includes several plants of special concern to the State. Site is under review by the U.S. Forest Service as a "Research Natural Area.[6] ITM, OD.
8	White Pond	Forrest	3	P:EM:H P:FO:H	Site is registered in accordance with the Mississippi Natural Heritage Act of 1978. Area includes one or more plant species of special concern to the State.[6] MT:RCD, T, OD.
9	Thompson Bog	George	120	P:FO:C P:EM:B	Area includes several plant species of State and Federal concern.[6] MT:AC, OGM, WQP, OD.
10	Pascagoula River Bioreserve	George, Jackson	105,000	P:FO:C E2:EM:N E2:FO:N	Important waterfowl and migratory bird area.[4a] Includes one of the largest areas of remaining forested wetlands in State. Pascagoula State WMA within the area. The Nature Conservancy has designed the area as a "Bioreserve."[6] ES, FNS, WQ. MT:AC, RCD, OGM, T, WQP, WDP, OD.

Table C.8. (Page 3 of 13). Important Wetlands in Mississippi Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
11	Brushy Creek Bogs	Greene	60	P:SS:B P:FO:B P:EM:B	Area includes several plant species of special concern to the State, including a pitcher-plant bog community.[6] ITM, OD.
12	Scott Bog	Greene	321	P:FO:C/F/J P:SS:A/B P:EM:B/A	Includes several plant species of special concern to the State, including a pitcher-plant bog community. State recognized "Natural Area.[6] MT:AC, WQP, OGM, T, OD.
13	Oxberry Bayou	Grenada	4,500	P:FO:A/C P:SS:F L2:UB:H	Important waterfowl and migratory bird area.[4] Adjacent to FWS proposed Tallahatchie River NWR.* FNS, WQ. MT:AC, ITM, WQP.
14	Oxberry Seepage Swamp	Grenada	25	P:FO:H	Includes several plant species of special concern to the State.[6] MT:AC, ITM, WQP, OD.
15	Sweetleaf in the Delta	Grenada	40	P:FO:C	Includes several plant species of special concern to the State.[6] MT:AC, ITM, WQP, OD.
16	Buttercup Flats	Hancock	71	P:EM:A/B P:SS:B P:FO:A	Includes several plant species of special concern to the State. State recognized "Natural Area."[6] MT:AC, RCD, WQP, OGM.

Table C.8. (Page 4 of 13). Important Wetlands in Mississippi Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
17	Lakeshore Savannah	Hancock	1,920	P:EM:B P:FO:B P:SS:B	Includes several plant species of special concern to the State.[6] MT:AC, WQP. RCD, T, ITM, OD.
18	Crane Pond Branch Bog	Hancock	33	P:EM:B P:SS:B	Includes several species of special concern to the State. Proposed State "Natural Area."[6] MT:RCD, ITM, OD.
19	Hancock County Marshes	Hancock	13,300	E2:EM:N/M/P E1:AB:L	Important waterfowl and migratory bird area.[4a] Includes plant species of special concern to the State. Area includes important archaeological sites. State recognized "Natural Area."[6] FNS, WQ. MT:AC, WQP, RCD, OGM, T, WDP, OD.
20	Bernard Bayou	Harrison	302	P:SS P:EM	Includes plant species of special concern to the State and also under review for Federal protection.[6] MT:RCD, T, OD.
21	Island Bog	Harrison	10	P:EM:B P:SS:B	Includes plant species of special concern to the State, including a pitcher-plant bog.[6] MT:ITM, T, OD.
22	Mill Creek Bog	Harrison	3	P:EM:B P:SS:B	Includes several plant species of special concern to the State, including a quaking bog community.[6] MT:ITM, OD.

Table C.8. (Page 5 of 13). Important Wetlands in Mississippi Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
23	Pretty Bog	Harrison	8	P:EM:B P:SS:B	Includes several plant species of special concern to the State, including a pitcher-plant bog community.[6] MT:T, ITM, OD.
24	Turkey Nest Bog	Harrison	8	P:EM:B P:SS:B	Includes several plant species of special concern to the State, including a pitcher-plant bog community.[6] MT:T, ITM, OD.
25	Eagle Brake	Holmes	800	P:FO:C	Important waterfowl and migratory bird area.[4,5] WQ. MT:AC, WQP, ITM.
26	Pinchback Lake	Holmes	500	P:FO:A/C L2:UB:H	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, WQP, ITM.
27	Tchula Lake	Holmes	1,500 **	P:FO:C P:EM:F	Important waterfowl and migratory bird area.[4] Includes FWS planning and possible acquisition areas for Morgan Brake NWR.* WQ. MT:AC, WQP, ITM.
28	Gunn Bayou/ Toney Brake	Humphreys	4,800	P:FO:A/C P:EM:F L2:UB:H	Important waterfowl and migratory bird area.[4,5] FNS, WQ. MT:AC, WQP, ITM.
29	Kilby Brake	Humphreys	730	P:FO:C L2:UB:H	Important waterfowl and migratory bird area.[4] FNS, WQ. AC, WQP, ITM.

Table C.8. (Page 6 of 13). Important Wetlands in Mississippi Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
30	Little Eagle Lake	Humphreys	5,940	P:FO:A/C P:EM:F L1:UB:H	Important waterfowl and migratory bird area.[4,5] FNS, WQ. MT:AC, WQP, ITM.
31	Sky Lake	Humphreys	1,700	P:FO:A/C L2:UB:H P:SS:H	Important waterfowl and migratory bird area.[4,5] FNS, WQ. MT:AC, WQP, ITM.
32	Snake Creek	Humphreys, Holmes	2,000	P:FO:C	Important waterfowl and migratory bird area.[4] MT:AC, WQP, ITM.
33	Cypress Lake	Issaquena	4,220	P:FO:A/C L2:UB:H P:SS:F	Important waterfowl and migratory bird area.[4,5] FNS, WQ. MT:AC, WQP, ITM.
34	Lafayette Lakes	Issaquena	1,830	P:FO:C/A P:EM:F L2:UB:H	Important waterfowl and migratory bird area.[4,5] FNS, WQ. MT:AC, WQP, ITM.
35	Bull Mountain Creek	Itawamba	1,600	R3:FO:N R3:UB:H	Includes several candidate species for protection by State.[6] FNS, WQ. MT:AC, WQP, WDP, OGM.
36	Shady Swamp Bog	Itawamba	11	P:FO	Includes several plant species of special concern to the State. State recognized "Natural Area."[6] MT:AC, ITM.
37	Cottonmouth Savanna	Jackson	352	P:FO:H P:SS:F P:EM:F	Includes several plant species of special concern to the State.[6] MT:RCD, T, ITM, OD.

Table C.8. (Page 7 of 13). Important Wetlands in Mississippi Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
38	Grand Bay Savanna	Jackson, also Mobile (Alabama)	10,500	P:EM:B P:SS:C P:FO:C E2:EM:N	Important waterfowl and migratory bird area.[4a] Historic habitat for the Federally endangered Mississippi sandhill crane. Includes FWS planning and proposed acquisition for Grand Bay NWR.* Area includes plant species of special concern to the State. FNS, WQ. MT:AC, RCD, OGM, ITM, OD.
39	Larue Quaking Bog	Jackson	8	P:EM:B P:SS:B P:FO:F	Includes plant species of special concern to the State; quaking bogs are considered to be rare community types in the Southeast.[6] MT:AC, WQP, ITM.
40	Cypress Grove Lake	Jefferson	4,800	P:FO:A/C P:SS:F L2:UB:H	Important waterfowl and migratory bird area.[4,5] FNS, WQ. MT:AC, WQP, ITM.
41	Gayden Brake	LeFlore	2,170	P:FO:C/A P:SS:F L2:UB:H	Important waterfowl and migratory bird area.[4,5] FNS, WQ. MT:AC, WQP, ITM.
42	Old Orchard Lake	LeFlore	11,600	P:FO:A/C P:SS:F L2:UB:H	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, WQP, ITM.
43	Round Lake/ Pleasant Lake	LeFlore	1,600	P:FO:C/A P:SS:F L2:UB:H	Important waterfowl and migratory bird area.[4,5] FNS, WQ. MT:AC, WQP, ITM.

Table C.8. (Page 8 of 13). Important Wetlands in Mississippi Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
44	Buttahatchie River	Lowndes, Monroe	2,500	R3:RB:H	A last remaining example of an unaltered and relatively unpolluted river with pool-gravel, riffle habitats within the Tombigbee River System. Provides habitat for several Federally protected mussels and several candidate species.[6] FNS, WQ. MT:OGM, RCD, WDP, OD.
45	East Fork/ Tombigbee River	Monroe, Itawamba	1,200	R3:RB:H P:FO:H	Provides habitat for several Federally protected mussels.[6] FNS. MT:AC, WQP, RCD, OGM, WDP, OD.
46	Richardson Savanna	Pearl River	140	P:EM:B	Includes plant species of special concern to State.[6] MT:RCD, T. OD.
47	Upper Hickory Creek Bog	Pearl River	481	P:EM:B P:SS:B	Includes plant species of special concern to State, including pitcher-plant bog communities.[6] MT: ITM, T, OD.
48	Whitney Bank Lands	Sharkey	5,660	P:FO:C/A L2:UB:H	Important waterfowl and migratory bird area.[4,5] FNS, WQ. MT:AC, WQP, ITM.
49	Horse Shoe Bog	Stone	19	P:EM:B P:FO:F P:SS:F	Includes plant species of special concern to State; also a Federal candidate species. Pitcher-plant bog.[6] MT:ITM, T.

Table C.8. (Page 9 of 13). Important Wetlands in Mississippi Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
50	Kirby Creek Bogs	Stone	49	P:EM:B P:SS:B	Includes plant species of special concern to State. Site listed on Mississippi Natural Registry under State Natural Heritage Act of 1978.[6] MT:T, ITM, WQP.
51	Lake Toe-O-Leen Bogs	Stone	23	P:EM:B P:SS:B	Includes plant species of special concern to State. Site listed on State Natural Registry under State Natural Heritage Act of 1978.[6] MT:RCD, T, ITM, WQP.
52	Sweetbay Bogs	Stone	50	P:FO:C P:EM:C P:SS:H/C/B	Includes plant species of special concern to State.[6] MT:RCD, OGM, WQP.
53	Pondberry Brakes	Sunflower	8	P:FO:C	Includes plant species of special concern to State.[6] MT:AC, WQP, T.
54	Mossy Lake	Sunflower, LeFlore	4,240	P:FO:A/C P:SS:F L2:UB:H	Important waterfowl and migratory bird area.[4,5] FNS, WQ. MT:AC, WQP, ITM.
55	Yorks Place (Black Bayou)	Tallahatchie	2,200	P:FO:A/C P:SS:F L2:UB:H	Important waterfowl and migratory bird area.[4,5] FNS, WQ. MT:AC, WQ, ITM.

Table C.8. (Page 10 of 13). Important Wetlands in Mississippi Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
56	Flat Lake/ Bear Lake	Tallahatchie, Grenada	3,380 **	P:FO:C/A P:SS:F L2:UB:H	Important waterfowl and migratory bird area.[4,5] Within FWS planning and acquisition area for proposed Tallahatchie River NWR.* FNS, WQ. MT:AC, WQP, ITM.
57	McIntyre Scatters	Tallahatchie, LeFlore	10,000	P:FO:A/C P:SS:F L2:UB:H	Important waterfowl and migratory bird area.[4] ES, FNS, WQ. MT:AC, WQP, ITM.
58	Beaverdam Lake	Tunica	1,750	P:FO:C/A L2:UB:H P:SS:F	Important waterfowl and migratory bird area.[4,5] FNS, WQ. MT:AC, WQP, ITM.
59	Steele Bayou Sump	Warren, Issaquena	18,700	P:FO:A/C P:SS:F L2:UB:H R2:UB:H	Important waterfowl and migratory bird area.[4,5] FNS, WQ. MT:AC, WQP, ITM.
60	Indian Bayou Bottomland	Washington	500	P:FO:C	Includes plant species of special concern to State. Bottomland forest area surrounded by agricultural lands.[6] MT:AC, ITM, WQP.
61	Eret Bog	Wayne	15	P:FO:B P:SS:B	Includes plant species of special concern to State.[6] MT:T, RCD, ITM, OD.

Table C.8. (Page 11 of 13). Important Wetlands in Mississippi Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
62	Savannah Branch Bog	Wayne	2,310	P:SS:B P:FO:B P:EM:B	Includes plant species of special concern to State.[6] MT:T, OGM, ITM, WQP.
63	Foster Lake	Wilkinson	4,090	P:FO:A/C P:EM:F L2:UB:H	Important waterfowl and migratory bird area.[4,5] FNS, WQ. MT:AC, WQP, ITM.
64	Dump Lake	Yazoo	4,500	P:FO:A L2:UB:H P:SS:F	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, WQP, ITM.
65	Johnson Brake	Yazoo	1,100	P:FO:A/C	Important waterfowl and migratory bird area.[4] WQ. MT:AC, WQP, ITM.
66	Rocky Bayou	Yazoo	1,985	P:FO:C/A P:SS:F	Important waterfowl and migratory bird area.[4,5] WQ. MT:AC, WQP, ITM.
67	Wolf Lake	Yazoo	1,575	P:FO:A/C P:SS:F	Important waterfowl and migratory bird area.[4,5] WQ. MT:AC, WQP, ITM.
68	Collins Creek	Yazoo, Warren	9,000	P:FO:A/C P:EM:F L2:UB:H	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, WQP, OD.
69	St. Catherine Creek	Adams	15,000	P:FO P:SS P:f*** R2:UB:H	Important waterfowl and migratory bird area.[4] Includes FWS planning and proposed acquisition for the St. Catherine Creek NWR.* FNS, WQ. MT:AC, WQP, OD.

Table C.8. (Page 12 of 13). Important Wetlands in Mississippi Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
70	Mathews Brake NWR	Holmes, LeFlore	1,660	P:FO:A/C P:SS:F	Important waterfowl and migratory bird area.[4] Includes FWS planning and proposed expansion acquisition for Mathews Brake NWR.* FNS, WQ. MT:AC, WQP, OD.
71	Mississippi Sandhill Crane NWR	Jackson	2,380	P:EM:B/C/H P:SS:B/C P:FO:B/C	Includes important habitat for the endangered (Federal) Mississippi sandhill crane. Includes FWS planning and proposed expansion acquisition for the Mississippi Sandhill Crane NWR.* ES. MT:RCD, T.
72	Panther Swamp NWR	Yazoo	1,950	P:FO:A/C P:SS:F P:f***	Important waterfowl and migratory bird area.[4] Includes FWS planning and proposed expansion acquisition for Panther Swamp NWR.* WQ. MT:WQP, OD.

Footnotes:

1 Wetland Assessment Threshold Criteria and instructions are presented in Appendix A.

2 Site identifier does not indicate or imply priority rank. See Figure MS-2 for general location of areas corresponding to the site identification number.

Table C.8. (Page 13 of 13). Important Wetlands in Mississippi Meeting Wetlands Assessment Criteria.[1]

Footnotes (Con't.):

[3] In addition to any species and resources specifically listed, all sites exhibited a diversity of other fish and wildlife resources of interest to the Service an State, as well as important outdoor recreation, educational, and public use opportunities or potential opportunities.

[4] Site identified by the Fish and Wildlife Service as a key waterfowl and Lower Mississippi River Valley Joint Venture Area (Category 23A) under the North American Waterfowl Management Plan.

[4a] Site identified by the Fish and Wildlife Service as a key waterfowl and Gulf Coast Joint Venture Area (Category 23B) under the North American Waterfowl Management Plan.

[5] Site identified in the wetlands addendum to the Mississippi Statewide Comprehensive Outdoor Recreation Plan (Mississippi Bureau of Recreation and Parks 1989).

[6] Site noted as a priority wetland by the Mississippi Natural Heritage Program.

* FWS (1990): "Land Acquisition Briefing Book, FY 1991."

** FWS acquisition planning area larger than wetlands acres listed (FWS 1990).

*** At least 50 percent of identified farmed wetlands would be restored to a wetland type recognized as declining in the Southeast Region (e.g., Palustrine Forested, Palustrine Emergent).

Table C.8.1. Areas in Mississippi Requiring Further Evaluation To Determine Compliance With Wetlands Assessment Criteria.[1]

Name of Area	County	Comments
Bogue Chitto	Pearl River	Area identified by FWS as part of possible future exchanges, donations, or other for expanding the existing Bogue Chitto NWR.
Pearl River Basin	Hinds, Madison,	Area under evaluation by the U.S. Environmental Protection Agency as "Advanced Identification Area."

Footnotes:

[1] Wetland Assessment Threshold Criteria and instructions are presented in Appendix A; extent and nature of wetland types and non-wetland types currently unknown.

APPENDIX C.9. IMPORTANT WETLANDS: NORTH CAROLINA

WETLAND VALUES AND TRENDS IN NORTH CAROLINA*

North Carolina's wetlands are diverse and widely distributed, ranging from the alluvial Palustrine Forested Wetlands associated with riverine drainage basins, to the non-alluvial Palustrine Forested and Scrub-Shrub Wetlands of the coastal plain, commonly referred to as pocosins and Carolina Bays, to the Estuarine Intertidal Emergent (marsh) and Aquatic Bed (seagrass) Wetlands.

1. Wetland Loss: Estimates of North Carolina's historical wetlands circa 1780's range from about 10.3 to 11.1 million acres. During the past 200 years, man has had a considerable impact on these wetlands, draining them in many cases or filling them to accommodate development. Current estimates developed by the U.S. fish and Wildlife Service (see Dahl, 1990 in bibliography) reported that North Carolina still contained about 5.7 million acres of wetlands (about 17 percent of the State's land area) circa 1980's. This represents a historical loss of about 49 percent of the State's wetlands from the 1780's to the 1980's (a loss of 5.4 million acres).

   The North Carolina Department of Environment, Health, and Natural Resources (1990--see bibliography), using different estimation criteria, believe that the historical loss is only about 22 percent (a loss of about 2.3 million acres of wetlands). Regardless of the different estimates, the magnitude of loss has been significant.

   North Carolina reportedly has the fifth largest amount of remaining wetlands within the United States. About 95 percent of the State's wetlands are reported to occur within the Coastal Plain Region. Bottomland hardwoods comprise most of North Carolina's alluvial Palustrine Forested Wetlands. In 1955, there were approximately 3.2 million acres of bottomland hardwoods in North Carolina. These were reduced to 3 million acres by 1964 and 2.7 million acres by 1974.

   It is estimated that approximately 2.5 million acres of natural pocosins (freshwater wetlands vegetated by evergreen forest and shrubs) originally existed in the State (see Richardson, 1981, in bibliography). As of 1962, nearly 70 percent of the Nation's pocosins were in North Carolina, and pocosins were believed to comprise about 50 percent of the State's freshwater wetlands (see Richardson, 1981, in bibliography). Primarily as a result of forestry and drainage for agriculture, one-third of the original acreage had been totally converted to other uses by 1979.

* See Bibliography for references, especially Frayer et al. (1983), Hefner and Brown (1985), North Carolina Divsion of Parks and Recreation (1988, 1989), Dahl (1990), North Carolina Department of Environmetn, Health, and Natural Resources (1990), Richardson (1981), and Richardson et al. (1982).

Also, by 1979, an additional one-third of the State's pocosins had been either partially altered or were scheduled for development by the owners. While there are no current exact figures for the portion of this one-third that has been actually converted, many acres of this category are now part of the Service's National Wildlife Refuge System. Although losses have declined greatly in recent years due largely to economic forces, additional acreage is still subject to loss.

Carolina Bays (including the pocosin-type bays) have also been drastically reduced in both quantity and quality, primarily as a result of various drainage activities, although precise information on the historical extent of loss is not available. Possibly as many as 90 percent of the State's Carolina Bays have lost all or much of their hydrology (Personal Communication, June 7, 1991, Mr. Alan Weakly, North Carolina Natural Heritage Program, Raleigh, North Carolina).

North Carolina reportedly has the largest estuarine system on the east coast; approximately 2.2 million acres. In the contiguous 48 States, North Carolina is second only to Florida in acreage of marine submerged aquatic vegetation.

The estuaries support about five times the acreage of submerged aquatic vegetation found in the Chesapeake Bay. One portion of the coasts, from Bogue Inlet to Oregon Inlet, has approximately 200,000 acres of seagrass beds, but there are no historical acreage estimates from which losses can be estimated.

2. Wetland Threats: In spite of various State and Federal laws protecting wetlands, the North Carolina Division of Parks and Recreation (see bibliography) reported that several wetlands types in North Carolina (i.e., Carolina bays, bogs, pocosins, and bottomland hardwoods) are still in need of protection due to imminent conversion pressures. To date, conversions for forestry and agriculture have had the greatest impact on North Carolina's wetlands. Under current economic conditions, however, the opportunities for profitable wetland conversion and development for silviculture and agriculture are limited. Therefore, the rate of wetland conversions has at least temporarily slowed. Presently, the forestry industry is depressed, but long-term, worldwide expectations are for a growing wood scarcity and increasing timber prices. Wetland conversions for agriculture have slowed somewhat with enforcement of the Swampbuster provisions of the 1985 and 1990 Farm Acts, although violations have occurred (Soil and Water Conservation Society, 1990, in bibliography).

Peat mining poses a potential major threat to pocosin wetlands in the future. There are hundreds of square miles of deep peat pocosins in the Coastal Plain. The economic feasibility of peat mining for fuel will depend mostly upon market prices of competing fuels. Although peat mining for fuel has not proceeded beyond test stages, State permitting agencies have received several formal proposals.

Extensive reserves of phosphate occur in the Pungo River Formation (over 300,000 acres), with one large mining operation currently in operation. Considerable wetland acres could be affected by the mining operation (e.g., loss of wetlands and their biota for varying periods of time, nutrient enrichment of bordering estuarine systems, long-term use of slime ponds, and disposal of other waste products), although mitigation to prevent, minimize, and restore affected wetlands is a major component of the permitting process.

Estuarine wetland losses are expected to continue at a slow rate. Regularly and irregularly flooded coastal marshes generally are well protected by existing State wetlands laws. Pocosins and other freshwater wetlands, however, do not receive the same level of protection under existing laws and losses are expected to continue, largely dependent upon economic conditions. Seagrass beds are also susceptible to dredging and filling, some commercial fishery harvest techniques, modification of normal temperature and salinity regimes, and addition of chemical wastes; therefore, declines are expected.

3. Wetland Functions and Values: Alluvial Palustrine Forested Wetlands perform important functions including flood control; water-quality improvement, providing high quality wildlife habitat; fish feeding, spawning, and nursery habitat; recreation research; and education opportunities. On North Carolina's Coastal Plan, these wetlands are particularly valuable habitats for waterfowl breeding an wintering, as well as anadromous fish spawning. Pocosin and Carolina Bay wetlands provide large patches of good quality habitat for area-sensitive wildlife such as forest-dwelling migratory passerine birds, black bears, and the recently reintroduced Federally endangered red wolf. Being close to the State's coastal wetlands and so large in area, pocosins are important regulators of freshwater and nutrient inputs to the estuaries. Also, numerous small, isolated wetlands found in the Piedmont and mountain areas provide considerable habitat diversity. About 80 species of plants considered to be rate or endangered are known to occur in such small and isolated wetlands.

Ninety percent of the State's commercial fish harvest is composed of estuarine-dependent species. Seagrass beds provide critical fish and shellfish habitat, food, and protective cover throughout much of the year. Intertidal marshes provide flood control and storm protection functions for coastal communities. Marshes are important shorebird, waterfowl, and fish nursery habitat. Together with seagrasses, marshes also perform important water quality maintenance functions for the estuary by filtering suspended solids and excess nutrients from the water column.

Figure NC-1. Generalized location of major wetland categories in North Carolina.

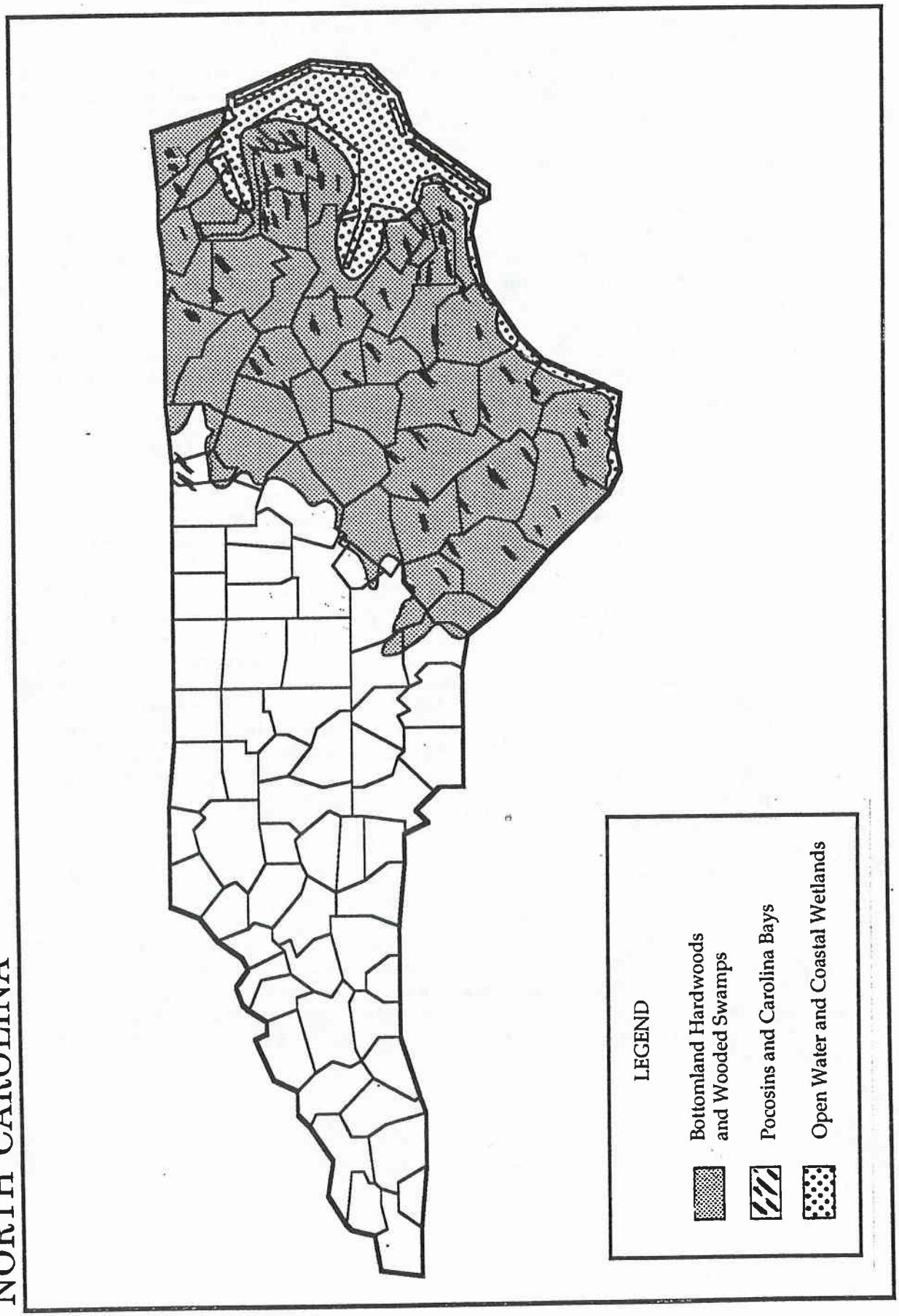


Figure NC-2. Generalized location of priority wetlands in North Carolina (See Table C.9).

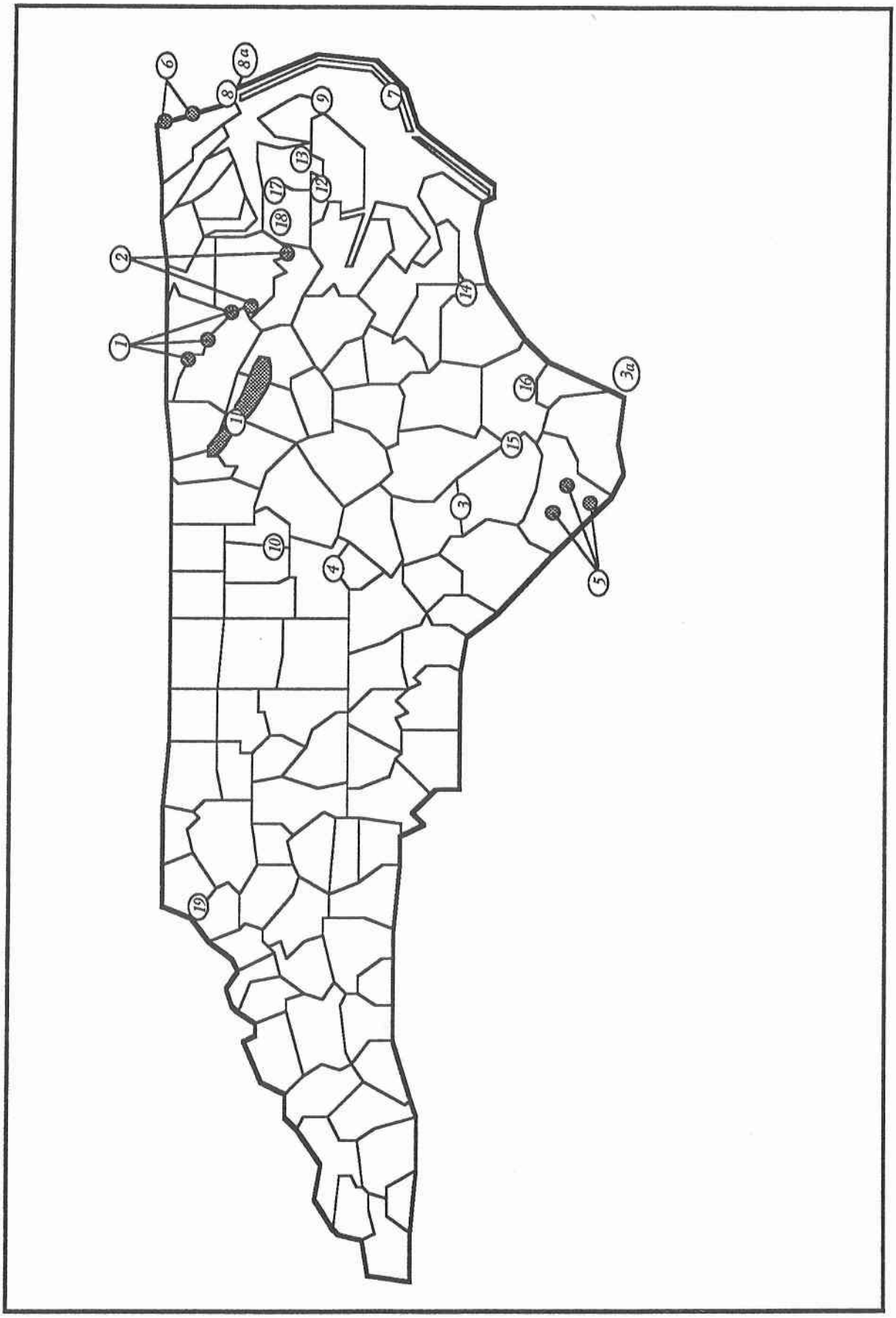


Table C.9. Important Wetlands in North Carolina Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)**	SIGNIFICANCE OF AREA[3]
1	Roanoke River* (Proposed FWS Roanoke River NWR)	Bertie, Halifax, Martin, Washington	33,000	P:FO:C/F/A P:SS P:EM:F R2:AB:H R2:UB:H	Important waterfowl and migratory bird area.[4] The most extensive and diverse alluvial ecosystem in the State. Includes habitat for the Federally protected bald eagle and numerous other species of Federal and State concern. Important fishery habitat, including striped bass spawning area. Area contains important archaeological sites.[5,6] ES, FNS, WQ. MT:AC, RCD, T, WDP, ITM, WQP, OD.
2	Roanoke River* (Outside currently proposed NWR sites)	Bertie, Halifax, Martin, Washington	13,550	P:FO:A/C/F P:SS P:AB:F R2:AB:H R2:UB:H	The Roanoke River ecosystem is the largest and least disturbed bottomland forest system remaining in the Mid-Atlantic Region.[5,6] Important fishery habitat, including striped bass spawning area. ES, FNS, WQ. MT:AC, RCD, T, WDP, ITM, WQP, OD.
3	Horseshoe Lake Complex	Bladen, Cumberland	8,000	P:FO:B P:SS:B P:EM:H L2:UB:H	A portion of the area is a State sanctuary for the black bear. Best remaining concentration of Carolina bays in the world. Contains plant species of special concern to the State.[5,6] ES, FNS, WQ. MT:AC, RCD, WQP, OD.

Table C.9. (Page 2 of 9). Important Wetlands in North Carolina Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)**	SIGNIFICANCE OF AREA[3]
3a	Smith Island Complex	Brunswick	7,500	E2:EM:N E1:AB:L E1:UB:L P:FO:C P:EM:H	A barrier island ecosystem that includes high-quality examples of maritime forest. Area provides excellent habitat for several Federally protected species; important sea turtle nesting area. Adjacent to Zeke's Island National Estuarine Sanctuary.[6]
4	Rocky and Deep River Buffer Area	Chatham, Lee	400	P:FO:C/J R:UB:H	Includes critical habitat for the Federally protected Cape Fear shiner; area also includes the endangered plant Harperella.[5,6] ES, FNS, WQ. MT:RCD, WQP, OD.
5	Waccamaw River Wetlands	Columbus, Brunswick	19,050	P:FO:C/P/G P:EM:H R2:UB:H	Part of area adjacent to State's largest Carolina Bay (Lake Waccamaw). Includes numerous species of State and Federal concern. Includes a State black bear sanctuary.[5,6] ES, FNS, WQ. MT:RCD, ITM, WQP.

Table C.9. (Page 3 of 9). Important Wetlands in North Carolina Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)**	SIGNIFICANCE OF AREA[3]
6	Currituck Outer Banks	Currituck	14,500	E2:EM:P P:SS:C	A largely undeveloped coastal barrier island and associated freshwater wetlands. Portions of area included in Unit L01 of Coastal Barrier Resources System. Important waterfowl and migratory bird area.[4] Important fishery habitat. Includes habitat for several Federally protected species, including a nesting area for the loggerhead turtle.[5,6] ES, FNS, WQ. MT:RCD, T, WQP.
7	Buxton Woods	Dare	2,100	P:SS:C P:FO E1:UB:L	A large tract of forest recognized as a concentration area for migratory passerines and raptors. A portion of the area may be included in Unit L03 of the Coastal Barrier Resources System. Includes habitat for the Federally protected peregrine falcon and bald eagle. Includes numerous plant species of special concern to the State.[5,6] ES, WQ. MT:RCD, Sand mining, WQP, OD.
8	Kitty Hawk Woods	Dare	1,900	P:FO:C/A P:SS:C E2:EM:P	Largest remaining tract of swamp forest on the Atlantic coast.[5,6] MT:RCD, T, ITM, WQP, OD.

Table C.9. (Page 4 of 9). Important Wetlands in North Carolina Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)**	SIGNIFICANCE OF AREA[3]
8a	Nags Head Woods	Dare	~390		Recognized outstanding example of a ridge/suale coastal barrier maritime forest/wetland system. Area supports a high diversity and populations of resident and migratory birds, including waterfowl. Federally endangered bald eagle has been observed on area. Area is adjacent to Nags Head Woods Ecological Preserve (360 acres) owned by The Nature Conservancy. [5,6] ES. MT: RCD, T, WQP, OD.
9	U.S. 264 Low Pocosin	Dare	21,000	P:EM:B P:FO:B/C P:SS:B E2:EM:P	Includes plant species of special concern to the State. Provides important habitat for the black bear (State bear sanctuary).[5,6] WQ. MT:Peat mining, WQP.
10	New Hope Creek Corridor	Durham, Chapel Hill	1,500	P:FO:C/A P:SS:A/C R:UB:H	A rare area of Piedmont swamp forest. Corridor includes habitat for several species of special concern. Includes a proposed State Environmental Education Center.[5,6] FNS, WQ. MT:RCD, T, ITM, WQP, OD.

Table C.9. (Page 5 of 9). Important Wetlands in North Carolina Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)**	SIGNIFICANCE OF AREA[3]
11	Swift Creek Floodplain	Edgecombe, Nash, Franklin	5,000	P:FO:C/B/A R:UB:H	At least one third of the mussel species in the Atlantic Slope Region occur here. The remaining population of the endangered Tar River spiny mussel inhabits the creek. Anadromous fish migration occurs in the lower reaches. ES, FNS, WQ. MT:RCD, T, WDP, ITM, WQP, OD.
12	Scranton Hardwoods	Hyde	6,000	P:FO:A/C	An example of a non-riverine wet hardwood forest, generally considered an endangered community type. The area is a State-designated black bear sanctuary.[5,6] MT:AC, T, ITM, WQP.
13	Upper Alligator River Pocosin	Hyde, Tyrrell, Dare	66,830	P:FO:B P:SS:B P:EM:B	Area is part of the most extensive peat deposits in the Southeastern U.S., and includes the rapidly decreasing scrub-shrub "pocosin" habitat type. Includes habitat for the Federally-listed endangered bald eagle and red-cockaded woodpecker, and is a potential expansion area for the introduced red wolf population within the Alligator River NWR, which is adjacent to the area.[5,6] Includes FWS proposed expansion to the Alligator River NWR.* FNS, WQ. MT:AC, peat mining, T, WQP, OD.

Table C.9. (Page 6 of 9). Important Wetlands in North Carolina Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)**	SIGNIFICANCE OF AREA[3]
14	White Oak River Floodplain	Onslow	3,500	P:FO:F/C/P P:EM:P R3:UB:H	This river is currently under consideration for designation as a "National Wild and Scenic River." A State-recognized striped bass spawning area. Area within a State black bear sanctuary. The river corridor has 70 known historical and archaeological sites.[5,6] FNS, WQ. MT:AC, RCD, OGM, WDP, WQP, OD.
15	Black River Cypress Swamp Forest	Pender, Bladen, Sampson	1,900	P:FO:F/C R2:UB:H	Area exhibits the greatest concentration of old-growth bald cypress trees currently documented in North America (individuals from 780 to 1,200 years in age). Includes plant species of special concern to the State.[5,6] FNS, WQ. MT:RCD, T, WDP, ITM, OD, WQP.
16	Rocky Point Marl Forest	Pender	600	P:FO:A	Only known occurrence of the wet marl forest community type in the State. Includes plant species of special concern to the State.[5,6] MT:RCD, mining, T, ITM, OD.

Table C.9. (Page 7 of 9). Important Wetlands in North Carolina Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)**	SIGNIFICANCE OF AREA[3]
17	Scuppernong River Swamp Forest	Tyrrell, Washington	9,000	P:FO:F R2:UB:H	One of the largest remaining tracts of swamp forest in the State. One of the few areas in State that exhibits intact stands of Atlantic white cedar. Important fishery habitat. Includes important habitat for the black bear, waterfowl, and numerous other species.[5,6] ES, FNS, WQ. MT:AC, ITM, OD, WQP.
18	East Dismal Swamp	Washington	5,000	P:SS:A P:FO:B P:EM:A	Although much of the forest area has been ditched and drained, the area is still considered an important remnant of a non-riverine swamp forest. A possible critical habitat corridor for the black bear between the Albermarle-Pamlico Peninsula and habitats fu the area is still consideredrther inland; would provide a connecting corridor between the Upper Alligator River wetlands and the Lower Roanoke River wetlands.[5,6] WQ. MT:AC, T, ITM, WQP.

Table C.9. (Page 8 of 9). Important Wetlands in North Carolina Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)**	SIGNIFICANCE OF AREA[3]
19	Long Hope Valley	Watauga, Ashe	2,000	P:FO:B P:EM:B P:SS:B	Area exhibits a unique northern ecosystem in North Carolina, including six cranberry bogs scattered through spruce communities. Includes 30 plant species of special concern to the State.[5,6] FNS. MT:AC, RCD, WDP, ITM, OD, WQP.

Footnotes:

1 Wetlands Assessment Threshold Criteria and instructions are presented in Appendix A.

2 Site identifier does not indicate or imply priority rank. See Figure NC-2 for general location of areas corresponding to the site identification number.

3 In addition to any species and resources specifically listed, all sites exhibited a diversity of other fish and wildlife resources of interest to the Service and State, as well as important outdoor recreation, educational, and public use opportunities or potential opportunities.

4 Site identified by the Fish and Wildlife Service as a key waterfowl and Middle-upper Atlantic Coast Joint Venture Area (Category 20) under the North American Waterfowl Management Plan.

5 Site identified as a priority wetland in the Statewide Comprehensive Outdoor Recreation Plan (Outdoors North Carolina, 1990-1995: Chapter VII, Wetlands Protection Plan, 1989).

Table C.9. (Page 9 of 9). Important Wetlands in North Carolina Meeting Wetlands Assessment Criteria.[1]

Footnotes (Con't.)

6 Site recognized as an important wetland by the State Natural Heritage Program and the North Carolina Nature Conservancy.

* FWS (1990). "Land Acquisition Briefing Book, FY 1991."

** All North Carolina pocosins are under evaluation by the U.S. Environmental Protection Agency as an "Advanced Identification Area."

Table C.9.1. Potential Priority Wetlands in North Carolina[1]

Name of Area	County	Estimated Wetland Acres
Pineola Bog	Avery	60
Sugar Mountain Natural Area	Avery	60
Horseshoe Lake/ Marshy Bay	Bladen	4,050
Black River Cypress Forest	Bladen, Pender	1,850
Boiling Springs Lake Wetland Complex	Brunswick	10,000
Myrtle Head Savanna	Brunswick	100
Orton Creek Savanna	Brunswick	500
Orton Pond and Plantation Macrosite	Brunswick	2,500
Atlantic Natural Area North River Marshes	Carteret	-----
Emerald Isle Woods	Carteret	20
Lake Ellis Simon	Carteret	2,000
Patsy Pond Complex	Carteret	420
Roosevelt Natural Area	Carteret	20
Eller Preserve Mountain Bog	Clay	10
Croatan Pocosins	Craven	3,000
Neuse River Floodplain	Craven	-----
Trent River-Brice Creek Marsh	Craven	-----
Schulkens Savanna	Columbus	200
Bushy Lake Carolina Bay	Cumberland, Bladen	1,500

Table C.9.1. (Page 2 of 3). Potential Priority Wetlands in North Carolina[1]

Name of Area	County	Estimated Wetland Acres
Currituck Club Natural Area	Currituck	2,100
North River Swamp Forest and Marsh	Currituck	2,000
Nags Head Woods	Dare	390
Goshen Gabbro Forest	Granville	50
Bat Fork Bog	Henderson	50
Etowah Bog	Henderson	4
King Creek Bog	Henderson	30
Ochlawaha Bog	Henderson	20
Antioch Church Carolina Bay	Hoke	104
Alligator River-Swan Lake Swamp Forest	Hyde	6,000
Link (Sloan) Bog	Iredell	15
Juniper Springs Church Natural Area	Lee	100
Devils Gut Slough	Martin	1,160
Black Ankle Bog	Montgomery	10
Roberdo Bog	Montgomery	5
Northeast Cape Fear River* and Floodplain	New Hanover	-----
Federal Paper Hardwood Flats	Pamlico	500
James Longleaf Flatwoods	Pender	100
Lanier Quarry Savanna	Pender	300

Table C.9.1. (Page 3 of 3). Potential Priority Wetlands in North Carolina[1]

Name of Area	County	Estimated Wetland Acres
Dunahoe Carolina Bay	Robeson	45
Goose Pond Carolina Bay	Robeson	128
Moss Neck Savanna	Robeson	80
Oak Savanna Bay	Robeson	14
Pretty Pond Carolina Bay	Robeson	18
State-Line Prairie Bay	Robeson	36
Cutgrass Carolina Bay	Sampson	16
McIntosh Bay Complex	Scotland	280
Little Peters Creek Bluffs	Stokes	10
Cedar Mountain Bog	Transylvania	10

[1] Sites listed (except Northeast Cape Fear River and Floodplain) are identified as priority wetlands in the State planning document entitled "Outdoor North Carolina, 1990-1995," Chapter VII, "Wetlands Protection Plan" (North Carolina Department of Environment, Health and Natural Resources 1989). Additional information and evaluation of all sites are needed to determine compliance with the "Wetlands Threshold Assessment Criteria" in Appendix A.

* Authorized for acquisition by U.S. Army Corps of Engineers as part of Wilmington Harbor Navigation Project.

APPENDIX C.10. IMPORTANT WETLANDS: PUERTO RICO

WETLAND VALUES AND TRENDS IN PUERTO RICO*

The major wetland regions in Puerto Rico are Coastal Marine wetlands, estuarine wetlands and freshwater wetlands.

- o Coastal marine wetlands include marine sea-grass beds.
- o Estuarine wetlands include basin mangrove forests, fringe mangrove wetlands, off-shore mangrove keys, coastal mangrove lagoons, saltponds, saltflats, and mudflats.
- o Freshwater wetlands include swamp Pterocarpus forest, fresh water lagoons, and herbaceous marsh.

1. Wetland Loss: Although most of the coastal wetlands in Puerto Rico are now part of the Commonwealth Forest System, there are still some large tracts in private ownership. Numerous coastal mangroves around the Island have been lost through port development and expansion. Over 95 percent of the mangroves in the San Juan area have been lost through port development. Some areas have lost most of the mangrove fringe or have had the fringe reduced through development to the mean high water line. Seagrass beds have been impacted by poor erosion control associated with upland development and agricultural runoff. Off-shore keys have fared much better.

   Estuarine wetlands have also been effected greatly in the past. Agriculture and urban development have combined to virtually eliminate the majority of the estuarine systems of Puerto Rico. The remaining estuarine systems are either protected to some extent or under consideration for development.

   Freshwater wetlands have suffered the greatest impacts. Drained for agriculture and filled for development, the majority of these wetlands have disappeared. Remnant stands of Pterocarpus forest exist throughout the Island. Drainage in the remaining wetlands has been for agriculture, mosquito control, and urban development.

2. Wetland Threats: Development is now the major threat to Puerto Rico's wetlands. Large tourist projects are threatening the remaining north coast wetlands. Marina developments are threatening coastal and estuarine wetlands along the east, south, and southwest coasts. Most of these developments involve the filling and total elimination of wetlands with little or no mitigation included. Most of the freshwater wetlands are being rapidly converted to urban development throughout the Island.

* See bibliography for references; especially Commonwealth of Puerto Rico (1988, 1989), Raffaele (1979), Del Llano et al. (1986), and Lugo (1988).

3. Wetland Function and Values: Wetlands in Puerto Rico provide many important public values. Coastal and estuarine wetlands serve as nursery grounds for many commercially important fish and shellfish species. Freshwater wetlands are important wintering areas for migratory waterfowl. Wetlands in Puerto Rico also provide essential habitat for a number of Federally protected species. Wetlands may serve as aquifer recharge areas, to maintain water quality on and off shore, protect from coastal flooding and storm surge, and are an important recreational and educational part of the Island's natural heritage.

Figure PR-1. Generalized location of priority wetlands in Puerto Rico (See Table C.10).

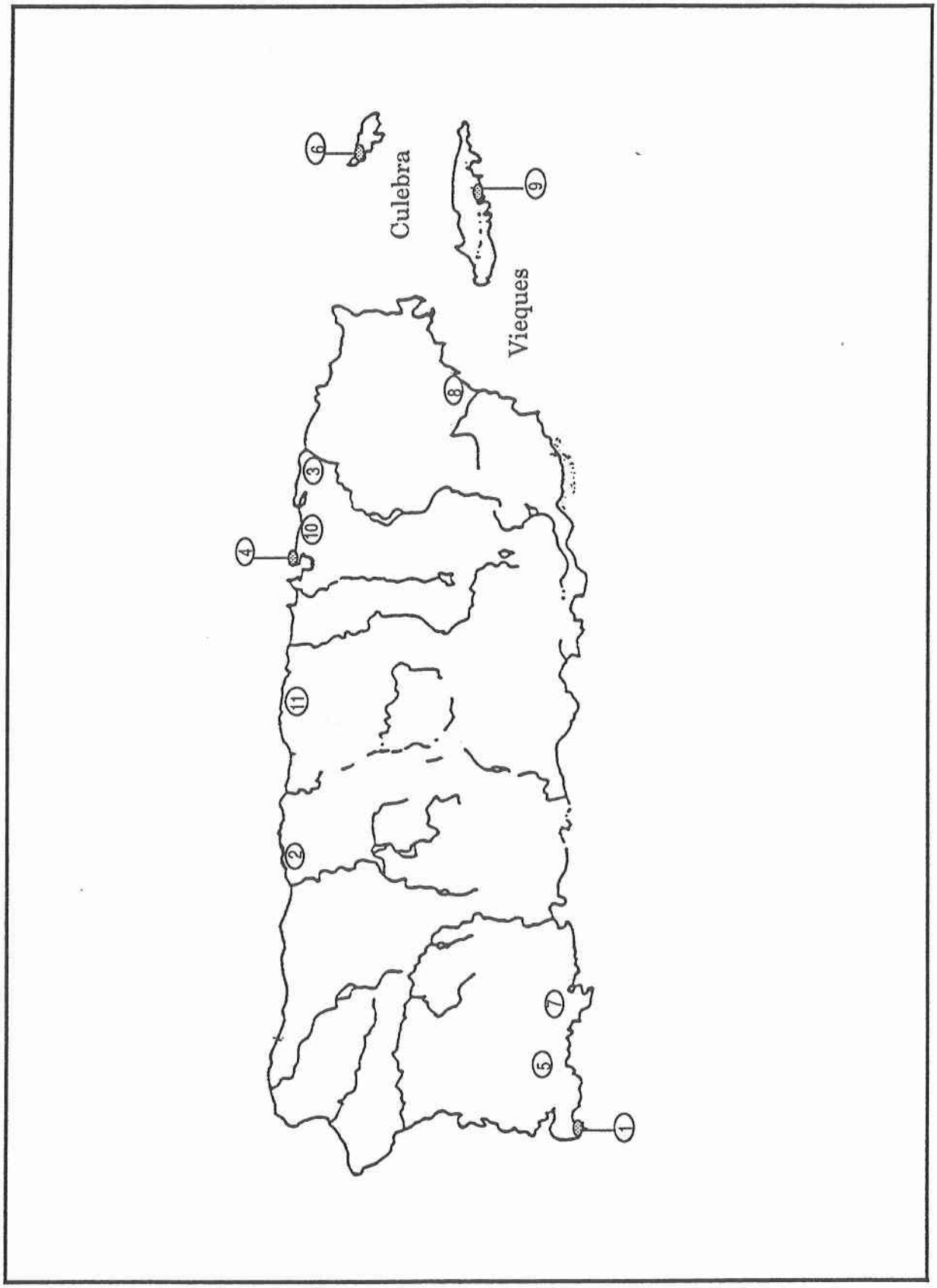


Table C.10. Important Wetlands in Puerto Rico Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	NEAREST MUNICIPALITY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
1	Cabo Rojo Salt Flats	Cabo Rojo (10 km SW of Cabo Rojo)	1,500	E2:FO:M E1:UB:L M2:US:P E2:US:P	The most extensive habitat of its type in Puerto Rico. Much of the area is within proposed Unit PR-66 of the Coastal Barrier Resources System. An important converging area for numberous migratory birds. Includes habitat for several Federally protected species, including designated critical habitat for the yellow-shouldered blackbird.[4,5,6] ES, FNS. MT:RCD, WQP, OD.
2	Cano Tiburones	Arecibo (10 km E of Arecibo)	1,000	E2:EM:M E2:FO:M P:EM:F E2:SS:M E1:UB:L	Includes habitat for the Federally protected yellow-shouldered blackbird. Also, provides habitat for a number of wildlife species of special interest to the Commonwealth.[4,5] ES, WQ. MT:AC, WQP, OD.
3	Cienaga Baja	Rio Grande (<2 km N of Rio Grande)	1,250	E2:EM:M E2:FO:M P:EM:F:C	Includes wildlife species of special interest to the Commonwealth.[4] WQ. MT:AC, RCD, OD.
4	Constitution Bridge Mudflats	San Juan (1.5 km from Old San Juan)	50	E2:FO:M E1:UB:L E2:US:N	Recognized as an important area for both resident and migratory birds. Provides important feeding and roosting habitat for the Federally protected brown pelican.[4,5] ES. MT:RCD, WDP, WQP.

Table C.10. (Page 2 of 5). Important Wetlands in Puerto Rico Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	NEAREST MUNICIPALITY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
5	El Anegado Lagoon	Sabana Grande (7 km to S of Sabana Grande)	800	P:EM:A/C P:SS:C P:UB:H	Historically, an important area for migratory and resident birds and other wildlife; area has been drastically disturbed and drained, but still retains important values.[5]* MT:AC (intensification of current activities), WQP.
6	Flamenco Lagoon	Dewey (2.5 km NW of Dewey)	200	E1:UB:L E2:FO:N M2:US:P	An important area for many migratory and resident birds. Includes habitat for the Federally protected brown pelican, and is the principal area in Puerto Rico for the white-cheeked pintail, a candidate for Federal listing.[4,5] ES, FNS. MT:RCD, WQP.
7	Guanica Lagoon	Guanica (3 km to NW of Guanica)	700	P:EM:C P:SS:C/A	Historically, an important area for migratory and resident birds and other wildlife; area has been drastically disturbed and drained.[4,5]* MT:AC (intensification of current activities), WQP.

Table C.10. (Page 3 of 5). Important Wetlands in Puerto Rico Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	NEAREST MUNICIPALITY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
8	Humacao Pterocarpus Forest	Humacao (10 km NE of Humacao)	7,000	E2:FO:M E2:EM:M E1:UB:L E1:AB:L P:FO:A	Important waterfowl and migratory bird area. Area supports the largest breeding population in Puerto Rico of the West Indian whistling duck. Also, provides important habitat for the white-cheeked pintail, a candidate for Federal protection. The area contains the most extensive tract of rare Pterocarpus trees on Puerto Rico.[4,5]** ES, FNS, WQ. MT:AC, RCD, WQP.
9	Mosquito Bay	Isabel Segunda (5 km S of Segunda)	2,370	E1:UB:L E2:FO:M M2:US:P	Area recognized for its high density of a bioluminescent dinoflagellate. Also, included is habitat for the Federally protected West Indian manatee. Area also provides habitat for the white-cheeked pintail, a candidate for Federal protection. Area is recognized by the U.S. Department of the Interior in the "National Natural Landmark Program."[4,5] ES, FNS. MT:AC, WQP.

Table C.10. (Page 4 of 5). Important Wetlands in Puerto Rico Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	NEAREST MUNICIPALITY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
10	Torrecilla Baja/ Alta	Old San Juan (10 km E of Old San Juan)	2,470	E1:UB:L E2:FO:M E2:EM:M M2:US:P	A recognized unique biological system supporting a large diversity of species. The Federally protected hawksbill and leatherback turtles are known to nest on the beaches of the area. Several other Federally protected species use the area, including the West Indian manatee, the yellow-shouldered blackbird, and the brown pelican.[4,5] Much of the area is included in Unit PR-87 of the Coastal Barrier Resources System. ES, FNS, WQ. MT:AC, RCD, T, WDP, WQP.
11	Tortuguero Lagoon and Cabo Caribe Swamp	Manati and Vega Baja	3,000	E1:AB:L E2:EM:M E2:FO:M P:FO:C P:EM:C M2:US:P	Area includes habitat for several Federally protected species and includes several plant species of special concern to the Commonwealth.[4,5] ES, FNS, WQ. MT:RCD, WDP, WQP.

Footnotes:

[1] Wetlands Assessment Threshold Criteria and instructions are presented in Appendix A. At least 21 additional sites within Puerto Rico have been noted as warranting consideration for Federal or Commonwealth acquisition in the "Comprehensive Outdoor Recreation Plan" (Commonwealth of Puerto Rico 1988), but size of the areas and other information needed to complete the threshold evaluation were not available.

Table C.10. (Page 5 of 5). Important Wetlands in Puerto Rico Meeting Wetlands Assessment Criteria.[1]

Footnotes (Con't.):

[2] Site identifier does not indicate or imply priority rank. See Figure PR-1 for general location of areas corresponding to the site identification number.

[3] In addition to any species and resources specifically listed, all sites exhibited a diversity of other fish and wildlife resources of interest to the Service and Commonwealth, as well as important outdoor recreation, educational, and public use opportunities or potential opportunities.

[4] Site identified in Commonwealth's Comprehensive Outdoor Recreation Plan as an important wetland and natural area (Commonwealth of Puerto Rico 1988).

[5] Site identified as an important wetland and critical wildlife area by the Commonwealth's Natural Heritage Program within the Puerto Rican Department of Natural Resources.

[6] Site identified by the FWS as a potential acquisition to the National Wildlife Refuge System (U.S. FWS, August 1989, Regional Interim Wetlands List report for Southeast Region).

* Assumes that at least 50 percent of the disturbed area would be restored to a wetland type recognized as declining in Puerto Rico (e.g., Palustrine Forested, Palustrine Emergent).

** Much of this area has been purchased recently by the Puerto Rican Conservation Trust.

APPENDIX C.11. IMPORTANT WETLANDS: SOUTH CAROLINA

WETLAND VALUES AND TRENDS IN SOUTH CAROLINA*

Wetlands in the State of South Carolina have been estimated to occupy approximately 24 percent of the State with a total acreage of approximately 4.6 million acres. From the 1780's to the 1980's, about 27 percent of South Carolina's wetlands have been lost or significantly degraded. For organizational purposes, these wetlands have been broken down into three major categories: coastal marshes, bottomland hardwoods, and isolated wetlands.

COASTAL MARSHES

According to a 1977 survey, there were approximately 504,000 acres of coastal marshes (Estuarine and Palustrine emergents) in South Carolina, including 70,400 acres of manmade impoundments. About 66 percent was saltmarsh, 13 percent freshwater marsh, and about 7 percent brackish marsh.

1. Wetland Loss: The majority of coastal marsh losses in the recent past (1953-1972) may be attributed to diked disposal areas for dredged material comprising a loss of approximately 12,570 acres. Also, an estimated 2,000 acres of coastal wetlands were destroyed from 1954-1968 (probably due to coastal development and associated encroachments). Of the estimated 140,000 acres of coastal wetlands converted to rice culture by impoundment in the 1800's, approximately one-half or 70,000 acres remain in an impounded state. Although these do not represent a wetland loss as such, impoundments do alter typical estuarine wetland function.

2. Wetland Threats: The primary threats to the remaining wetlands and associated aquatic systems are both direct and secondary in nature and include the following:

   - Impoundments for aquaculture and other manipulative management
   - Small, cumulative dredge and/or fill activities associated with development (The South Carolina Coastal Council--the State's Coastal Zone Management agency does a good job in minimizing these impacts)
   - Secondary development impacts such as pollutants from marinas, non-point and point sources
   - Sea-level rise

* See bibliography for references, especially Frayer et al. (1983), Hefner and Brown (1985), and Dahl (1990).

3. Wetland Functions and Values: South Carolina's coastal marshes perform a number of valuable functions, including provision of essential nursery habitat for marine and estuarine fin-fish and shellfish and habitat for wading birds, waterfowl, reptiles, amphibians, and mammals. The marshes also fuel the estuarine food web, exchange nutrients with the adjacent aquatic system, serve as filters for upland runoff and point source pollutants, and as buffers to fastland by slowing and absorbing storm surges and tidal energy. From a social perspective, these wetlands provide recreational, educational, and aesthetic opportunities and benefits.

BOTTOMLAND HARDWOODS

The Palustrine Forested Wetlands in this category are associated with floodplains of river and stream systems. Particularly in the lower coastal plain, these systems form extensive broad swamps. As one progresses inland to higher gradient systems of the Piedmont to the most interior Blue Ridge Province, there is a general narrowing of the floodplain and extent of bottomland hardwoods. The majority of the estimated 4.6 million acres of South Carolinas's wetlands (approximately 3 million acres) fall into this category.

1. Wetland Loss: Estimates of historic bottomland hardwood losses in South Carolina are not readily available. Large losses have been reported in the southeast between the 1950's and the 1970's; however, the impressive loss numbers in this category were probably dominated by agricultural conversions in the Lower Mississippi River Valley. A 20 percent loss in South Carolina's bottomland hardwood communities between 1952 and 1985 has been reported. The majority of this loss was probably due to agricultural and silvicultural (i.e., conversions to pine plantations).

2. Wetland Threats: The primary threats to South Carolina's bottomland hardwood communities include the following:

   - Pine plantations--conversion of seasonally and temporarily flooded areas to pine production
   - Other silvicultural practices--hydrological and habitat fragmentation through unregulated logging roads and loss of mature old growth forest habitats by forest management for timber harvesting
   - Conversion of forested wetlands and associated stream systems to lakes by impoundments for enhanced development opportunities
   - Point source and non-point source pollution from adjacent development

3. Wetland Functions and Values: The bottomland hardwood floodplain and swamps are extremely valuable as habitat for a vast variety of wildlife. South Carolina's bottomland hardwood forests may be some of the richest areas in the nation for neo-tropical migrant songbirds. These areas also support valuable fisheries in the adjacent rivers and stream systems by providing breeding and nursery

habitat and food chain production, nutrient exchange, and pollutant buffering functions. They provide flood protection and filter pollutants. More social values include recreation (hunting, fishing, picnicking, camping, hiking), educational, and aesthetic opportunities and benefits.

ISOLATED WETLANDS

Included in this category are the more unique wetland habitats of South Carolina such as pocosins, savannahs, and Carolina Bays. Also included are coastal plain depressional flatwoods. The vast majority of these wetlands, with the exception of certain muck swamps of the Piedmont region, occur in the lower coastal plain of the State.

1. Wetland Loss: On a percentage basis, these wetlands have probably suffered the greatest losses of all wetland types in South Carolina. For example, a vast majority of the State's Carolina Bays have been at least partially destroyed. Only 30 (1 percent) of 2,700 bays of 2 acres or more remain in a natural condition suitable for protection by the State's Heritage Trust Program. Disturbance and destruction of these areas have been attributed to agriculture, ditching, logging, pine plantations, roads, and powerlines.

2. Wetland Threats: Isolated wetlands continue to be the most impacted wetlands category in the State. Primary threats include:

   - o Agricultural conversion
   - o Silvicultural (pine) conversion
   - o Encroachment by residential and commercial development and roadways
   - o Drainage
   - o Discharge of treated sewerage effluents

3. Wetlands Functions and Values: These areas provide valuable wildlife habitat, stormwater retention and detention functions, and possible groundwater recharge and discharge functions. Notably, these areas support the overwhelming majority of Federally listed and status review endangered and threatened plant species and State species of special concern. Endangered species represent a concern not only for the continued existence of the species itself, but also as an indicator for a habitat type that is rapidly disappearing.

Figure SC-1. Generalized location of major wetland categories in South Carolina.

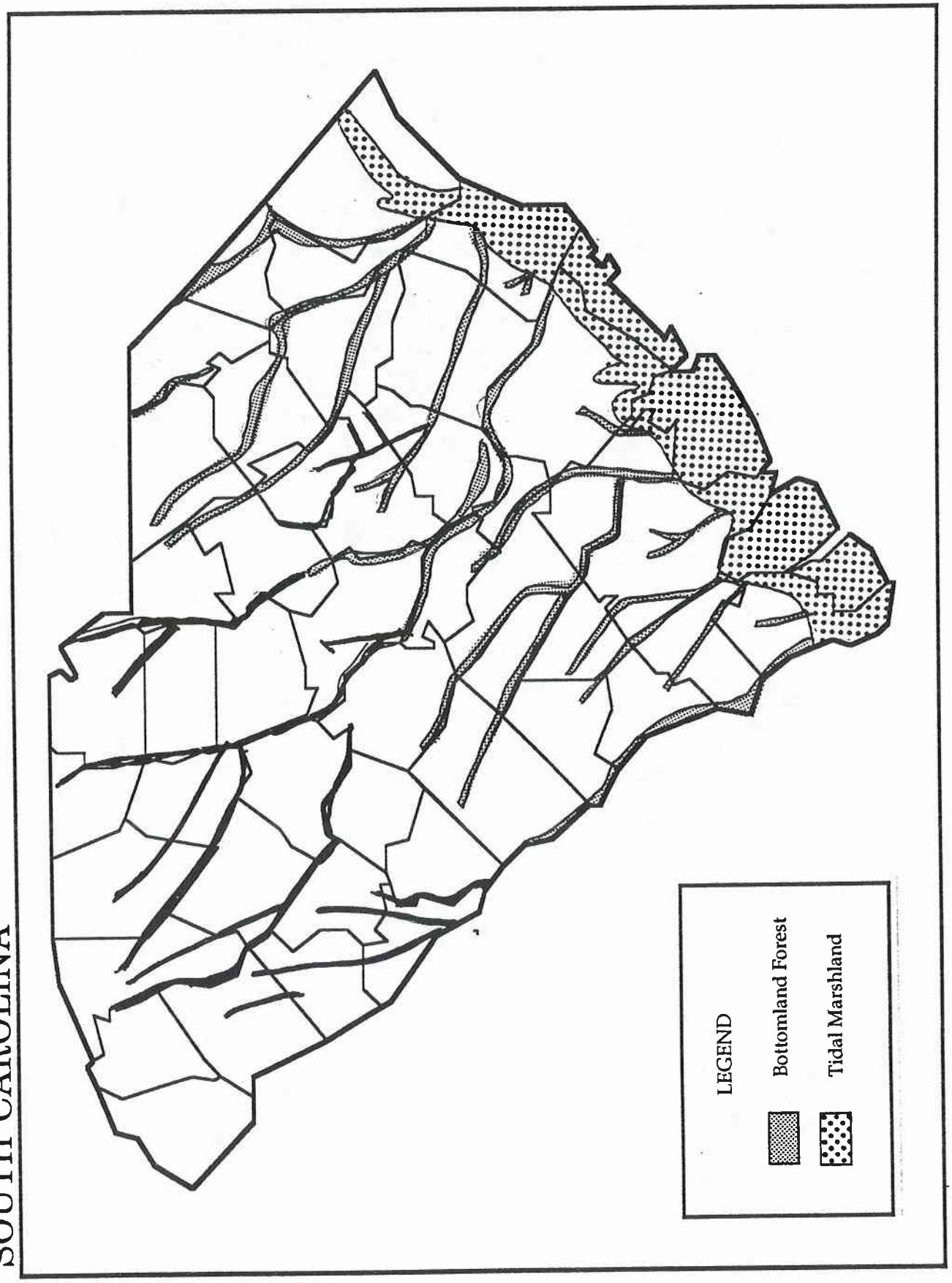


Figure SC-2. Generalized location of priority wetlands in South Carolina (See Table C.11).

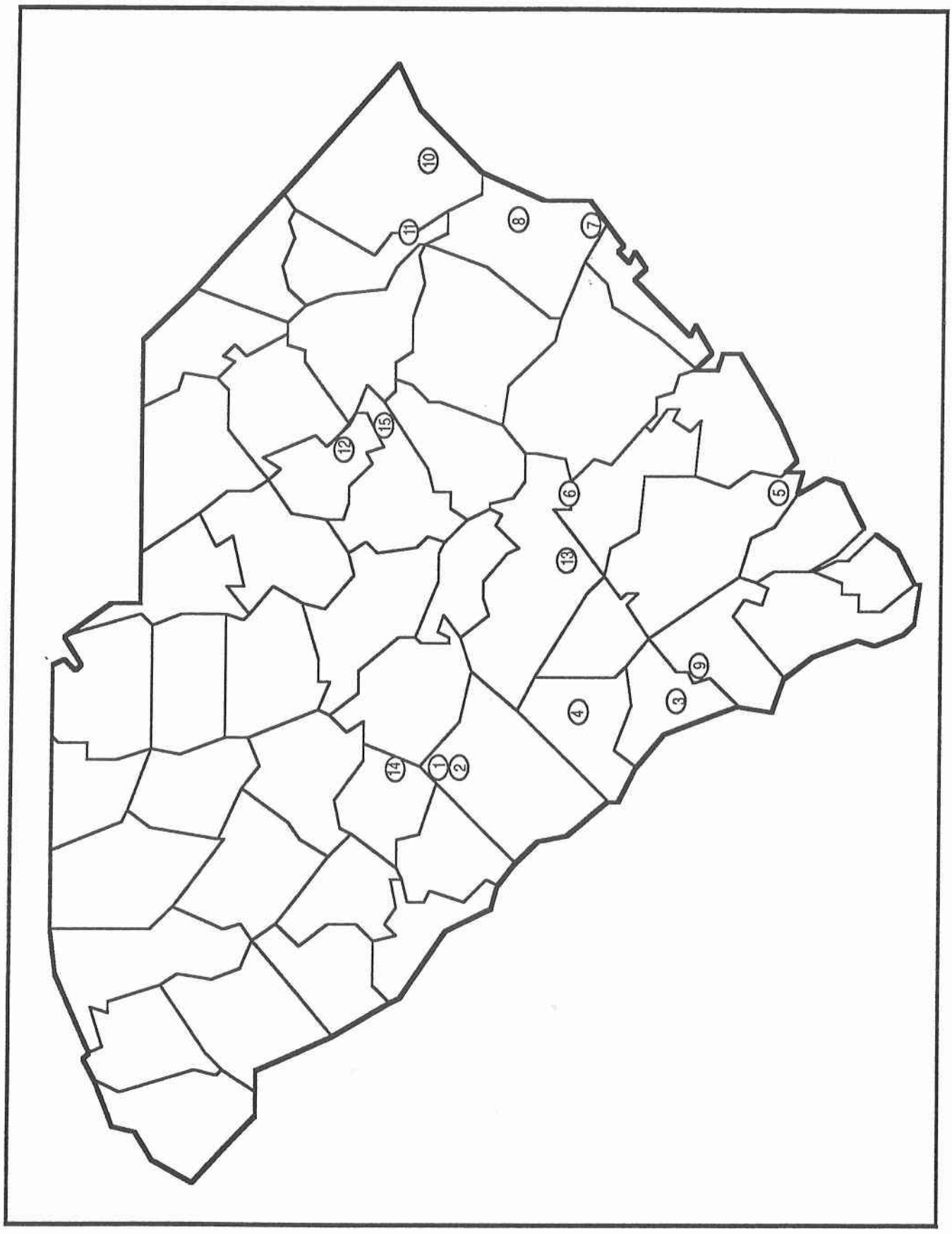


Table C.11. Important Wetlands in South Carolina Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)*	SIGNIFICANCE OF AREA[3]
1	Monetta Sink	Aiken	14	P:EM:A	One of the few remaining examples of a species-rich high pond community in the Southeast. Harbors one of only three of State's remaining viable or recoverable populations of the Federally protected Piedmont bishopweed. Also, includes other plant species of concern to the State.[4] MT:AC, RCD, T, OD.
2	Windmill High Pond	Aiken	18	P:EM:A	See comments for Site 1. State's largest population of Piedmont bishopweed occurs here.[4] MT:AC, RCD, T, OD.
3	Barton Bay	Allendale	231	P:FO:F/B	Site exhibits the Federally protected Canby's dropwort, as well as two Federal status review species and one State endangered plant species. Excellent example of a Pond-Cypress Savannah community (Carolina Bay) still relatively intact.[4] MT:AC, ITM, OD.

Table C.11. (Page 2 of 6). Important Wetlands in South Carolina Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)*	SIGNIFICANCE OF AREA[3]
4	Ashleigh Bay	Barnwell	24	P:FO:B P:SS:B	Includes several plant species of both Federal and State concern. Site is ecologically important as a remnant example of a highly threatened habitat type (Carolina bay) that has mostly been eliminated in the State.[4] MT:AC, RCD, T, ITM, OD.
5	ACE River Basin	Beaufort, Charleston, Colleton	273,000	P:FO:A/C/H P:EM:A/C P:SS:A/C E2:EM:P/N R2:UB:H L2:UB:H	Diverse system of important habitat types for numerous fish and wildlife species, including many waterfowl and migratory birds. The basin harbors 42 percent of the State's nesting pairs of Federally protected bald eagles. Endangered wood storks have active nesting colonies in the area. Includes numerous plant species of special concern to both the FWS and State. Includes economically important commercial fisheries.[5] Portion of area included in Unit M10 of Coastal Barrier Resources System. Includes FWS planning and proposal acquisition areas for the ACE Basin NWR.[6] ES, FNS, WQ. MT:RCD, T, ITM, WQP, OD.

Table C.11. (Page 3 of 6). Important Wetlands in South Carolina Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)*	SIGNIFICANCE OF AREA[3]
6	Four Hole Swamp	Dorchester, Orangeburg	2,050	P:FO:F/C/A	Area contains the largest remaining virgin stand of old growth cypress/tupelo forest in the world. Area has been proposed to become part of the adjacent Francis Biedler Forest Sanctuary, a U.S. Department of the Interior "Natural Landmark." Recognized as a "National Natural Area" by the Society of American Foresters. ES, FNS, WQ. MT:ITM, WQP, OD.
7	Santee Delta	Georgetown	15,300	E2:EM:N/P E1:UB:L P:FO:C P:EM:T	Important waterfowl and migratory bird area.[5] The delta's marsh/estuarine system is extremely valuable as spawning and nursery grounds for numerous fish species. Provides habitat for the Federally protected bald eagle and wood stork. Portion of area included in Unit M04 of Coastal Barrier Resources System. ES, FNS, WQ. MT:RCD, WDP, ITM, WQP, OD.
8	Upper Winyah Bay	Georgetown	23,000	E2:EM:N P:EM:T R1:UB:L	Area contains the most extensive freshwater marshes of any coastal system in the State. Important waterfowl and migratory bird area.[5] Includes habitat for the Federally protected bald eagle. ES, FNS, WQ. MT:RCD, OD, WQP.

Table C.11. (Page 4 of 6). Important Wetlands in South Carolina Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)*	SIGNIFICANCE OF AREA[3]
9	Ducks Bay	Hampton	250	P:FO:C/F	Excellent example of a pond cypress savannah community (Carolina bay), which is a highly threatened, rapidly disappearing habitat type. Area includes the Federally protected Canby's dropwort, as well as several other plant species of special concern to the FWS and the State.[4] ES. MT:AC, ITM.
10	Bare Bone Bay Complex	Horry	1,100	P:SS:B P:FO:B	Includes four practically undisturbed Carolina bays. Area includes active nest cavities for the Federally protected Red-cockaded woodpecker.[4] ES. MT:RCD, OD.
11	Little Pee Dee	Horry, Marion	3,200	P:FO:N P:AB:H R2:UB:H	Area of undisturbed wilderness habitat for numerous species. Area is being considered for inclusion in the State Scenic Rivers Program, the National Wild and Scenic River Program, and as a National River Park. ES, FNS, WQ. MT:OGM, T, WQP, OD.

Table C.11. (Page 5 of 6). Important Wetlands in South Carolina Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)*	SIGNIFICANCE OF AREA[3]
12	Mt. Pleasant Church Bay	Lee	55	P:FO:F/A	Includes a number of Carolina bays, which are highly threatened and rapidly disappearing. Area includes the Federally protected Canby's dropwort.[4] ES. MT:AC, RCD, T, ITM.
13	Branchville Bay	Orangeburg	20	P:FO:A	An ecologically important Carolina bay community. Area includes the Federally protected Canby's dropwort, as well as several other species of special concern to the State.[4] ES. MT:AC, RCD, T, ITM, OD.
14	Saluda County High Ponds	Saluda	31	P:EM:A	An excellent example of a high pond area. Area includes the Federally protected Piedmont bishopweed, and several other species of special concern to the State.[4] ES. MT:AC, RCD, T, OD.
15	Shiloh Savannah	Sumter	43	P:FO:A/C/F	An excellent example of a pond cypress community, with trees likely exceeding 100 years of age. Includes the Federally protected Canby's dropwort, and other plant species of special concern to the State. ES. MT:RCD, ITM, OD.

Table C.11. (Page 6 of 6). Important Wetlands in South Carolina Meeting Wetlands Assessment Criteria.[1]

Footnotes:

[1] Wetlands Assessment Threshold Criteria and instructions are presented in Appendix A.

[2] Site identifier does not indicate or imply priority rank. See Figure SC-2 for general location of areas corresponding to the site identification number.

[3] In addition to any species and resources specifically listed, all sites exhibited a diversity of other fish an wildlife resources of interest to the Service and State, as well as important outdoor recreation, educational, and public use opportunities or potential opportunities.

[4] Area recognized as an ecologically important site by the State Heritage Program.

[5] Site identified by the Fish and Wildlife Service as a key waterfowl and middle-Upper Atlantic Coast Joint Venture Area (Category 20) under the North American Waterfowl Management Plan.

[6] FWS (1990): "Land Acquisition Briefing Book, FY 1991."

* Carolina bays in South Carolina are under evaluation by the U.S. Environmental Protection Agency as an "Advanced Identification Area."

** A portion of this area has been purchased recently (1990) by the State.

APPENDIX C.12. IMPORTANT WETLANDS: TENNESSEE

WETLAND VALUES AND TRENDS IN TENNESSEE*

The vast majority of wetlands in Tennessee (approximately 72 percent) occur in the floodplain of the Mississippi River and its tributaries. The predominant wetland types are Palustrine Forested (approximately 80 percent) and Palustrine Scrub/Shrub. The remaining wetlands in Tennessee consist chiefly of isolated forested wetlands and non-forested emergent wetlands scattered across the eastern two-thirds of the State. These latter types are generally small in size and often severely degraded. From the 1780's to the 1980's, Tennessee lost about 59 percent of its wetlands (about 1.2 million acres).

1. Wetland Loss: About 65 percent (371,000 acres) of western Tennessee's wetlands had been cleared for conversion to agriculture by 1980. Losses continue although at a much lower rate due primarily to declining agricultural commodity prices and changes in government subsidy programs. The great majority of losses have been in the Palustrine Forested type. Palustrine Scrub/Shrub Wetlands have also decreased in total acreage, but have increased somewhat as a percentage of total wetlands remaining, probably due to stream channelization and soil erosion, which have caused swamping of bottomland hardwoods and subsequent evolution to a more permanent water regime.

2. Wetland Threats: Conversion to other uses continues to threaten the wetlands of the Mississippi drainage. In recent years, severe overharvest of timber (high-grading) has become a serious problem in bottomland hardwood areas. While the areas remain wetlands following overharvest, their value to wildlife, particularly waterfowl, is greatly reduced. Also, having lost their value for timber production, they are more likely to be cleared for conversion to agriculture. Wetlands of all types in the vicinity of metropolitan areas are being drained and filled for urban development at a rapid rate. Other threats include dredging and stream channelization, pollutant discharge, construction of levees, and erosion.

3. Wetland Functions and Values: Wetlands in Tennessee constitute a small proportion of the State's areas (approximately 2.9 percent); however, they provide a number of important public values. These benefits include:

   - Filtering the State's waters of pollutants and silt and providing for recharging groundwater supplies and reducing downstream flooding during periods of heavy rainfall
   - Valuable hardwood timber

* See bibliography for references, especially Frayer et al. (1983), Hefner and Brown (1985), and Dahl (1990).

- Stablization of shorelines and riverbanks
- High-quality fisheries and wildlife habitat, and preservation of natural diversity in the environment
- Recreational opportunities including hunting, fishing, wildlife photography, hiking, birdwatching, and canoeing

Figure TN-1. Generalized location of major wetlands zone in Tennessee.

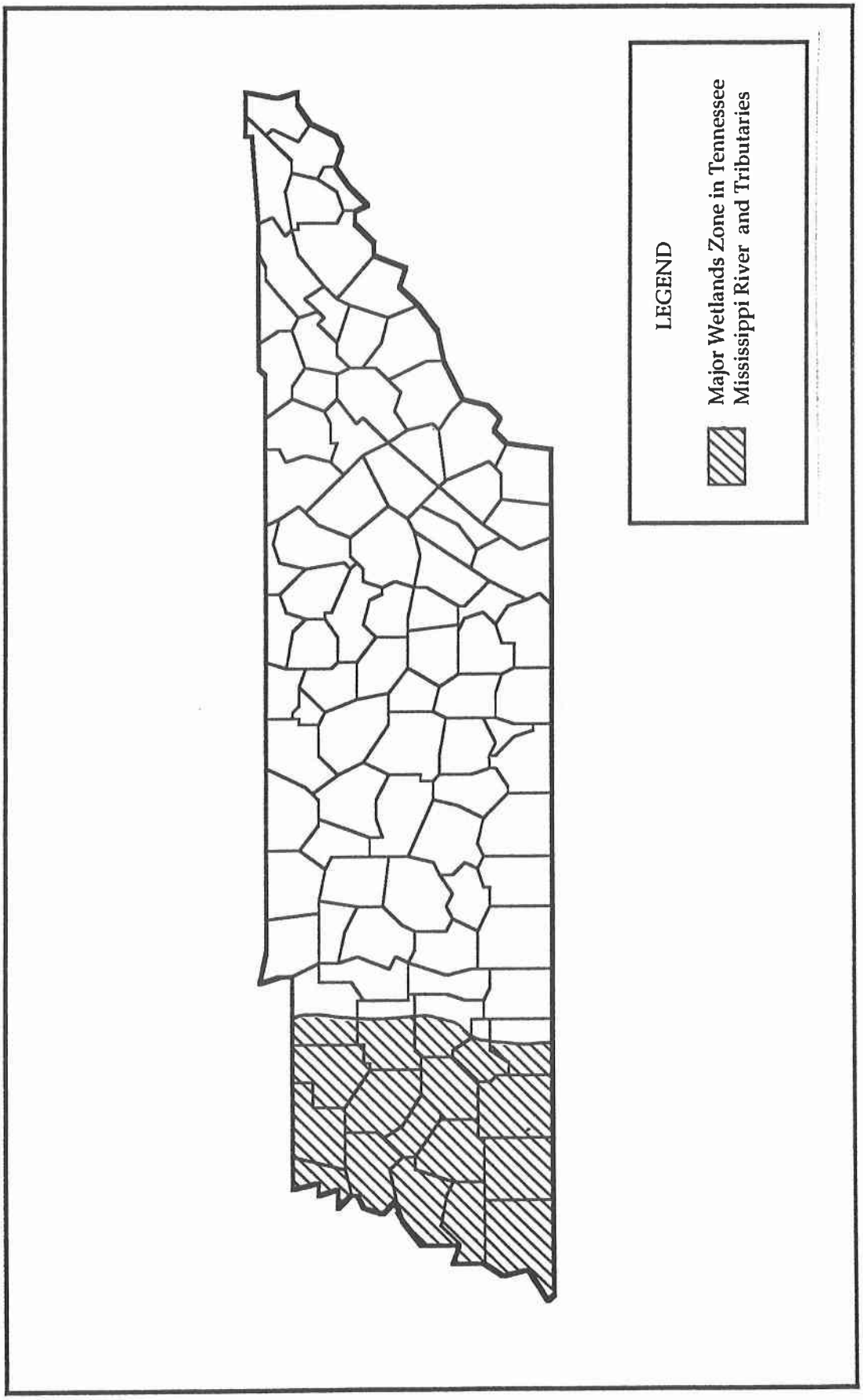


Figure TN-2. Generalized location of priority wetlands in Tennessee (See Table C.12).

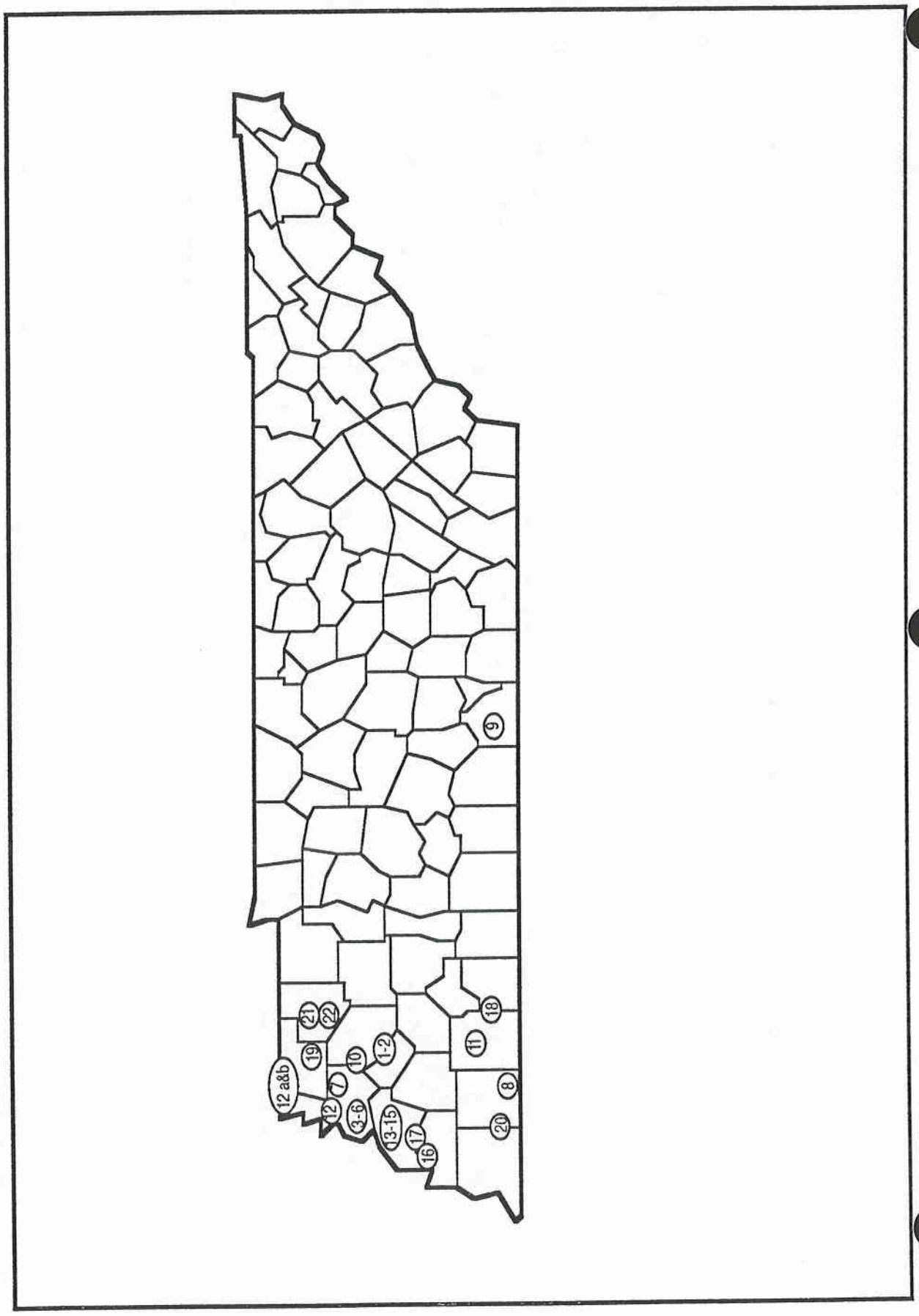


Table C.12. Important Wetlands in Tennessee Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
1	Middle Fork-Forked Deer River	Crockett, Gibson	11,535	P:FO:A/L P:SS:F R:UB:H	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, ITM, WQP, OD.
2	Upper Middle Fork-Forked Deer	Crockett, Gibson	3,500	P:FO:A/C P:SS:F R:UB:H	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, WDP, WQP.
3	Long Pond[0]	Dyer	3,000	P:FO:A/C P:EM:F	Important waterfowl and migratory bird area.[4] WQ. MT:AC, WQP.
4	Moss Island	Dyer	1,020	P:FO:A P:SS:F	Important waterfowl and migratory bird area.[4] Adjacent to or included in Moss Island State WMA. WQ. MT:AC, WQP, OD.
5	Pond Creek	Dyer	2,500	P:FO:A/C P:SS:F	Important waterfowl and migratory bird area.[4] Adjacent to State WMA. FNS. MT:AC, WQP, OD.
6	White's Lake[0]	Dyer	2,200	P:FO:A/C L2:UB:H	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, ITM, WQP.
7	Horseshoe Lake	Dyer, Obion	2,250	P:FO:A L2:UB:H	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, WDP, WQP.

Table C.12. (Page 2 of 6). Important Wetlands in Tennessee Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
8	Upper Wolf River	Fayette	2,300	P:FO:C/A/F P:SS:F R2:UB:H	Important waterfowl and migratory bird area.[4] One of only two remaining naturally-meandering swamp river systems in State. Area contains several State-listed endangered or threatened species. ES, FNS, WQ. MT:AC, WDP, ITM, WQP.
9	Mingo Swamp	Franklin	610	P:FO P:EM	An excellent example of a vanishing wetland type known as Karst Fen; largest remaining example in State. Contains several State-listed endangered or threatened species. Site has been recommended as a National Natural Landmark in a study commissioned by the National Park Service. ES. MT:AC, RCD, T, ITM.
10	Tatumville Bottoms	Gibson, Dyer	3,560	P:FO:A/C P:SS:F	Important waterfowl and migratory bird area.[4] WQ. MT:AC, WDP, WQP.
11	Pirtle Pond-Clover Lakes	Hardeman	6,150	P:FO P:SS R2:UB:H	Recognized by the Tennessee Department of Conservation as the highest ranking wetland acquisition site in State. Area contains at least seven State-listed endangered and threatened specie. Part of the Hatchie River system, which is a State Scenic River. Contains at least one archaeological site. ES, FNS, WQ. MT:AC, T, ITM, WQP.

Table C.12. (Page 3 of 6). Important Wetlands in Tennessee Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
12	Anderson-Tully	Lake, Dyer	2,800	P:FO:A/C	Important waterfowl and migratory bird area.[4] WQ. MT:AC, ITM, WQP.
12a	Reelfoot NWR Expansion	Obion	~1,200	P:FO:A/C P:SS P:EM	Important waterfowl and migratory bird area.[4] ES, WQ. MT:AC,RCD, WQP, OD.
12b	Lake Isom NWR Expansion	Lake, Obion	3,900	P:FO:A/C P:SS P:EM	Important waterfowl and migratory bird area.[4] ES, WQ. MT:AC, WQP, OD.
13	Lost Lake	Lauderdale	4,500	P:FO:A/C	Important waterfowl and migratory bird area.[4] Anderson-Tully State WMA. WQ. MT:AC, ITM, WQP.
14	Open Lake	Lauderdale	3,300	P:FO:A/C L1:UB:H L2:US:C R2:UB:H	Important waterfowl and migratory bird area.[4] Includes habitat for the Federally protected bald eagle. Contains several State-listed endangered and threatened species. Contains several archaeological sites. Adjacent to Upper Anderson-Tully State WMA and Chickasaw NWR. ES, FNS, WQ. MT:AC, T, WQP, OD.
15	Lower Anderson-Tully	Lauderdale, Mississippi (Arkansas)	19,320	P:FO:A/C P:EM:F P:f**	Important waterfowl and migratory area.[4] Includes part of Anderson-Tully State WMA in Tennessee. Includes FWS planning and proposed acquisition for the Chickasaw NWR.* ES, FNS, WQ. MT:AC, ITM, WQP.

Table C.12. (Page 4 of 6). Important Wetlands in Tennessee Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
16	Lower Hatchie River Bottoms	Lauderdale, Tipton	4,530	P:FO P:EM P:SS R2:UB:H P:f**	Important waterfowl and migratory bird area.[4] Includes habitat for the Federally protected bald eagle and at least 11 State-listed endangered or threatened species. Contains eight known archaeological sites. Includes FWS planning and proposed acquisition for the Lower Hatchie NWR.* ES, FNS, WQ. MT:AC, T, ITM, WQP, OD.
17	Middle Hatchie	Lauderdale, Tipton	3,500	P:FO P:SS R2:UB:H	Important waterfowl and migratory bird area.[4] ES, FNS, WQ. MT:AC, ITM, WQP, OD.
18	Tuscumbia River Bottoms	McNairy, Hardman	5,375	P:FO P:SS R2:UB:H	Area contains two State-listed endangered or threatened species, and is part of the Hatchie River State Scenic River System. Adjacent to Big Hill Pond State Park. ES, FNS, WQ. MT:AC, WDP, ITM, WQP, OD.
19	Crockett	Obion	2,200	P:FO:A P:EM:F	Important waterfowl and migratory bird area.[4] Adjacent to Gooch Waterfowl Management Area (State). FNS, WQ. MT:AC, OD, WQP.

Table C.12. (Page 5 of 6). Important Wetlands in Tennessee Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	COUNTY	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
20	Lower Wolf River***	Shelby, Fayette	7,650	P:FO:C/A/F P:EM:F R2:UB:H	Important waterfowl and migratory bird area.[4] Area contains five State-listed endangered or threatened species. ES, FNS, WQ. MT:AC, RCD, WDP, ITM, OD, WQP.
21	Donoho Swamp	Weakley	5,240	P:FO:A P:EM:F	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, ITM, WQP.
22	Spring Creek	Weakley	2,140	P:FO:A	Important waterfowl and migratory bird area.[4] FNS, WQ. MT:AC, ITM, WQP.

Footnotes:

1 Wetlands Assessment Threshold Criteria and instructions are presented in Appendix A.

2 Site identifier does not indicate or imply priority rank. See Figure TN-2 for general location of areas corresponding to the site identification number.

3 In addition to any species and resources specifically listed, all sites exhibited a diversity of other fish and wildlife resources of interest to the Service and State, as well as important outdoor recreation, educational, and public use opportunities or potential opportunities.

4 Site identified by the Fish and Wildlife Service as a key waterfowl and Lower Mississippi River Valley Joint Venture Area (Category 23A) under the North American Waterfowl Management Plan.

* FWS (1990): "Land Acquisition Briefing Book, FY 1991."

Table C.12. (Page 6 of 6). Important Wetlands in Tennessee Meeting Wetlands Assessment Criteria.[1]

Footnotes (Con't.):

** At least 50 percent of identified farmed wetlands would be restored to a wetland type recognized as declining in the Southeast Region (e.g., Palustrine Forested, Palustrine Emergent).

*** Area under study by the U.S. Environmental Protection Agency as an "Advanced Identification Area."

◊ A portion of the area has been acquired by the State.

Table C.12.1. Potential Priority Wetlands in Tennessee.[1]

Name of Area	County	Estimated Wetland Acres
Lick Creek Bottoms	Greene	5,000
Nixon Creek	Haywood, Crockett	2,500
Knob Creek	Lauderdale	12,500

[1] Additional information and evaluation of these areas are needed to determine compliance with the "Wetlands Threshold Assessment Criteria" in Appendix A.

APPENDIX C.13. IMPORTANT WETLANDS: VIRGIN ISLANDS

WETLAND VALUES AND TRENDS IN U.S. VIRGIN ISLANDS*

The major wetland regions in the U.S. Virgin Islands are Coastal Marine Wetlands, Estuarine Wetlands, and Palustrine Freshwater Wetlands.

- Coastal Marine Wetlands include fringe mangrove wetlands, off-shore mangrove keys, and marine sea grass beds.
- Estuarine Wetlands include basin mangrove forests, coastal mangrove lagoons, and saltponds.
- Freshwater wetlands are very limited in extent.

1. Wetland Loss: Most of the original wetlands in the Virgin Islands have been lost to residential and commercial developments. Large tourist developments and marinas have resulted in much of the loss.

2. Wetlands Threats: Development continues to be a threat to wetlands in the Virgin Islands. Environmentally important areas such as Salt River, Great Pond, Mangrove Lagoon, and Benner Bay are all under heavy developmental pressure. Port development and expansion are also a major threat to some remaining wetland areas.

3. Wetland Functions and Values: Wetlands in the Virgin Islands provide numerous and very important public values. They provide nursery habitat for many commercially important fish and shellfish. They provide habitat for many bird species, including several Federally protected species, and are important wintering grounds for numerous migratory birds. These wetlands are an integral part of the marine ecosystem and form an important part of the natural heritage.

* See bibliography for references, especially Virgin Islands Department of Housing, Parks and Recreation (1989) and Virgin Islands Department of Conservation and Cultural Affairs (1988).

Figure VI-1. Generalized location of priority wetlands in the Virgin Islands (See Table C.13).

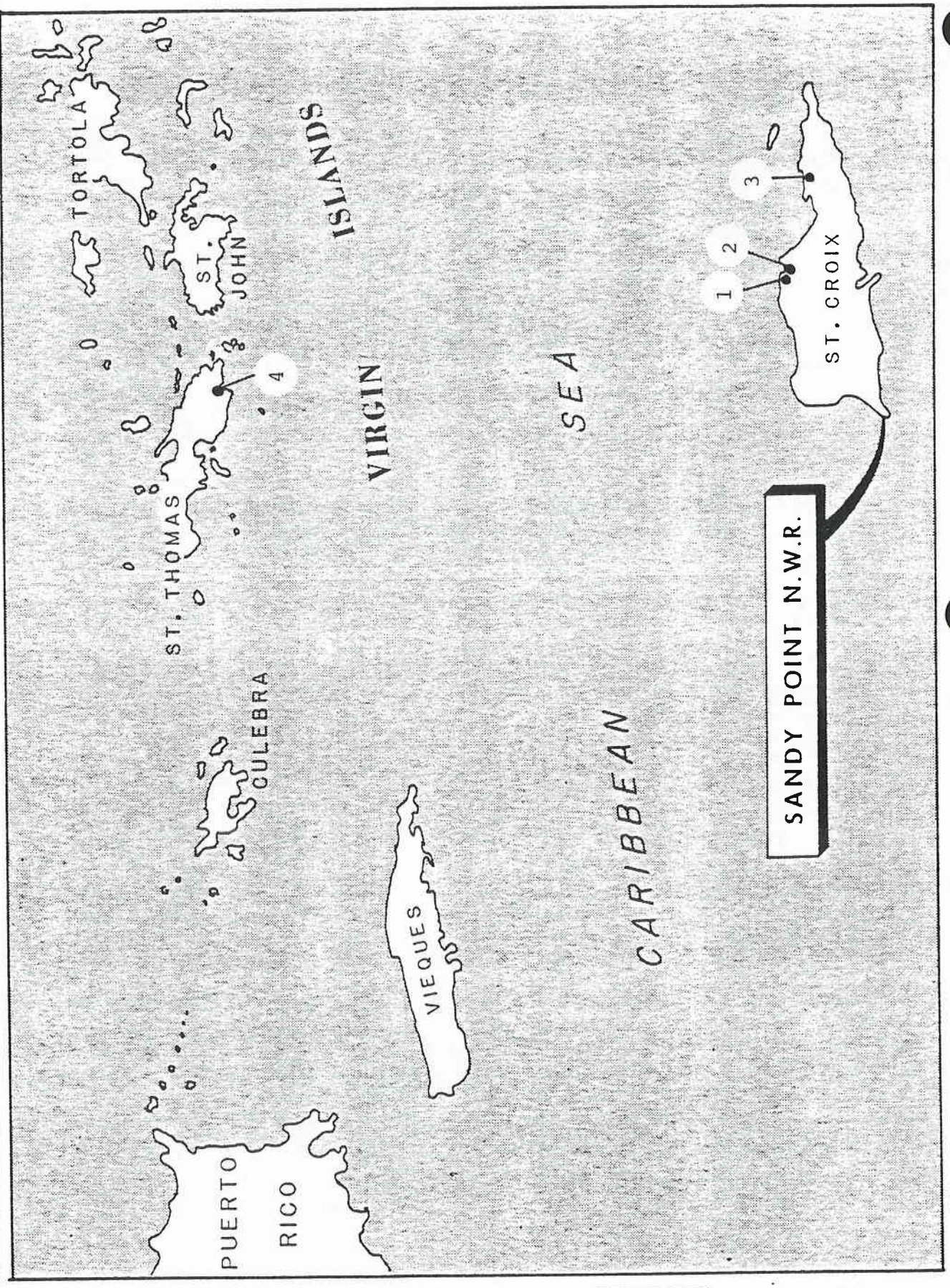


Table C.13. Important Wetlands in Virgin Islands Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	ISLAND	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
1	Rust Up Twist	Saint Croix (10 km NW of Christiansted)	93	E2:FO:P E2:US:P M1:RF:L P:UB:F P:US P:FO	Important feeding area for the Federally protected peregrine falcon. Also, provides excellent habitat for the Federally protected brown pelican. Important stop-over area for migratory birds. Area included in Unit VI-01A of Coastal Barrier Resources System. ES, FNS. MT:RCD, T. WQP.
2	Salt River Bay	Saint Croix (6 km NW of Christiansted)	306	E1:UB:H M1:RF:L E2:US:N E2:FO:P P:FO:J E1:UB:H	Area recognized as the least disturbed remaining region in the Virgin Islands in terms of hydrology, water quality, and physical integrity. Contains the largest remaining mangrove stand on St. Croix. Considered by the Commonwealth to be the most valuable "Significant Natural Area" in the Virgin Islands. Includes important habitat for several Federally protected species.[4,5] Area included in Unit VI-01A of Coastal Barrier Resources System. ES, FNS, WQ. MT:RCD, WDP, WQP, OD.

Table C.13. (Page 2 of 3). Important Wetlands in Virgin Islands Meeting Wetlands Assessment Criteria.[1]

SITE IDENTIFIER[2]	AREA NAME	ISLAND	APPROXIMATE ACREAGE	MAJOR WETLAND TYPE(S)	SIGNIFICANCE OF AREA[3]
3	Southgate Pond	Saint Croix (5 km NE of Christiansted)	97	E2:UB:H E2:FO:P E2:SS:P M1:RF:L M2:RS:N E2:US:N	Important resting and feeding area for migratory sandpipers and snipes. Includes habitat for the Federally protected brown pelican and peregrine falcon. The white-cheeked pintail, a candidate for Federal protection, also uses the area.[4] Portion of area included in Unit VI-03 of Coastal Barrier Resources System. ES, FNS. MT. RCD, WDP, OD.
4	Mangrove Lagoon	Saint Thomas (5 km SE of Charlotte Amalie)	143	E1:UB:H E2:FO:P P:EM:C E2:US:N	Recognized as the largest and most diverse habitat for bird species on St. Thomas. Includes habitat for the Federally protected brown pelican and peregrine falcon.[4] Area included in Unit VI-34 of Coastal Barrier Resources System. ES, FNS. MT:RCD, T, WQP.

Footnotes:

[1] Wetlands Assessment Threshold Criteria and instructions are presented in Appendix A.

[2] Site identifier does not indicate or imply priority rank. See Figure VI-1 for general location of areas corresponding to the site identification number.

Table C.13. (Page 3 of 3). Important Wetlands in Virgin Islands Meeting Wetlands Assessment Criteria.[1]

Footnotes (Con't.):

[3] In addition to any species and resources specifically listed, all sites exhibited a diversity of other fish and wildlife resources of interest to the Service and Commonwealth, as well as important outdoor recreation, educational, and public use opportunities or potential opportunities.

[4] Site identified in the Territorial Comprehensive Outdoor Recreation Plan: Wetlands Addendum (Virgin Island Department of Housing, Parks and Recreation 1989).

[5] Site under evaluation by the FWS as the proposed Salt River National Wildlife Refuge (U.S. Fish and Wildlife Service 1989).

Table C.13.1. Potential Priority Wetlands in the Virgin Islands.[1]

Area Name	Location	Approximate Acreage	Principal Vegetation
Altona Lagoon	St. Croix (1 km E of Christiansted)	250	Mangroves
Cassawa Garden	St. Croix (4 km SW of Christiansted)	37	Mangroves
Coakley Bay Pond	St. Croix (5 km NE of Christiansted)	17	Mangroves
Great Pond	St. Croix (4 km SE of Christiansted)	125	Mangroves
Krause Lagoon Remanant	St. Croix (7 km SW of Christiansted)	500	Mangroves
Manning Bay	St. Croix (8 km SW of Christiansted)	25	Mangroves
Westend Salt Pond	St. Croix (3 km SW of Frederiksted)	250	Mangroves
Mary Point Pond	St. John (near Mary Point)	12	Mangroves
Other Wetlands (7 sites)	St. John (along South Coast and Coral Bay)	52	Mangroves
Magen's Bay	St. Thomas (1 km N of Charlotte Amalie)	9	Mangroves
Preserverence Bay Pond	St. Thomas (6 km W of Charlotte Amalie)	7	Mangroves
Vessup Bay Pond	St. Thomas (eastern end)	7	Mangroves

[1] Sites identified in the Territorial Comprehensive Outdoor Recreation Plan, Wetlands Addendum (Virgin Islands Department of Housing, Parks and Recreation 1989). Additional information and evaluation of these areas are needed to determine compliance with the "Wetlands Threshold Assessment Criteria" in Appendix A.

APPENDIX D

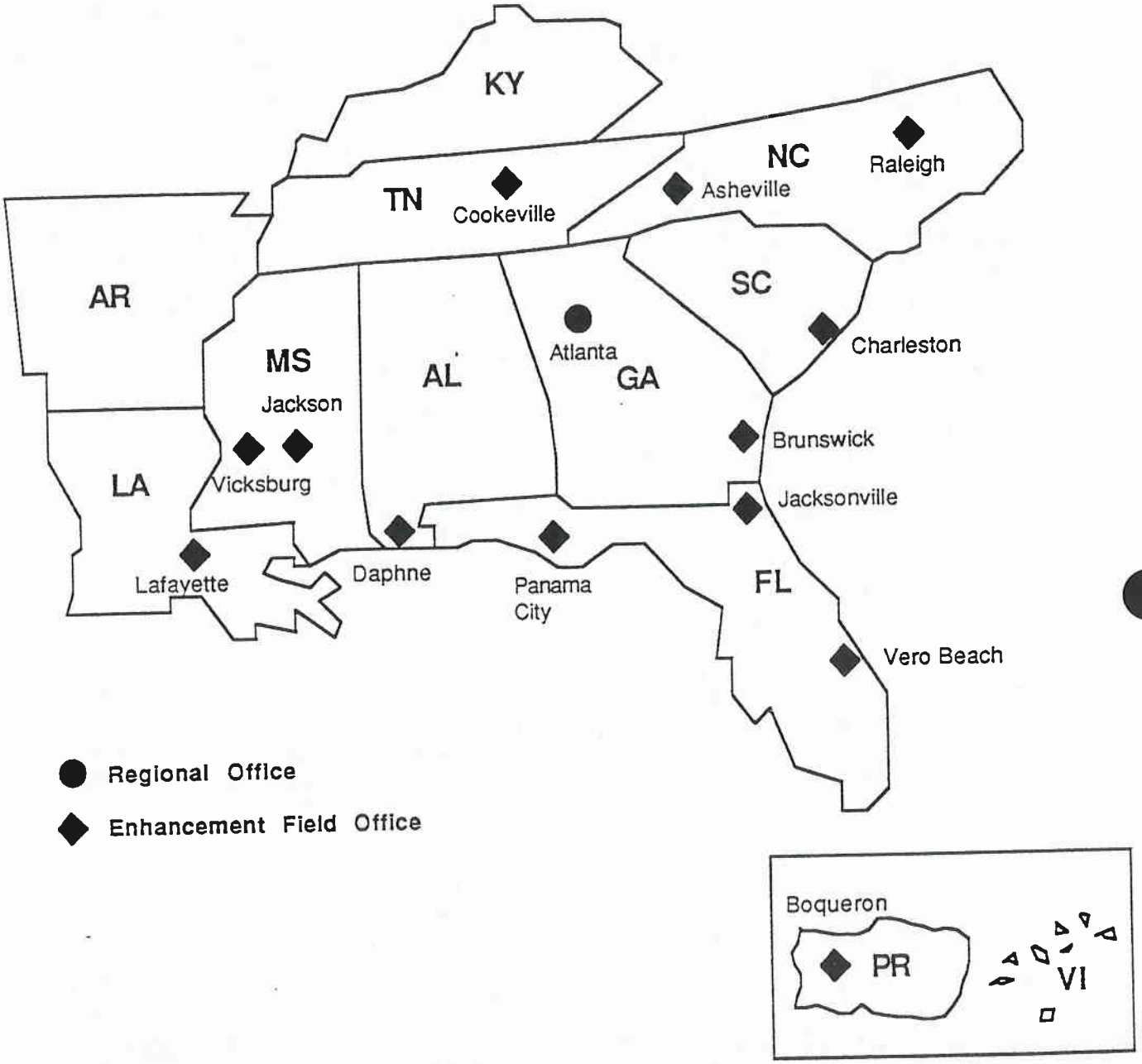
LOCATION OF U.S. FISH AND WILDLIFE SERVICE OFFICES FOR OBTAINING INFORMATION

U.S. FISH AND WILDLIFE SERVICE OFFICE

Mailing Address	Name and Title	Office Number
REGIONAL OFFICE		
U.S. Fish and Wildlife Service Richard B. Russell Federal Building 75 Spring Street, SW., Room 1276 Atlanta, Georgia 30303	Ronnie J. Haynes Regional Coordinator for Emergency Wetlands Resources Act	404/331-6343
ALABAMA		
U.S. Fish and Wildlife Service P.O. Drawer 1190 Daphne East Office Plaza 2001 Highway 98, Suite A Daphne, Alabama 36526	Larry E. Goldman Field Supervisor	205/441-5181
FLORIDA		
U.S. Fish and Wildlife Service 3100 University Boulevard, South, Suite 120 Jacksonville, Florida 32216	David J. Wesley Field Supervisor	904/232-2580
U.S. Fish and Wildlife Service 1612 June Avenue Panama City, Florida 32405-3721	Gail Carmody Field Supervisor	904/769-0552 or 904/769-5430
U.S. Fish and Wildlife Service P.O. Box 2676 1360 U.S. 1, South, Suite 5 Vero Beach, Florida 32961-2676	David L. Ferrell Field Supervisor	407/562-3909
GEORGIA		
U.S. Fish and Wildlife Service Federal Building, Room 334 801 Gloucester Street Brunswick, Georgia 31520	Philip H. Laumeyer Field Supervisor	912/265-9336
LOUISIANA		
U.S. Fish and Wildlife Service 825 Kaliste Saloom Road Brandywine II, Suite 102 Lafayette, Louisiana 70508	David W. Fruge Field Supervisor	318/264-6630

Mailing Address	Name and Title	Office Number
MISSISSIPPI		
U.S. Fish and Wildlife Service 6578 Dogwood View Parkway Suite A Jackson, Mississippi 39213	Robert G. Bowker Field Supervisor	601/965-4900
U.S. Fish and Wildlife Service Room 235, Thomas Building 900 Clay Street Vicksburg, Mississippi 39180	Allan Mueller Field Supervisor	601/638-1891
NORTH CAROLINA		
U.S. Fish and Wildlife Service 330 Ridgefield Court Asheville, North Carolina 28806	Brian Cole Field Supervisor	704/665-1195
U.S. Fish and Wildlife Service P.O. Box 33726 551-F Pylon Drive Raleigh, North Carolina 27636-3726	Linda K. Gantt (Mike) Field Supervisor	919/856-4520
PUERTO RICO		
U.S. Fish and Wildlife Service Caribbean Field Office P.O. Box 491 Boqueron, Puerto Rico 00622	James P. Oland Field Supervisor	809/851-7297
SOUTH CAROLINA		
U.S. Fish and Wildlife Service P.O. Box 12559 Charleston, South Carolina 29412	Roger L. Banks Field Supervisor	803/727-4707
TENNESSEE		
U.S. Fish and Wildlife Service 446 Neal Street Cookeville, Tennessee 38501	Lee A. Barclay Field Supervisor	615/528-6481

Figure D-1. U.S. Fish and Wildlife Service, Southeast Region: Location of Regional Office and Enhancement Field Offices.



APPENDIX E

EMERGENCY WETLANDS RESOURCES ACT OF 1986
P.L. 99-645

Signed November 11, 1986

Public Law 99-645
99th Congress

An Act

Nov. 10, 1986
[S. 740]

To promote the conservation of migratory waterfowl and to offset or prevent the serious loss of wetlands by the acquisition of wetlands and other essential habitat, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

Emergency Wetlands Resources Act of 1986.
16 USC 3901 note.

SECTION 1. SHORT TITLE.

This Act may be cited as the "Emergency Wetlands Resources Act of 1986".

16 USC 3901.

SEC. 2. FINDINGS AND STATEMENT OF PURPOSE.

(a) FINDINGS.—The Congress finds that—

(1) wetlands play an integral role in maintaining the quality of life through material contributions to our national economy, food supply, water supply and quality, flood control, and fish, wildlife, and plant resources, and thus to the health, safety, recreation, and economic well-being of all our citizens of the Nation;

(2) wetlands provide habitat essential for the breeding, spawning, nesting, migration, wintering and ultimate survival of a major portion of the migratory and resident fish and wildlife of the Nation; including migratory birds, endangered species, commercially and recreationally important finfish, shellfish and other aquatic organisms, and contain many unique species and communities of wild plants;

(3) the migratory bird treaty obligations of the Nation with Canada, Mexico, Japan, the Union of Soviet Socialist Republics, and with various countries in the Western Hemisphere require Federal protection of wetlands that are used by migratory birds for breeding, wintering or migration and needed to achieve and to maintain optimum population levels, distributions, and patterns of migration;

(4) wetlands, and the fish, wildlife, and plants dependent on wetlands, provide significant recreational and commercial benefits, including—

(A) contributions to a commercial marine harvest valued at over $10,000,000,000 annually;

(B) support for a major portion of the Nation's multimillion dollar annual fur and hide harvest; and

(C) fishing, hunting, birdwatching, nature observation and other wetland-related recreational activities that generate billions of dollars annually;

(5) wetlands enhance the water quality and water supply of the Nation by serving as groundwater recharge areas, nutrient traps, and chemical sinks;

(6) wetlands provide a natural means of flood and erosion control by retaining water during periods of high runoff, thereby protecting against loss of life and property;

(7) wetlands constitute only a small percentage of the land area of the United States, are estimated to have been reduced by half in the contiguous States since the founding of our Nation, and continue to disappear by hundreds of thousands of acres each year;

(8) certain activities of the Federal Government have inappropriately altered or assisted in the alteration of wetlands, thereby unnecessarily stimulating and accelerating the loss of these valuable resources and the environmental and economic benefits that they provide; and

(9) the existing Federal, State, and private cooperation in wetlands conservation should be strengthened in order to minimize further losses of these valuable areas and to assure their management in the public interest for this and future generations.

(b) PURPOSE.—It is the purpose of this Act to promote, in concert with other Federal and State statutes and programs, the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions with Canada, Mexico, Japan, the Union of Soviet Socialist Republics, and with various countries in the Western Hemisphere by—

International agreements.
Canada.
Mexico.
Japan.
Union of Soviet Socialist Republics.

(1) intensifying cooperative efforts among private interests and local, State, and Federal governments for the management and conservation of wetlands; and

(2) intensifying efforts to protect the wetlands of the Nation through acquisition in fee, easements or other interests and methods by local, State, and Federal governments and the private sector.

SEC. 3. DEFINITIONS.

16 USC 3902.

For the purpose of this Act:

(1) The term "Committees" means the Committee on Merchant Marine and Fisheries and the Committee on Interior and Insular Affairs of the House of Representatives and the Committee on Environment and Public Works and the Committee on Energy and Natural Resources of the Senate.

(2) The term "designated unit" means a unit of the National Wildlife Refuge System designated by the Secretary under section 201(a)(2).

(3) The term "hydric soil" means soil that, in its undrained condition, is saturated, flooded, or ponded long enough during a growing season to develop an anaerobic condition that supports the growth and regeneration of hydrophytic vegetation.

(4) The term "hydrophytic vegetation" means a plant growing in—

(A) water; or

(B) a substrate that is at least periodically deficient in oxygen during a growing season as a result of excessive water content.

(5) The term "wetland" means land that has a predominance of hydric soils and that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions.

TITLE I—EXTENSION OF WETLANDS LOAN ACT

SEC. 101. EXTENSION OF WETLANDS LOAN ACT.

(a) AVAILABILITY OF APPROPRIATIONS.—The first section of the Act entitled "An Act to promote the conservation of migratory waterfowl by the acquisition of wetlands, and for other essential waterfowl habitat, and for other purposes", approved October 4, 1961 (16 U.S.C. 715k-3), is amended by striking out "September 30, 1986" and inserting in lieu thereof "September 30, 1988".

(b) REPAYMENT PROVISIONS.—Section 3 of such Act (16 U.S.C. 715k-5) is amended by striking out the first three sentences.

National Wildlife Refuge System.

TITLE II—REVENUES FOR REFUGE OPERATIONS AND THE MIGRATORY BIRD CONSERVATION FUND

16 USC 3911.

SEC. 201. SALE OF ADMISSION PERMIT AT CERTAIN REFUGE UNITS.

(a) SALE OF ADMISSION PERMITS.—(1) Notwithstanding the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 460l-4 et seq.), in order to provide additional revenues for the conservation of wetland resources of the Nation and for the operation and maintenance of refuges—

(A) the Secretary of the Interior may, at units of the National Wildlife Refuge System designated by the Secretary under paragraph (2)—

(i) charge fees for admission permits;

(ii) sell Golden Eagle passports and Golden Age passports;

(iii) issue at no charge lifetime admission permits as authorized in section 4(a)(5) of the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 460l-4—460l-11);

(B) the amounts collected by the Secretary as a result of the activities described in subparagraph (A) shall be distributed as provided in subsection (c).

(2) The Secretary shall designate a unit of the National Wildlife Refuge System for purposes of this Act if the Secretary determines, with respect to such unit, that—

(A) The level of visitation for recreational purposes is high enough to justify the collection of fees for admission permits for economic reasons.

(B) There is a practical mechanism in existence for implementing and operating a system of collecting fees for admission permits.

(C) Imposition of a fee for admission permits is not likely to result in undue economic hardship for a significant number of visitors to the unit.

(b) EXCEPTIONS.—(1) The Secretary may not require an admission permit under subsection (a)(1) for entry by a person into a designated unit if such person is the holder of—

(A) a valid migratory bird hunting and conservation stamp issued under section 2 of the Act of March 16, 1934 (16 U.S.C. 718b) (commonly known as the Duck Stamp Act);

(B) a valid Golden Eagle Passport issued under section 4(a)(1) of the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 460l-6a(a)(1));

(C) a valid Golden Age Passport issued under section 4(a)(4) of such Act; or

(D) a valid lifetime admission permit as authorized in section 4(a)(5) of such Act.

(2) Permits for a single visit to any designated unit shall be made available by the Secretary of the Interior for a reasonable fee, but not to exceed $3 for individuals or $7.50 per vehicle. For purposes of this subsection, the term "single visit" means a more or less continuous stay within a designated unit by a person or group described in subsection (d). Payment of a single visit fee and issuance of a single visit permit shall authorize exits from and re-entries to a single designated unit for a period of from one to fifteen days. Such period shall be defined for each designated unit by the Secretary based upon a determination of the period of time reasonably and ordinarily necessary for such a single visit.

(3) Special admission permits for uses such as group activities may be issued in accordance with procedures and at fees established by the Secretary.

(4) A person may not be required to purchase an admission permit under subsection (a)(1) in order to travel by private noncommercial vehicle over any road or highway—

(A)(i) established as part of the National Federal Aid System (as defined in section 101 of title 23, United States Code); and

(ii) commonly used by the public as a means of travel between two places which are outside the designated unit; or

(B) to any land in which such person has a property interest if such land is within any designated unit.

(5) A person may not be required to purchase an admission permit under subsection (a)(1) for entrance or admission to a unit of the National Wildlife Refuge System created, expanded, or modified by Public Law 96-487.

16 USC 3101 note.

(c) DISTRIBUTION OF AMOUNTS COLLECTED.—Amounts collected from the sale of admission permits under this section and from fees collected at any unit of the National Wildlife Refuge System under subsections (b) and (c) of section 4 of the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 460l-6a (b), (c)) shall be distributed as follows:

(A) Thirty per centum shall be available to the Secretary of the Interior until expended. The Secretary shall use such amount—

(i) first, to defray the cost of collection;

(ii) next, for operation and maintenance of the collecting unit; and

(iii) next, for operation and maintenance of all units within the National Wildlife Refuge System, except those units created, expanded, or modified by Public Law 96-487.

(B) Seventy percent shall be deposited into the migratory bird conservation fund established under section 4 of the Act of March 16, 1934 (16 U.S.C. 718d).

(d) PERSONS ACCOMPANYING PERMITTEES.—A person who holds a stamp, passport, or permit described in subsection (b) shall be entitled to general entrance into any designated unit, along with—

(1) any persons accompanying such person in a single, private, noncommercial vehicle; or

(2) where entry to the area is by any means other than single, private, noncommercial vehicle, the person and any accompanying spouse, children, or parents.

(e) RESTRICTIONS.—A permit issued under this section is nontransferable. Such a permit may not authorize any uses for

which fees are charged under the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 4601-4 et seq.).

(f) ESTABLISHMENT OF FEES; POSTING OF NOTICES.—(1) All fees established pursuant to this section shall be fair and equitable. In establishing such fees, the Secretary shall consider the following:

(A) The direct and indirect cost to the Government.

(B) The benefits to the permit holder.

(C) The public policy or interest served.

(D) The comparable fees charged by non-Federal public agencies.

(E) The economic and administrative feasibility of fee collection and other pertinent factors.

(2) The Secretary shall require that notice that a fee has been established under this section—

(A) be prominently posted at each designated unit and at appropriate locations in each such unit; and

(B) to the extent practicable, be included in publications distributed at such units.

(g) VOLUNTEERS.—The Director of the United States Fish and Wildlife Service may accept services of volunteers to sell admission permits under this section or to sell Golden Eagle and Golden Age Passports or Migratory Bird Hunting and Conservation Stamps. The Director may use funds appropriated or otherwise made available to the Service to cover the cost of any surety bond that may be required of a volunteer performing the services authorized under this subsection.

SEC. 202. PRICE OF MIGRATORY BIRD HUNTING AND CONSERVATION STAMP.

16 USC 718b.

Section 2(b) of the Act of March 16, 1934 (16 U.S.C. 718(b)), is amended in the first sentence—

(1) by striking out "$7.50" and inserting in lieu thereof "$10.00";

(2) by striking out "any hunting year" and inserting in lieu thereof "hunting years 1987 and 1988, $12.50 for hunting years 1989 and 1990, and $15.00 for each hunting year thereafter,"; and

(3) by inserting "available for obligation and" before "attributable".

16 USC 3912.

SEC. 203. TRANSFERS TO MIGRATORY BIRD CONSERVATION FUND.

Notwithstanding any other provision of law, an amount equal to the amount of all import duties collected on arms and ammunition, as specified in subpart A of part 5 of schedule 7 of the Tariff Schedules of the United States, shall, beginning with the next fiscal year quarter after the date of enactment of this Act, be paid quarterly into the migratory bird conservation fund established under section 4 of the Act of March 16, 1934 (16 U.S.C. 718d).

19 USC 1202.

TITLE III—STATE AND FEDERAL WETLAND ACQUISITION

16 USC 3921. State and local governments.

SEC. 301. NATIONAL WETLANDS PRIORITY CONSERVATION PLAN.

(a) IN GENERAL.—The Secretary shall establish, and periodically review and revise, a national wetlands priority conservation plan which shall specify, on a region-by-region basis or other basis considered appropriate by the Secretary, the types of wetlands and interests in wetlands which should be given priority with respect to Federal and State acquisition.

(b) CONSULTATION.—The Secretary shall establish the plan required by subsection (a) after consultation with—

(1) the Administrator of the Environmental Protection Agency;

(2) the Secretary of Commerce;

(3) the Secretary of Agriculture; and

(4) (the chief executive officer of) each State.

State and local governments.

(c) FACTORS TO BE CONSIDERED.—The Secretary, in establishing the plan required by subsection (a), shall consider—

(1) the estimated proportion remaining of the respective types of wetlands which existed at the time of European settlement;

(2) the estimated current rate of loss and the threat of future losses of the respective types of wetlands; and

(3) the contributions of the respective types of wetlands to—

(A) wildlife, including endangered and threatened species, migratory birds, and resident species;

(B) commercial and sport fisheries;

(C) surface and ground water quality and quantity, and flood control;

Fish and fishing. Water. Flood control.

(D) outdoor recreation; and

(E) other areas or concerns the Secretary considers appropriate.

SEC. 302. REMOVAL OF RESTRICTION ON ACQUISITION.

Section 7(a)(1) of the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 4601-9(a)(1)) is amended by striking out "national wildlife refuge areas under section 7(a)(5) of the Fish and Wildlife Act of 1956 (16 U.S.C. 742f(5)) except migratory waterfowl areas which are authorized to be acquired by the Migratory Bird Conservation Act of 1929, as amended (16 U.S.C. 715-715s)" and inserting in lieu thereof "national wildlife refuge areas under section 7(a)(4) of the Fish and Wildlife Act of 1956 (16 U.S.C. 742(f)(a)(4)) and wetlands acquired under section 304 of the Emergency Wetlands Resources Act of 1986".

SEC. 303. INCLUSION OF WETLANDS IN COMPREHENSIVE STATEWIDE OUTDOOR RECREATION PLANS.

Section 6 of the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 4601-8) is amended—

(1) in subsection (d), by adding at the end thereof the following new paragraph:

"For fiscal year 1988 and thereafter each comprehensive statewide outdoor recreation plan shall specifically address wetlands within that State as an important outdoor recreation resource as a prerequisite to approval, except that a revised comprehensive statewide outdoor recreation plan shall not be required by the Secretary, if a State submits, and the Secretary, acting through the Director of the National Park Service, approves, as a part of and as an addendum to the existing comprehensive statewide outdoor recreation plan, a wetlands priority plan developed in consultation with the State agency with responsibility for fish and wildlife resources and consistent with the national wetlands priority conservation plan developed under section 301 of the Emergency Wetlands Resources Act or, if such national plan has not been completed, consistent with the provisions of that section";

(2) in subsection (e)(1), by inserting, in the first sentence thereof, after "For the acquisition of land, waters, or interests in land or waters" the following: ", or wetland areas and interests therein as identified in the wetlands provisions of the comprehensive plan"; and

(3) in subsection (f)(3), by adding at the end thereof the following: ": *Provided*, That wetland areas and interests therein as identified in the wetlands provisions of the comprehensive plan and proposed to be acquired as suitable replacement property within that same State that is otherwise acceptable to the Secretary, acting through the Director of the National Park Service, shall be considered to be of reasonably equivalent usefulness with the property proposed for conversion.".

SEC. 304. FEDERAL ACQUISITION.

16 USC 3922.

The Secretary is authorized to purchase wetlands or interests in wetlands, which are not acquired under the authority of the Migratory Bird Conservation Act of 1929 (16 U.S.C. 715-715s), consistent with the wetlands priority conservation plan established under section 301.

16 USC 3923.
Farms and farming

SEC. 305. RESTRICTION ON USE OF EMINENT DOMAIN IN ACQUISITIONS.

The powers of condemnation or eminent domain shall not be used in the acquisition of wetlands under any provision of this Act where such wetlands have been constructed for the purpose of farming or ranching, or result from conservation activities associated with farming or ranching.

TITLE IV—WETLANDS INVENTORY AND TREND ANALYSIS

SEC. 401. NATIONAL WETLANDS INVENTORY PROJECT.

16 USC 3931.

(a) IN GENERAL.—The Secretary, acting through the Director of the United States Fish and Wildlife Service, shall continue the National Wetlands Inventory Project and shall—

(1) produce, by September 30, 1988, National Wetlands Inventory maps for the areas that have been identified by the Service as top priorities for mapping, including—

(A) the entire coastal zone of the United States;

(B) floodplains of major rivers; and

(C) the Prairie Pothole region;

(2) produce, by September 30, 1998, National Wetlands Inventory maps for those portions of the contiguous United States for which final maps have not been produced earlier;

Alaska.

(3) produce, as soon as practicable, National Wetlands Inventory maps for Alaska and other noncontiguous portions of the United States; and

Reports.

(4) produce, by September 30, 1990, and at ten-year intervals thereafter, reports to update and improve the information contained in the report dated September 1982 and entitled "Status and Trends of Wetlands and Deepwater Habitat in the Coterminous United States, 1950's to 1970's".

State and local governments.

(b) NOTICE.—The Secretary shall notify the appropriate State and local units of government at such time as he proposes to begin map preparation under subsection (a) in an area. Such notice shall include, but is not limited to, the identification of the area to be mapped, the proposed schedule for completion, and the identification of a source for further information.

SEC. 402. REPORTS TO CONGRESS.

16 USC 3932.

(a) IN GENERAL.—The Secretary, in consultation and cooperation with the Secretary of Agriculture, shall prepare and submit to the committees—

(1) by March 30, 1987, a report regarding the status, condition, and trends of wetlands in the lower Mississippi alluvial plain and the prairie pothole regions of the United States; and

(2) by September 30, 1987, a report regarding trends of wetlands in all other areas of the United States.

(b) CONTENTS OF REPORTS.—The reports required under subsection (a) shall contain—

(1) an analysis of the factors responsible for wetlands destruction, degradation, protection and enhancement;

(2) a compilation and analysis of Federal statutory and regulatory mechanisms, including expenditures, financial assistance, and tax provisions which— Taxes.

(A) induce wetlands destruction or degradation; or

(B) protect or enhance wetlands;

(3) a compilation and analysis of Federal expenditures resulting from wetlands destruction, degradation, protection or enhancement;

(4) an analysis of public and private patterns of ownership of wetlands;

(5) an analysis of the environmental and economic impact of eliminating or restricting future Federal expenditures and financial assistance, whether direct or indirect, which have the effect of encouraging the destruction, degradation, protection or enhancement of wetlands, including—

(A) public works expenditures;

(B) assistance programs such as price support programs, commodity loans and purchase programs and disaster assistance programs; Loans.

(C) soil conservation programs; and

(D) certain income tax provisions; Taxes.

(6) an analysis of the environmental and economic impact of failure to restrict future Federal expenditures, financial assistance, and tax provisions which have the effect of encouraging the destruction, degradation, protection or enhancement of wetlands, including— Taxes.

(A) assistance for normal silviculture activity (such as plowing, seeding, planting, cultivating, minor drainage, or harvesting for the production of fiber or forest products); Agriculture and agricultural commodities. Forests and forest products.

(B) Federal expenditures required incident to studies, evaluations, design, construction, operation, maintenance, or rehabilitation of Federal water resource development activities, including channel improvements;

(C) the commodity loans and purchases program and cotton, feed grain, wheat, and rice production stabilization programs administered by the Department of Agriculture; and Loans. Agriculture and agricultural commodities.

(D) Federal expenditures for the construction of publicly owned or publicly operated highways, roads, structures, or facilities that are essential links in a larger network or system; and Highways.

(7) recommendations for the conservation of wetlands resources based on an evaluation and comparison of all manage- State and local governments.

ment alternatives, and combinations of management alternatives, such as State and local actions, Federal actions, and initiatives by private organizations and individuals.

TITLE V—MISCELLANEOUS PROVISIONS

16 USC 668dd note.

SEC. 501. MIGRATORY BIRD TREATY ACT.

Section 6(b) of the Act of July 3, 1918 (16 U.S.C. 707(b)) is amended by deleting "shall" the first place it appears therein and by inserting in lieu thereof "shall knowingly".

SEC. 502. BAYOU SAUVAGE URBAN NATIONAL WILDLIFE REFUGE.

(a) PURPOSES OF REFUGE.—The purposes of the Bayou Sauvage Urban National Wildlife Refuge are—

(1) to enhance the populations of migratory, shore, and wading birds within the refuge;

(2) to encourage natural diversity of fish and wildlife species within the refuge;

(3) to protect the endangered and threatened species and otherwise to provide for the conservation and management of fish and wildlife within the refuge;

(4) to fulfill the international treaty obligations of the United States respecting fish and wildlife;

(5) to protect the archeological resources of the refuge;

(6) to provide opportunities for scientific research and environmental education, with emphasis being given to the ecological and other values of wetlands; and

(7) to provide opportunities for fish and wildlife oriented public uses and recreation in an urban setting.

(b) ACQUISITION AND ESTABLISHMENT OF REFUGE.—

Louisiana.

(1) ACQUISITION.—Within four years after the effective date of this section the Secretary of the Interior (hereinafter in this Act referred to as the "Secretary") shall acquire the approximately nineteen thousand acres of lands and waters, and interests therein, located in Orleans Parish, Louisiana, that are depicted on the map entitled "Bayou Sauvage Urban National Wildlife Refuge", dated September 15, 1986, and on file at the United States Fish and Wildlife Service, Department of the Interior. The lands and waters, and interests therein, acquired under this paragraph comprise the Bayou Sauvage Urban National Wildlife Refuge. The acquisition shall be made through donation, purchase with donated or appropriated funds, or exchange, or through any combination of the foregoing.

Federal Register, publication.

(2) ESTABLISHMENT.—At such time as sufficient lands and waters, and interests therein, have been acquired under paragraph (1) to constitute an initial area that can be administered to carry out the purposes set forth in subsection (a), the Secretary shall establish the Bayou Sauvage Urban National Wildlife Refuge by publication of notice to that effect in the Federal Register.

(3) BOUNDARY ADJUSTMENTS.—The Secretary may make such adjustments with respect to the boundary of the Bayou Sauvage Urban National Wildlife Refuge as may be necessary to facilitate the acquisition of lands and waters, and interests therein, for the refuge and to facilitate the administration of the refuge.

(c) ADMINISTRATION OF REFUGE.—The Secretary shall administer all lands and waters, and interests therein, acquired under subsection (b) in accordance with the provisions of the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee) to carry out the purposes set forth in subsection (a). The Secretary may utilize such additional statutory authority as may be available to him for the conservation and development of wildlife and natural resources, the development of outdoor recreation opportunities, and interpretive environmental education as he considers appropriate to carry out such purposes. Within two years after the effective date of this section, the Secretary shall complete a master plan for the development of the Bayou Sauvage Urban National Wildlife Refuge.

(d) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Department of the Interior—

(1) from funds not otherwise appropriated from the Land and Water Conservation Fund, such sums as may be necessary for the acquisition of lands and waters, and interests therein, for the Bayou Sauvage Urban National Wildlife Refuge; and

(2) $5,000,000 for the development of the refuge.

The moneys appropriated under subparagraphs (1) and (2) shall remain available until expended.

(e) EFFECTIVE DATE.—This section takes effect on the later of the date of enactment of this Act or October 1, 1986.

Approved November 10, 1986.

LEGISLATIVE HISTORY—S. 740 (H.R. 1203):

HOUSE REPORTS: No. 99-86, Pt. 1 accompanying H.R. 1203 (Comm. on Merchant Marine and Fisheries).
SENATE REPORTS: No. 99-445 (Comm. on Environment and Public Works).
CONGRESSIONAL RECORD, Vol. 132 (1986):
Oct. 3, considered and passed Senate.
Oct. 14, considered and passed House.

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APPENDIX F

DISTRIBUTION LIST
REGIONAL WETLANDS CONCEPT PLAN

UNITED STATES GOVERNMENT

- o Council on Environmental Quality
- o Department of Agriculture
  - oo Forest Service, Region 8
  - oo Soil Conservation Service, South Technical Center
  - oo Soil Conservation Service, State Conservationists, Southeast Region
  - oo Farmers Home Administration, State Directors, Southeast Region
- o Department of Commerce
  - oo National Marine Fisheries Service, Southeast Director
- o Department of The Army
  - oo Army Corps of Engineers
    - South Atlantic Division, Division Engineer
      - Charleston District, District Engineer
      - Jacksonville District, District Engineer
      - Mobile District, District Engineer
      - Savannah District, District Engineer
      - Wilmington District, District Engineer
    - Lower Mississippi Valley Division, Division Engineer
      - Memphis District, District Engineer
      - New Orleans District, District Engineer
      - St. Louis District, District Engineer
      - Vicksburg District, District Engineer
    - Southwestern Division, Division Engineer
      - Little Rock District, District Engineer
      - Tulsa District, District Engineer
    - Ohio River Division, Division Engineer
      - Huntington District, District Engineer
      - Louisville District, District Engineer
      - Nashville District, District Engineer
- o Department of the Navy
  - oo Atlantic Division, Fish and Wildlife Administrator
  - oo Southern Division, Natural Resources Branch Head
- o Department of Energy
  - oo Federal Energy Regulatory Commission

UNITED STATES GOVERNMENT (Con't.)

- Department of the Interior
  - Bureau of Land Management, Eastern States Office
  - Geological Survey, Atlanta Field Office
  - National Park Service
    - Southeast Region, Regional Director
    - Southwest Region, Regional Director
  - Office of Surface Mining Reclamation and Enforcement
    - Eastern Field Operations, Assistant Director
    - Western Field Operations, Assistant Director
  - Fish and Wildlife Service
    - Director
    - Assistant Director, Fish and Wildlife Enhancement
    - Assistant Director, Refuges and Wildlife
    - Assistant Director, Fisheries
    - Assistant Director, External Affairs
    - Regional Directors, Northwest Region, Southwest Region, Great Lakes Region, Southeast Region, Northeast Region, Rocky Mountain Region, and Alaska Region
    - Regional Director, Research
    - All Assistant Regional Directors, Southeast Region
    - All Field Office Supervisors, Southeast Region
    - All Refuge Managers and Wildlife Biologists, Southeast Region
  - Office of the Solicitor, Southeast Region
  - Office of Environmental Project Review, Atlanta, Georgia

- Department of Transportation
  - Federal Highway Administration

- Environmental Protection Agency
  - Director, Office of Wetlands Protection, National Office
  - Regional Administrators, Region 4 and 6

- General Services Administration, Regional Administrator, Atlanta, Georgia

- Tennessee Valley Authority, Knoxville, Tennessee

STATES/COMMONWEALTHS

- ALABAMA
  - Governor Harold Guy Hunt
  - Department of Conservation and Natural Resources
    - Director, Division of Game and Fish
    - Director, Division of Lands
    - Director, Division of State Parks
    - Director, Division of Marine Resources

- ARKANSAS
  - Governor Bill Clinton
  - Director, Department of Parks and Tourism
  - Director, Department of Pollution Control and Ecology
  - Director, Game and Fish Commission
  - Director, Natural and Scenic Rivers Commission
  - Executive Director, Natural Heritage Commission

- FLORIDA
  - Governor Lawton Chiles
  - Department of Natural Resources, Executive Director
    - Director, Division of State Lands
    - Director, Division of Recreation and Parks
  - Department of Environmental Regulation, Secretary
  - Executive Director, Game and Fresh Water Fish Commission
  - Northwest Florida Water Management District
  - St. John's River Water Management District
  - South Florida Water Management District
  - Suwannee River Water Management District
  - Southwest Florida Water Management District

- GEORGIA
  - Governor Zell Miller
  - Department of Natural Resources, Commissioner
    - Environmental Protection Division, Assistant Director
    - Land Protection Branch, Chief
    - Water Protection Branch, Chief
    - Game and Fish Division, Director
    - Parks and Recreation Historic Sites Division, Director

STATES/COMMONWEALTHS (Con't.)

- KENTUCKY
  - Governor Wallace G. Wilkinson
  - Department of Fish and Wildlife Resources, Commissioner
  - Department of Parks, Commissioner
    Director, Recreational Parks and Historic Sites
  - Natural Resources and Environmental Protection Cabinet, Secretary
    Department for Environmental Protection, Director Division of Water
    Department of Natural Resources, Commissioner
    Environmental Quality Commission, Executive Director
    Nature Preserves Commission, Director

- LOUISIANA
  - Governor Edwin Edwards
  - Department of Wildlife and Fisheries, Secretary
  - Office of State Parks, Department of Culture, Recreation and Tourism, Assistant Secretary

- MISSISSIPPI
  - Governor Daniel Kirkwood Fordice, Jr.
  - Department of Wildlife, Fisheries and Parks Executive Director, Division of Parks and Recreation Executive Director, Division of Wildlife and Fisheries

- NORTH CAROLINA
  - Governor James G. Martin, Jr.
  - Department of Natural Resources and Community Development, Secretary
    Environmental Management Director
    State Parks and Recreation Director
    Land Resources
    Wildlife Resources Commission, Executive Director
    Division of Marine Fisheries, Director
    Office of Water Resources, Director

- PUERTO RICO
  - Governor Rafael Hernandez-Colon
  - Department of Natural Resources, Secretary

STATES/COMMONWEALTHS (Con't.)

- SOUTH CAROLINA
  - Governor Carroll A. Campbell, Jr.
  - Department of Parks, Recreation, and Tourism, Executive Director
    Director, State Parks Division
  - South Carolina Coastal Council, Executive Director
  - South Carolina Land Resources Conservation Commission, Executive Director
  - Water Resources Commission, Executive Director
  - Wildlife and Marine Resources Department, Executive Director
    Director, Division of Marine Resources
    Director, Division of Game and Fresh Water Fisheries

- TENNESSEE
  - Governor Ned R. McWherter
  - Department of Conservation, Commissioner
    Director, Division of Parks and Recreation
  - Wildlife Resources Agency, Executive Director

- VIRGIN ISLANDS
  - Governor Alexander Farrelly
  - Department of Planning and Natural Resources, Commissioner
    Director, Division of Fish and Wildlife
    Director, Division of Natural Resources Management
    Director, Coastal Zone Management

- PRIVATE ORGANIZATIONS/CONSERVATION GROUPS
  - Alabama Chapter, Wildlife Society
  - Alabama Conservancy, The
  - Alabama Wildlife Federation
  - Arkansas Chapter, Wildlife Society
  - Arkansas Wildlife Federation, The
  - Clean Water Action Project, South/Southwest Regional Office
  - Conservation Foundation, The
  - Ducks Unlimited, Inc.
    South Mississippi Flyway, Regional Supervisors
    South Atlantic Flyway, Regional Supervisors
    Marsh Coordinator, Mississippi Flyway
  - Environmental Defense Funds, Inc.
    Raleigh, North Carolina Office
  - Environmental Law Institute, The
  - Environmental Policy Institute

- PRIVATE ORGANIZATIONS/CONSERVATION GROUPS (Con't.)

  - Florida Wildlife Federation
  - Florida Conservation Foundation, Inc., Environmental Information Center
  - Florida Audubon Society
  - Florida Defenders of the Environment
  - Florida Division, Izaak Walton League of America
  - Florida Chapter, Wildlife Society
  - Georgia Conservancy, Inc., The
  - Georgia Environmental Council
  - Georgia Chapter, Wildlife Society
  - Georgia Wildlife Federation
  - Izaak Walton League of America, Inc., The
  - Kentucky Audubon Council
  - Kentucky Conservation Council
  - Kentucky Resources Council
  - Kentucky Chapter, Wildlife Society
  - League of Conservation Voters
  - League of Women Voters of the U.S.
  - Louisiana Chapter, Wildlife Society
  - Louisiana Wildlife Federation, Inc.
  - Max McGraw Wildlife Foundation
  - Mississippi Chapter, Wildlife Society
  - Mississippi Wildlife Federation
  - National Association of Conservation Districts
    Southern Representative
  - National Association of State Outdoor Recreation Liason Officers
  - National Association of State Park Directors
  - National Association of State Recreation Planners
  - National Audubon Society
    Southeast Office
    West Central Office
    Southwest Office
  - National Fish and Wildlife Foundation
  - National Flyway Council
    Atlantic Flyway
    Mississippi Flyway
  - National Military Fish and Wildlife Association
  - National Park Foundation
  - National Parks and Conservation Association
  - National Recreation and Park Association
    Southeast Office
  - National Trust for Historic Preservation
    Southern Regional Office
  - National Wetlands Technical Council
  - National Wildlife Federation
    Regional Directors, Regions 1, 3, 4, 5, 8
  - National Wildlife Refuge Association
  - National Resources Council of America

- PRIVATE ORGANIZATIONS/CONSERVATION GROUPS (Con't.)

  - Natural Resources Defense Council, Inc.
  - Nature Conservancy, The
    Southeast Regional Office
  - North Carolina Conservation Council
  - North Carolina Recreation and Park Society, Inc.
  - North Carolina Chapter, Wildlife Society
  - North Carolina Wildlife Federation
  - North American Wildlife Foundation
  - Organization of Wildlife Planners
  - Outdoor Writers Association of America, Inc.
  - Puerto Rico, Natural History Society
  - Conservation Trust of Puerto Rico
  - Sierra Club
    Southeast Representatives
  - Soil and Water Conservation Society
    Southeastern
    South Central
  - Southeastern Association of Fish and Wildlife Agencies
  - South Carolina Chapter, Wildlife Society
  - South Carolina Wildlife Federation
  - Tennessee Conservation League
  - Tennessee Environmental Action Fund
  - Tennessee Environmental Council
  - Tennessee Chapter, Wildlife Society
  - Thorne Ecological Institute
  - Trust for Public Land, The
  - Virgin Islands Conservation Society, Inc.
  - Water Pollution Control Federation
  - Welder Wildlife Foundation
  - Wetlands for Wildlife, Inc.
  - Wilderness Society, The
    Southeast Regional Office
  - Wildfowl Foundation, Inc.
  - Wildlife Information Center, Inc.
  - Wildlife Legislative Fund of America, The
  - Wildlife Management Institute
  - Wildlife Society, The
    Southeastern Section

- INDIVIDUALS (200 Copies Reserved)

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