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VEGETATION AND FIRE MANAGEMENT PLAN

GULF ISLANDS NATIONAL SEASHORE

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B&W Scans
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I. INTRODUCTION

A. Purpose of Plan (Add others or delete as you wish)

1. To establish organization of park personnel
2. To assign responsibilities of personnel
3. To outline procedures in event of a fire
4. To integrate fire and vegetative dynamics into management of the fire.
5. To document vegetation management actions in addition to fire.

B. Bases of Plan

1. Natural Resources Management Plan

   The Natural Resource Management Plan provides the following guidance for Gulf Islands... "A fire management plan is essential to the protection of the area resources and is an immediate management goal."

2. Fire Management Guidelines (NPS-18)

   These guidelines are applicable to the plan and provide valuable guidance to the park.

3. General Management Plan

   The approved general management plan for Gulf Islands has the following guidance for management of vegetation and fire.

   a. Management Objectives

      Naval Live Oaks "to manage Naval Live Oaks Reservation Historic District to perpetuate the live oak (Quircus

virginiana) grown there and to preserve the many archaeological sites. To minimize disturbance of natural land forms, vegetation and wildlife habitat due to vehicle use, park development, and public recreation activities at Gulf Islands and to restore natural ecological conditions to lands adversely affected by such uses and activities in the past.

"To protect and perpetuate the Seashore natural resources and manage them in ways to enhance natural, ecological, geological processess...

"To perpetuate suitable habitat conditions to support the seasnore's rich flora and fauna, with particular emphasis on endangered or threatened species or species uncommon elsewhere.

"To reduce the spread of, and to the extent necessary eliminate, existing populations of exotic animals and plants introduced through man's activities on the barrier islands, peninsulas, and mainland.

"To use fire as a management tool to reduce fuel loads, maintain historic vegetation conditions and improve habitat in sub-districts where appropriate." "To provide primary interpretive emphasis on natural and historic systems, barriers islands and coastal defenses."

"To obtain a resource basic inventory Information Base of of the seashore to facilitate improved resource protection and management."

"To evaluate the impact the visitation and exotic species have on barrier island's ecology."

b. A further objective of the park's vegetation and fire management program will be to work cooperatively with state and local political entities to manage fire and smoke in order to preserve human life and health, and to protect private property.

The Gulf Islands Natural Resources Management Plan has the following guidance for vegetation and fire management.

4. "Exotic plants will not be introduced into the park and oleanders will be removed. A fire management plan will be developed and is an immediate management goal. Until a plan is developed, however, the park will continue to accumulate data regarding fire.

"Continue to train and upgrade park's fire suppression capability for both structural and wildfire.

The following statements relate to the Natural Resource Management Plan for the Mississippi Section:

a. Conduct short term analysis and study affects of artificial planting versus other methods of stimulating growth; determining

if altered vegetation would be consistent with legislative authority.

b. Naturally occuring fires on the island are allowed to run their course, provided there is no threat to human life, structures, or property. Fire in the Davis Bayou area will be extinguished as quickly as possible. No control burning program has been implimented in any area at this time. Additional standpipes are needed in the Davis Bayou area for full suppression of wildfires.

c. Suppress all [wild] fires.

5. The Cultural Resource Management Plan for Gulf Islands has a number of statements relating to the maintenance of the historic scene around historic structures. Most of these statements relate to landscaping and land use practices in the close proximity to the structures and the plan does not discuss the natural vegetation at greater distances from the structures.

6. The Management Policies (blue book) are included by reference and are a part of this plan. Selected parts of management policies are shown as appendix N of this plan.

C. Description of Area

The various sections of Gulf Island National Seashore are comprised of primarily barrier islands or lands derived from barrier islands. Lying at elevations from sea level to approximately 20 feet above

sea level, and characterized by wind and water-born silicious sands of recent age, no permanent streams exist on the islands and few permanent ponds. A few marshy areas and eutrophic ponds exist. Soils are shallow due to high rates of decomposition of the vegetative matter in this warm, humid climate. The temperatures vary from the high 90's in the summer to the high 20's during the winter in unusual circumstances. Humidities tend to be high in the summer and lower during the winter months. Summer thunderstorms and hurricanes are a part of the weather pattern and rainfall occurs most usually with either summer thunderstorms or passage of cold fronts during the winter. Average wind speeds vary from over 9 miles per hour in February to over 6 miles per hour in July and August. Prevailing wind direction is from the north during the winter, southeast during the spring, southwest during the summer, and northwest during the fall. Potential starts from lighning fires are highest during the summer thunderstorm season, but rates of spread from lightning-caused fires are low due to the high humidities and rainfall associated with the thunderstorms. The spring fire season, related to high wind speed and relatively low humidity, result in fairly high rates of spread for those fires that do occur from whatever cause. Soils are generally sandy with small amounts of organic matter in the A-horizon. Moisture retention is low, and flammability of the soil is low. Decomposition rates are high. During wet times of the year the water table can rise and be readily available for

utilization by plants. Vegetation is highly variable (see description of vegetation management zones in Section IV-A). Southern pines, including long-leaf and slash pine, occur in significance concentrations on Santa Rosa Island east of Fort Pickens, on the Naval Life Oaks Reservation, on Horn Island, on Petit Bois Island and on East Ship Island. A wide variety of vegetation, that shows the effect of occasional fire in the past, does occur in the various units of the area. These vegetation types would include titi, turkey oak, live oak, marsh lands of black rush and other grasses and sedges, and sea oats on the dune lines.

D. Historic Role of Fire

1. Natural Fire

During the summer thunderstorm season, and during the passage of squall lines and fronts at other times of the year, lightning occurs frequently. It is associated with relative high humidities, and with high rates of rainfall. The number of natural occurring fires is low. No evidence exists of wide ranging lightning caused fires, but the occasional lightning caused fires that do occur have a significant effect on the plant communities. The existence of southern pines, yaupon, and waxmyrtle are strongly suggestive of frequent fire or other disruptive influences such as hurricanes. No other evidence of lightning caused fire exists. Historic records of fire frequency are being gathered to clarify this issue.

2. Man-Caused Fire

a. Primeval Man

Little is known of the vegetational manipulations that may have been done by primeval man in the area. Several different tribes inhabited the area at various times, and it is not known whether indians ever reached the Mississippi Islands. If they did not, then these Islands may represent one of the few NPS areas in the southeast that have not been impacted by aboriginal man's land use practices.

b. Technological man's use of fire is not well understood either. Some burning of wiregrass prairies, associated with long-leaf pine, in the Naval Live Oaks area may have taken place, and grazing was done at various times in many of the areas of Gulf Islands. This grazing, and the rooting habits of wild hogs on the Mississippi Islands, may have had significant effects in terms of favoring some species of plants and setting back natural succession.

II. FIRE ORGANIZATION

A. Position Titles and Responsibilities

Park Organization Title	Possible Fire Organization Titles	Fire Responsibilities
Superintendent or Assistant Superintendent	Public Information Officer	Overall management of fire in park.
Chief Ranger	Fire Boss Crew Boss	Assigns Fire Boss/ Liaison with Regional Office. Reviews plans, reports, finances. Implementation of Plan, Assignment of Responsibilities (tied in to annual goals) Training & Qualification system. Liaison with other agencies.
District Ranger	Fire Boss Crew Boss	Supervises management of all fire. Detection & Reporting Systems Training Assigns Fire Boss (Miss). Logistical backup dispatch equipment and personnel roster, service and supply function, cost summary completion.
Park Rangers/Park Technicians Other Park Staff Members	Fire Boss Crew Boss Firefighter	Carry out resource manipulation or fire management actions as needed. Refer to Fire Line notebook for position descriptions.

B. Training/Certification of Personnel

1. National Certification System (red Card). This system is used to designate personnel in the park who are qualified to perform fire suppression or management functions by the National Standards.

   a. The Chief Ranger is designated as having overall direction of this fire program. The person in that position will have a national rating of Fire Boss III or Crew Boss.

   A list of the fire job qualifications of Gulf Islands National Seashore personnel is shown as appendix C-1.

2. Park Qualification/Certification System

During fire emergencies non-red card rated people may be used for suppression duty during the first burning period of the fire. Care should be taking in assigning people to positions where the arduous physical activity may exceed their cardiovascular capacity.

The Chief Ranger's Office will be responsible for making the decision as to who will be permitted to perform fire suppression duty without a red-card, and will be responsible for seeing that people are not utilizing in an unsafe manner.

3. Training

   a. An annual training session will be conducted by the District Rangers to train personnel in Gulf Islands procedures. This training will be held cooperatively with:

-Local forestry, and or Florida Forest Service

-U.S.F.S. and/or

-Local volunteer fire departments

b. Efforts will be made to raise levels of expertise in fire management by employees attending pertinent fire suppression/ management seminars, conferences, training sessions and fire assignments when available.

III. SUPPRESSION

A. Fire Management Education

A major effort of this plan is to reach the various public(s) involved who are concerned with fire.

Education of public(s) to the natural role of fire and to wildfire prevention shall be accomplished by the following means:

1. News releases/handouts
2. Interpretive exhibits/demonstrations/talks
3. Conferences
4. Exchange of written information
5. Participation in Regional Planning & Coastal Zone Management Groups
6. Media coverage of park programs
7. Youth activity programs (Environmental Education, YCC, YACC)
8. Personal Communications

9. On-site interpretation during wildfire/prescribed fires

10. The groups to be contacted would include:

    a. Park visitors
    b. Employees (NPS and Concession)
    c. Landowners
    d. Local residents
    e. Civic Groups
    f. Conservation Organizations
    g. Land Management Agencies
    h. Conservation/law enforcement agencies

B. Presuppression

1. Preseason preparations (preparedness) shall include the following:

    a. Inventories of equipment and supplies
    b. Training of personnel
    c. Equipment maintenance
    d. Updating the Vegetation and Fire Management Plan-Chief Ranger

C. Emergency Operations (Wildfire Procedures)

1. Emergency Presuppression

Traditional weather and fuel moisture patterns are not such that the expenditure of pre-suppressure funds would normally be justified. During times of extreme high fire danger, however, personnel should be notified of this fact and a final check of equipment and manpower readiness will be done to assure that a prompt response to fire can be made. Personnel should become aware of the conditions that can lead to rapid fire spread and/or high probability of ignition.

2. Detection System

a. Fixed Stations

-Fire towers

Inside park - none

Outside park Florida - North of Pensacola, limited coverage in Mississippi.

-Ranger Stations/Visitor Centers - good coverage

Urban visual pollutants and fixed smoke resources make towers unreliable.

b. Aircraft

Contract aircraft are utilized for patrol only of the Mississippi Islands. A small single engine aircraft is used on an "as needed" basis for multi-function patrol work and is available on 15 minute response time. Civilian and military aircraft are quite common in the area and can provide reports of fires through their radio nets.

3. Dispatch Procedures

a. The Headquarters area provides the central dispatch for requesting resources from outside of the park when needed and it functions as the district dispatch center for the Florida section. Headquarters has the responsibility for maintaining telephone list and for updating of the Vegetation and Fire Management Plan, maintaining contact with other

agencies, performing service and finance functions, and liaison is maintained with the Superintendent's office to keep him advised of the fire situation. The District Office at Davis Bayou performs dispatch functions for the Mississippi Section, performing most of the same functions as listed above.

b. Region/BIFC/WASO

All requests for manpower outside of the park will be made by the Chief Ranger's office. Local forces will be used first, based on cooperative agreements, and the Regional Office will be contacted for additional equipment or manpower.

4. Suppression

a. Sequence

Reports of smokes are generally passed on to Park Service personnel and/or field stations. These reports will be channelled to the Chief Ranger's Office or to the District Office in the Mississippi Section, where a decision will be made as to who will be fire boss and what actions will be taken. The fire boss will have the responsibility for requesting personnel and any equipment needed to perform the suppression task and for complete documentation of fire behavior, effects, and for preparation of the fire report.

b. Direct Attack

Bulldozers will not be used in Gulf Islands National Seashore for fire suppression. Fire plows will only be used as a last

resort when critical resources are at risk and no other alternative can be effectively utilized. Fire plows will be restricted to operating on existing trails or roads and will not be allowed into unscarred areas. No mechanized equipment will be used in wilderness or potential wilderness study areas. Direct attack is accomplished by use of hand-crews, hoselines from ground tankers, etc. No attempts have been made to use the technique of burning out from wet lines or from lines constructed with mist blowers. This approach will be attempted to determined its feasibility.

c. Indirect Attack

Burn out from roads, canals, natural fuel breaks, powerline-rights-of-way, or hand constructed lines should be utilized as means of control. Use of lines of spot fires, weather, and diurnal humidity/temperature changes to effect control will be attempted.

When park resources are exhausted, personnel and equipment will be requested from cooperating agencies based on existing cooperative agreements. Additional manpower will be requested through the Regional Office.

5. All fires will be prohibited from crossing the park boundary in either direction.

When fires are occurring in an area where the smoke could affect local residents or visitors, attempts will be made to contact them and advise them of the smoke accumulations and make recommendations on how to avoid health hazards.

When fire threatens cultural objects, a decision will be made in balancing the values at risk as opposed to natural resources and the likelihood of its permanent alteration or destruction are key factors in making this judgment. Staff specialists shall be requested to advise the fire boss and the superintendent in making these decisions.

No rehabilitation of burn areas will be accomplished after wildfires.

D. Fire Weather and National Fire Danger Rating System

1. Fire Weather

a. Forecasts can be obtained from the following sources:

	FL	MS
-Local forecaster (local radio or T.V. station)		
-NOAA - Weather Service "Spot" Forecasts	904-453-2188/2488	
-U.S.F.S. Macon (Georgia) Fire Weather Station		
-State Forestry Division	904-455-7055	
-Local or State air pollution control board	904-932-5323	

-Weather radios in dispatch and

Mississippi District

b. Determine local air quality ordinances and comply with them

-Notify local air management agencies of prescribed fires

(see Appendix L)

2. National Fire Danger Rating System

a. The National Fire Danger Rating System is presently not in use in Gulf Islands National Seashore. Climatological data is presently collected on West Ship Island in Mississippi, but no relative humidity or fine fuel moisture data is collected.

When the administrative complex is constructed at Naval Live Oaks an NFDR station will be established there inconjunction with the dispatch and ranger office. Data will be collected there and indices calculated.

Wind (speed and direction) data and barometric pressure are gathered at West Ship Island. Purchase of a hygrothermograph and fuel mositure sticks will be considered for collection of additional pertinent data.

Occasional data on precipitation and temperatures is collected at Horn Island.

b. -All pertinent weather data should be appended to each fire report, both from base station and on the fire. (Date, time, air temperature, relative humidity, wind speed and direction, fuel moisture, % of green fuel, find fuels).

-Prescriptions (parameters) should be based on NFDRS data and moisture (soil and fuel) levels.

-Records: The following should be appended to each fire report

-Suppression Data

-Origin of fire

-Date and time

-Fire behavior (when staffing is available)

-Rates of spread of head, flank, and backing fires

-Flame length, height

-Slope (%)

-Aspect (NW, S, E, etc.)

-Fuels Predominant at origin (type, species, volume) and selected sites in fire (types, species, volume)

E. Records and Reports

1. All reports and documentation will be in accord with the Fire Management Guidelines (NPS-18) and with other pertinent directives.
2. The Fire Boss will prepare the DI-1201 Fire Report, along with supporting documentation when applicable, and the Superintendent will approve it.

Components of a Fire Report	Prescribed Natural Fire	Prescribed Fire	Wild Fire
DI-1201 (Fire Report)	X	X	X
Weather Data	X	X	*
Fire Behavior Data	X	X	*
Cost Spread Sheet	X	X	-
Photo-point list	X	X	*X

*X Class B and larger fire

* Required in "natural" vegetation (non-landscaped areas)

3. Efforts will be made to build a data base of future fire management decisions by:

   a. Research

      -Contract

      -NPS In-house Research

      -Documentation of fire effects on all fires (wildfires, natural prescribed fire and prescribed fire)

   b. Literature Search, FIREBASE queries

   c. Personal observations

   d. Plow-back of information gained and documented from previous fires

4. All fires will be reported by telephone to the regional office, and an account number will be assigned for all appropriate charges.

F. Wilderness Considerations

The park has had formal wilderness designated for most of Horn Island and for all of Petit Bois Island (See Appendix H for a copy of the Wilderness Act). The following constraints are place on management relating to fire and vegetation management in these wilderness area:

1. Off-road vehicles use is justified only by an emergency situation (wildfire). The only off-road vehicle that would be permitted in wilderness during a fire emergency would be a three-wheeled motorized cycle. No fire plows or dozers would be permitted in wilderness areas under any circumstances. Firelines will be constructed only by use of hand tools, wet lines using water from back pumps, or burning out from natural fuel breaks.
2. Chain Saws, pumps, aerial tankers, and the use of chemical retardents are prohibited in wilderness areas of Gulf Islands.

   Other types of motorized equipment will not be used in wilderness area.
3. Aircraft landings are restricted to those necessary, during a wildfire, prescribed natural fire or prescribed fire, for gathering of short-lived information that is not obtainable in any other way. After the short-lived information has been gathered and the fire is contained or controlled, helicopter landings would not be justified.

The transplanting of native plants in wilderness area will only be permitted where a proven, man-induced imbalance exists. The introduction of any exotic plant is not permitted and broad scale chemical control of exotic plants is not permitted. Chemical control of native plants will not be permitted.

G. Safety

1. Safety considerations will be woven into all aspects of planning, operations, and evaluation of fire management actions.

2. Priorities

The preservation of human life and health is the over-riding concern in vegetation and fire management. No risk will be taken with these values in order to preserve natural or cultural resources.

3. Hazards

a. Many accidents in other areas have occurred as a result of unsafe use of transportation vehicles including ground vehicles and aircraft. Guidelines for safe use of vehicles and when seatbelts will be worn should be communicated to all personnel. Vehicles should be equipped and used only for the purpose they were meant for. Handtools will be kept sharp and covered with sheaths for all cutting tools. During fireline construction or vegetative control work a proper distance of 10 feet or more will be maintained between personnel for safety reasons.

c. Chemicals used in vegetative control work will be used only according to the manufacturers recommendations found on the label and according to the pesticide proposal restrictions. Protective equipment will be defined and supervisors are responsible for assuring that it is worn for both vegetative control and fire control work.

d. Smoke should be recognized as a health-threatening substance. The particulate matter of smoke has the potential to carry toxic gases deep in the lungs, and the polycyclic organic matter (POM) has been recognized as a potent health hazard. In addition, low levels of oxygen and high levels of carbon monoxide are found close to the flamming zones of a fire. Heavy smoke concentrations in areas close to the flamming front should be avoided by personnel. Visibility in smoky areas can be reduced to the extent that it can impose a serious safety hazard.

e. Fire has the potential for causing injuries and death. Both radiant heat from a flamming front and convection from a rapidly moving fire can pose a hazard for personnel. Spot fires can create a situation where personnel can be caught between two fires. Personnel are prohibited from traveling inside the burn area by themselves during the fire.

f. Venomous reptiles, including coral snakes, copperheads, water moccasins, and rattlesnakes, occur in the park, and toxic plants such as poison ivy (and possibly poison sumac) oleander, and others exist and should be recognized as a hazard.

g. Chiggers and ticks occur in natural vegetation areas and should be avoided by the use of insect repellents. A careful inspection of body surfaces should be made after a day in the field to remove any ticks, since ticks take a number of hours to become embedded and present a health hazard from Rocky Mountain spotted fever.

4. Personnel

a. Adherence to the red card system of qualification and certification for fire line positions will be maintained. Supervisors will avoid placing personnel in a situation that is more technical or complex than they are capable of performing. Supervisors will recognize their responsibility for the safety of their personnel, and personnel involved in fire and vegetative management will recognize their OSHA responsibilities to obey safety guidelines. Training in the use of chemicals, fire fighting equipment, cutting tools, helicopters, chain saws and pumps, and motor vehicles will be accomplished during the seasonal orientation or fire training sessions.

b. Supervisors of personnel should closely monitor their employees work to look for reckless behavior or excessive risk-taking. Risks should only be taken when attempting preservation of human life and health, and strict adherence to safety guidelines should be maintained.

c. Supervisory personnel should avoid situations where they are supervising more people than they can adequately monitor and control, and should take the opportunity to perform on-the-job training where and when it is needed.

Communication links through radioes, or through visual signals or some other means, shall be maintained to coordinate activities between crew members and to maintain control. Tailgate safety sessions and preplanning sessions where the objectives, tactics and strategy are throughly discussed with all personnel involved in the operation will aid the safe, efficient accomplishment of the work.

Debriefing after field operations will be used as a means to spot hazards and to make plans to eliminate them in the future. Feedback from field personnel should be actively sought to improve operations.

d. 10 standard fire fighting orders (Appendix I)

e. Situations that shout "Watch Out" (Appendix J)

5. Safety Equipment Required

a. All rental aircraft will be flown by only Forest Service or OAS approved pilots and the aircraft will also be approved by one of those agencies. During emergency operations military aircraft are an exception to this requirement. An NPS radio, message drop kits

with streamer, charts or maps, and personal flotation devices shall be carried in NPS contract aircraft that are flying over water.

b. Personal

-hard hats, w/chinstrap

-goggles

-guaze masks

-Noxem fire shirts, coveralls, or pants

-heavy pants

-boots, lace-typed, leather, high top, lug-soled

-tool sheaths

-radios

-first aid kits

-ear protection devices, chain saw chaps, respirator and gloves

c. The Vietnam combat boot, with nylon upper boot, should be recognized as a safety hazard in fire situations. It's use should prohibited on fire duty or when flying in aircraft. During a fire situation the nylon will melt into the skin, causing crippling burns to the ankle.

d. Salt tablets are not recommended for daily use in field operations. Supervisors should encourage all personnel to drink large amounts of water during the day to replace body fluids lost by perspiration.

e. Safety films, fire training films, and fire training packages are available through the Regional Office Film Library and the Division of Visitor Protection and Natural Resource Management.

6. Employees shall be encouraged to attain sufficient physical fitness to perform the arduous work that might be expected of them in vegetation and fire management. To the extent that is possible, on-duty time and government-provided equipment and training aids will be made available to encourage high levels of physical fitness.

H. Endangered Species

Species which are endangered or of special concern. The lists of endangered, threatened or rare species are shown in Appendix O.

The species that would seem to be impacted by possible management actions in vegetation and fire management are shown below, along with the management considerations related to their existence in the Park.

Red-cockaded woodpeckers have been known to occur on the Mississippi Islands (one confirmed siting from Horn Island). The habitat needs for red-cockaded woodpecker are over-mature southern pines, and on Horn Island would be most likely restricted to long-leaf pine. These trees must be affected by the red-heart fungus to provide suitable areas for nest building in the trunk, and an area of at least 200 acres generally is required for a colony (extended family unit) to maintain itself. A survey of the islands will be made to determine how many colonies of

red-cockaded woodpeckers may exist, and management will take this into consideration in its use of fire. It seems safe to assume that since the red-cockaded woodpecker is so closely associated with fire species that a natural fire regime would not be detrimental to its continued existent.

The parrot picture plant (Sarracenia psittacina, found on East Ship Island) is proposed for listing as a threatened species in Mississippi. This is an insectivorous plant and it is not known whether it is fire adapted. It is found in wet marsh bogs and would not seem to be to readity affected by naturally occurring fire.

In Florida the following species of plants and animals are known to be of restricted distribution and are of concern to us in management.

1. Red-cockaded woodpecker - It is unknown if red-cockaded woodpeckers occur in the Santa Rosa Islands or Live Oaks sections. Efforts will be made to locate colonies if they exist.
2. The presence of grey bats (Myotis grisescens) and the Indiana bat (Myotis sodalis) in the Florida pan-handle area is well documented, but it is unknown whether they are roosting or feeding in any of the area of Gulf Islands. Maintenance of normal insect levels would be a desirable factor in maintaining food sources for any of these bats that may occur in the area.

IV. VEGETATIVE AND FIRE MANAGEMENT ACTIONS

A. Units

1. The map of units in the park is shown as Appendix B.

2. The vegetation and fire management units for Gulf Islands are listed below:

a. Naval Live Oaks - A Unit. This all of the area south of Highway 98 East and to the west of the Visitor Center site. This section is comprised mainly of mature live oaks, with moderate understory.

Naval Live Oaks - B Unit. This unit is all of the area south of Highway 98 East, and east of the Visitor Center site, including the Visitor Center site. This is a mixture of slash and long-leaf pine, oak, and other hardwoods, and titi swamp.

Naval Live Oaks - C Unit. This unit is all the area of Naval Live Oaks north of Highway 98 East. This site has a wide variety of different types of hardwood and pines, with a fringe of mature oak on the northwest fronting on Pensacola Bay. Scattered areas of oaks, scrub, sand pine and long-leaf pine occur in the area.

b. Perdido Key Unit

This unit is all the NPS property in the Perdido Key unit of Gulf Islands, and is comprised of an area of sand dunes with some vegetation over the dunes and of the Fort McRae site. There are groves of pines in several locations in the zone.

c. Pensacola Forts Unit

This area is comprised of two forts, Fort Barrancas and the Advanced Redoubt. This unit has a mixture of hardwood and pine overstory with some manicured lands and sodded ground cover. It is located within the Naval Air Station.

d. Santa Rosa Island Unit

This unit is an approximately seven miles long stretch of beach and dunes. The dunes are covered with scattered grasses and some woody vegetation. This section stretches between Pensacola Beach and Navarre Beach.

e. Fort Pickens Unit

This unit is comprised of a barrier island stretching from the Pensacola Beach Area west to the western end of Santa Rosa Island. It is covered with a wide variety of different vegetation with several hundred acres of pine, some marsh lands, and considerable sea oats and other grasses in sand and dune areas. Approximately one-third of this unit is in the historic district with fortifications and manicured lands in early seral stages.

f. Petit Bois Island Unit

This unit is in wilderness and is so designation under the Wilderness Act of 1964. This island is approximately 1500 acres with a small percentage of it in mature pines, The remainder of the island is in marsh lands, grass lands, and areas covered with waxmyrtle and sedges.

g. Horn Island Unit

This area is also designated as wilderness. This island has approximately 3600 acres and is 40% vegetated, with half of this in pine and waxmyrtle. Other areas are similar to Petit Bois.

h. Ship Island-East Unit

This island is over 300 acres in size with less than 100 acres of pine and other burnable vegetation.

i. Ship Island-West Unit

This zone has Fort Massachusetts on the west end and has approximately 550 acres of which most is in marsh and dune vegetation.

j. Davis Bayou Unit

This is the headquarters and administrative site for the Mississippi section. It is criss-crossed with a number of roads and has a large amount of exterior boundary for its acreage. It has primarily mixed hardwoods and pines of fairly old age with mixture of grasslands and some early successional pines. It is approximately 400 acres in size.

B. Pre-determined Units

1. Pre-determine units are defined for the purpose of this plan to be the same as the 12 Vegetation and Fire Management Units listed above. The units' boundaries will be the maximum limits to which prescribed fire will be allowed to spread and shall serve as planning units for management actions.

TABLE I

	NLA-A	NLA-B	NLA-B	Pensacola Forts	Perdido Key	Sanata Rosa	Fort Pickens	Horn Island	Petit Bois Island	East Ship Island	West Ship Island	Davis Bayou
Permissable Actions												
Fire-Suppression of Wildlife	X	X	X	X	X	X	X	X	X	X	X	X
Prescribed Natural Fire	-	-	-	-	X	X	X	X	X	X	X	-
Prescribed Fire	(3) X	(4) X	(4) X	-	-	-	(3) X	-	-	-	-	(4) X
Mowing	-	-	-	(4) X	-	-	(2) X	-	-	-	(2) X	(2) X
Firelane mowing or Plowing	X	X	X	-	-	-	-	-	-	-	-	-
Vegetation Removal	X	X	X	X	X	-	X	-	-	-	X	X
Exotic Plants A. Physical means	X	X	X	X	X	X	X	X	X	X	X	X
B. Chemical means	-	-	-	X	-	-	X	-	-	-	X	-
Introduction of Exotic Plants	-	-	-	(2) X	-	-	(2) X	-	-	-	(2) X	(2) X
Transplanting Native Plants	X	X	X	X	X	X	X	(1) X	(1) X	X	X	X
Reintroduction of Extirpated Species	(1) X	(1) X	(1) X	(1) X	(1) X	(1) X	(1) X	(1) X	(1) X	(1) X	(1) X	(1) X

Key

a. Purposes

(1) Proven Man-induced imbalance

(2) Landscaped areas only

(3) Historic Scene Maintenance

(4) Boundary Fuel Reduction

b. yes = X
no = -

2. Criteria to Change Status

When any of the situations below exist the superintendent may decide to convert the status of a management fire to a wildfire, and to suppress the fire.

a. Prolonged drought expected

b. Unavailability of back-up

c. Politically unacceptable situation

d. Threat of fire leaving park or fire management unit

e. Threat of fire leaving prescription

f. Threat to human life

C. Management Fire and Permissible Actions

The actions that are permissible in each unit are shown in Table I. These actions will be utilized to accomplish the park's goals when conditions are appropriate.

V. Appendices

A. Fire Occurence Maps (by year)

B. Fire Management Units

C. Fuel/Vegetative Maps

D. Prescription

E. Equipment Inventory (by location)

F. Cooperative Agreements

G. Fire Qualifications

H. Glossary (from NPS-18)

I. Ten Standard Firefighting Orders

J. Fire Situations that shout "Watch Out!"

K. Pre-burn Plan

L. State Air Pollution Control Laws

M. Wilderness Act

N. Management Policies

O. Endangered Species Lists

APPENDIX D-1

SHIP ISLAND EAST UNIT
HORN ISLAND UNIT
PETIT BOIS ISLAND UNIT

Prescriptions of Prescribed Natural Fire	Parameters (Range of Acceptability) Low		High
I. Weather			
A. Wind Speed	(2)___ mph	to	___ mph
B. Wind Direction from	(2)___	to	___
C. Air Temperature (Maximum Daily)	(2)___ °F	to	___ °F
D. Relative Humidity	(2)___ %	to	___ %
E. Drought Index	(1)	to	___
F. NFDRS Fire Load Index	(1)	to	___
II. Fuels			
A. Fine Fuel Moisture (% of Live Weight)	(1)__ %	to	___ %
B. Fuel Accumulation (All Sizes below 6" DBH)	(1) lbs/acre	to	___ lbs/acre
C. Basal Area	___ (1)	to	___
III. Soils			
A. Soil Moisture (% of Live Weight)	(2)___ %	to	___ %
B. Soil Type	All		

IV. Geographical Limitations: No fire will be allowed to leave a fire management unit. No fire will be allowed to leave the park.

V. Objective: This zone will be permitted to experience lightning-caused (prescribed natural) fire in order to permit fire to play its natural role in the zone.

(1) No limitation

(2) Not a limiting factor unless future monitoring shows this to be one.

SANTA ROSA ISLAND UNIT
WEST SHIP ISLAND UNIT
PERDIDO KEY UNIT

Prescriptions for Prescribed Natural Fire	Parameters (Range of Acceptability)		
	Low		High
I. Weather			
A. Wind Speed	0 mph	to	15 mph
B. Wind Direction from	(1)	to	____
C. Air Temperature (Maximum Daily)	60 °F	to	90 °F
D. Relative Humidity (Minimum Daily)	30 %	to	80 %
E. Drought Index	____	to	____
F. NFDRS Fire Load Index	____	to	____
II. Fuels			
A. Fine Fuel Moisure (% of Live Weight)	(1) %	to	____ %
B. Fuel Accumulation (All Sizes below 6" DBH)	(1) lbs/acre	to	____ lbs/acre
C. Basal Area from	(2)	to	____
III. Soils			
A. Soil Moisture, Actual	(1) %	to	____ %
B. Soil Type	All		

IV. Geographical Limitations: No fire will be allowed to leave a fire management unit. No fire will be allowed to leave the park unless the cooperative agreement with the land managing agency has identified the conditions under which are trespass may occur and the fire in question meets the requirements.

V. Objective: This zone will be permitted to experience lightning-caused (prescribed natural) fires in order to permit fire to play its natural role in the zone.

(1) Not a limiting factor unless future monitoring shows this to be one

(2) No limitations

APPENDIX D-3

FORT PICKENS UNIT

Prescriptions for Prescribed Natural Fire and Prescribed Fire	Parameters (Range of Acceptability) Low		High
I. Weather			
A. Wind Speed	0 mph	to	10 mph
B. Wind Direction from	North, East or West		
C. Air Temperature (Maiimum Daily)	50 °F	to	80 °F
D. Relative Humidity (Minimum Daily)	45 %	to	80 %
E. Drought Index	____	to	____
F. NFDRS Fire Load Index	____	to	____
II. Fuels			
A. Fine Fuel Moisture (5 of Live Weight)	10 %	to	80 %
B. Fuel Accumulation (All Sizes below 6" DBH)	0 lbs/acre to 10,000 lbs/acre		
C. Basal Area from	(1)	to	____
III. Soils			
A. Soil Moisture, Actual	40 %	to	80 %
B. Soil Type	All		

IV. Geographical Limitations: No fire will be allowed to leave a fire management unit. No fire will be allowed to leave the park unless the cooperative agreement with the land managing agency has identified the conditions under which fire trespass may occur and the fire in question meets the requirements.

(1) No limitations

APPENDIX D-4

NAVAL LIVE OAKS UNIT

Prescriptions for Prescribed Fire		Parameters (Range of Acceptability) Low		High
I. Weather				
A. Wind Speed		0 mph	to	10 mph
B. Wind Direction	from	South, Southwest or North		
C. Air Temperature (Maximum Daily)		50 °F	to	80 °F
D. Relative Humidity (Minimum Daily)		45 %	to	80 %
E. Drought Index		____	to	____
F. NFDRS Fire Load Index		____	to	____
II. Fuels				
A. Fine Fuel Moisture (% of Live Weight)		10 %	to	80 %
B. Fuel Accumulation (All Sizes below 6" DBH)		0 lbs/acre	to	10,000 lbs/acre
C. Basal Area	from	(1)	to	____
III. Soils				
A. Soil Moisture, Actual		40 %	to	80 %
B. Soil Type		All		

IV. Geographical Limitations: No fire will be allowed to leave a fire management unit. No fire will be allowed to leave the park unless the cooperaiive agreement with the land managing agency has identified the conditions under which fire trespass may occur and the fire in question meets the requirements.

(1) No limitation

DAVIS BAYOU UNIT

Prescriptions for Prescribed Fire	Parameters (Range of Acceptability)		
	Low		High
I. Weather			
A. Wind Speed	0 mph	to	5 mph
B. Wind Direction from	South		
C. Air Temperature (Maximum Daily)	60 °F	to	75 °F
D. Relative Humidity (Minimum Daily	40 %	to	100 %
E. Drought Index	____	to	____
F. NFDRS Fire Load Index	____	to	____
II. Fuels			
A. Fine Fuel Moisture (% of Live Weight)	10 %	to	60 %
B. Fuel Accumulation (All Sizes below 6" DBH)	0 lbs/acre	to	10,000 lbs/acre
C. Basal Area from	(1)	to	____
III. Soils			
A. Soil Moisture, Actual	40 %	to	80 %
B. Soil Type	All		

IV. Geographical Limitations: No fire will be allowed to leave a fire management unit. No fire will be allowed to leave the park unless the cooperative agreement with the land managing agency has identified the conditions under which fire trespass may occur and the fire in question meets the requirements.

(1) No limitations

FIRE QUALIFICATIONS MASTER LIST DATE 06/15/78 PAGE NO. 227

RPS 12 REGION 08 SOUTHEAST AREA 20

NAME	SSN	BIRTH MTH	PHYS FIT CODE	FUNCTIONAL ASSGN NO.1	NO.2	NO.3	YEAR RATED	RED CARD QUAL JOBS 1.SQUAD BOSS 2. 3.	ON=THE=JOB=TRAIN=NEEDS 1.CREW BOSS 2. 3.
[illegible]	[illegible]	12/43	43	L1			78		

TRAINING COURSES COMPLETED (THE YR THE COURSE WAS COMPLETED FOLLOWS THE COURSE CODE)

[illegible] 77 [illegible] 77 [illegible] 77 5212 77

TRAINING COURSES NEEDED

[illegible]

FIRE JOBS HELD PRIOR TO LAST FIVE YEARS (NO. FIRES FOLLOWS THE JOB CODE)

FIRE JOBS HELD IN LAST FIVE YEARS -- QUALIFIED AND/OR TRAINING ASSIGNMENTS BY YEAR (DESCENDING)

YR	CODE	JOB	Q = T	CLASS	RATING	YR	CODE	JOB NAME	Q	T	CLASS	RATING
77	[illegible]	FI FI [illegible]	01	5	2	75	21	FIREFIGHTER	01		5	2
76	[illegible]	FI FI [illegible]	02	5	2	75	21	FIREFIGHTER	01		5	2
75	17	[illegible] III	02	5	2							

APPENDIX II

GLOSSARY

Man-caused Fire - this term will continue to be used for the present for consistancy between agencies and activities. It is intended to include all fires caused by the species, man rather than just the male gender.

Prescribed Natural fire: Any fire of natural origin, i.e., caused by lightning, volcanic activity, etc. which is allowed to burn under prescribed conditions.

Fire Management: All activities related to the prevention, control or use of fire burning through vegetation for any purpose.

Wildfire: Any unplanned fire, and any management fire or portion of it that exceeds the predetermined prescription.

Management Fire: Those fires which contribute to the attainment of the management objectives of an area through execution of predetermined prescriptions. This includes prescribed, natural fire and prescribed burns for any purpose.

Prescribed Fire: Skillful application of fire to natural fuels under conditions of weather, fuel moisture, soil moisture, etc., that will allow confinement of the fire to a predetermined area and at the same time still produce the intensity of heat and rate of spread required to accomplish certain planned benefits to one or more objectives of silviculture, wildlife management, grazing, hazard reduction, etc. Its objective is to employ fire scientifically to realize maximum net benefits at minimum damage and acceptable cost.

Prescription: A written statement defining the objectives to be attained, the conditions of temperature, humidity, wind direction and speed, fuel moisture and soil moisture, under which the fire will be allowed to burn, generally expressed as acceptable range of the various indices, and the limit of the geographic area to be covered.

Natural Fire: Any fire of natural origin, i.e., caused by lightning, caused by volcanic activity, etc.

APPENDIX I

STANDARD FIREFIGHTING ORDERS

-----FIRE BEHAVIOR-----

1. Keep informed on FIRE WEATHER conditions and forecasts.
2. Know what your FIRE is DOING at all times - observe personally, use scouts.
3. Base all actions on current and expected BHAVIOR of FIRE.

-----SAFETY-----

4. Have ESCAPE ROUTES for everyone and make them known.
5. Post a LOOKOUT when there is possible danger.
6. Be ALERT, keep CALM, THINK clearly, ACT decisively.

-----OPERATIONS CONTROL-----

7. Maintain prompt COMMUNICATION with your men, your boss and adjoining forces.
8. Give clear INSTRUCTIONS and be sure they are understood.
9. Maintain CONTROL of your men at all times.

---

10. Fight Fire Aggressively but provide for SAFETY first.

APPENDIX J

FIRE SITUATIONS THAT SHOUT "WATCH OUT!"

1. You are building line downhill toward a fire.
2. You are fighting fire on a hillside where rolling material can ignite fuel below you.
3. You notice the wind begins to blow or increase or change direction.
4. You feel the weather getting hotter and drier.
5. You are on a line in heavy cover with unburned fuel between you and the fire.
6. You are away from burned area where terrain and/or cover makes the travel difficult and slow.
7. You are in country you have not seen in the daylight.
8. You are in an area where you are unfamiliar with local factors influencing fire behavior.
9. You are attempting a frontal assault on a fire with tankers.
10. You are getting frequent spot fires over your line.
11. You cannot see the main fire and you are not in communicatation with anyone who can.
12. You have been given an assignment or instructions not clear to you.
13. You feel like taking a little nap near the fireline.

APPENDIX K

PRE-BURN PLAN

PRESCRIBED FIRE

DISTRICT _____ DATE _____

FIRE MANAGEMENT UNIT NO. _____ DESCRIPTIVE LOCATION _____

_____

TWP _____ RANGE _____ SECTION(S) _____

GROSS ACRES _____ NET ACRES _____

A. RECORD OF PREVIOUS BURNING: DATE _____

TYPE _____ RESULTS _____

_____

B. PURPOSE(S):

1. HAZARD REDUCTION _____
2. RESEARCH _____
3. HABITAT MAINTENANCE _____
4. RECLAMATION _____
5. EXOTIC PLANT CONTROL _____
6. VISTA CLEARING _____
7. WILDLIFE HABITAT _____
8. OTHER _____

C. SPECIFIC OBJECTIVES: _____

_____

(Fire Intensity, amount of brush to be consumed, soil moisture conditions, water level, etc.)

1. GRASSLANDS

a. VEGETATION TYPE(S)

(1) GRASSES: DENSITY (lbs/acre), HT, AGE_____

_____

(2) SEDGES: DENSITY (lbs/acre), HT (ft.), AGE_____

_____

(3) OTHER_____

(Give percent of each type, if more than one)

2. HARDWOOD FOREST

a. VEGETATION TYPE(S)

(1) OVERSTORY (CANOPY): DENSITY (lbs/acre), HT (ft.), AGE

_____

(2) UNDERSTORY: DENSITY (lbs/acre), HT (ft.), AGE_____

_____

(3) ABANDONED FARMLAND:

OVERSTORY: TYPE, DENSITY, HT (ft.), AGE_____

_____

FUELS: TYPE, DENSITY (lbs/acre), AGE_____

_____

(4) OTHER_____

_____

(Give percent of each type, if more than one)

3. PINELAND

a. OVERSTORY: TYPE, DENSITY, SIZE_____

_____

b. UNDERSTORY: TYPE, DENSITY, HT (ft)_____

_____

c. FUELS: TYPE, DENSITY, AGE_____

_____

E. PRE-BURN FACTORS

1. CREW SIZE_____ TYPE OF FIRE(S)_____
(see addendum for organization)

_____

2. EQUIPMENT NEEDED_____

_____

3. PROCUDURE_____

_____

_____

4. EXPECTED RATE OF SPREAD_____

NO HOURS TO COMPLETE_____

5. SPECIAL PRECAUTIONS_____

6. REGULATIONS THAT APPLY_____

F. DESIRED WEATHER (FIRE PRESCRIPTION)

1. WIND (DIRECTION-SPEED) _____ MOIST _____
2. REL. HUMIDITY _____ F. FUEL MOISTURE _____
3. TEMPERATURE _____ SOIL MOISTURE _____
4. DAYS SINCE RAIN _____ DROUGHT INDEX _____
5. TIME OF DAY TO START _____ STABILITY _____
6. STAGNATION INDEX _____ POLLUTION INDEX _____
7. OTHER _____

_____

G. SUMMARY OF BURN:

1. ACRES BURNED _____ TYPE OF FIRE(S) USED _____

_____

2. BURN BOSS _____ DATES BURNED _____

_____

3. TIME SET _____ DAYS SINCE RAIN _____

_____

4. COST:

a. MANPOWER _____ EQUIPMENT _____

b. SUPPLIES _____

c. MANDAYS _____

H. EVALUATION (Immediately after burn)

1. NEEDLE DISCOLORATION (%)
2. FUEL CONSUMPTION (%) _____
3. SMOKE DISPERSION _____
4. OBJECTIVES REACHED _____

(Future Evaluation)

1. DATE _____
2. CROWN SCORCH _____
3. UNDERSTORY KILL (%) _____
4. SOIL DAMAGE _____

I. NARRATIVE/REMARKS

(To include three points: (1) During Burn (2) After (3) Future

BURNING UNIT MAP

DATE _____ BURNING UNIT NO. _____

MAP WILL SHOW:

1. FIRING TECHNIQUES
2. SEQUENCE OF FIRING
3. CREW LOCATIONS
4. HELIPORT

ADDENDUM

A. FIRE ORGANIZATION (This section should include all manpower, and logistic equipment and supplies needed to execute the burn.)

1. MANPOWER (Show organization chart, names of fire overhead, their jobs and responsibilities.)

SUPPLIES

2. EQUIPMENT (List all needed.)

3. FIRING PROCEDURE

SUPPLIES AND EQUIPMENT COSTS

SUPPLIES	COST
TOTAL SUPPLY COST	
EQUIPMENT	
TOTAL EQUIPMENT COST	

: (2/24/69)

PERSONNEL
CHARGES
INDIVIDUAL FIRE REPORT

FIRE NUMBER _____

DATE _____

Co. _____

COUNT NUMBER _____

Personnel _____ Seasonal _____

	C/a Regular			C/a Seasonal			L/H Regular			Hazard Pay			Hazard Pay			Emergency			Overtime			Grand
	Hr	Rt.	Total	Hr	Rt.	Total	Hr	Rt.	Total	Hr	Rt.	Total	Hr	Rt.	Total	Hr	Rt.	Total	Hr	Rt.	Total	Tc
TALS																						

PRESCRIBED BURNING

CHECKLIST

JOB	RESPONSIBILITY
1. Preburn Research	
2. Preburn Evaluation	
3. Preparation of Preburn Plan	
4. Selection of Burn (Block and Day)	
5. Preburn meeting (24 hrs. before burn)	
6. Equipment Manpower Deployment	
7. Burn Execution	
8. Burn Fire Documentation	
9. Post Burn Evaluation	
10. Post Burn Research	
11. Cost Analysis	
12. Final Report	
13. Burn Summary	

HIGHLIGHTS OF AIR POLLUTION REGULATIONS ON OPEN BURNING IN SOUTHERN STATES AS OF 1977

ALABAMA

Alabama's present regulations were adopted in 1972. This regulation states that no person shall ignite, cause to be ignited, permit to be ignited, or maintain any open fire except as follows: Among the listed exceptions are fires for recognized agricultural, silvicultural, range and wildlife management practices. A proclamation issued in 1973 states that such burns have to be at least 1,000 feet from any dwellings.

ARKANSAS

Arkansas' open burning regulation (amended 1973) reads:

(a) "No person shall cause or permit the open burning of refuse, garbage, trade wastes, or other waste material or shall conduct a salvage operation by open burning..."

(c) "The provisions of subsection (a) hereof shall not apply to the following activities:

(c-3) Controlled fires used for purposes of forest and wildlife management, provided that such fires are set and burned when winds are blowing away from populated areas which might be affected."

(d) "During conditions of air pollution in an area, all open burning shall be discontinued."

FLORIDA

In Florida, the Division of Forestry, Department of Agriculture and Consumer Services, has the responsibility for regulating open burning connected with rural land clearing, agricultural or forestry operations except fires for cold or frost protection.

Open burning is allowed between the hours of 9:00 A.M. (standard time) and one hour before sunset (except fires for cold or frost protection) for agricultural, silvicultural or forestry operations related to the growing, harvesting or maintenance of crops or in connection with wildlife management. Permission has to be secured from the Division of Forestry prior to burning. The Division may allow open burning at other times when there is reasonable assurance that atmospheric and meteorological conditions in the vicinity of the burning will allow good and proper diffusion and dispersement of air pollutants, and when such fires can be readily contained within the designated boundaries.

FLORIDA (Continued)

The Division of Forestry may suspend after reasonable notice any such permission whenever atmospheric or meteorological conditions change so that there is improper diffusion and dispersion of air pollutants which create a condition deleterious to health, safety, or general welfare, or which obscure visibility of vehicular or air traffic.

Open burning of wooden material or vegatation generated by a land-clearing operation or the demolition of a structure is allowed when the open burning is more than 50 yards from any occupied building or public highway and the above conditions are met.

GEORGIA

In Georgia, no person shall cause, suffer, allow or permit open burning in any area of the state except as follows:... One of the listed exceptions is the burning over of any forest land by the owner. Burning for land clearing (which includes burning of logging debris) has certain conditions to be met. They are, (1) prevailing winds are away from most populated area, (2) must be at least 1,000 feet from any dwellings, (3) amount of dirt is minimized, (4) materials other than plant growth are not to be burned, (5) only the amount equivalent to a pile 60 feet by 60 feet for each 9 acres can be burned at one time.

During air pollution episodes, no open burning is permitted.

In counties whose total population is over 65,000,all open burning for land clearing is prohibited unless adequate disposal facilities are not available. Two days written notice to the Department of Natural Resources must first be given if over 100 cubic yards are to be burned in any one day.

No smoke of a shade darker than a number two of the Ringelman Chart or equivalent opacity can be emitted by a source of open burning except for a reasonable period to get the fire started. Also, during an air pollution episode as declared by the Department of Air Quality Control, no open burning of any kind is permitted unless open burning is required in the performance of the official duty of any public office, or if the fire is necessary to thwart or prevent a hazard which cannot be properly managed by any other means or is necessary for the protection of public health.

KENTUCKY

In Kentucky, open burning is prohibited except for certain cases. Among the exceptions are fires set for recognized agricultural, silvicultural, range, and wildlife management practices. The open burning specified in this exception is permitted only if it does not conflict with local ordinances. Where it is necessary, permission may be obtained from the Fire Department or Fire District having jurisdiction in the location of the burning.

LOUISIANA

In Louisiana outdoor burning of waste material or other combustible material is prohibited with one of many exceptions being ... fires purposely set on agricultural and/or forest lands for a specific forest or agricultural management purpose in accordance with practices acceptable to the Louisiana Forest Service or Department of Agriculture.

MISSISSIPPI

Mississippi has recently adopted regulations prohibiting open burning except for agricultural and silvicultural fires. These fires can be maintained between one hour after sunrise and one hour before sunset if it is in connectio with agricultural, silvicultural, or forestry operations relating to harvesting growing, or maintenance of crops or in connection with wildlife management. Permission from the Mississippi Forestry Commission prior to the initiation of the burning is necessary. The Mississippi Forestry Commission has the authorit to allow open burning at other times if there is reasonable assurance that meteorological and atmospheric conditions in the area of the burning will allow good and sufficient diffusion and disbursement of air pollutants. More restric tive or additional conditions to minimize high wildfire risks may be imposed by the Forestry Commission. At the request of the Mississippi Air and Water Pollu tion Commission, the Forestry Commission may suspend any permission, after givi reasonable notice, whenever atmospheric or meteorological conditions change so that there is no longer a sufficient diffusion or disbursement of the air pollu tants. This requirement is to avoid a condition deleterious to health, safety, or general welfare or which may obscure visibility of vehicular or air traffic. The Mississippi Forestry Commission must be notified and consulted with prior to any burning located in a rural area or an area adjacent to forests, woods, wildlands, or marshes. In order to minimize excessive visible emissions, starte or auxiliary fuels must consist of dry vegetation, of kindling, or of petroleum derived fuels of gasoline, kerosene or fuel oil types or combinations of these. Use of other combustible materials like rubber tires, etc., is prohibited.

NORTH CAROLINA

In North Carolina, air pollution regulations are administered by the Environmental Management Commission which has divided the State into four Regions and ten local county or multi-county agencies.

The Environmental Management Commission Regulations state that certain open burning is permissible. Among these permissible burns are fires purposely set to forest lands for forest management practices acceptable to the North Carolina Division of Forest Resources and the North Carolina Environmental Management Commission.

Under another General Statute (Burning Permit Law), the Secretary of Natural Resources has the authority to regulate all burning in the state of North Carolina and has delegated the authority for burning that may threaten woodlands to the Director of the North Carolina Division of Forest Resources.

APPENDIX M:

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

SHORT TITLE

SECTION 1. This Act may be cited as the "Wilderness Act."

WILDERNESS SYSTEM ESTABLISHED—STATEMENT OF POLICY

SECTION 2. (a) In order to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition, it is hereby declared to be the policy of the Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness. For this purpose there is hereby established a National Wilderness Preservation System to be composed of federally owned areas designated by Congress as "wilderness areas", and these shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness; and no Federal lands shall be designated as "wilderness areas" except as provided for in this Act or by a subsequent Act.

(b) The inclusion of an area in the National Wilderness Preservation System notwithstanding, the area shall continue to be managed by the Department and agency having jurisdiction thereover immediately before its inclusion in the National Wilderness Preservation System unless otherwise provided by Act of Congress. No appropriation shall be available for the payment of expenses or salaries for the administration of the National Wilderness Preservation System as a separate unit nor shall any appropriations be available for additional personnel stated as being required solely for the purpose of managing or administering areas solely because they are included within the National Wilderness Preservation System.

DEFINITION OF WILDERNESS

(c) A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

NATIONAL WILDERNESS PRESERVATION SYSTEM—EXTENT OF SYSTEM

SECTION 3. (a) All areas within the national forests classified at least 30 days before the effective date of this Act by the Secretary of Agriculture or the Chief of the Forest Service as "wilderness," "wild," or "canoe" are hereby designated as wilderness areas. The Secretary of Agriculture shall—

(1) Within one year after the effective date of this Act, file a map and legal description of each wilderness area with the Interior and Insular Affairs Committees of the United States Senate and the House of Representatives, and such descriptions shall have the same force and effect as if included in this Act: *Provided, however,* That correction of clerical and typographical errors in such legal descriptions and maps may be made.

(2) Maintain, available to the public, records pertaining to said wilderness areas, including maps and legal descriptions, copies of regulations governing them, copies of public notices of, and reports submitted to Congress regarding pending additions, eliminations, or modifications. Maps, legal descriptions, and regulations pertaining to wilderness areas within their respective jurisdictions also shall be available to the public in the offices of regional foresters, national forest supervisors, and forest rangers.

Classification. (b) The Secretary of Agriculture shall, within ten years after the enactment of this Act, review, as to its suitability or nonsuitability for preservation as wilderness, each area in the national forests classified on the effective date of this Act by the Secretary of Agriculture or the Chief of the Forest Service as "primitive" and report his findings to the President.

Presidential recommendation to Congress. The President shall advise the United States Senate and House of Representatives of his recommendations with respect to the designation as "wilderness" or other

reclassification of each area on which review has been completed, together with maps and a definition of boundaries. Such advice shall be given with respect to not less than one-third of all the areas now classified as "primitive" within three years after the enactment of this Act, not less than two-thirds within seven years after the enactment of this Act, and the remaining areas within ten years after the enactment of this Act.

Congressional approval. Each recommendation of the President for designation as "wilderness" shall become effective only if so provided by an Act of Congress. Areas classified as "primitive" on the effective date of this Act shall continue to be administered under the rules and regulations affecting such areas on the effective date of this Act until Congress has determined otherwise. Any such area may be increased in size by the President at the time he submits his recommendations to the Congress by not more than five thousand acres with no more than one thousand two hundred and eighty acres of such increase in any one compact unit; if it is proposed to increase the size of any such area by more than five thousand acres or by more than one thousand two hundred and eighty acres in any one compact unit the increase in size shall not become effective until acted upon by Congress. Nothing herein contained shall limit the President in proposing, as part of his recommendations to Congress, the alteration of existing boundaries of primitive areas or recommending the addition of any contiguous area of national forest lands predominantly of wilderness value. Notwithstanding any other provisions of this Act, the Secretary of Agriculture may complete his review and delete such area as may be necessary, but not to exceed seven thousand acres, from the southern tip of the Gore Range-Eagles Nest Primitive Area, Colorado, if the Secretary determines that such action is in the public interest.

Report to President. (c) Within ten years after the effective date of this Act the Secretary of the Interior shall review every roadless area of five thousand contiguous acres or more in the national parks, monuments and other units of the national park system and every such area of, and every roadless island within, the national wildlife refuges and game ranges, under his jurisdiction on the effective date of this Act and shall report to the President his recommendation as to the suitability or nonsuitability of each such area or island for preservation as wilderness.

Presidential recommendation to Congress. The President shall advise the President of the Senate and the Speaker of the House of Representatives of his recommendation with respect to the designation as wilderness of each such area or island on which review has been completed, together with a map thereof and a definition of its boundaries. Such advice shall be given with respect to not less than one-third of the areas and islands to be reviewed under this subsection within three years after enactment of this Act, not less than two-thirds within seven years of enactment of this Act, and the remainder within ten years of enactment of this Act.

Congressional approval. A recommendation of the President for designation as wilderness shall become effective only if so provided by an Act of Congress. Nothing contained herein shall, by implication or other-

wise, be construed to lessen the present statutory authority of the Secretary of the Interior with respect to the maintenance of roadless areas within units of the national park system.

Suitability. (d) (1) The Secretary of Agriculture and the Secretary of the Interior shall, prior to submitting any recommendations to the President with respect to the suitability of any area for preservation as wilderness--

Publication in Federal Register. (A) give such public notice of the proposed action as they deem appropriate, including publication in the Federal Register and in a newspaper having general circulation in the area or areas in the vicinity of the affected land;

Hearings. (B) hold a public hearing or hearings at a location or locations convenient to the area affected. The hearings shall be announced through such means as the respective Secretaries involved deem appropriate, including notices in the Federal Register and in newspapers of general circulation in the area: *Provided*, That if the lands involved are located in more than one State, at least one hearing shall be held in each State in which a portion of the land lies;

(C) at least thirty days before the date of a hearing advise the Governor of each State and the governing board of each county, or in Alaska the borough, in which the lands are located, and Federal departments and agencies concerned, and invite such officials and Federal agencies to submit their views on the proposed action at the hearing or by no later than thirty days following the date of the hearing.

(2) Any views submitted to the appropriate Secretary under the provisions of (1) of this subsection with respect to any area shall be included with any recommendations to the President and to Congress with respect to such area.

Proposed modification. (e) Any modification or adjustment of boundaries of any wilderness area shall be recommended by the appropriate Secretary after public notice of such proposal and public hearing or hearings as provided in subsection (d) of this section. The proposed modification or adjustment shall then be recommended with map and description thereof to the President. The President shall advise the United States Senate and the House of Representatives of his recommendations with respect to such modification or adjustment and such recommendations shall become effective only in the same manner as provided for in subsections (b) and (c) of this section.

USE OF WILDERNESS AREAS

SECTION 4. (a) The purposes of this Act are hereby declared to be within and supplemental to the purposes for which national forests and units of the national park and wildlife refuge systems are established and administered and--

(1) Nothing in this Act shall be deemed to be in interference with the purpose for which national forests are established as set forth in the Act of June 4, 1897 (30 Stat. 11), and the Multiple-Use Sustained-Yield Act of June 12, 1960 (74 Stat. 215).

(2) Nothing in this Act shall modify the restrictions and provisions of the Shipstead-Nolan Act (Public Law 539, Seventy-first Congress, July 10, 1930; 46 Stat. 1020), the Thye-Blatnik Act (Public Law 733, Eighty-first Congress, June 22, 1948; 62 Stat. 568), and the Humphrey-Thye-Blatnik-Andresen Act (Public Law 607, Eighty-fourth Congress, June 22, 1956; 70 Stat. 326), as applying to the Superior National Forest or the regulations of the Secretary of Agriculture.

(3) Nothing in this Act shall modify the statutory authority under which units of the national park system are created. Further, the designation of any area of any park, monument, or other unit of the national park system as a wilderness area pursuant to this Act shall in no manner lower the standards evolved for the use and preservation of such park, monument, or other unit of the national park system in accordance with the Act of August 25, 1916, the statutory authority under which the area was created, or any other Act of Congress which might pertain to or affect such area, including, but not limited to, the Act of June 8, 1906 (34 Stat. 225; 16 U.S.C. 432 et seq.); section 3(2) of the Federal Power Act (16 U.S.C. 796 (2)); and the Act of August 21, 1935 (49 Stat. 666; 16 U.S.C. 461 et seq.).

(b) Except as otherwise provided in this Act, each agency administering any area designated as wilderness shall be responsible for preserving the wilderness character of the area and shall so administer such area for such other purposes for which it may have been established as also to preserve its wilderness character. Except as otherwise provided in this Act, wilderness areas shall be devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historical use.

PROHIBITION OF CERTAIN USES

(c) Except as specifically provided for in this Act, and subject to existing private rights, there shall be no commercial enterprise and no permanent road within any wilderness area designated by this Act and, except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act (including measures required in emergencies involving the health and safety of persons within the area), there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area.

SPECIAL PROVISIONS

(d) The following special provisions are hereby made:

(1) Within wilderness areas designated by this Act the use of aircraft or motorboats, where these uses have already become established, may be permitted to continue subject to such restrictions as the Secretary of Agriculture deems desirable. In addition, such measures may be taken as

such rights as may be necessary to assure adequate access to such State-owned or privately owned land by such State or private owner and their successors in interest, or the State-owned land or privately owned land shall be exchanged for federally owned land in the same State of approximately equal value under authorities available to the Secretary of Agriculture:

Transfers, restriction. Provided, however, That the United States shall not transfer to a State or private owner any mineral interests unless the State or private owner relinquishes or causes to be relinquished to the United States the mineral interest in the surrounded land.

(b) In any case where valid mining claims or other valid occupancies are wholly within a designated national forest wilderness area, the Secretary of Agriculture shall, by reasonable regulations consistent with the preservation of the area as wilderness, permit ingress and egress to such surrounded areas by means which have been or are being customarily enjoyed with respect to other such areas similarly situated.

Acquisition. (c) Subject to the appropriation of funds by Congress, the Secretary of Agriculture is authorized to acquire privately owned land within the perimeter of any area designated by this Act as wilderness if (1) the owner concurs in such acquisition or (2) the acquisition is specifically authorized by Congress.

GIFTS, BEQUESTS, AND CONTRIBUTIONS

SECTION. 6. (a) The Secretary of Agriculture may accept gifts or bequests of land within wilderness areas designated by this Act for preservation as wilderness. The Secretary of Agriculture may also accept gifts or bequests of land adjacent to wilderness areas designated by this Act for preservation as wilderness if he has given sixty days advance notice thereof to the President of the Senate and the Speaker of the House of Representatives. Land accepted by the Secretary of Agriculture under this section shall become part of the wilderness area involved. Regulations with regard to any such land may be in accordance with such agreements, consistent with the policy of this Act, as are made at the time of such gift, or such conditions, consistent with such policy, as may be included in, and accepted with, such bequest.

(b) The Secretary of Agriculture or the Secretary of the Interior is authorized to accept private contributions and gifts to be used to further the purposes of this Act.

ANNUAL REPORTS

SECTION 7. At the opening of each session of Congress, the Secretaries of Agriculture and Interior shall jointly report to the President for transmission to Congress on the status of the wilderness system, including a list and descriptions of the areas in the system, regulations in effect, and other pertinent information, together with any recommendations they may care to make.

Mineral leases, permits, and licenses covering lands within national forest wilderness areas designated by this Act shall contain such reasonable stipulations as may be prescribed by the Secretary of Agriculture for the protection of the wilderness character of the land consistent with the use of the land for the purposes for which they are leased, permitted, or licensed. Subject to valid rights then existing, effective January 1, 1984, the minerals in lands designated by this Act as wilderness areas are withdrawn from all forms of appropriation under the mining laws and from disposition under all laws pertaining to mineral leasing and all amendments thereto.

Water resources. (4) Within wilderness areas in the national forests designated by this Act, (1) the President may, within a specific area and in accordance with such regulations as he may deem desirable, authorize prospecting for water resources, the establishment and maintenance of reservoirs, water-conservation works, power projects, transmission lines, and other facilities needed in the public interest, including the road construction and maintenance essential to development and use thereof, upon his determination that such use or uses in the specific area will better serve the interests of the United States and the people thereof than will its denial; and (2) the grazing of livestock, where established prior to the effective date of this Act, shall be permitted to continue subject to such reasonable regulations as are deemed necessary by the Secretary of Agriculture.

(5) Other provisions of this Act to the contrary notwithstanding, the management of the Boundary Waters Canoe Area, formerly designated as the Superior, Little Indian Sioux, and Caribou Roadless Areas, in the Superior National Forest, Minnesota, shall be in accordance with regulations established by the Secretary of Agriculture in accordance with the general purpose of maintaining, without unnecessary restrictions on other uses, including that of timber, the primitive character of the area, particularly in the vicinity of lakes, streams, and portages: *Provided*, That nothing in this Act shall preclude the continuance within the area of any already established use of motorboats.

(6) Commercial services may be performed within the wilderness areas designated by this Act to the extent necessary for activities which are proper for realizing the recreational or other wilderness purposes of the areas.

(7) Nothing in this Act shall constitute an express or implied claim or denial on the part of the Federal Government as to exemption from State water laws.

(8) Nothing in this Act shall be construed as affecting the jurisdiction or responsibilities of the several States with respect to wildlife and fish in the national forests.

STATE AND PRIVATE LANDS WITHIN WILDERNESS AREAS

SECTION 5. (a) In any case where State-owned or privately owned land is completely surrounded by national forest lands within areas designated by this Act as wilderness, such State or private owner shall be given

may be necessary in the control of fire, insects, and diseases, subject to such conditions as the Secretary deems desirable.

(2) Nothing in this Act shall prevent within national forest wilderness areas any activity, including prospecting, for the purpose of gathering information about mineral or other resources, if such activity is carried on in a manner compatible with the preservation of the wilderness environment. Furthermore, in accordance with such program as the Secretary of the Interior shall develop and conduct in consultation with the Secretary of Agriculture, such areas shall be surveyed on a planned, recurring basis consistent with the concept of wilderness preservation by the Geological Survey and the Bureau of Mines to determine the mineral values, if any, that may be present; and the results of such surveys shall be made available to the public and submitted to the President and Congress.

Mineral leases, claims, etc. (3) Notwithstanding any other provisions of this Act, until midnight December 31, 1983, the United States mining laws and all laws pertaining to mineral leasing shall, to the same extent as applicable prior to the effective date of this Act, extend to those national forest lands designated by this Act as "wilderness areas"; subject, however, to such reasonable regulations governing ingress and egress as may be prescribed by the Secretary of Agriculture consistent with the use of the land for mineral location and development and exploration, drilling, and production, and use of land for transmission lines, waterlines, telephone lines, or facilities necessary in exploring, drilling, producing, mining, and processing operations, including where essential the use of mechanized ground or air equipment and restoration as near as practicable of the surface of the land disturbed in performing prospecting, location, and, in oil and gas leasing, discovery work, exploration, drilling, and production, as soon as they have served their purpose. Mining locations lying within the boundaries of said wilderness areas shall be held and used solely for mining or processing operations and uses reasonably incident thereto; and hereafter, subject to valid existing rights, all patents issued under the mining laws of the United States affecting national forest lands designated by this Act as wilderness areas shall convey title to the mineral deposits within the claim, together with the right to cut and use so much of the mature timber therefrom as may be needed in the extraction, removal, and beneficiation of the mineral deposits, if the timber is not otherwise reasonably available, and if the timber is cut under sound principles of forest management as defined by the national forest rules and regulations, but each such patent shall reserve to the United States all title in or to the surface of the lands and products thereof, and no use of the surface of the claim or the resources therefrom not reasonably required for carrying on mining or prospecting shall be allowed except as otherwise expressly provided in this Act: *Provided*, That, unless hereafter specifically authorized, no patent within wilderness areas designated by this Act shall issue after December 31, 1983, except for the valid claims existing on or before December 31, 1983. Mining claims located after the effective date of this Act within the boundaries of wilderness areas designated by this Act shall create no rights in excess of those rights which may be patented under the provisions of this subsection.

Approved September 3, 1964.

LEGISLATIVE HISTORY:

HOUSE REPORTS:
No. 1538 accompanying H. R. 9070 (Committee on Interior & Insular Affairs) and No. 1829 (Committee of Conference).

SENATE REPORT:
No. 109 (Committee on Interior & Insular Affairs).

CONGRESSIONAL RECORD:

Vol. 109 (1963): April 4, 8, considered in Senate.
April 9, considered and passed Senate.

Vol. 110 (1964): July 28, considered in House.
July 30, considered and passed House, amended, in lieu of H. R. 9070.
August 20, House and Senate agreed to conference report.

ENDANGERED AND THREATENED SPECIES, AND DESIGNATED CRITICAL HABITATS

MISSISSIPPI

Endangered

Mammals	General Distribution (present or historic)
Panther, Florida (*Felis concolor coryi*)	Entire
Whale, blue (*Balaenoptera musculus*)	Coastal waters
Whale, finback (*Balaenoptera physalus*)	Coastal waters
Whale, humpback (*Megaptera novaeangliae*)	Coastal waters
Whale, sei (*Balaenoptera borealis*)	Coastal waters
Whale, sperm (*Physeter catodon*)	Coastal waters
Birds	
Crane, Mississippi sandhill (*Grus canadensis pulla*)	Southern Jackson County
Eagle, Southern bald (*Haliaeetus leucocephalus leucocephalus*)	Entire
Falcon, Arctic peregrine (*Falco peregrinus tundrius*)	Entire
Pelican, brown (*Pelecanus occidentalis*)	Coast
Warbler, Bachman's (*Vermivora bachmanii*)	Entire
Woodpecker, ivory-billed (*Campephilus principalis*)	Entire
Woodpecker, red-cockaded (*Dendrocopos borealis*)	South
Reptiles	South
Alligator, American (*Alligator mississippiensis*)	South, west
Turtle, Atlantic ridley (*Lepidochelys kempii*)	Coastal waters
Turtle, hawksbill (*Eretmochelys imbricata*)	Coastal waters
Turtle, leatherback (*Dermochelys coriacea*)	Coastal waters

Threatened

Fishes	
Darter, Bayou (*Etheostoma rubrum*)	Bayou Pierre drainage

MISSISSIPPI (cont'd)

Critical Habitat

Mississippi Sandhill Crane: *(Grus canadensis pulla)*
Mississippi. Areas of land, water, and airspace in Jackson County, with the following components (St. Stephens Base Meridian): T6S R6W Sec. 31; T6S R7W E½ of E½ Sec. 34, Sec. 35-36, S½ Sec. 33; T6S R8W Sec. 27, those portions of Sec. 28-31 south of Seaman Road, Sec. 32-34; T7S R6W W½ of W½ Sec. 3, Sec. 6; T7S R7W Sec. 2-11, Sec. 13-16, Sec. 20-22, W½ Sec. 23, W½ of E½ Sec. 23, NE¼ of NE¼ Sec. 23, W½ of W½ Sec. 24, that portion of the SW¼ of SW¼ Sec. 30 south of the Louisville and Nashville Railroad, W½ of W½ Sec. 31, W½ Sec. 37, that portion of the E½ Sec. 37 north of U.S. Interstate Highway 10; T7S R8W Sec. 1-3, that portion of Sec. 4 north of U.S. Interstate Highway 10, Sec. 5-6, those portions of Sec. 7-8 north of U.S. Interstate Highway 10, Sec. 10-12, W½ of W½ Sec. 14, Sec. 15, that portion of Sec. 25 south of the Louisville and Nashville Railroad, that portion of the SE¼ of Sec. 26 south of the Louisville and Nashville Railroad and southeast of Davis Bayou, W½ of NE¼ Sec. 35, Sec. 36.

ENDANGERED AND THREATENED SPECIES, AND DESIGNATED CRITICAL HABITATS

FLORIDA

Endangered

Mammals:	General Distribution (present or historic)
Bat, gray (*Myotis grisescens*)	Panhandle
Bat, Indiana (*Myotis sodalis*)	Panhandle
Deer, Key (*Odocoileus virginianus clavium*)	Lower Keys
Manatee, Florida (*Trichechus manatus*)	Coastal waters and streams
Panther, Florida (*Felis concolor coryi*)	Entire
Whale, blue (*Balaenoptera musculus*)	Coastal waters
Whale, finback (*Balaenoptera physalus*)	Coastal waters
Whale, humpback (*Megaptera novaeangliae*)	Coastal waters
Whale, sei (*Balaenoptera borealis*)	Coastal waters
Whale, sperm (*Physeter catodon*)	Coastal waters
Birds:	
Curlew, Eskimo (*Numenius borealis*)	Coast
Eagle, Southern bald (*Haliaeetus leucocephalus leucocephalus*)	Entire
Falcon, Arctic peregrine (*Falco peregrinus tundrius*)	Coast
Kite, Florida everglade (*Rostrhamus sociabilis plumbeus*)	South
Pelican, brown (*Pelecanus occidentalis*)	Coast
Sparrow, Cape Sable (*Ammospiza maritima mirabilis*)	Extreme Southwest
Sparrow, dusky seaside (*Ammospiza maritima nigrescens*)	Merritt Island, St. John's River
Warbler, Bachman's (*Vermivora bachmanii*)	Entire
Woodpecker, ivory-billed (*Campephilus principalis*)	Entire
Woodpecker, red-cockaded (*Dendrocopos borealis*)	Entire
Fishes:	
Darter, Oklaloosa (*Etheostoma okaloosae*)	Eglin Air Force Base
Sturgeon, shortnose (*Acipenser brevirostrum*)	Atlantic seaboard rivers
Reptiles:	
Crocodile, American (*Crocodylus acutus*)	Extreme south

FLORIDA (cont'd)

Turtle, Atlantic ridley (*Lepidochelys kempi*)	Coastal waters
Turtle, hawksbill (*Eretmochelys imbricata*)	Coast
Turtle, leatherback (*Dermochelys coriacea*)	Coast

Threatened

Reptiles:

Alligator, American (*Alligator mississippiensis*)	Entire

Insects:

Butterfly, Bahama swallowtail (*Papilio andraemon bonhotei*)	Biscayne National Monument
Butterfly, Schaus swallowtail (*Papilio aristodemus*)	Biscayne National Monument, Key Largo, Lower Matecumbe Key

Critical Habitat

Florida Manatee:

The following areas (exclusive of those existing man-made structures or settlements which are not necessary to the normal needs or survival of the species) in Florida are critical habitat for the Florida manatee (*Trichechus manatus*): Crystal River and its headwaters known as King's Bay, Citrus County; the Little Manatee River downstream from the U. S. Highway 301 bridge, Hillsborough County; the Manatee River downstream from the Lake Manatee Dam, Manatee County; the Myakka River downstream from Myakka River State Park, Sarasota and Charlotte Counties; the Peace River downstream from the Florida State Highway 760 bridge, De Soto and Charlotte Counties; Charlotte Harbor north of the Charlotte-Lee county line, Charlotte County; Caloosahatchee River downstream from the Florida State Highway 31 bridge, Lee County; all U. S. territorial waters adjoining the coast and islands of Lee County; all U. S. territorial waters adjoining the coast and islands and all connected bays, estuaries, and rivers from Gordon's Pass, near Naples, Collier County, southward to and including Whitewater Bay, Monroe County; all waters of Card, Barnes; Blackwater, Little Blackwater, Manatee, and Buttonwood sounds between Key Largo, Monroe County, and the mainland of Dade County; Biscayne Bay, and all adjoining and connected lakes, rivers, canals, and waterways from the southern tip of Key Biscayne northward to and including Maule Lake, Dade County; all of Lake Worth, from its northernmost point immediately south of the intersection of U. S. Highway 1 and Florida State Highway A1A southward to its southernmost point immediately north of the town of Boynton Beach, Palm Beach County; the Loxahatchee River and its headwaters,

FLORIDA (cont'd)

(Critical Habitat-Florida Manatee)

Martin and West Palm Beach Counties; that section of the Intracoastal waterway from the town of Sewalls Point, Martin County to Jupiter Inlet, Palm Beach County; the entire inland section of water known as the Indian River, from its northernmost point immediately south of the intersection of U. S. Highway 1 and Florida State Highway 3, Volusia County, southward to its southernmost point near the town of Sewalls Point, Martin County, and the entire inland section of water known as the Banana River and all waterways between the Indian and Banana Rivers, Brevard County; the St. Johns River, including Lake George, and including Blue Springs and Silver Glen Springs from their points of origin to their confluences with the St. Johns River; that section of the Intra-coastal Waterway from its confluence with the St. Marys River on the Georgia-Florida border to the Florida State Highway AlA bridge south of Coastal City, Nassau and Duval Counties.

American Crocodile:

The following area (exclusive of those existing man-made structures or settlements which are not necessary to the normal needs or survival of the species) is critical habitat for the American crocodile (*Crocodylus acutus*): All land and water within the following boundary in Florida: beginning at the easternmost tip of Turkey Point, Dade County, on the coast of Biscayne Bay; thence southeastward along a straight line to Christmas Point at the southernmost tip of Elliott Key; thence southwestward along a line following the shores of the Atlantic Ocean side of Old Rhodes Key, Palo Alto Key, Anglefish Key, Key Largo, Plantation Key, Windley Key, Upper Matecumbe Key, Lower Matecumbe Key, and Long Key, to the westernmost tip of Long Key; thence northwestward along a straight line to the westernmost tip of Middle Cape; thence northward along the shore of the Gulf of Mexico to the north side of the mouth of Little Sable Creek; thence eastward along a straight line to the northernmost point of Nine-Mile Pond; thence northeastward along a straight line to the point of beginning.

Florida Everglade Kite:

Florida. Areas of land (predominantly marsh), water, and airspace, with the following components (Tallahassee Meridian): (1) St. Johns Reservoir, Indian River County: T33S R37E SW¼ Sec. 6, W½ Sec. 7, Sec. 18, Sec. 19; (2) Cloud Lake Reservoir, St. Lucie County: T34S R38E S½ Sec. 16, N½ Sec. 21; (3) Strazzulla Reservoir, St. Lucie County: T34S R38E SW ¼ Sec. 21; (4) western parts of Lake Okeechobee, Glades and Hendry Counties, extending along the western shore to the east of the levee system and the undiked high ground at Fisheating Creek, and from the Hurricane Gate at Clewiston northward to the mouth of the Kissimmee River, including all the Eleocharis flats of Moonshine Bay, Monkey Box, and Observation Shoal, but excluding the open water north and west of the

List A

STATE LISTS OF ENDANGERED AND THREATENED SPECIES OF THE CONTINENTAL UNITED STATES

STATE	STATUS	FAMILY	SPECIES
CONNECTICUT	THREATENED	POACEAE	PANICUM ACULEATUM
CONNECTICUT	THREATENED	ROSACEAE	PRUNUS ALLEGHANIENSIS
CONNECTICUT	THREATENED	SCROPHULARIACEAE	ASALINIS ACUTA
DELAWARE	ENDANGERED	CYPERACEAE	RHYNCHOSPORA KNIESKERNII
DELAWARE	ENDANGERED	RANUNCULACEAE	THOLLIUS LAXUS
DELAWARE	THREATENED	APIACEAE	OXYPOLIS CANBYI
DELAWARE	THREATENED	BETULACEAE	ALNUS MARITIMA
DELAWARE	THREATENED	ORCHIDACEAE	PLATANTHERA PERAPOENA
DELAWARE	THREATENED	POACEAE	MUHLENBERGIA TORREYANA
DELAWARE	THREATENED	SCROPHULARIACEAE	MICRANTHEMUM MICRANTHEOIDES
DISTRICT OF COLUMBIA	THREATENED	POACEAE	PANICUM ACULEATUM
DISTRICT OF COLUMBIA	THREATENED	SCROPHULARIACEAE	MICRANTHEMUM MICRANTHEOIDES
FLORIDA	ENDANGERED	ACANTHACEAE	JUSTICIA COOLEYI
FLORIDA	ENDANGERED	ACANTHACEAE	JUSTICIA CRASSIFOLIA
FLORIDA	ENDANGERED	ANNONACEAE	ASIMINA TETRAMERA
FLORIDA	ENDANGERED	APIACEAE	OXYPOLIS GREENMANII
FLORIDA	ENDANGERED	APIACEAE	SIUM FLORIDANUM
FLORIDA	ENDANGERED	ARECACEAE	ROYSTONEA ELATA
FLORIDA	ENDANGERED	ASTERACEAE	ASTER PINIFOLIUS
FLORIDA	ENDANGERED	ASTERACEAE	BALDUINA ATROPURPUREA
FLORIDA	ENDANGERED	ASTERACEAE	LIATRIS OHLINGERAE
FLORIDA	ENDANGERED	ASTERACEAE	LIATRIS PROVINCIALIS
FLORIDA	ENDANGERED	BRASSICACEAE	WAREA CARTERI
FLORIDA	ENDANGERED	BRASSICACEAE	WAREA SESSILIFOLIA
FLORIDA	ENDANGERED	CACTACEAE	CEREUS ERIOPHORUS VAR. FRAGRANS
FLORIDA	ENDANGERED	CACTACEAE	CEREUS GRACILIS VAR. SIMPSONII
FLORIDA	ENDANGERED	CACTACEAE	CEREUS GRACILIS VAR. ADENIGINUS
FLORIDA	ENDANGERED	CACTACEAE	CEREUS ROBINII VAR. DEBAINCII
FLORIDA	ENDANGERED	CACTACEAE	CEREUS ROBINII VAR. ROBINII
FLORIDA	ENDANGERED	CARYOPHYLLACEAE	PARONYCHIA CHARTACEA
FLORIDA	ENDANGERED	CARYOPHYLLACEAE	PARONYCHIA RUGELII VAR. INTERIOR
FLORIDA	ENDANGERED	CARYOPHYLLACEAE	SILENE POLYPETALA
FLORIDA	ENDANGERED	CYCADACEAE	ZAMIA INTEGRIFOLIA
FLORIDA	ENDANGERED	ERICACEAE	MONOTROPSIS REYNOLDSIAE
FLORIDA	ENDANGERED	ERICACEAE	RHODODENDRON CHAPMANII
FLORIDA	ENDANGERED	EUPHORBIACEAE	CHAMAESYCE(EUPHORBIA) DELTOIDEA SSP. SERPYLLUM
FLORIDA	ENDANGERED	EUPHORBIACEAE	CHAMAESYCE(EUPHORBIA) PORTERIANA VAR. KEYENSIS
FLORIDA	ENDANGERED	EUPHORBIACEAE	CHAMAESYCE(EUPHORBIA) PORTERIANA VAR. SCOPARIA
FLORIDA	ENDANGERED	EUPHORBIACEAE	CROTON ELLIOTTII
FLORIDA	ENDANGERED	EUPHORBIACEAE	CROTON GLANDULOSUS VAR. SIMPSONII
FLORIDA	ENDANGERED	EUPHORBIACEAE	EUPHORBIA GARBERI
FLORIDA	ENDANGERED	FABACEAE	GALACTIA RIPARIA
FLORIDA	ENDANGERED	FABACEAE	CASSIA KEYENSIS

List A

STATE LISTS OF ENDANGERED AND THREATENED SPECIES OF THE CONTINENTAL UNITED STATES

FLORIDA	ENDANGERED	FABACEAE	CENTROSEMA ARENICOLA
FLORIDA	ENDANGERED	FABACEAE	GALACTIA PINETORUM
FLORIDA	ENDANGERED	FABACEAE	TEPHROSIA ANGUSTISSIMA
FLORIDA	ENDANGERED	FABACEAE	VICIA OCALENSIS
FLORIDA	ENDANGERED	GENTIANACEAE	GENTIANA PENNELLIANA
FLORIDA	ENDANGERED	HYPERICACEAE	HYPERICUM CUMULICOLA
FLORIDA	ENDANGERED	LAMIACEAE	CONRADINA BREVIFOLIA
FLORIDA	ENDANGERED	LAMIACEAE	CONRADINA GLABRA
FLORIDA	ENDANGERED	LAMIACEAE	DICERANDRA FRUTESCENS
FLORIDA	ENDANGERED	LAMIACEAE	DICERANDRA IMMACULATA
FLORIDA	ENDANGERED	LAMIACEAE	HEDEOMA GRAVEOLENS
FLORIDA	ENDANGERED	LAMIACEAE	MACBRIDEA ALBA
FLORIDA	ENDANGERED	LAMIACEAE	SALVIA BLODGETTII
FLORIDA	ENDANGERED	LENTIBULARIACEAE	PINGUICULA IONANTHA
FLORIDA	ENDANGERED	LILIACEAE	HARPEROCALLIS FLAVA
FLORIDA	ENDANGERED	LILIACEAE	HYMENOCALLIS CORONARIA
FLORIDA	ENDANGERED	LILIACEAE	LILIUM IRIDOLLAE
FLORIDA	ENDANGERED	LILIACEAE	NOLINA ATROCARPA
FLORIDA	ENDANGERED	LILIACEAE	NOLINA BRITTONIANA
FLORIDA	ENDANGERED	LILIACEAE	VERATRUM WOODII
FLORIDA	ENDANGERED	LINACEAE	LINUM APENICOLA
FLORIDA	ENDANGERED	LINACEAE	LINUM CARTERI VAR. CARTERI
FLORIDA	ENDANGERED	LINACEAE	LINUM CARTERI VAR. SMALLII
FLORIDA	ENDANGERED	LINACEAE	LINUM WESTII
FLORIDA	ENDANGERED	LOGANIACEAE	SPIGELIA CENTIANOIDES
FLORIDA	ENDANGERED	LOGANIACEAE	SPIGELIA LOGANIOIDES
FLORIDA	ENDANGERED	LYTHRACEAE	CUPHEA ASPERA
FLORIDA	ENDANGERED	MELASTOMATACEAE	RHEXIA PARVIFLORA
FLORIDA	ENDANGERED	OLEACEAE	FORESTIERA SEGREGATA VAR. PINETORUM
FLORIDA	ENDANGERED	ORCHIDACEAE	SPIRANTHES LANCEOLATA VAR. PALUDICOLA
FLORIDA	ENDANGERED	ORCHIDACEAE	TRIPHORA CRAIGHEADII
FLORIDA	ENDANGERED	ORCHIDACEAE	TRIPHORA LATIFOLIA
FLORIDA	ENDANGERED	PLUMBAGINACEAE	LIMONIUM CAROLINIANUM VAR. ANGUSTATUM
FLORIDA	ENDANGERED	POACEAE	ANDROPOGON ARCTATUS
FLORIDA	ENDANGERED	POACEAE	ARISTIDA FLORIDANA
FLORIDA	ENDANGERED	POACEAE	CALAMOVILFA CURTISSII
FLORIDA	ENDANGERED	POACEAE	DIGITARIA PAUCIFLORA
FLORIDA	ENDANGERED	POACEAE	SCHIZACHYRIUM RHIZOMATUM
FLORIDA	ENDANGERED	POACEAE	TRIPSACUM FLORIDANUM
FLORIDA	ENDANGERED	POLYGALACEAE	POLYGALA LEWTONII
FLORIDA	ENDANGERED	POLYGONACEAE	POLYGONELLA CILIATA VAR. BASINAMIA
FLORIDA	ENDANGERED	POLYGONACEAE	POLYGONELLA MYRIOPHYLLA
FLORIDA	ENDANGERED	RANUNCULACEAE	AQUILEGIA CANADENSIS VAR. AUSTRALIS

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STATE LISTS OF ENDANGERED AND THREATENED SPECIES OF THE CONTINENTAL UNITED STATES

FLORIDA	ENDANGERED	RANUNCULACEAE	CLEMATIS MICRANTHA
FLORIDA	ENDANGERED	ROSACEAE	PRUNUS GENICULATA
FLORIDA	ENDANGERED	RUBIACEAE	HOUSTONIA NIGRICANS VAR. PULVINATA
FLORIDA	ENDANGERED	SALICACEAE	SALIX FLORIDANA
FLORIDA	ENDANGERED	SAXIFRAGACEAE	RIBES ECHINELLUM
FLORIDA	ENDANGERED	SCHIZAEACEAE	SCHIZAEA GERMANII
FLORIDA	ENDANGERED	SOLANACEAE	SOLANUM GODFREYI
FLORIDA	ENDANGERED	TAXACEAE	TAXUS FLORIDANA
FLORIDA	ENDANGERED	TAXACEAE	TORREYA TAXIFOLIA
FLORIDA	ENDANGERED	VERBENACEAE	VERBENA TAMPENSIS
FLORIDA	THREATENED	ACANTHACEAE	ELYTRARIA CAROLINIENSIS VAR. ANGUSTIFOLIA
FLORIDA	THREATENED	ANNONACEAE	ASIMINA PULCHELLA
FLORIDA	THREATENED	ANNONACEAE	ASIMINA RUGELII
FLORIDA	THREATENED	APIACEAE	ERYNGIUM CUNEIFOLIUM
FLORIDA	THREATENED	APIACEAE	ZIZIA LATIFOLIA
FLORIDA	THREATENED	AQUIFOLIACEAE	ILEX AMELANCHIER
FLORIDA	THREATENED	AQUIFOLIACEAE	ILEX OPACA VAR. ARENICOLA
FLORIDA	THREATENED	ARECACEAE	RHAPIDOPHYLLUM HYSTRIX
FLORIDA	THREATENED	ASCLEPIADACEAE	ASCLEPIAS VIRIDULA
FLORIDA	THREATENED	ASCLEPIADACEAE	MATELEA FLORIDANA
FLORIDA	THREATENED	ASTERACEAE	ASTER BRACHYPHOLIS
FLORIDA	THREATENED	ASTERACEAE	ASTER PLUMOSUS
FLORIDA	THREATENED	ASTERACEAE	ASTER SPINULOSUS
FLORIDA	THREATENED	ASTERACEAE	BRICKELLIA CORDIFOLIA
FLORIDA	THREATENED	ASTERACEAE	BRICKELLIA EUPATORIOIDES VAR. FLORIDANA
FLORIDA	THREATENED	ASTERACEAE	CACALIA DIVERSIFOLIA
FLORIDA	THREATENED	ASTERACEAE	HARTWRIGHTIA FLORIDANA
FLORIDA	THREATENED	ASTERACEAE	HELIANTHUS CARNOSUS
FLORIDA	THREATENED	ASTERACEAE	HELIANTHUS DEBILIS SSP. VESTITUS
FLORIDA	THREATENED	ASTERACEAE	HETEROTHECA FLEXUOSA
FLORIDA	THREATENED	ASTERACEAE	MELANTHERA PARVIFOLIA
FLORIDA	THREATENED	ASTERACEAE	RUDBECKIA TRILOBA VAR. PINNATILOBA
FLORIDA	THREATENED	ASTERACEAE	VERBESINA CHAPMANII
FLORIDA	THREATENED	ASTERACEAE	VERBESINA HETEROPHYLLA
FLORIDA	THREATENED	BORAGINACEAE	HELIOTROPIUM POLYPHYLLUM VAR. HORIZONTALE
FLORIDA	THREATENED	BRASSICACEAE	ARABIS AMPLEXIFOLIA
FLORIDA	THREATENED	CACTACEAE	OPUNTIA SPINOSISSIMA
FLORIDA	THREATENED	CACTACEAE	OPUNTIA TRIACANTHA
FLORIDA	THREATENED	CARYOPHYLLACEAE	ARENARIA GODFREYI
FLORIDA	THREATENED	CISTACEAE	LECHEA CERNUA
FLORIDA	THREATENED	CISTACEAE	LECHEA DIVARICATA
FLORIDA	THREATENED	COMMELINACEAE	COMMELINA GIGAS
FLORIDA	THREATENED	CONVOLVULACEAE	DONANIA GRANDIFLORA

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STATE LISTS OF ENDANGERED AND THREATENED SPECIES OF THE CONTINENTAL UNITED STATES

[illegible]	STATUS	FAMILY	SPECIES
FLORIDA	THREATENED	CONVOLVULACEAE	JACQUEMONTIA CURTISSII
FLORIDA	THREATENED	CONVOLVULACEAE	JACQUEMONTIA RECLINATA
FLORIDA	THREATENED	CUCURBITACEAE	CUCURBITA OKEECHOBEENSIS
FLORIDA	THREATENED	CYPERACEAE	CAREX BALTZELLII
FLORIDA	THREATENED	CYPERACEAE	CAREX CHAPMANII
FLORIDA	THREATENED	CYPERACEAE	RHYNCHOSPORA CULIXA
FLORIDA	THREATENED	CYPERACEAE	RHYNCHOSPORA PUNCTATA
FLORIDA	THREATENED	ERICACEAE	PIERIS PHILLYREAEFOLIA
FLORIDA	THREATENED	ERICACEAE	RHODODENDRON AUSTRINUM
FLORIDA	THREATENED	ERIOCAULACEAE	LACHNOCAULON BEYRICHIANUM
FLORIDA	THREATENED	EUPHORBIACEAE	ARGYTHAMNIA BLODGETTII
FLORIDA	THREATENED	EUPHORBIACEAE	CHAMAESYCE(EUPHORBIA) CUMULICOLA
FLORIDA	THREATENED	EUPHORBIACEAE	CHAMAESYCE(EUPHORBIA) DELTOIDEA SSP. DELTOIDEA
FLORIDA	THREATENED	EUPHORBIACEAE	CHAMAESYCE(EUPHORBIA) PORTERIANA VAR. PORTERIANA
FLORIDA	THREATENED	EUPHORBIACEAE	EUPHORBIA AUSTRINA
FLORIDA	THREATENED	EUPHORBIACEAE	EUPHORBIA DISCOIDALIS
FLORIDA	THREATENED	EUPHORBIACEAE	EUPHORBIA EXSERTA
FLORIDA	THREATENED	EUPHORBIACEAE	EUPHORBIA TELEPHIOIDES
FLORIDA	THREATENED	EUPHORBIACEAE	PHYLLANTHUS LIEBMANIANUS SSP. PLATYLEPIS
FLORIDA	THREATENED	EUPHORBIACEAE	PHYLLANTHUS PENTAPHYLLUS SSP. FLORIDANUS
FLORIDA	THREATENED	EUPHORBIACEAE	STILLINGIA SYLVATICA SSP. TENUIS
FLORIDA	THREATENED	EUPHORBIACEAE	TRAGIA SAXICOLA
FLORIDA	THREATENED	FABACEAE	BAPTISIA CALYCOSA
FLORIDA	THREATENED	FABACEAE	BAPTISIA HIRSUTA
FLORIDA	THREATENED	FABACEAE	BAPTISIA SIMPLICIFOLIA
FLORIDA	THREATENED	FABACEAE	CLITORIA FRAGRANS
FLORIDA	THREATENED	FABACEAE	LUPINUS WESTIANUS
FLORIDA	THREATENED	FABACEAE	RHYNCHOSIA CINEREA
FLORIDA	THREATENED	FABACEAE	TEPHROSIA MOHRII
FLORIDA	THREATENED	HALORAGACEAE	MYRIOPHYLLUM LAXUM
FLORIDA	THREATENED	HYPERICACEAE	HYPERICUM EDISONIANUM
FLORIDA	THREATENED	ILLICIACEAE	ILLICIUM PARVIFLORUM
FLORIDA	THREATENED	IRIDACEAE	NEMASTYLIS FLORIDANA
FLORIDA	THREATENED	IRIDACEAE	SPHENOSTIGMA COELESTINA
FLORIDA	THREATENED	ISOETACEAE	ISOETES FLACCIDA
FLORIDA	THREATENED	JUNCACEAE	JUNCUS GYMNOCARPUS
FLORIDA	THREATENED	LAMIACEAE	CALAMINTHA ASHEI
FLORIDA	THREATENED	LAMIACEAE	CALAMINTHA DENTATUM
FLORIDA	THREATENED	LAMIACEAE	CONRADINA GRANDIFLORA
FLORIDA	THREATENED	LAMIACEAE	DICERANDRA CORNUTISSIMA
FLORIDA	THREATENED	LAMIACEAE	PHYSOSTEGIA LEPTOPHYLLUM
FLORIDA	THREATENED	LAMIACEAE	PYCNANTHEMUM FLORIDANUM
FLORIDA	THREATENED	LAMIACEAE	SCUTELLARIA FLORIDANA

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THE LISTS OF ENDANGERED AND THREATENED SPECIES OF THE CONTINENTAL UNITED STATES

FLORIDA	THREATENED	LAMIACEAE	STACHYS LYTHROIDES
FLORIDA	THREATENED	LAURACEAE	LINDERA MELISSIFOLIA
FLORIDA	THREATENED	LAURACEAE	LITSEA AESTIVALIS
FLORIDA	THREATENED	LAURACEAE	PERSEA BORBONIA VAR. HUMILIS
FLORIDA	THREATENED	LENTIBULARIACEAE	PINGUICULA PLANIFOLIA
FLORIDA	THREATENED	LILIACEAE	HYMENOCALLIS LATIFOLIA
FLORIDA	THREATENED	LILIACEAE	ZEPHYRANTHES SIMPSONII
FLORIDA	THREATENED	LILIACEAE	ZEPHYRANTHES TREATIAE
FLORIDA	THREATENED	LINACEAE	LINUM SULCATUM VAR. HARPERI
FLORIDA	THREATENED	LYTHRACEAE	LYTHRUM CURTISSII
FLORIDA	THREATENED	LYTHRACEAE	LYTHRUM FLAGELLARE
FLORIDA	THREATENED	MAGNOLIACEAE	MAGNOLIA ASHEI
FLORIDA	THREATENED	MALVACEAE	KOSTELETZKYA SMILACIFOLIA
FLORIDA	THREATENED	MALVACEAE	SIDA RUBROMARGINATA
FLORIDA	THREATENED	MELASTOMATACEAE	RHEXIA SALICIFOLIA
FLORIDA	THREATENED	MYRTACEAE	MYRCIANTHES FRAGRANS VAR. SIMPSONII
FLORIDA	THREATENED	NYMPHAEACEAE	NUPHAR LUTEUM SSP. ULVACEUM
FLORIDA	THREATENED	OLEACEAE	CHIONANTHUS PYGMAEUS
FLORIDA	THREATENED	OPHIOGLOSSACEAE	OPHIOGLOSSUM DENDRONEURE
FLORIDA	THREATENED	OPHIOGLOSSACEAE	OPHIOGLOSSUM PALMATUM
FLORIDA	THREATENED	ORCHIDACEAE	ENCYCLIA BOOTHIANA VAR. ERYTHRONICIOES
FLORIDA	THREATENED	ORCHIDACEAE	LEPANTHOPSIS MELANANTHA
FLORIDA	THREATENED	ORCHIDACEAE	PLATANTHERA FLAVA
FLORIDA	THREATENED	ORCHIDACEAE	PLATANTHERA INTEGRA
FLORIDA	THREATENED	ORCHIDACEAE	SPIRANTHES POLYANTHA
FLORIDA	THREATENED	POACEAE	ARISTIDA SIMPLICIFLORA
FLORIDA	THREATENED	POACEAE	CTENIUM FLORIDANUM
FLORIDA	THREATENED	POACEAE	DIGITARIA FLORIDANA
FLORIDA	THREATENED	POACEAE	DIGITARIA GRACILLIMA
FLORIDA	THREATENED	POACEAE	ERAGROSTIS TRACYI
FLORIDA	THREATENED	POACEAE	ERIOCHLOA MICHAUXII VAR. SIMPSONII
FLORIDA	THREATENED	POACEAE	GYMNOPOGON FLORIDANUS
FLORIDA	THREATENED	POACEAE	MANISURIS TUBERCULOSA
FLORIDA	THREATENED	POACEAE	PANICUM NUDICAULE
FLORIDA	THREATENED	POACEAE	PANICUM PINETORUM
FLORIDA	THREATENED	POACEAE	SCHIZACHYRIUM NIVEUM
FLORIDA	THREATENED	POLYGALACEAE	POLYGALA BOYKINII VAR. SMARSIFOLIA
FLORIDA	THREATENED	POLYGONACEAE	PERSICARIA PALUDICOLA
FLORIDA	THREATENED	POLYGONACEAE	POLYGONELLA MACROPHYLLA
FLORIDA	THREATENED	POLYPODIACEAE	ASPLENIUM PLENUM
FLORIDA	THREATENED	POLYPODIACEAE	TECTARIA AMESIANA
FLORIDA	THREATENED	ROSACEAE	AGRIMONIA INCISA
FLORIDA	THREATENED	RUBIACEAE	PINCKNEYA PUBENS

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STATE LISTS OF ENDANGERED AND THREATENED SPECIES OF THE CONTINENTAL UNITED STATES

STATE	STATUS	FAMILY	SPECIES
FLORIDA	THREATENED	SARRACENIACEAE	SARRACENIA PSITTACINA
FLORIDA	THREATENED	SARRACENIACEAE	SARRACENIA RUBRA
FLORIDA	THREATENED	SCHISANDRACEAE	SCHISANDRA GLABRA
FLORIDA	THREATENED	SCROPHULARIACEAE	AGALINIS PURPUREA VAR. CARTERI
FLORIDA	THREATENED	STENOMACEAE	CROOMIA PAUCIFLORA
FLORIDA	THREATENED	VERBENACEAE	VERBENA MARITIMA
FLORIDA	THREATENED	XYRIDACEAE	XYRIS ISOETIFOLIA
FLORIDA	THREATENED	XYRIDACEAE	XYRIS LONGISEPALA
FLORIDA	THREATENED	XYRIDACEAE	XYRIS SCABRIFOLIA

Table 6. Seashore Plants Protected by Florida Law

Scientific Name	Common Name
Calopogon pallidus	Pale grass pink
Polypodium polypodioides	Resurrection fern
Pteridium aquilinum	Bracken fern
Corallorhiza wisteriana	Coral root
Erythrina arborea	Coral bean
Hexalectris spicata	Hexalectris
Ilex cassine	Dahoon
Ilex opaca	American holly
Pogonia ophioglossoides	Pogonia
Woodwardia virginica	Chain fern
Uniola paniculata	Sea oats

E. Socioeconomic Environment

1. Regional Socioeconomic Environment

a. Regional Economy

Florida, Mississippi, and the five contiguous states of Georgia, Tennessee, Alabama, Arkansas, and Louisiana comprise the region from which most Seashore visitors originate.

Census data for 1970 show a regional population of 26,530,734, which represents a ten-year increase of 15.6 percent over the 1960 population. This growth rate was slightly larger than the national average of 13.3 percent during the same ten-year period.

There are more than 10 million people living within 250 miles of the Seashore. Over 50 percent of these people (about 5.6 million) live in seventeen standard metropolitan statistical areas (SMSAs). The additional densely populated areas of Atlanta, Augusta, Huntsville, Memphis, Chattanooga, Little Rock, and Shreveport are within 400 miles of the Seashore. Fifty-four percent of the people within this radius live in forty-two heavily urbanized SMSAs. Growth within these SMSAs has been more rapid than in the rest of the Seashore region, increasing 23.7 percent during the ten-year period from 1960 to 1970.

Population projections indicate that there will be 30.3 million people in the seven-state region by 1980, and that this number will increase to 34.8 million by 1990. The projected range of increases between 1980 and 1990 varies from 6.8 percent in Mississippi to 20.9 percent in Florida, averaging 14.6 percent for the region. The greatest increases in population have occurred