

SECTION C. APPENDICES

I. GLOSSARY

<i>Adaptive management</i>	A process in which projects are implemented within a framework of scientifically driven experiments to test predictions and assumptions outlined within the comprehensive conservation plan. The analysis of the outcome of project implementation helps managers determine whether current management should continue as is or whether it should be modified to achieve desired conditions.
<i>Alternative</i>	A set of objectives and strategies needed to achieve refuge goals and the desired future condition.
<i>Anadromous</i>	Going from salt water to fresh water; such as salmon, shad, snook, or tarpon.
<i>Approved acquisition boundary</i>	A project boundary which the Director of the Fish and Wildlife Service approves upon completion of the detailed planning and environmental compliance process.
<i>Bio-accumulation</i>	The process in which industrial waste, toxic chemicals, or pesticides gradually accumulate in living tissue, or in the food web/chain.
<i>Biomass</i>	The total mass, or amount of material, in a particular area.
<i>Biological diversity</i>	The variety of life forms and its processes, including the variety of living organisms, the genetic differences among them, and the communities and ecosystems in which they occur.
<i>Biological integrity</i>	The biotic composition, structure, and functioning at genetic, organism, and community levels comparable with historic conditions, including the natural biological processes that shape genomes, organisms, and communities.
<i>Biota</i>	The plant and animal life of a region.
<i>Buffer</i>	A multi-use transitional area designed and managed to protect core reserves and critical corridors from increased development and human activities that are incompatible to wildlife. In this document, agricultural lands are also considered buffer lands.
<i>Calusa</i>	An Indian tribe of south Florida, now thought to be extinct.
<i>Canopy</i>	A layer of foliage; generally the upper-most layer in a forest stand. It can be used to refer to mid- or under-story vegetation in multi-layered stands. Canopy closure is an estimate of the amount of overhead tree cover (also canopy cover).
<i>Catastrophic wildfire</i>	Fires which historically occurred in the area prior to the 1900s, usually once every decade during severe droughts; fires had potential due to their intense nature, to physically alter a particular plant community.

<i>Category 1</i>	Florida Exotic Pest Plant Council has developed three ranking categories to classify the invasiveness and threat of exotic plants to the natural environment. Category I species are those invading and disrupting native plant communities in Florida. This definition does not rely on the economic severity, or geographic range of the problem, but on the documented ecological damage caused.
<i>Compatible use</i>	An appropriate wildlife-dependent recreational use or any other use on a refuge that is within the mandates laid down in the National Wildlife Refuge System Improvement Act of 1997; the intent of the Congress in the Act of 1997 or in the "Final Internal Draft" document of appropriate uses on a national wildlife refuge. The refuge manager may also determine if an activity will or will not materially interfere with or detract from the fulfillment of the mission of the System or the purposes of the refuge.
<i>Comprehensive Conservation Plan</i>	A document that describes the desired future conditions of a refuge and provides long-range guidance and management direction in order to accomplish the purposes of the refuge, contribute to the mission of the refuge system, and to meet other relevant mandates.
<i>Cooperative Agreement</i>	A simple habitat protection action in which no property rights are acquired. An agreement is usually long-term and can be modified by either party. Lands under a cooperative agreement do not necessarily become part of the National Wildlife Refuge System.
<i>Corridor</i>	A route that allows movement of animal species from one region or place to another.
<i>Cultural resources</i>	The physical remains of human activity (e.g., artifacts, ruins and burial mounds) and conceptual content or context (as a setting for legendary, historic, or prehistoric events, such as a sacred area of native peoples) of an area. It includes historically, archaeologically, and/or architecturally significant resources.
<i>Diversity</i>	Variety; usually used in reference to the number of species or living organisms in a given area, including some reference to their abundance.
<i>Ecosystem</i>	A dynamic and interrelated complex of plant and animal communities and their associated non-living environment.
<i>Ecosystem approach</i>	A strategy or plan to protect and restore the natural function, structure, and species composition of an ecosystem, recognizing that all components are interrelated.
<i>Ecosystem management</i>	Management of an ecosystem that includes all ecological, social, and economic components which make up the whole of the system.
<i>Ecotone</i>	A transitional zone between two habitat types or adjacent communities.

<i>Endangered species</i>	Any species of plant or animal defined through the Endangered Species Act as being in danger of extinction throughout all or a significant portion of its range, and published in the Federal Register.
<i>Endemic species</i>	Plants or animals that occur naturally in a certain region and whose distribution is relatively limited to a particular locality.
<i>Environmental assessment</i>	A systematic analysis to determine if proposed actions would result in a significant effect on the quality of the environment.
<i>Epiphyte</i>	A plant that grows on another plant but is not parasitic and produces its own food by photosynthesis, such as orchids, air plants, lichens, and mosses.
<i>Estuarine</i>	Deposited in an estuary; an inlet or arm of the sea where salt water and fresh water meet.
<i>Exotic species</i>	A non-indigenous or alien species, or one introduced to this state, either purposefully (horticulture trade) or accidentally that escaped into the wild where it reproduces on its own, either sexually or asexually. Any introduced plant or animal species that is not native to the area and may be considered a nuisance.
<i>Fee title</i>	The acquisition of most or all of the rights to a tract of land. There is a total transfer of property rights with the formal conveyance of a title. While a fee title acquisition involves most rights to a property, certain rights may be reserved or not purchased, including water rights, mineral rights, or use reservation (the ability to continue using the land for a specified time period, or the remainder of the owner's life).
<i>Feral</i>	A wild, free-roaming animal; may be a domestic escapee.
<i>FONSI</i>	Finding of No Significant Impact. A document prepared in compliance with the National Environmental Policy Act, supported by an environmental assessment, that briefly presents why a federal action will have no significant effect on the human environment and for which an environmental impact statement, therefore, will not be prepared.
<i>Fuel</i>	Living and dead plant material that is capable of burning.
<i>GIS</i>	Geographic Information System. A computer based system for the collection, processing, and managing of spatially referenced data. GIS allows for the overlay of many data layers and provides a valuable tool for addressing resource management issues.
<i>Goals</i>	Descriptive statements of desired future conditions.
<i>Habitat</i>	The place where an organism lives. The existing environmental conditions required by an organism for survival and reproduction.
<i>Herbicide</i>	A chemical agent used to kill plants or inhibit plant growth.

<i>Hydrological</i>	Involving water flows or their distributions as related to evaporation, or flow to freshwater marshes, marshes, seas, estuaries, etc.
<i>Hydrology</i>	The scientific study of the properties, distribution, and effects of water in the atmosphere, on the earth's surface, and in soil and rocks. A hydrologic model is a type of simulation which takes into account the known behavior of water in the form of mathematical formulas and computer models that allows one to mimic the movement of water in a known area.
<i>Indicator species</i>	A species of plant or animal that is assumed to be sensitive to habitat changes and represents the needs of a larger group of species.
<i>In-holding</i>	Privately owned land inside the boundary of a national wildlife refuge.
<i>Invasive species</i>	A native, or non-native plant that has flourished beyond its normal constraints, due to changes in its natural environment.
<i>Keystone species</i>	A species unique to, or dependent upon, a specific habitat; that one of a number of associated parts or things that supports or holds together the others.
<i>Listed species</i>	Any species of fish, wildlife, or plant that has been determined to be "at risk" by a state or the federal government agency. In this document, at risk may include threatened, endangered, species of special concern, species of management concern, or species included in the Convention of International Trade in Endangered Species.
<i>Lygodium</i>	Genus for Old World climbing fern; an invasive vine from Southeast Asia and Africa introduced in the 1950s, or earlier, by the nursery trade as an ornamental vine; rapidly displacing native vegetation in the refuge and other areas of south Florida. Extremely disruptive to natural habitats such as the Everglades; a Category I. Scientific name: <i>Lygodium microphyllum</i> .
<i>Midden</i>	A slightly elevated mound composed of shell fragments and other debris left as waste by native Indians; shell mounds found throughout the ecosystem constructed by native Indians.
<i>Migratory</i>	The seasonal movement from one area to another and back.
<i>Monotypic</i>	Consisting of one type or species, such as exotic vegetation. Examples include single crops or Casuarina "heads." Scientific studies have shown that monotypic stands of vegetation generally provide poor wildlife habitat.
<i>Mitigation</i>	Avoiding or minimizing impacts of an action.
<i>Monitoring</i>	The process of collecting information to track changes of selected parameters over time.
<i>Multi-Species Recovery Plan</i>	A plan developed in 1999 and spear-headed by the Service to address listed species and their habitat needs in south Florida.

<i>National Environmental Policy Act</i>	Requires all federal agencies, including the Service, to examine the environmental impacts of their actions, incorporate environmental information, and use public participation in the planning and implementation of all actions. Federal agencies must integrate this Act with other planning requirements, and prepare appropriate policy documents to facilitate better environmental decision making.
<i>National Wildlife Refuge System</i>	A national network of lands and waters administered for the conservation, management and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.
<i>Native</i>	A species already occurring in Florida at the time of European contact (1500 AD). With respect to a particular ecosystem, a species that, other than as a result of an introduction, historically occurred or currently occurs in that ecosystem.
<i>Neotropical migratory birds</i>	Birds that migrate from North America back and forth to South or Central America. These birds usually breed in North America and "winter" in the Caribbean, or South or Central America. Usually this term is inclusive of many passerines (perching birds) and shorebirds.
<i>Partnerships</i>	A mutually beneficial, joint relationship between two agencies or an agency and landowner, etc.
<i>Passerine</i>	The largest bird group composed of small perching birds. Examples include northern cardinals, blue jays, warblers, sparrows and wrens.
<i>Preferred alternative</i>	The Service's selected alternative identified in the Draft Comprehensive Conservation Plan.
<i>Prescribed fire</i>	A planned or intentional fire set by resource land managers to improve or restore wildlife habitat and reduce potentially dangerous fire fuel loads, also known as "controlled burn."
<i>RONs</i>	Refuge Operationing Needs System. A national database which contains the unfunded operational needs of each refuge. Projects included are those required to implement approved plans and meet goals, objectives, and legal mandates.
<i>Refugia</i>	A place of shelter, safety, or protection from danger.
<i>Restoration management</i>	Management actions to return a vegetative community or ecosystem to its original, natural condition. To bring a disturbed site or an area changed from its native state back to its historic structure, including water regimes, plant community, and wildlife components. In this document, restoration can refer to exotic plant removal, planting native plants, and /or reintroductions of native plants or animals.
<i>Ruderal</i>	A botanical term for plants growing in waters or disturbed places (e.g., roadsides and fire breaks).
<i>Scoping</i>	Process for determining the scope of issues to be addressed by a comprehensive conservation plan and for identifying the significant

issues. Involved in the scoping process are federal, state, and local agencies, private organizations, and individuals.

<i>Service</i>	Fish and Wildlife Service; the federal agency, under the Department of the Interior, which guides the management of the refuge.
<i>Shrub</i>	A plant usually with several woody stems; a bush. A shrub differs from a tree by its low height
<i>Species</i>	A group of organisms all of which have a high degree of physical and genetic similarity, generally interbreed only among themselves, and show persistent differences from members of allied groups of organisms.
<i>Step-down management plans</i>	Plans which provide the details necessary to implement management strategies and projects identified in the Comprehensive Conservation Plan.
<i>Strategy</i>	A general approach or specific actions to achieve objectives.
<i>Threatened species</i>	Those plant or animal species likely to become endangered species throughout all or a significant portion of their range within the foreseeable future. A plant or animal identified and defined in accordance with the 1973 Endangered Species Act and published in the Federal Register.
<i>Trust species</i>	Specifically, species that are federal responsibility and include migratory birds, threatened and endangered species, anadromous fish, and certain marine mammals. The term is broadly used in this document to include federal, state, and internationally listed species, including threatened, endangered, species of special concern and species of management concern. Also known as "listed species."
<i>USDA</i>	United States Department of Agriculture; a federal agency.
<i>Vegetation</i>	Plants in general, or the sum total of the plant life in an area.
<i>Wetland</i>	Areas such as lakes, marshes, and streams that are inundated by surface or ground water for a long enough period of time each year to support, and do support under natural conditions, plants and animals that require saturated or seasonally saturated soils.
<i>Wildfire</i>	An uncontrolled fire started naturally by means such as lightning, or accidentally/intentionally by man. Due to its intense nature, it's often more damaging to native plant communities and resident wildlife.
<i>Wildlife-dependent recreation</i>	Uses on a national wildlife refuge that involves hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation as identified in the National Wildlife Refuge System Improvement Act of 1997.
<i>Wildlife management</i>	The art and science of producing, maintaining, benefitting, and/or enhancing wildlife populations and their associated habitats.

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III. LEGAL MANDATES

National Wildlife Refuge System Authorities

The mission of the Fish and Wildlife Service is to conserve, protect, and enhance the Nation's fish and wildlife and their habitats for the continuing benefit of the American people. The Service is the primary federal agency responsible for migratory birds, endangered plants and animals, certain marine mammals, and anadromous fish. This responsibility to conserve our Nation's fish and wildlife resources is shared with other federal agencies and state and tribal governments.

As part of this responsibility, the Service manages the National Wildlife Refuge System. This system is the only nationwide system of federal land managed and protected for wildlife and their habitats. The mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

Hobe Sound National Wildlife Refuge is managed as part of this system in accordance with the National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997, the Refuge Recreation Act of 1962, Executive Order 12996 (Management and General Public Use of the National Wildlife Refuge System), and other relevant legislation, Executive Orders, regulations, and policies.

Key Legislation/Policies for Plan Implementation

The Hobe Sound National Wildlife Refuge Draft Comprehensive Conservation Plan describes and illustrates management area projects with standards and guidelines for future decision making and may be adjusted through monitoring and evaluation, as well as amendment and revision. The plan approval establishes conservation and land protection goals, objectives, and specific strategies for the refuge and its expansion. Compatible recreation uses specific to the refuge have been identified and approved by the Refuge Manager. This plan provides for systematic stepping down from the overall direction as outlined when making project or activity level decisions. This level involves site-specific analysis (e.g., Forest Habitat Management Plan) to meet National Environmental Policy Act requirements for decision making.

Lacey Act of 1900 (16 U.S.C. 667E,701; 18 U.S.C. 42-44; 62 Stat. 285), as amended. This Act provides that the responsibilities of the Department of the Interior include preservation, distribution, introduction, and restoration of game birds and other wild birds. It authorizes regulations for the introduction of American or foreign "birds or animals" into new locations and provides criminal penalties for the interstate transportation of wildlife taken in violation of state, federal, or foreign laws. Also amended by Executive Order 11987.

Antiquities Act (1906): Authorizes the scientific investigation of antiquities on federal land and provides penalties for unauthorized removal of objects taken or collected without a permit.

Migratory Bird Treaty Act (1918): Designates the protection of migratory birds as a federal responsibility. This Act enables the setting of seasons and regulations including the closing of areas, federal or non-federal, to the hunting of migratory birds.

Migratory Bird Conservation Act (1929): Establishes procedures for acquisition by purchase, rental, or gift of areas approved by the Migratory Bird Conservation Commission.

Migratory Bird Hunting and Conservation Stamp Act (1934): Authorized the opening of part of a refuge to waterfowl hunting.

Migratory Bird Hunting and Conservation Stamp Act (16 U.S.C. 718-718j, 48 Stat. 452), as amended: The "Duck Stamp Act," of March 16, 1934, requires each waterfowl hunter, 16 years of age or older, to possess a valid federal hunting stamp. Receipts from the sale of the stamp are deposited in a special Treasury account known as the Migratory Bird Conservation Fund and are not subject to appropriations.

Refuge Revenue Sharing Act (16 U.S.C. 715s) Section 401 of the Act of June 15, 1935, (49 Stat. 383) provided for payments to counties in lieu of taxes, using revenues derived from the sale of products from refuges. Public Law 88-523, approved August 30, 1964, (78 Stat. 701) made major revisions by requiring that all revenues received from refuge products, such as animals, timber and minerals, or from leases or other privileges, be deposited in a special Treasury account and net receipts distributed to counties for public schools and roads. Public Law 93-509, approved December 3, 1974, (88 Stat. 1603) required that moneys remaining in the fund after payments be transferred to the Migratory Bird Conservation Fund for land acquisition under provisions of the Migratory Bird Conservation Act. Public Law 95-469, approved October 17, 1978, (92 Stat. 1319) expanded the revenue sharing system to include National Fish Hatcheries and Service research stations. It also included in the Refuge Revenue Sharing Fund receipts from the sale of salmonid carcasses. Payments to counties were established as follows: on acquired land, the greatest amount calculated on the basis of 75 cents per acre, three-fourths of one percent of the appraised value, or 25 percent of the net receipts produced from the land; and on land withdrawn from the public domain, 25 percent of net receipts and basic payments under Public Law 94-565 (31 U.S.C. 1601-1607, 90 Stat. 2662). This amendment also authorized appropriations to make up any difference between the amount in the fund and the amount scheduled for payment in any year. The stipulation that payments be used for schools and roads was removed, but counties were required to pass payments along to other units of local government within the county which suffer losses in revenues due to the establishment of Service areas.

Land and Water Conservation Fund Act of 1948: This act provides funding through receipts from the sale of surplus federal land, appropriations from oil and gas receipts from the outer continental shelf, and other sources of land acquisition under several authorities. Appropriations from the fund may be used for matching grants to states for outdoor recreation projects and for land acquisition by various federal agencies, including the Fish and Wildlife Service.

Refuge Recreation Act of 1952: This Act authorizes the Secretary of the Interior to administer refuges, hatcheries, and other conservation areas for recreational use, when such uses do not interfere with the area's primary purposes. It authorizes construction and maintenance of recreational facilities and the acquisition of land for incidental fish and wildlife oriented recreational development or protection of natural resources. It also authorizes the charging of fees for public uses.

Wilderness Act of 1954: Public Law 88-577, approved September 3, 1964, directed the Secretary of the Interior, within 10 years, to review every roadless area of 5,000 or more acres and every roadless island (regardless of size) within National Wildlife Refuge and National Park Systems for inclusion in the National Wilderness Preservation System.

Fish and Wildlife Act (1956): Established a comprehensive national fish and wildlife policy and broadened the authority for acquisition and development of refuges.

Fish and Wildlife Coordination Act (1958): Allows the Fish and Wildlife Service to enter into agreements with private landowners for wildlife management purposes.

National Environmental Policy Act of 1959 (PL. 91-190, 42 U.S.C. 4321-4347, January 1, 1970, 83 Stat. 852) as amended by Public Law 94-52, July 3, 1975, 89 Stat. 258, and Public Law 94-83, August 9, 1975, 89 Stat. 424). Title I of the 1969 National Environmental Policy Act requires that all federal agencies prepare detailed environmental impact statements for "every recommendation or report on proposals for legislation and other major federal actions significantly affecting the quality of the human environment."

The 1969 statute stipulated the factors to be considered in environmental impact statements, and required that federal agencies employ an interdisciplinary approach in related decision-making and develop means to ensure that unquantified environmental values are given appropriate consideration, along with economic and technical considerations. Title II of this statute requires annual reports on environmental quality from the President to the Congress, and established a Council on Environmental Quality in the Executive Office of the President with specific duties and functions.

National and Community Service Act of 1990 (42 U.S.C. 12401:104 Stat. 3127), Public Law 101-610, signed November 16, 1990, authorizes several programs to engage citizens of the United States in full- and/or part-time projects designed to combat illiteracy and poverty, provide job skills, enhance educational skills, and fulfill environmental needs. Several provisions are of particular interest to the Fish and Wildlife Service.

American Conservation and Youth Service Corps: A federal grant program established under Subtitle C of the law, the Corps offers an opportunity for young adults between the ages of 16-25, or in the case of summer programs, 15-21, to engage in approved human and natural resources projects which benefit the public or are carried out on Federal or Indian lands. To be eligible for assistance, natural resource programs must focus on improvement of wildlife habitat and recreational areas, fish culture, fishery assistance, erosion, wetlands protection, pollution control and similar projects. A stipend of not more than 100 percent of the poverty level will be paid to participants. A Commission established to administer the Youth Service Corps will make grants to States, the Secretaries of Agriculture and Interior and the Director of ACTION to carry out these responsibilities.

Refuge Recreation Act (1962): Allows the use of refuges for recreation when such uses are compatible with the refuge's primary purposes and when sufficient funds are available to manage the uses.

Land and Water Conservation Fund Act (1965): Uses the receipts from the sale of surplus federal land, outer continental shelf oil and gas sales, and other sources for land acquisition under several authorities.

National Wildlife Refuge System Administration Act of 1966 as amended by the National Wildlife Refuge System Improvement Act of 1997, 16 U.S.C. 668dd-668ee. (Refuge Administration Act): Defines the National Wildlife Refuge System and authorizes the Secretary of the Interior to permit any use of a refuge provided such use is compatible with the major purposes for which the refuge was established. The Refuge Improvement Act clearly defines a unifying mission for the refuge system; establishes the legitimacy and appropriateness of the six priority public uses (hunting, fishing, wildlife observation, wildlife photography and environmental education and interpretation); establishes a formal process for determining compatibility; established the responsibilities of the Secretary of the Interior for managing and protecting the System; and requires a comprehensive conservation plan for each refuge by the year 2012. This Act amended portions of the Refuge Recreation Act and National Wildlife Refuge System Administration Act of 1966.

Architectural Barriers Act (1968): Requires federally owned, leased, or funded buildings and facilities to be accessible to persons with disabilities.

National Environmental Policy Act (1969): Requires the disclosure of the environmental impacts of any major federal action significantly affecting the quality of the human environment.

Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended: Public Law 93-205, approved December 28, 1973, repealed the Endangered Species Conservation Act of December 5, 1969 (P.L. 91-135, 83 Stat. 275). The 1969 act amended the Endangered Species Preservation Act of October 15, 1966 (P.L. 89-669, 80 Stat. 926). The 1973 Endangered Species Act provided for the conservation of ecosystems upon which threatened and endangered species of fish, wildlife, and plants depend, both through federal action and by encouraging the establishment of state programs. The Act authorizes

the determination and listing of species as threatened and endangered; prohibits unauthorized taking, possession, sale, and transport of endangered species; provides authority to acquire land for the conservation of listed species, using land and water conservation funds; authorizes establishment of cooperative agreements and grants-in-aid to states that establish and maintain active and adequate programs for threatened and endangered wildlife and plants; authorizes the assessment of civil and criminal penalties for violating the Act or regulations; and authorizes the payment of rewards to anyone furnishing information leading to arrest and conviction of anyone violating the Act and any regulation issued thereunder.

Rehabilitation Act (1973): Requires that programmatic and physical accessibility be made available in any facility funded by the Federal Government, ensuring that anyone can participate in any program.

Clean Water Act (1977): Requires consultation with the U.S. Army Corps of Engineers for major wetland modifications.

Executive Order 11987 (1977): Federal executive agencies shall, to the extent permitted by law, restrict the introduction of exotic species into natural ecosystems on lands and waters that they own, lease, or hold for purposes of administration.

Executive Order 11988 (1977): Each federal agency shall provide leadership and take action to reduce the risk of flood loss and minimize the impact of floods on human safety, and preserve the natural and beneficial values served by the flood plain.

Executive Order 11988, Flood plain Management: The purpose of this Executive Order, signed May 24, 1977, is to prevent federal agencies from contributing to the "adverse impacts associated with occupancy and modification of floodplains" and the "direct or indirect support of flood plain development." In the course of fulfilling their respective authorities, federal agencies "shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by flood plains."

Fish and Wildlife Improvement Act of 1978: This act was passed to improve the administration of fish and wildlife programs and amends several earlier laws, including the Refuge Recreation Act, the National Wildlife Refuge System Administration Act, and the Fish and Wildlife Act of 1956. It authorizes the Secretary of the Interior to accept gifts and bequests of real and personal property on behalf of the United States. It also authorizes the use of volunteers on Service projects and appropriations to carry out volunteer programs.

Emergency Wetlands Resources Act (1986): The purpose of the Act is "To promote the conservation of migratory waterfowl and to offset or prevent the serious loss of wetlands by the acquisition of wetlands and other essential habitat, and for other purposes." The Act also requires the Secretary of the Interior to establish a National Wetlands Priority Conservation Plan, requires the states to include wetlands in their Comprehensive Outdoor Recreation Plans, and transfers to the Migratory Bird Conservation Fund an amount equal to import duties on arms and ammunition.

North American Wetlands Conservation Act (103 Stat. 1968; 16 U.S.C. 4401~4412) Public Law 101-233, enacted December 13, 1989, provides funding and administrative direction for implementation of the North American Waterfowl Management Plan and the Tripartite Agreement on Wetlands between Canada, the United States and Mexico. The Act converts the Pittman-Robertson account into a trust fund, with the interest available without appropriation through the year 2006, to carry out the programs authorized by the Act, along with an authorization for annual appropriation of \$15 million plus an amount equal to the fines and forfeitures collected under the Migratory Bird Treaty Act. Available funds may be expended, upon approval of the Migratory Bird Conservation Commission, for payment of not to exceed 50 percent of the United States' share of the cost of wetlands conservation projects in

Canada, Mexico, or the United States (or 100 percent of the cost of projects on federal lands). At least 50 percent and no more than 70 percent of the funds received are to go to Canada and Mexico each year.

Environmental Education Act of 1990 (20 U.S.C. 5501-5510; 104 Stat. 3325): Public Law 101-619, signed November 16, 1990, established the Office of Environmental Education within the Environmental Protection Agency to develop and administer a federal environmental education program. Responsibilities of the Office include developing and supporting programs to improve understanding of the natural and developed environment, and the relationships between humans and their environment; supporting the dissemination of educational materials; developing and supporting training programs and environmental education seminars; managing a federal grant program; and administering an environmental internship and fellowship program. The Office is required to develop and support environmental programs in consultation with other federal natural resource management agencies, including the Fish and Wildlife Service.

Federal Noxious Weed Act (1990): Requires the use of integrated management systems to control or contain undesirable plant species; and an interdisciplinary approach with the cooperation of other federal and state agencies.

Americans With Disabilities Act (1992): Prohibits discrimination in public accommodations and services.

Executive Order 12996. Management and General Public Use of the National Wildlife Refuge System (1996): Defines the mission, purpose, and priority public uses of the National Wildlife Refuge System. It also presents four principles to guide management of the system.

Executive Order 13007 Indian Sacred Sites (1996): Directs federal land management agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, avoid adversely affecting the physical integrity of such sacred sites, and where appropriate, maintain the confidentiality of sacred sites.

National Wildlife Refuge System Improvement Act of 1997: Public Law 105-57, amended the National Wildlife Refuge System Act of 1966 (16 U.S.C. 668dd-ee), and provided guidance for management and public use of the refuge system. The Act mandates that the refuge system be consistently directed and managed as a national system of lands and waters devoted to wildlife conservation and management. The Act establishes priorities for recreational uses of the refuge system. Six wildlife-dependent uses are specifically named in the Act: hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation. These activities are to be promoted on the refuge system, while all non-wildlife-dependent uses are subject to compatibility determinations. A compatible use is one which, in the sound professional judgement of the Refuge Manager, will not materially interfere with, or detract from, fulfillment of the National Wildlife Refuge System mission or refuge purpose(s). As stated in the Act, "The mission of the system is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans." The Act also requires development of a comprehensive conservation plan for each refuge and that management be consistent with the plan. When writing a plan for expanded or new refuges, and when making management decisions, the Act requires effective coordination with other federal agencies, state fish and wildlife or conservation agencies, and refuge neighbors. A refuge must also provide opportunities for public involvement when making a compatibility determination.

Historic Preservation Acts include:

Antiquities Act (16 U.S.C. 431 - 433) – The Act of June 8, 1906, (34 Stat. 225) authorizes the President of the United States to designate as National Monuments objects or areas of historic or scientific interests on lands owned or controlled by the United States. The Act required that a permit be obtained for examination of ruins, excavation of archaeological sites, and the gathering of objects of

antiquity on lands under the jurisdiction of the Secretaries of Interior, Agriculture, and Army, and provided penalties for violations.

Archaeological Resources Protection Act (16 U.S.C. 470aa - 47011) – Public Law 96-95, approved October 31, 1979 (93 Stat. 721), largely supplanted the resource protection provisions of the Antiquities Act for archaeological items. This Act established detailed requirements for issuance of permits for any excavation for or removal of archaeological resources from Federal and Indian lands. It also established civil and criminal penalties for the unauthorized excavation, removal, or damage of any such resources; for any trafficking in such resources removed from Federal and Indian lands in violation of any provision of federal law; and for interstate and foreign commerce in such resources acquired, transported, or received in violation of any state or local law.

Public Law 100-588, approved November 3, 1988 (102 Stat. 2983), lowered the threshold value of artifacts triggering the felony provisions of the Act from \$5,000 to \$500, made attempting to commit an action prohibited by the Act a violation, and required the land managing agencies to establish public awareness programs regarding the value of archaeological resources to the nation.

Archaeological and Historic Preservation Act (16 U.S.C. 469-469c) – Public Law 86-523, approved June 27, 1960 (74 Stat. 220), and amended by Public Law 93-291, approved May 24, 1974 (88 Stat. 174), directed federal agencies to notify the Secretary of the Interior whenever a federal, federally assisted, or licensed or permitted project may cause loss or destruction of significant scientific, prehistoric, or archaeological data. The Act authorized use of appropriated, donated, and/or transferred funds for the recovery, protection, and preservation of such data.

Historic Sites, Buildings and Antiquities Act (16 U.S.C. 461-462, 464-467) – The Act of August 21, 1935 (49 Stat. 666), popularly known as the Historic Sites Act, as amended by Public Law 89-249, approved October 9, 1965 (79 Stat. 971), declared it a national policy to preserve historic sites and objects of national significance, including those located on refuges. It provided procedures for designation, acquisition, administration, and protection of such sites. Among other things, National Historic and Natural Landmarks are designated under authority of this Act. As of January 1989, thirty-one national wildlife refuges contained such sites. National Historic Preservation Act of 1966 (16 U.S.C. 470-470b, 470c-470n) – Public Law 89-665, approved October 15, 1966 (80 Stat. 915), and repeatedly amended, provided for preservation of significant historical features (buildings, objects, and sites) through a grant-in-aid program to the states. It established a National Register of Historic Places and a program of matching grants under the existing National Trust for Historic Preservation (16 U.S.C. 468-468d).

The Act established an Advisory Council on Historic Preservation, which was made a permanent independent agency in Public Law 94-422, approved September 28, 1976 (90 Stat. 1319). That Act also created the Historic Preservation Fund. Federal agencies are directed to take into account the effects of their actions on items or sites listed in, or eligible for listing in, the National Register of Historic Places. As of January 1989, ninety-one such sites on national wildlife refuges are listed in this Register.

IV. REFUGE BIOTA

Figure 30. Rare fish species within the contiguous area of Hobe Sound National Wildlife Refuge, including

Common Name	Scientific Name	State Listing
Common snook	<i>Centropomus undecimalis</i>	S-T
Atlantic sturgeon	<i>Acipenser oxyrinchus</i>	S-T
Opossum pipefish	<i>Microphis brachyurus lineatus</i>	S-T
Mangrove rivulus	<i>Rivulus marmoratus</i>	S-T
Bigmouth sleeper	<i>Gobiomorus dormitor</i>	S-T
River goby	<i>Awaous tajasica</i>	S-T
Slashcheek goby	<i>Gobionellus pseudofasciatus</i>	S-T
Mountain mullet	<i>Agonostomus monticola</i>	S-R
Lake Eustis pupfish	<i>Cyprinodon variegatus hubbsi</i>	S-SSC
Mangrove rivulus	<i>Rivulus marmoratus</i>	S-SSC
Striped croaker	<i>Bairdiella sanctaeluciae</i>	S-SSC
Spottail goby	<i>Gobionellus stigmaturus</i>	S-SSC

*Florida Committee on Rare and Endangered Plants and Animals status categories only.

S-T State Threatened means the species is likely to become endangered in the state within the foreseeable future if current trends continue.

S-R Rare includes species that are potentially at risk because they are found within a restricted geographic range or habitat in the state or are sparsely distributed.

S-SSC Species of special concern warrant special attention because they are vulnerable to exploitation or environmental changes and have long term population declines.

Figure 31. Threatened and endangered species, Hobe Sound National Wildlife Refuge.

Common Name	Scientific Name	State Listing	Federal Listing
Reptiles			
American alligator	<i>(Alligator mississippiensis)</i>	SSC T S/A	T
Atlantic green turtle	<i>(Chelonia mydas mydas)</i>	E	E
Atlantic loggerhead turtle	<i>(Caretta caretta caretta)</i>	T	T
Eastern indigo snake	<i>(Drymarchon corais couperi)</i>	T	T
Florida gopher frog	<i>(Rana capito)</i>	SSC	
Florida pine snake	<i>(Pituophis melanoleucus mugitus)</i>	SSC	
Gopher tortoise	<i>(Gopherus polyphemus)</i>	SSC	
Leatherback turtle	<i>(Dermochelys coriacea)</i>	E	E
Mammals			
Florida mouse	<i>(Podomys floridanus)</i>	SSC	
West Indian manatee*	<i>(Trichechus manatus latirostris)</i>	E	E
Southeastern beach mouse	<i>(Peromyscus polionotus niveiventris)</i>	T	T
Birds			
Bald eagle	<i>(Haliaeetus leucocephalus)</i>	E	T
Black skimmer	<i>(Rynchops niger)</i>	SSC	
Brown pelican	<i>(Pelecanus occidentalis)</i>	SSC	
Florida scrub jay	<i>(Aphelocoma coerulescens coerulescens)</i>	T	T
Least tern	<i>(Sterna albifrons)</i>	T	
Little blue heron	<i>(Egretta caerulea)</i>	SSC	
Osprey	<i>(Pandion haliaetus)</i>	SSC	
Peregrine falcon	<i>(Falco peregrinus)</i>	E	
Piping plover	<i>(Charadrius melodus)</i>	T	T

Common Name	Scientific Name	State Listing	Federal Listing
Southeastern American kestrel	<i>Falco sparverius paulus</i>	T	
Tricolored heron	<i>Egretta tricolor</i>	SSC	
Wood stork	<i>Mycteria americana</i>	E	E
Plants			
Bay cedar	<i>Suriana maritima</i>	E	
Beach jacquemontia	<i>Jacquemontia reclinata</i>	E	E
Beach star	<i>Cyperus pedunculatus</i>	E	
Burrowing four-o'clock	<i>Okenia hypogaea</i>	E	
Four-petal pawpaw	<i>Asimina tetramera</i>	E	
Geiger tree	<i>Cordia sebestena</i>	E	
Giant leather fern	<i>Acrostichum danaeifolium</i>	T	
Golden polypody	<i>Phlebodium aureum</i>	T	
Inkberry	<i>Scaevola plumieri</i>	T	
Johnson's seagrass*	<i>Halophila johnsonii</i>		T
Lakela's mint	<i>Dicerandra immaculata</i>	E	E
Large-flowered rosemary	<i>Conradina grandiflora</i>	E	
Nodding pin weed	<i>Lechea cernua</i>	T	
Shoestring fern	<i>Vittaria lineata</i>	T	
Sand dune spurge	<i>Chamaesyce cumulicola</i>	E	
Twistpine prickly pear cactus	<i>Opuntia compressa</i>	T	
Wild-pine, giant	<i>Tillandsia utriculata</i>	E	
Wild-pine, reflexed	<i>Tillandsia balbisiana</i>	T	

*Manatees and Johnson's seagrass are found in state water adjacent to the refuge.

E= endangered
T= threatened
SSC= species of special concern

Figure 32. Birds known to occur on Hobe Sound National Wildlife Refuge.

Seasonal Abundance
 a=abundant
 c=common
 u=uncommon
 o=occasional
 r=rare

Seasonal Appearance
 Spring=March–May
 Summer=June–August
 Fall=September–November
 Winter=December–February

<u>Common Name</u>	<u>Spring</u>	<u>Summer</u>	<u>Fall</u>	<u>Winter</u>
Common Loon			o	u
Horned Grebe				u
Pied-billed Grebe	u	u	u	c
Northern Gannet			o	o
American White Pelican			o	u
Brown Pelican	c	c	c	c
Double-crested Cormorant	u	u	u	u
Anhinga	u	u	u	u
Magnificent Frigatebird	o	u		
American Bittern			o	o
Least Bittern	o	o	o	o
Great Blue Heron	u	u	u	u
Great Egret	u	u	u	u
Snowy Egret	c	c	u	u
Little Blue Heron	u	u	u	u
Tricolored Heron	c	c	u	u
Reddish Egret				r
Cattle Egret	u	u	u	u
Green Heron	u	u	u	u
Black-crowned Night Heron	o	o	o	o
Yellow-crowned Night Heron	u	c	c	u
White Ibis	c	c	a	c
Glossy Ibis			o	o
Roseate Spoonbill				r
Wood Stork	u	u	u	u
Black Vulture	u	u	c	c
Turkey Vulture	c	u	a	a
Wood Duck	u		u	u
Green-winged Teal				o
American Black Duck				r
Mottled Duck			o	o
Mallard				o
Northern Pintail				o
Blue-winged Teal	o		u	u
Northern Shoveler				r
Gadwall				r
American Wigeon				o
Canvasback				r
Redhead				r
Ring-necked Duck				o

<u>Common Name</u>	<u>Spring</u>	<u>Summer</u>	<u>Fall</u>	<u>Winter</u>
Lesser Scaup				o
Hooded Merganser				o
Red-breasted Merganser				u
Ruddy Duck				r
Osprey	u	u	c	c
Swallow-tailed Kite	o	o		
Bald Eagle	u	o	u	u
Sharp-shinned Hawk			o	o
Cooper's Hawk			o	o
Red-shouldered Hawk	u	u	u	u
Broad-winged Hawk			o	o
Red-tailed Hawk	u	u	u	u
American Kestrel	u		c	c
Merlin				o
Peregrine Falcon			o	o
Northern Bobwhite	u	u	u	u
Clapper Rail	u	u	u	u
Common Moorhen	o	o	o	o
American Coot			o	o
Black-bellied Plover	u		u	c
Wilson's Plover	c	c	c	u
Semipalmated Plover	c		c	c
Piping Plover	u		u	u
Killdeer	u	u	u	u
American Oystercatcher				o
Greater Yellowlegs	u		u	u
Lesser Yellowlegs	u		u	u
Willet	c	u	c	c
Spotted Sandpiper	u		u	u
Marbled Godwit				r
Ruddy Turnstone	u		u	u
Red Knot				r
Sanderling	c		c	c
Semipalmated Sandpiper	u		u	u
Western Sandpiper			o	u
Least Sandpiper	u		u	c
Dunlin	u		u	c
Short-billed Dowitcher	u		u	c
Long-billed Dowitcher	u		u	u
Common Snipe				o
Laughing Gull	u	u	u	u
Bonaparte's Gull	u		u	u
Ring-billed Gull				o
Herring Gull	u		u	u
Great Black-backed Gull				o
Gull-billed Tern		o		
Caspian Tern	u	o	u	c
Royal Tern	u	u	u	u
Sandwich Tern	u		u	u
Common Tern	u		u	u
Forster's Tern	o		o	u

<u>Common Name</u>	<u>Spring</u>	<u>Summer</u>	<u>Fall</u>	<u>Winter</u>
Least Tern	a	c	c	
Black Tern				o
Black Skimmer	u	u	u	u
Rock Dove	o	o	o	o
Mourning Dove	a	a	a	a
Common Ground Dove	a	a	a	a
Yellow-billed Cuckoo	o	o		
Mangrove Cuckoo	r			
Eastern Screech Owl	u	u	u	u
Great Horned Owl	o	o	o	o
Barred Owl	o	o	o	o
Common Nighthawk	u	u	u	
Chuck-will's-widow	u	u	u	u
Whip-poor-will	u		u	u
Chimney Swift	o	o	o	o
Ruby-throated Hummingbird	u	u	u	u
Belted Kingfisher	c	u	c	c
Red-headed Woodpecker	u	u	u	u
Red-bellied Woodpecker	u	u	u	u
Yellow-bellied Sapsucker	o		o	u
Downy Woodpecker	o		o	o
Hairy Woodpecker	o	o	o	o
Northern Flicker	u	u	u	u
Pileated Woodpecker	u	u	u	u
Eastern Wood-Pewee	u		u	o
Eastern Phoebe	u		u	o
Great Crested Flycatcher	u	u	u	u
Eastern Kingbird	u	u	u	
Gray Kingbird	o	u	o	
Purple Martin	o	o	o	
Tree Swallow	u		u	u
Blue Jay	c	c	c	c
Florida Scrub-Jay	c	c	c	c
American Crow	u	u	u	u
Fish Crow	a	a	a	a
Brown Creeper				r
Carolina Wren	c	c	c	c
House Wren	u		u	c
Ruby-crowned Kinglet	u		u	u
Blue-gray Gnatcatcher	u		u	c
Hermit Thrush	u		u	u
American Robin	u		u	c
Gray Catbird	u		u	c
Northern Mocking Bird	c		c	c
Brown Thrasher	c	c	c	c
Cedar Waxwing	o		o	u
Loggerhead Shrike	u	u	u	u
European Starling	u	u	u	u
White-eyed Vireo	u	u	u	u
Solitary Vireo	u		u	u
Red-eyed Vireo	o	o		r

<u>Common Name</u>	<u>Spring</u>	<u>Summer</u>	<u>Fall</u>	<u>Winter</u>
Black-whiskered Vireo	o		o	o
Orange-crowned Warbler	u		u	u
Northern Parula	u	u	u	u
Yellow Warbler	o		o	o
Cape May Warbler	o		o	o
Black-throated Blue Warbler	o	o	o	o
Yellow-rumped Warbler	u		u	c
Yellow-throated Warbler	u	o	u	u
Pine Warbler	u	u	u	u
Prairie Warbler	u	u	o	o
Palm Warbler	o		o	u
Blackpoll Warbler	o		o	
Black-and-White Warbler	u		u	c
American Redstart	o		o	o
Prothonotary Warbler	o	o		
Ovenbird	u		u	u
Common Yellowthroat	u	u	u	u
Hooded Warbler	o	o		
Yellow-breasted Chat	o	o		
Northern Cardinal	u	u	u	u
Rose-breasted Grosbeak	o	o		
Indigo Bunting	o	o	o	
Painted Bunting	o	o	o	
Eastern Towhee	u	u	u	u
Chipping Sparrow	o		o	u
Field Sparrow				o
Savannah Sparrow	o		o	u
Grasshopper Sparrow	o		o	o
Sharp-tailed Sparrow				r
Bobolink	o	o		
Red-winged Blackbird	u	u	u	u
Eastern Meadowlark	o	o	o	o
Rusty Blackbird				o
Boat-tailed Grackle	u	u	u	u
Common Grackle	u	u	u	u
Orchard Oriole	o		o	
Spot-breasted Oriole	o	o	o	o
Baltimore Oriole	o		o	o
Pine Siskin				r
American Goldfinch	o		o	u
House Sparrow	o	o	o	o

Figure 33. Mammals, reptiles, and amphibians known to occur on Hobe Sound National Wildlife Refuge.

a=abundant c=common u=uncommon o=occasional r=rare ex=exotic

<u>Common Name</u>	<u>Status</u>
Mammals	
Virginia Opossum	u
Nine-banded Armadillo	u
Eastern Cottontail	o
Marsh Rabbit	u
Gray Squirrel	c
Eastern Woodrat	r
Hispid Cotton Rat	o
Florida Mouse	o
Raccoon	c
Eastern Spotted Skunk	u
River Otter	o
Gray Fox	u
Bobcat	o
West Indian Manatee	o
Feral Hog	ex
White-tailed Deer	u
Reptiles	
Alligator	o
Loggerhead Turtle	o
Atlantic Green Turtle	o
Leatherback Sea Turtle	o
Florida Box Turtle	o
Gopher Tortoise	u
Indo-Pacific Gecko	ex
Green Anole	c
Brown Anole	ex
Florida Scrub Lizard	c
Southeastern Five-Lined Skink	c
Ground Skink	u
Six-lined Racerunner	c
Southern Black Racer	c
Southern Ring-Neck Snake	r
Eastern Indigo Snake	u
Corn Snake	u
Yellow Rat Snake	u
Scarlet Kingsnake	r
Eastern Coachwhip	u
Rough Green Snake	o
Florida Pine Snake	o
Eastern Coral Snake	u
Eastern Diamond-Backed Rattlesnake	o
Dusky Pigmy Rattlesnake	u
Amphibians	
Oak Toad	u
Green Treefrog	u
Barking Treefrog	u
Squirrel Treefrog	u
Cuban Treefrog	ex

Figure 34. Plants known to occur on Hobe Sound National Wildlife Refuge 2001.

<u>Order/Family</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Habitat</u>
Agavaceae	<i>Agave decipiens</i>	Wild Century Plant	SP
	<i>Sansevieria hyacinthoides</i> *	Bowstring hemp, Iguana tail	DI
	<i>Yucca aloifolia</i> *	Spanish bayonette, Aloa yucca	BH
Aizoaceae	<i>Sesuvium portulacastrum</i>	Sea purslane	BH
Alismataceae	<i>Sagittaria lancifolia</i>	Bulltongue arrowhead	SW
Amaranthaceae	<i>Alternanthera maritima</i>	Seaside joyweed	BH
	<i>Iresine diffusa</i>	Juba's bush	LH
Amaryllidaceae	<i>Crinum americanum</i>	String lily, Seven sisters	SW
Anacardiaceae	<i>Metopium toxiferum</i>	Poisonwood, Florida poison tree	TH
	<i>Schinus terebinthifolius</i> *	Brazilian pepper	DI
	<i>Toxicodendron radicans</i>	Poison ivy	TH
Annonaceae	<i>Asimina reticulata</i>	Netted pawpaw	
Apocynaceae	<i>Allamanda cathartica</i> *	Golden trumpet	DI
	<i>Catharanthus roseus</i> *	Madagascar periwinkle	DI
	<i>Rhabdadenia biflora</i>	Mangrove vine	SW
Aquifoliaceae	<i>Ilex cassine</i>	Dahoon holly	
Araliaceae	<i>Schefflera actinophylla</i> *	Schefflera, Octopus tree	DI
Arecaceae	<i>Cocos nucifera</i> *	Coconut palm	BH
	<i>Sabal palmetto</i>	Cabbage palm	LH
	<i>Serenoa repens</i>	Saw palmetto	SP
Asclepiadaceae	<i>Cyannchium scoparium</i>	(Unknown)	TH
	<i>Funastrum clausum</i>	White twinevine	TH
Asteraceae	<i>Ambrosia artemisiifolia</i>	Common ragweed	DI
	<i>Baccharis halimifolia</i>	Saltbush, Eastern baccharis	SW
	<i>Balduina angustifolia</i>	Coastalplain honeycombhead	
Bidens alba var. radiata	<i>Beggarticks, Bidens</i>		DI
	<i>Bidens bipinnata</i>	Spanish needles	DI
	<i>Borricha frutescens</i>	Sea ox-eye (Unknown)	BH
	<i>Carphephorus odoratissimus</i>	Vanilla leaf	SW
	<i>Chrysopsis scabrella</i>	Coastalplain goldenaster	SP
	<i>Conyza canadensis</i>	Canadian horseweed	DI
	<i>Emilia fosbergii</i>	Florida tassel flower	
Emilia sonchifolia	<i>Lilac tassel flower</i>		DI
	<i>Eupatorium capillifolium</i>	Dog fennel	DI
	<i>Eupatorium serotinum</i>	Late eupatorium	TH

<u>Order/Family</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Habitat</u>
	<i>Gamochaeta pennsylvanica</i>	Pennsylvania everlasting	DI
	<i>Helianthus debilis</i>	Cucumberleaf sunflower	BH
	<i>Heterotheca subaxillaris</i>	Camphor plant	
	<i>Hierocium gronovii</i>	Hawkweed (Unknown)	TH
	<i>Iva imbricata</i>	Beach elder, Seacoast marshelder	
	<i>Mikania cordifolia</i>	Florida keys hempvine	
	<i>Mikania scandens</i>	Climbing hempvine	SP
	<i>Palafoxia feayi</i>	Feay's palafoxia	SP
	<i>Pectis glaucescens</i>	Sanddune cinchweed	
	<i>Pityopsis graminifolia</i>	Narrowleaf silkgrass	
	<i>Pluchia odorata</i>	Saltmarsh fleabane (Unknown)	SW
	<i>Solidago odora var. chapmanii</i>	Chapman's goldenrod	DI
	<i>Solidago stricta</i>	Wand goldenrod	BH
	<i>Sphagneticola trilobata*</i>	Bay Biscayne, Creeping oxeye	BH
	<i>Tridax procumbens*</i>	Coat buttons	DI
	<i>Verbesina virginica</i>	Iceweed, White crown beard	SP
Avicenniaceae	<i>Avicennia germinans</i>	Black mangrove	SW
Bataceae	<i>Batis maritima</i>	Turtleweed, Saltwort	BH
Blechnaceae	<i>Blechnum serrulatum</i>	Swamp fern, Toothed midsorus fern	SW
Boraginaceae	<i>Cordia sebestena*</i>	Largeleaf Geiger tree	TH
	<i>Heliotropium curassavicum</i>	Seaside heliotrope	BH
	<i>Tournefortia graphalodes</i>	Sea lavender (Unknown)	TH
Brassicaceae	<i>Cakile lanceolata</i>	Coastal sea rocket	BH
	<i>Lepidium virginicum</i>	Pepper grass	DI
Bromeliaceae	<i>Ananas comosus*</i>	Pineapple	DI
	<i>Tillandsia balbisiana</i>	Northern needleleaf	SP
	<i>Tillandsia recurvata</i>	Small ballmoss	SP
	<i>Tillandsia utriculata</i>	Spreading air-plant	SP
Burseraceae	<i>Bursera simaruba</i>	Gumbo-limbo	TH
Cactaceae	<i>Opuntia humifusa</i>	Devil's tongue, prickly pear	
	<i>Opuntia stricta</i>	Erect prickly pear	BH
	<i>Selenicereus pteranthus*</i>	Princess of the night	DI
Capparaceae	<i>Capparis cynophallophora</i>	Jamaican caper	TH
	<i>Capparis flexuosa</i>	Bay-leaved caper	TH
Caricaceae	<i>Carica papaya</i>	Papaya	TH
Caryophyllaceae	<i>Paronychia americana</i>	American nailwort	BH
	<i>Stipulicida setacea</i>	Pineland scaly pink	SP
Casuarinaceae	<i>Casuarina equisetifolia*</i>	Australian pine	BH

<u>Order/Family</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Habitat</u>
	<i>Casuarina glauca</i>	Grey sheoak	BH
Chenopodiaceae	<i>Atriplex cristata</i>	Crested saltbush	BH
	<i>Chenopodium ambrosioides</i>	Mexican tea	DI
	<i>Salicornia virginica</i>	Virginia glasswort	SW
	<i>Suaeda linearis</i>	Annual seepweed	SW
Chrysobalanaceae	<i>Chrysobalanus icaco</i>	Icaco coco-plum	TH
	<i>Licania michauxii</i>	Gopher apple	SP
Cistaceae	<i>Helianthemum corymbosum</i>	Pine barren frostweed	SP
	<i>Helianthemum nashii</i>	Florida scrub frostweed	SP
	<i>Lechea cernua</i>	Nodding pinwood	SP
	<i>Lechea deckertii</i>	Deckert's pinwood	SP
Combrecaceae	<i>Conocarpus erecta</i>	Buttonwood mangrove	TH
Combretaceae	<i>Laguncularia racemosa</i>	White mangrove	SW
Commelinaceae	<i>Commelina diffusa</i> *	Climbing day-flower	SP
	<i>Commelina erecta</i>	Whitemouth day-flower	SP
	<i>Tradescantia spathacea</i> *	Boatlily, oyster plant	DI
Convolvulaceae	<i>Ipomoea alba</i>	Tropical white morning-glory	
	<i>Ipomoea imperati</i>	Beach morning-glory	BH
	<i>Ipomoea pes-caprae</i>	Bayhops	BH
Crassulaceae	<i>Kalanchoe daigremontiana</i>	Devil's backbone	DI
	<i>Kalanchoe delagoensis</i>	Chandelier plant	DI
	<i>Kalanchoe fedtschenkoi</i>	Lavender scallops	DI
Cucurbitaceae	<i>Melothria pendula</i>	Guadeloupe cucumber	
	<i>Momordica charantia</i>	Balsam pear	SP
Cupressaceae	<i>Juniperus virginiana var. silicicola</i>	Southern red cedar	LH
Cyperaceae	<i>Bulbostylis ciliatifolia</i>	Capillary hairsedge	
	<i>Cladium mariscus ssp. Jamaicense</i>	Jamaica sawgrass	SW
	<i>Cyperus croceus</i>	Baldwin's flatsedge	SW
	<i>Cyperus ligularis</i>	Alabama swamp flat sedge	SW
	<i>Cyperus nasii</i>	Sedge (Unknown)	SW
	<i>Cyperus odoratus</i>	Fragrant flats sedge	SW
	<i>Cyperus retrorsus</i>	Pine barren flat sedge	
	<i>Cyperus rotundus</i>	Purple nut-sedge	SW
	<i>Cyperus strigosus</i>	Strawcolor flat-sedge	BH
	<i>Cyperus surinamensis</i>	Tropical flat-sedge	
	<i>Remirea maritima</i>	Beach star	BH
	<i>Rhynchospora colorata</i>	Star rush, Whitetop	SW
	<i>Rhynchospora megalocarpa</i>	Sandyfield beaksedge	SW
	<i>Scleria triglomerata</i>	Whip nutrush	

<u>Order/Family</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Habitat</u>
Davalliaceae	<i>Nephrolepis exaltata</i>	Boston fern	LH
Dioscoreaceae	<i>Dioscorea alata</i> *	Water yam	DI
Empetraceae	<i>Ceratiola ericoides</i>	Rosemary, Sand heath	SP
Ericaceae	<i>Gaylussacia dumosa</i>	Dwarf huckleberry	
	<i>Lyonia fruticosa</i>	Coastalplain staggerbrush	SP
	<i>Lyonia lucida</i>	Fetterbrush lyonia	SP
	<i>Monotropa unifora</i>	Indian pipe	SP
Euphorbiaceae	<i>Chamaesyce blodgettii</i>	Spurge, Limestone sandmat	BH
	<i>Chamaesyce cumulicola</i>	Coastal dune sandmat	
	<i>Chamaesyce hypericifolia</i>	Graceful spurge	
	<i>Chamaesyce</i>	Coastal beach sandmat, mesembryanthemifolia	BH
	<i>Cnidoscolus stimulosus</i>	Finger rot, Tread softly	SP
	<i>Croton glandulosus</i>	Vente conmigo, Tropic croton	DS
	<i>Croton punctatus</i>	Gulf croton, Beach tea	BH
	<i>Drypetes lateriflora</i>	Guiana plum	
	<i>Euphorbia polyphylla</i>	Lesser Florida spurge, Scrub spurge	
	<i>Jatropha integerrima</i>	Peregrina	
	<i>Phyllanthus abnormis</i>	Drummond's leaf-flower	BH
	<i>Poinsettia oyathophora</i>	Wild poinsettia (Unknown)	BH
	Fabaceae	<i>Abrus precatorius</i> *	Rosary pea
<i>Acacia auriculiformis</i> *		Earleaf acacie	BH
<i>Caesalpinia</i>		Poinciana, Nicker	BH
<i>Canavalia rosea</i>		Bay bean, Seaside bean	BH
<i>Centrosema virginianum</i>		Butterfly pea	DI
<i>Chamaecrista fasciculata</i> var. <i>fasciculata</i>		Sleeping plant	SP
<i>Crotalaria pallida</i> var. <i>obovata</i>		Smooth rattlebox	DS
<i>Crotalaria pumila</i>		Low rattlebox	DS
<i>Crotalaria retusa</i>		Rattleweed	
<i>Crotalaria rotundifolia</i>		Rabbitbells	
<i>Dalbergia ecastophyllum</i>		Coin vine, Fish poison	
<i>Dalea feayi</i>		Feay's prarie clover	SP
<i>Desmodium incanum</i>		Tickclover	
<i>Erythrina herbacea</i>		Eastern coral bean	
<i>Galactia regularis</i>		Eastern milkpea	
<i>Galactia volubilis</i>		Downy milkpea	
<i>Indigofera hirsuta</i>		Roughhairy indigo	
<i>Lupinus diffusus</i>		Oakridge lupine	SP
<i>Medicago lupulina</i>		Black medic	
<i>Mimosa quadrivalvis</i>		Fourvalve mimosa	
<i>Rhynchosia cinerea</i>		Brownhair snoutbean	
<i>Senna pendula</i>		Valamuerto, Christmas senna	
<i>Sophora tomentosa</i>		Yellow necklace pod	BH
<i>Vigna luteola</i>		Deerpea	DI

<u>Order/Family</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Habitat</u>
Fagaceae	<i>Quercus chapmanii</i>	Chapman's oak	SP
	<i>Quercus geminata</i>	Sand live oak	SP
	<i>Quercus myrtifolia</i>	Myrtle oak	SP
Goodeniaceae	<i>Scaevola plumieri</i>	Gullfeed, Inkberry	BH
	<i>Scaevola sericea</i> *	Beach naupaka	BH
Guttiferae	<i>Calophyllum inophyllum</i> *	Alexandrian laurel	
Iridaceae	<i>Sisyrinchium angustifolium</i>	Blue-eyed grass	
	<i>Sisyrinchium xerophyllum</i>	Jeweled blue-eyed grass	
Juglandaceae	<i>Carya floridana</i>	Scrub hickory	SP
Lamiaceae	<i>Monarda pectinata</i>	Pony beebalm	DI
Lamiaceae	<i>Conradina grandiflora</i>	Largeflower false rosemary	SP
	<i>Dicerandra immaculata</i>	Lakela's mint	SP
	<i>Piloblephis rigida</i>	Wild pennyroyal	SP
	<i>Trichostema dichotomum</i>	Forked blue-curls	
Lauraceae	<i>Cassipourea filiformis</i>	Devils gut	SP
	<i>Nectandra coriacea</i>	Lancewood	TH
	<i>Persea borbonia</i>	Red bay	LH
	<i>Persea humilis</i>	Silk bay	SP
Loasaceae	<i>Mentzelia floridana</i>	Poorman's patch	BH
Lythraceae	<i>Ammania coccinea</i>	Scarlet anumania (Unknown)	TH
Malvaceae	<i>Hibiscus tiliaceus</i>	Mahoe	
	<i>Kosteletzkya virginica</i>	Saltmarsh mallow	TH
	<i>Sida acuta</i>	Common wireweed, Southern sida	DI
	<i>Thespesia populnea</i> *	Seaside mahoe	BH
Moraceae	<i>Ficus aurea</i>	Strangler fig	TH
	<i>Morus rubra</i>	Red mulberry	TH
Myricaceae	<i>Morella cerifera</i>	Wax myrtle	LH
Myrsinaceae	<i>Ardisia escallonioides</i>	Marlberry	TH
	<i>Myrsine floridana</i>	Guianese colic wood	
Myrtaceae	<i>Eugenia axillaris</i>	White stopper	
	<i>Eugenia foetida</i>	Boxleaf stopper, Spanish stopper	
	<i>Melaleuca quinquenervia</i> *	Cajeput tree	LH
	<i>Syzygium jambos</i> *	Rose apple	TH
Nyctaginaceae	<i>Boerhavia diffusa</i>	Red spiderling	DI
	<i>Guapira discolor</i>	Longleaf blolly	TH
	<i>Okenia hypogaea</i>	Burrowing 4 o'clock, Beach peanut	BH

<u>Order/Family</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Habitat</u>
Olacaceae	<i>Ximenia americana</i>	Tallowwood	SP
Oleaceae	<i>Forestier segregata</i>	Florida privet	TH
Onagraceae	<i>Gaura angustifolia</i>	Southern beeblossom	
	<i>Oenothera humifusa</i>	Seaside primrose	BH
	<i>Oenothera laciniata</i>	Cutleaf evening-primrose	
Phytolaccaceae	<i>Phytolacca americana</i>	Pokeweed	BH
	<i>Rivina humilis</i>	Rouge plant	LH
Pinaceae	<i>Pinus clausa</i>	Sand pine	SP
	<i>Pinus elliotii</i>	Slash pine	
Plantaginaceae	<i>Plantago virginica</i>	Virgina plantain	
Plumbaginaceae	<i>Plumbago scandens</i>	Wild plumbago	LH
Poaceae	<i>Andropogon capillipes</i>	Chalky bluestem	
	<i>Andropogon floridanus</i>	Florida bluestem	SP
	<i>Andropogon glomeratus</i> var. <i>pumilus</i>	Bushy bluestem	
	<i>Aristida condensata</i>	Piedmont threeawn	
	<i>Aristida gyrans</i>	Corkscrew threeawn	
	<i>Bambusa glaucescens</i> *	Golden goddess bamboo	DI
	<i>Bambusa vulgaris</i> *	Common bamboo	DI
	<i>Bothriochloa pertusa</i>	Pitted beardgrass	
	<i>Brachiara mutica</i> *	Paragrass (Unknown)	DI
	<i>Cenchrus echinatus</i>	Southern sandspur	BH
	<i>Dactyloctenium aegyptium</i> *	Crowfoot grass	DI
	<i>Dichanthelium aciculare</i>	Narrowleaf panicum	BH
	<i>Dichanthelium commutatum</i>	Variable panicgrass	
	<i>Dichanthelium dichotomum</i> var. <i>ensifolium</i>	Cypress panicgrass	
	<i>Dichanthelium sabulorum</i> var. <i>thinium</i>	Hemlock rosette grass	
	<i>Digitaria ciliaris</i>	Southern crabgrass	
	<i>Distichlis spicata</i>	Salt grass	BH
	<i>Eremochloa ophiuroides</i>	Centipede grass	
	<i>Eustachys petraea</i>	Pinewood fingergrass	DI
	<i>Melinis repens</i> *	Rose natal grass	DI
	<i>Muhlenbergia capillaris</i>	Hairawn muhly	
	<i>Oplismenus hirtellus</i>	Bristle basketgrass	
	<i>Panicum amarum</i>	Bitter panicum	BH
	<i>Paspalum distichum</i>	Knotroot paspalum	BH
	<i>Paspalum setaceum</i>	Thin paspalum	
	<i>Schizachyrium sanguineum</i>	Crimson bluestem	
	<i>Setaria parviflora</i>	Marsh brittlegrass	SP
	<i>Spartina patens</i>	Saltmeadow, Cordgrass	SW
	<i>Sporobolus virginicus</i>	Seashore dropseed	SW
	<i>Stenotaphrum secundatum</i>	St. Augustine grass	SW

<u>Order/Family</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Habitat</u>
	<i>Uniola paniculata</i>	Sea oats	BH
	<i>Urochloa maxima</i>	Guineagrass	
Polygalaceae	<i>Phlebodium aureum</i>	Golden polypody	TH
	<i>Polygonella ciliata</i>	Hairy jointweed	SP
	<i>Polygonella fimbriata</i>	Sandhill jointweed	SP
	<i>Polygala grandiflora</i>	Showy milkwort	
	<i>Polygonella polygama</i>	October flower	SP
	<i>Polygonella robusta</i>	Largeflower jointweed	
Polygonaceae	<i>Antigonon leptopus*</i>	Coral vine	DI
	<i>Coccoloba diversifolia</i>	Pigeon plum	TH
	<i>Coccoloba uvifera</i>	Sea grape	BH
Pteridaceae	<i>Crostichum danaeifolium</i>	Inland leather fern	SW
	<i>Pteridium aquilinum</i>	Bracken fern	DI
Rhamnaceae	<i>Colubrina asiatica*</i>	Asian snakewood	TH
	<i>Krugiodendron ferreum</i>	Leadwood, Black ironwood	LH
Rubiaceae	<i>Chiococca alba</i>	West Indian milkberry	TH
	<i>Ernodea littoralis</i>	Coughbush, Beach creeper	TH
	<i>Galium hispidulum</i>	Coastal bedstraw	
	<i>Psychotria nervosa</i>	Seminole balsamo	LH
	<i>Randia aculeata</i>	White Indigoberry	TH
	<i>Richardia grandiflora</i>	Large-flower mexican clover	DI
	<i>Richardia scabra</i>	Rough mexican clover	DI
	<i>Spermacoce assurgens</i>	Woodland false buttonweed	SP
Rutaceae	<i>Amyris elemifera</i>	Torchwood	LH
	<i>Zanthoxylum clava herculis</i>	Hercules club	BH
	<i>Zanthoxylum ragara</i>	Wild lime (Unknown)	LH
Salicaceae	<i>Salix caroliniana</i>	Coastal plain willow	SW
Sapindaceae	<i>Cupaniopsis anacardioides*</i>	Carrotwood	BH
	<i>Dodonaea viscosa</i>	Florida hop-bush	
	<i>Exothea paniculata</i>	Inkwood	TH
Sapotaceae	<i>Sideroxylon tenax</i>	Tough bully	SP
	<i>Sideroxylon foetidissimum</i>	False mastic	SP
Scrophulariaceae	<i>Nuttallanthus canadensis</i>	Canada toadflax	DI
	<i>Russelia equisetiformis*</i>	Fountain bush	DI
Selaginellaceae	<i>Selaginella arenicola</i>	Sand spikemoss	SP
Simaroubaceae	<i>Simarouba glauca</i>	Paradise tree	TH
Smilacaceae	<i>Smilax auriculata</i>	Earleaf greenbriar	SP
	<i>Smilax laurifolia</i>	Laurel greenbriar	LH

<u>Order/Family</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Habitat</u>
Solanaceae	<i>Capsicum annuum</i>	Cayenne pepper	TH
	<i>Physalis viscosa</i>	Ground cherry	BH
	<i>Solanum ptychanthum</i>	Black nightshade	SP
	<i>Solanum erianthum</i>	Potato tree	LH
Surianaceae	<i>Suriana maritima</i>	Bay cedar	BH
Urticaceae	<i>Boehmeria cylindrica</i>	Smallspike, False nettle	TH
	<i>Paietaria floridana</i>	Pellitory	TH
	<i>Urera lobata</i>	Aramina	
Verbenaceae	<i>Callicarpa americana</i>	American beauty-berry	LH
	<i>Glandularia maritima</i>	Coastal mock vervain	BH
	<i>Lantana camara</i>	Lantana	
	<i>Vitex trifolia</i> *	Simpleleaf chastetree	DI
Vitaceae	<i>Parthenocissus quinquefolia</i>	Virginia creeper	LH
	<i>Vitis rotundifolia</i>	Muscadine grape	SP
	<i>Vitis rotundifolia</i> var: <i>munsoniana</i>	Munson's grape	SP
	<i>Vittaria lineata</i>	Shoestring fern	TH

Key to abbreviations of Habitat:

BH-	Beach and Strand
TH-	Tropical Hammock
LH-	Low Hammock (oak and palm)
SP-	Florida Scrub
PF-	Pine Flatwoods
WP-	Wet Prairie
WM-	Wetland Mosaic
SW-	Swamp
DI-	Disturbed
*	Exotic

Figure 35. Exotic plants found on Hobe Sound National Wildlife Refuge (arranged in approximate order of dominance).

Common Name	Scientific Name	EPPC Category*	Location** ML &/or BI
Australian pine	<i>Casuarina equisetifolia</i>	I	ML BI
Brazilian pepper	<i>Shinus terebinthifolius</i>	I	ML BI
Beefwood / suckering Australian pine	<i>Casuarina galuca</i>	I	ML BI
Scaevola / half-flower / beach naupaka	<i>Scaevola sericea</i>	I	ML BI
Carrotwood	<i>Cupaniopsis anacardioides</i>	I	ML BI
Seaside mahoe	<i>Thespesia populnea</i>	I	ML BI
Old World climbing fern	<i>Lygodium microphyllum</i>	I	ML
Wedilia	<i>Wedilia trilobata</i>	II	ML BI
Latherleaf	<i>Colubrina asiatica</i>	I	ML BI
Sea hibiscus /mahoe	<i>Hibiscus tiliaceus</i>	II	ML BI
Climbing cassia / Christmas cassia / Christmas senna	<i>Senna pendula</i>	I	BI
Earleaf acacia	<i>Acacia auriculiformis</i>	I	ML BI
Natal plum	<i>Carissa grandiflora</i>	I	ML BI
Tropical almond	<i>Terminalia catappa</i>	II	BI
Asparagus fern	<i>Asparagus densiflorus</i>	I	ML BI
Common bamboo	<i>Bambusa vulgaris</i>	?	ML
Surinam cherry	<i>Eugenia uniflora</i>	I	ML
Rosary pea	<i>Abrus precatorius</i>	I	ML
Melaleuca	<i>Melaleuca quinquenervia</i>	I	ML
Lantana	<i>Lantana camara</i>	I	ML
Kalanchoe (3 species)	<i>Kalanchoe diagermontiana, fedtschenkoi, and tubiflora</i>	?	ML
Oyster plant	<i>Rhoeo spathacea</i>	I	ML
Bowstring hemp	<i>Sanseveria hyacinthoides</i>	II	ML
Sisal hemp	<i>Agave sisalana</i>	I	ML

Common Name	Scientific Name	EPPC Category*	Location** ML &/or BI
Non-native fig	Ficus sp	I & II	ML
Madagascar periwinkle	Catharanthus roseus	?	ML
Natal grass	Rhynchelytrum repens	II	ML
Senegal date palm	Phoenix reclinata	II	ML
Hedge bamboo	Bambusa multiplex	?	ML
Golden trumpet	Allamanda cathartica	?	ML
Snake cactus	Cereus pteranthus	?	ML
Cogon grass	Imperata cylindrica	I	ML
Schefflera	Schefflera actinophyllaI		ML
Vitex	Vitex trifolia	?	ML
Oleander	Nerium oleander?		ML
Date palm	Phoenix dactylifera?		ML

*The Florida Exotic Pest Plant Council (FPPC) categorizes exotic (non-indigenous) and invasive plants in to two Categories (I or II) based on the ecological impact that these species will have on native plant communities. The definition does not consider the economic severity or geographic range of the problem.

Category I species are invading and disrupting native plant communities in Florida. Category II are species that have shown a potential to disrupt native plant communities. These species may become ranked as Category I, but have not yet demonstrated disruption of natural Florida communities.

**Plants designated as " ML" only are generally found on the mainland tract; plants designated as "BI" only are generally found on the barrier island tract.

V. PUBLIC INVOLVEMENT

Future Management of Hobe Sound National Wildlife Refuge

Comment Packet

The U.S. Fish and Wildlife Service is beginning to develop a comprehensive conservation plan for Hobe Sound National Wildlife Refuge that will guide its management direction. We would like to know the issues and concerns about the refuge that are important to you. To provide you with information about the refuge and the planning process, the Comment Packet is divided into three sections: Background Information, Comment Sheet, and Mailing Request Form. If you would like to give us your ideas, please complete the Comment Sheet. If you also wish to be on our mailing list for further information, please complete the Mailing Request Form. You may return some or all of the sections to the refuge mailing address found inside or outside the Packet.

Background Information

National Wildlife Refuge System. The U.S. Fish and Wildlife Service is the principal Federal agency responsible for conserving, protecting, and enhancing the nation's fish and wildlife and its habitat. As a part of its major responsibility for migratory birds and fish, endangered species, and certain marine mammals, the Service manages the National Wildlife Refuge System. The System began in 1903 when President Theodore Roosevelt designated Pelican Island, a pelican and heron rookery in Florida, as a bird sanctuary.

The System, now consisting of over 540 refuges, is a "network of lands and waters managed for the conservation, management, and where appropriate, restoration of the fish, wildlife and plant resources and their habitats within the United States for the benefit of present and future generations of Americans" (Refuge Improvement Act of 1997). In the management of the System:

- Wildlife has first priority;
- Recreation uses are allowed as long as they are compatible with wildlife conservation; and
- Wildlife-dependent recreational uses will be emphasized.

Refuge Environment. Hobe Sound National Wildlife Refuge, located 25 miles north of West Palm Beach, Florida, consists of a 735-acre Jupiter Island Tract and a 300-acre Mainland Tract. The island tract consists of mangrove swamps and coastal sand dunes. The mainland tract consists of sand pine-scrub oak forest. The sand dunes provides critical nesting habitat for loggerhead, leatherback, and green sea turtles. The refuge is also important to numerous endangered and threatened species such as eastern indigo snake, Florida scrub jay, and gopher tortoise. In spite of its small size, the Hobe Sound National Wildlife Refuge carries out an extensive environmental education program with the assistance of the one-site Hobe Sound Nature Center staff. In addition, refuge volunteers offer assistance to refuge staff to carry out their resource management programs.

The vision for this refuge is:

Hobe Sound National Wildlife Refuge is an outstanding example of an Atlantic coastal ridge and barrier island environment. Through ecosystem management, environmental education, and partnerships, this public asset will be protected, restored, and enhanced.

Comprehensive Planning. The Fish and Wildlife Service is beginning to develop a plan to guide the future direction of the refuge over the next 15 years. A planning team, consisting of persons from

government agencies and state universities, has been assembled to: gather information about the refuge environment; identify problems affecting the refuge; evaluate the impacts of various management alternatives; and recommend a plan of action to the Fish and Wildlife Service.

In keeping with the National Environmental Policy Act (NEPA), the Fish and Wildlife Service will look at, and seriously consider, all reasonable alternatives in the development of the plan. The planning team will actively seek public input in the preparation of the comprehensive plan. To carry out the project, the Fish and Wildlife Service has begun a six-step planning process:

- Step 1. Gather information on the refuge environment.
- Step 2. Hold a public meeting to identify issues and concerns.
- Step 3. Identify management alternatives, and evaluate their effects.
- Step 4. Prepare and release a draft comprehensive plan and environmental assessment.
- Step 5. Hold a public meeting on the draft plan and environmental assessment.
- Step 6. Prepare a final comprehensive plan.

Involvement Opportunities. The U.S. Fish and Wildlife Service is looking for your ideas concerning its future direction. Please give us your ideas at a public meeting on August 18, 1998, at 7:00 p.m. at the Hobe Sound Civic Center. This meeting will give you an opportunity to:

- Learn more about the refuge.
- Express ideas about issues, concerns, and needed management programs.
- Share your vision for the refuge.

This packet will be given to everyone who attends the public meeting. If you cannot attend the public meeting, please complete the comment sheet and mail it to: Hobe Sound National Wildlife Refuge; U.S. Fish and Wildlife Service, P.O. Box 645, Hobe Sound, FL 33475-0645.

The packet provides:

- Background information on the refuge, the refuge system, and the planning process;
- A way to share your concerns, ideas, and thoughts on refuge management; and
- An effective way to make certain your thoughts will be taken into consideration.

The comment sheet should be returned to the refuge no later than September 18, 1998.

Summary: Comment Sheet

Early on in the process of developing the Comprehensive Conservation Plan, the planning team requested input from the public regarding the future direction of the refuge. The following explains how the information was gathered and analyzed.

A. Written Comments

Two types of comment sheets were used. A simple, open sheet requesting ideas was developed early in the process while a more complex comment packet was developed by staff members and planning team members from the University of Florida. Comment sheets or packets could be picked up from the refuge headquarters, the visitor center, or from law enforcement officers. Comment packets were also sent out with each telephone and mail request. Individual letters were encouraged. The comment period was over three months long to allow as many people as possible to contribute and to insure the public had adequate time to respond.

B. Analysis of Open Comment Sheets and Complex Comment Packets

The two types of comment sheets and letters were analyzed for content. For this statistical analysis, each question was examined as well as responses within each question (if they were multiple). Some respondents did not answer every question, and others gave numerous answers to a single question. Issues and concerns that were received in the open comment sheets and letters were integrated into the analysis. Each issue was counted and analyzed separately.

C. Public Scoping Meeting

A public meeting was held by the refuge to gather public comment. A summary of the public comments generated at that meeting was prepared. A comprehensive list of all verbal comments recorded at the meeting was prepared. No attempt was made to statistically analyze these comments although they were reviewed and assisted in guiding the development of the comprehensive conservation plan.

Question 1. What do you value most about the refuge?

Topics	Number of Responses	Percentage
Nature Center	1	0.99
Hunt/Fish	1	0.99
Beaches	1	0.99
Administration	2	1.99
Other	3	2.97
Unanswered	3	2.97
Education	6	5.94
Coastal/Sand Pine Ecosystem	14	13.86
Public Access	14	13.86
Undeveloped	15	14.85
Beauty/Solitude	16	15.84
Wildlife Protection/Observation	25	24.75
TOTAL	101	100

Question 2. What are your major concerns about: the refuge, current refuge management, or its future direction?

Question 3. Listed below are some of the issues concerning the future management of the refuge. In developing the new plan, how important are these issues to you?

Issues (Number of Responses)	Not Important	Important	Very Important	Don't Know No Opinion
Protecting wildlife habitat (49)	0.00%	12.25%	87.75%	0.00%
Increasing law enforcement to prevent poaching, vandalism (49)	12.24%	42.86%	42.86%	2.04%
Making the refuge more accessible to the public (49)	42.86%	32.65%	24.49%	0.00%
Protecting threatened and endangered wildlife (49)	2.04%	14.29%	83.67%	0.00%
Providing opportunities for wildlife viewing or hiking (47)	14.90%	46.80%	38.30%	0.00%
Addressing urban development around the refuge (48)	14.58%	25.00%	52.08%	8.34%
Conserving native plants and animals (49)	0.00%	24.49%	75.51%	0.00%
Providing more recreational opportunities (49)	57.14%	26.53%	16.33%	0.00%
Preserving beaches and dunes (49)	4.08%	24.49%	71.43%	0.00%
Protecting the whole biological system (49)	0.00%	12.24%	87.76%	0.00%
Working closer with neighboring landowners and businesses (47)	10.64%	51.06%	34.04%	4.26%
Controlling the spread of exotic or invasive plants (49)	2.04%	30.61%	65.31%	2.04%
Protecting water quality (48)	0.00%	31.25%	68.75%	0.00%
Educating the public about wildlife and cultural resources (49)	10.20%	38.78%	48.98%	2.04%
Limiting public access if needed to protect wildlife (49)	2.04%	38.78%	57.14%	2.04%

Only package comment sheets were used in this question.

Question 4. Are there other issues of concern to you?

Topics (Number of Responses)	Percentage
Hunt/Fish (1)	0.78%
Beaches (1)	0.78%
Reducing Lighting for Sea Turtle Survival (1)	0.78%
Keep Beach Open to Dogs (1)	0.78%
Reduce Motorized Boating near Refuge (1)	0.78%
Increase Access to Beach, Peck Lake, and Trails (2)	1.55%
Water Quality Issues (2)	1.55%
Visitor Center (3)	2.32%
Restrooms>Showers (4)	3.10%
Increase Access (5)	3.87%
Exotics/Pollution (6)	4.65%
Unanswered (6)	4.65%
Maintenance (10)	7.75%
Other (11)	8.53%
Management/Ownership (11)	8.53%
Management of Habitat/Future Direction (12)	9.30%
Development/Privatization (17)	13.18%
Protection of Ecosystem/Wildlife (17)	13.18%
Limit Access (18)	13.94%
TOTAL 129 RESPONSES	100.00%

All packet and open comment sheets used.

All comments answered in questions 2 and 4, and again in 6 and 7, were combined due to the similarity in meaning. Repeated comments were only counted once. All packet and some open comment sheets were used.

Question 5. Have you ever visited the refuge?

Number of Responses	Yes (Percentage)	No (Percentage)	Unknown (Percentage)
51	86.27%	5.88%	7.84%

All packet and open comment sheets used.

Question 6. Listed below are some of the recreational activities occurring on the Hobe Sound National Wildlife Refuge. Please check which activities, if any, you would like to do.

Question 7. What other activities, if any, would you like to do?

Activities (Number of Responses)	Percentage
Increase Watercraft (1)	0.41%
Horseback Riding (1)	0.41%
Extended Hike Path (2)	0.83%
Guided Nature Walks (3)	1.24%
Unanswered (4)	1.65%
Running/Jogging (10)	4.13%
Other (11)	4.55%
Canoeing/Kayaking (23)	9.50%
Fishing (24)	9.92%
Photography or Painting (24)	9.92%
Interpretation/Environmental Education (29)	11.99%
Hiking (32)	13.22%
Beach Use (37)	15.29%
Wildlife Observation (41)	16.94%
TOTAL 242 RESPONSES	100.00%

All packet and open comment sheets used. Comments repeated in question 7 were not entered twice.

Question 8. What activities, if any, should not be allowed on the refuge?

Activities (Number of Responses)	Percentage
Exotics (1)	1.15%
Fires (1)	1.15%
Horseback Riding (1)	1.15%
Drinking (3)	3.44%
Developments (3)	3.44%
Anything Harmful (4)	4.60%
Nude Sunbathing (4)	4.60%
Loud Music/Loud Recreation (4)	4.60%
Camping (7)	8.05%
Hunting (8)	9.20%
Other (8)	9.20%
Land Vehicles (off-road) (13)	14.94%
Jet Skis (Personal Watercraft) (15)	17.24%
Unanswered (15)	17.24%
TOTAL 87 Responses	100.00%

All package comment sheets used. No open comment sheets used, those comments were already analyzed in question 2.

Question 9. Where do you reside most of the year?

Location (Number of Responses)	Percentage
Boca (1)	1.96%
Delray (1)	1.96%
Fort Pierce (1)	1.96%
Greenacres (1)	1.96%
Juno Beach (1)	1.96%
Lake Worth (1)	1.96%
Royal Palm Beach (1)	1.96%
Jupiter Island (2)	3.92%
Palm City (2)	3.92%
Port St. Lucie (2)	3.92%
Tequesta (2)	3.92%
West Palm Beach (2)	3.92%
Other (2)	3.92%
Martin County (3)	5.89%
Stuart (4)	7.85%
Unknown (7)	13.73%
Hobe Sound (18)	35.29%
Total 51 Responses	100.00%

All package and open comment sheets used.

Question 10. Are you attending the public meeting as a member of an organization? If yes, what is its name?

Number of Responses	Yes (Percentage)	No (Percentage)	Unknown (Percentage)
51	13.72%	62.75%	23.53%

Organization (Number of Responses)	Percentage
Ecological Associates, Inc. (1)	14.29%
Florida Outdoor Writers Association (1)	14.29%
Hobe Sound Nature Center (1)	14.29%
Martin County Audubon Society (1)	14.29%
Martin County Plant Society (1)	14.29%
Research Aquiculture (1)	14.29%
Treasure Military (1)	14.29%
TOTAL 7 RESPONSES	100.00%

All package and open comment sheets used.

Question 11. Where did you obtain the comment sheet?

Options/Number of Responses	Percentage
Audubon (1)	1.96%
Unknown/Unanswered (5)	9.80%
Hobe Sound and Loxahatchee NWRs (6)	11.76%
Mail (17)	33.34%
Scoping Meeting (22)	43.14%
TOTAL 51 RESPONSES	100.00%

All package and open comment sheets used.

VI. COMPATIBILITY DETERMINATION

INTRODUCTION

This Compatibility Determination describes the wildlife-dependent and other uses that may be included in the public use program under the preferred alternative (Alternative 2-Ecosystem Emphasis) and determines the conditions under which each use is considered compatible with the purposes and vision of the refuge and with the mission of the National Wildlife Refuge System. This determination applies to all lands within the existing and proposed refuge acquisition boundary.

Under the National Wildlife Refuge System Administration Act of 1966, the Refuge Recreation Act of 1962, and the National Wildlife Refuge System Improvement Act of 1997, the Service may not permit recreational uses on a national wildlife refuge unless these uses are first determined to be compatible wildlife-dependent uses. The Improvement Act now requires that the needs of fish, wildlife, and plant resources on national wildlife refuges come first. All public uses must be compatible with these resources. A use is compatible if it is determined that the activity does not materially interfere with, or detract from, the fulfillment of the National Wildlife Refuge System mission or the purposes of the refuge. Furthermore, compatible activities which depend on healthy fish and wildlife populations will be recognized as priority public uses. The 1997 law established the priority public uses to be hunting, fishing, wildlife observation, wildlife photography, and environmental education and interpretation.

Refuge Uses: The following uses were evaluated to determine their compatibility with System mission and the purposes of the refuge: 1) fishing; 2) wildlife observation and photography; 3) environmental education and interpretation; 4) research; and 5) pets on refuge. A description and anticipated biological impacts for each use are addressed separately in this Compatibility Determination.

Refuge Name: Hobe Sound National Wildlife Refuge.

Establishing and Acquisition Authority(ies): 16 U.S.C. 1534 (Endangered Species Act of 1973) and 16 U.S.C. 460K-1 (Refuge Recreation Act of 1962).

The refuge was established through the foresight and generosity of Jupiter Island residents in 1969 with an approved acquisition boundary of approximately 400 acres. The refuge originated from its designation as the Reed Wilderness Seashore Sanctuary and its Registered National Landmark status in 1967. Today, the refuge consists of over 1,000 acres, including a 300-acre Mainland Tract and a 735-acre Jupiter Island Tract. Most of the refuge was donated by private citizens and The Nature Conservancy primarily for the conservation of threatened and endangered species and preservation of undeveloped vistas.

The refuge provides habitat for nearly 40 species listed as either threatened, endangered, or of special concern by the state or federal government. The refuge protects part of the last remaining sand pine scrub habitat in south Florida. In addition, nearly 10 miles of Indian River Lagoon shoreline supporting mangrove communities and 3.5 miles of Atlantic coastal beach are preserved and managed by the refuge. This coastal beach supports one of the most productive sea turtle nesting beaches in the southeastern United States.

Refuge Purposes: As indicated in the legislation authorizing the establishment of Hobe Sound National Wildlife Refuge, the conservation of threatened or endangered fish, wildlife, and plants is paramount in its management. Development of fish and wildlife-oriented recreational opportunities must consider this conservation mandate.

The refuge was established "...to conserve (A) fish or wildlife which are listed as endangered species or threatened species... or (B) plants..." 16 U.S.C.1534 (Endangered Species Act of 1973); "...suitable for (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3)

the conservation of endangered species or threatened species...." 16 U.S.C. 460K-1 (Refuge Recreation Act of 1962); "...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds." 16 U.S.C. 715d (Migratory Bird Conservation Act of 1929); "...conservation, management, and restoration of the fish, wildlife, and plant resources and their habitats for the benefit of present and future generations of Americans." (16 U.S.C. 668dd(a)(2) (National Wildlife Refuge System Administration Act of 1966); "...for the development, advancement, management, conservation, and protection of fish and wildlife resources." 16 U.S.C. 742f(a)(4) (Fish and Wildlife Act of 1956).

National Wildlife Refuge System Mission: The mission of the National Wildlife Refuge System, as defined by the National Wildlife Refuge System Improvement Act of 1997, is:

... to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.

Other Applicable Laws, Regulations, and Policies:

Antiquities Act of 1906 (34 Stat. 225)
Migratory Bird Treaty Act of 1918 (15 U.S.C. 703-711; 40 Stat. 755)
Migratory Bird Conservation Act of 1929 (16 U.S.C. 715r; 45 Stat. 1222)
Migratory Bird Hunting Stamp Act of 1934 (16 U.S.C. 718-178h; 48 Stat. 451)
Criminal Code Provisions of 1940 (18 U.S.C. 41)
Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d; 54 Stat. 250)
Refuge Trespass Act of June 25, 1948 (18 U.S.C. 41; 62 Stat. 686)
Fish and Wildlife Act of 1956 (16 U.S.C. 742a-742j; 70 Stat.1119)
Refuge Recreation Act of 1962 (16 U.S.C. 460k-460k-4; 76 Stat. 653)
Wilderness Act (16 U.S.C. 1131; 78 Stat. 890)
Land and Water Conservation Fund Act of 1965
National Historic Preservation Act of 1966, as amended (16 U.S.C. 470, et seq.; 80 Stat. 915)
National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd, 668ee; 80 Stat. 927)
National Environmental Policy Act of 1969, NEPA (42 U.S.C. 4321, et seq; 83 Stat. 852)
Use of Off-Road Vehicles on Public Lands (Executive Order 11644, as amended by Executive Order 10989)
Endangered Species Act of 1973 (16 U.S.C. 1531 et seq; 87 Stat. 884)
Refuge Revenue Sharing Act of 1935, as amended in 1978 (16 U.S.C. 715s; 92 Stat. 1319)
National Wildlife Refuge Regulations for the Most Recent Fiscal Year (50 CFR. Subchapter C; 43 CFR 3101.3-3)
Emergency Wetlands Resources Act of 1986 (S.B. 740)
North American Wetlands Conservation Act of 1990
Food Security Act (Farm Bill) of 1990 as amended (HR 2100)
The Property Clause of The U.S. Constitution Article IV 3, Clause 2
The Commerce Clause of The U.S. Constitution Article 1, Section 8
The National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57, U.S.C. 668dd)
Executive Order 12996, Management and General public Use of the National Wildlife Refuge System.
March 25, 1996
Title 50, Code of Federal Regulations, Parts 25-33
Archaeological Resources Protection Act of 1979
Native American Graves Protection and Repatriation Act of 1990

Compatibility determinations for each description listed were considered separately. Although for brevity, the preceding sections from "Refuge Uses" through "Other Applicable Laws, Regulations, and Policies" are only written once within the comprehensive conservation plan, they are part of each descriptive use and become part of that compatibility determination if considered outside of the plan.

Public Review and Comment: On July 16-17, 1998, the Service assembled a planning team at the refuge headquarters to begin the scoping process for developing a draft comprehensive conservation plan for

Hobe Sound National Wildlife Refuge. The planning team was composed of representatives from the Service, and state and local government agencies.

The team identified a number of issues and concerns that were likely to affect the management of the refuge: nesting success of sea turtles; public use of and access to beach; environmental education; protection of Indian River Lagoon; restoration of sand pine scrub habitat for threatened and endangered species; exotic plant removal; and inadequate facilities and staffing.

A public scoping meeting was held in Hobe Sound, Florida, on August 18, 1998, at the Hobe Sound Civic Center. Approximately 70 people attended the meeting. This meeting identified a variety of issues, concerns, and opportunities for the future management of the refuge.

Most of the issues identified pertain to resource management as opposed to public use issues, which are subject to compatibility determinations. For example, the Department of Environmental Protection is concerned about exotic species control and erosion of the beach on the Jupiter Island Tract. Beach renourishment, to solve the erosion problem, is controversial. Another example is that The Nature Conservancy is concerned about the Service's efforts to protect the endangered sand pine scrub on the Atlantic Coastal Ridge.

Description of Use:

Fishing

Sport fishing is a common and highly enjoyable public use on the refuge and in the surrounding area. Fishing opportunities are available either in the Atlantic Ocean along the refuge beach on north Jupiter Island or within the Intracoastal Waterway, known as the Indian River Lagoon, which is accessed from the Mainland Tract of the refuge.

Approximately 20,000 saltwater anglers annually visit the Atlantic Ocean beach along Hobe Sound Refuge to fish. A substantially lower number of highly devoted anglers routinely fish in the Indian River Lagoon near the headquarters area. To promote this high priority use, development of increased public access to the Indian River Lagoon through the refuge along U.S. Highway 1 is proposed in the comprehensive conservation plan. Sufficient access is available for beach anglers at the north end of Jupiter Island.

Availability of Resources: With the implementation of the preferred alternative, sufficient resources should be allocated for this activity to administer its use at the current and proposed levels. A few new facilities are required to accommodate additional access such as signage and parking.

Anticipated Impacts of Use: Recreational fishing, including any fishing events, should not adversely affect fishery resources, wildlife resources, endangered species, or any other natural resources of the refuge. There may be some limited disturbance to certain species of wildlife and some trampling of vegetation if anglers do not stay on designated paths; however, this should be short-lived and relatively minor and would not negatively impact biological values of the refuge. Known bird rookery sites do not occur at locations currently popular for fishing activities; therefore, disturbance should not be a problem. If disturbance is identified as a problem in future years, areas would be closed during the nesting season to eliminate this concern.

Problems associated with littering and illegal take of fish would be controlled through education and law enforcement activities. Providing information to refuge visitors about rules and regulations, along with increased law enforcement patrol, would keep these negative impacts to a minimum.

Public Review and Comment: In the final plan, this section will summarize the public comments derived from the public meeting, letters, and other sources.

Determination (check one below):

Use is Not Compatible

Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility: Fishing is allowed in accordance with State of Florida regulations and licensing requirements, as well as specific refuge regulations. Conflicts between anglers and other non-consumptive uses (e.g., wildlife observation and environmental education) have been infrequent in the past, but do have the potential to flare up during the opening of lobster season and when runs of fish bring out many anglers. Associated violations such as taking under-sized fish, use of too many unattended poles, and littering can be minimized by a continued law enforcement presence. The following stipulations would help ensure that the refuge fishing program is compatible with refuge purposes:

- Fishing allowed during daylight hours only. Evening hours permitted only during special events.
- All fishing tackle must be attended at all times.
- Signs shall be posted reminding anglers to only use designated paths to avoid bringing in exotic plant seeds on shoes or trampling of vegetation.

Justification: There are no public boat launching facilities at the refuge. Fishing access is primarily land-based, although some boats do beach or anchor close to shore. To maintain a quality fishing experience, the refuge may need to designate time and space zoning of recreational fishing at the heavily used Jupiter Island beach walk-over areas.

Fishing is a public use activity that according to the National Wildlife Refuge System Improvement Act of 1997, is a priority use and should be provided where appropriate and compatible. Improved access would reduce erosion and habitat disturbance, while providing additional quality fishing opportunities.

NEPA Compliance for Refuge Use Decision: *Place an X in appropriate space.*

- Categorical Exclusion without Environmental Action Statement
- Categorical Exclusion and Environmental Action Statement
- Environmental Assessment and Finding of No Significant Impact
- Environmental Impact Statement and Record of Decision

Mandatory 10- or 15-Year Re-evaluation Date: _____

Description of Use:*Wildlife Observation and Photography*

Non-consumptive wildlife observation uses such as birdwatching, hiking, beach walking, swimming, and nature photography are major public uses at the refuge. It is estimated that over 100,000 visits/year are attributed to wildlife observation and related activities at Hobe Sound Refuge. The beauty and remoteness of the area draw thousands to the refuge.

It is anticipated that an increase in non-consumptive wildlife-dependent uses would occur over the next few years as facilities and access are increased and as improved directional signage is provided.

Availability of Resources: Adequate funding exists to ensure compatibility and to administer the use at its current level. However, to provide safe, high quality wildlife observation and photography opportunities, additional fiscal resources are needed, as outlined in the comprehensive conservation plan, to improve access, develop wildlife observation points, and provide directional/interpretive signs.

Anticipated Impacts of Use: Wildlife observation and photography activities might result in some disturbance to wildlife, especially if visitors venture too close to a least tern bird colony or disturb migratory species from resting along the shoreline. Foot trails, boardwalks, and wildlife observation platforms would be located in such a way as to minimize disturbance that could occur in sensitive areas. If unacceptable levels of disturbance are identified at any time, sensitive sites would be closed to public entry. Some minimal trampling of vegetation also may occur.

Other potential negative impacts are caused by visitors violating refuge regulations such as littering, walking or sitting on dunes, illegally taking plants or wildlife, or releasing pets and other wildlife.

Public Review and Comment: In the final plan, this section will summarize the public comments derived from the public meeting, letters, and other sources.

Determination (check one below):

Use is Not Compatible

Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility: Prior to construction of support facilities, applicable permits would be obtained from local, state, and federal regulatory agencies to reduce the possibility of negatively impacting wetlands, cultural resources, or protected species. Law enforcement patrols of public use areas would continue to minimize violations of refuge regulations. Refuge roads would be closed to the public during extremely wet periods, such as flooding, to prevent road damage and for visitor safety. Wildlife observation and photography would be monitored to document any negative impacts. If any negative impacts become noticeable, corrective action would be taken to reduce or eliminate the effects on wildlife. Corrective actions may involve the restriction of locations that are available for this use.

Justification: Wildlife observation and photography are important and preferred public uses at Hobe Sound Refuge and within the National Wildlife Refuge System. The National Wildlife Refuge System Improvement Act identified wildlife observation as a priority public use to be facilitated on refuges. It is through permitted, compatible public uses such as this, that the public becomes aware of and provides support for our national wildlife refuges.

NEPA Compliance for Refuge Use Decision: *Place an X in appropriate space.*

- Categorical Exclusion without Environmental Action Statement
- Categorical Exclusion and Environmental Action Statement
- Environmental Assessment and Finding of No Significant Impact
- Environmental Impact Statement and Record of Decision

Mandatory 10- or 15-Year Re-evaluation Date: _____

Description of Use:*Environmental Education and Interpretation*

Environmental education and interpretation are activities which seek to increase the public's knowledge and understanding of wildlife, national wildlife refuges, ecology, and land management and thereby contribute to the conservation of natural resources. The Hobe Sound Refuge is noted for its partnership and cooperating association with the Hobe Sound Nature Center, which is located at the refuge headquarters.

Availability of Resources: The Nature Center has its own budget, but it relies on the refuge for facilities and maintenance. To address the need for facilities, the Nature Center raised funds to construct a classroom to host school groups and other visitors.

The Nature Center and refuge staff are presently housed in a 1950s motel, which has reached carrying capacity for operations and programs and is in bad need of replacement. Funding is inadequate to ensure compatibility and to administer environmental education and interpretation activities at both current or proposed levels. Additional fiscal resources are needed to conduct these uses.

The management of a volunteer program is essential to successfully implement the environmental education and interpretive program. To these ends, a permanent park ranger (interpretive/public use specialist) would be added. In addition, boardwalks, signs, parking, trailheads, kiosks, and environmental education materials are needed to support the Nature Center.

Anticipated Impacts of Use: Construction of facilities such as boardwalks, lengthened trails, kiosks, and observation platforms would alter small portions of the natural environment on the refuge. Proper planning and placement of facilities would ensure that wetlands, threatened or endangered species, or species of special concern are not negatively impacted.

Some environmental education and interpretive activities may impose low-level impacts (e.g., trampling of vegetation and temporary disturbance to wildlife species) on the sites used for these activities. However, these impacts are negligible compared with the benefits derived by educating the next generation of Americans. Educational activities held off-refuge would not create any biological impacts on the resource.

Public Review and Comment: In the final plan, this section will summarize the public comments derived from the public meeting, letters, and other sources.

Determination (check one below):

Use is Not Compatible

Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility: Enhancing our partnership with the Nature Center, zoning of visitor activities by time and space, clustering public use facilities, proper monitoring, educating visitors, and providing enforcement would ensure compatibility with the purposes of the refuge and mission of the National Wildlife Refuge System. Through periodic evaluation of trails and visitor contact points, the visitor services program would assess resource impacts. If future human impacts are determined through evaluation to be detrimental to important natural resources, actions would be taken to reduce or eliminate those impacts. Major portions of the refuge would remain undeveloped, without public interpretive facilities.

Justification: Environmental education and interpretation are identified in the National Wildlife Refuge System Improvement Act as activities that should be provided on refuges, where appropriate and compatible. Educating and informing the public through structured environmental education courses, interpretive

materials, lectures, and guided tours about migratory birds, endangered species, wildlife management, and ecosystems would lead to improved support of the Service's mission to protect our natural resources.

NEPA Compliance for Refuge Use Decision: Place an X in appropriate space.

- Categorical Exclusion without Environmental Action Statement
- Categorical Exclusion and Environmental Action Statement
- Environmental Assessment and Finding of No Significant Impact
- Environmental Impact Statement and Record of Decision

Mandatory 10- or 15-Year Re-evaluation Date: _____

Description of Use:*Research*

The large number of endemic threatened and endangered species, in addition to the globally imperilled sand pine scrub habitat and nesting sea turtle habitat, draw many scientists to request permits to undertake research on the refuge. This activity would allow university students and professors, non-governmental researchers, and governmental scientists to conduct both short- and long-term research projects. The outcome of this research would result in better knowledge of our natural resources and improved methods to manage, monitor, and protect refuge resources.

The refuge would support, for example, research of neotropical migratory birds, sand pine scrub amphibians and reptiles, mangroves, fisheries, offshore habitats, mosquito impoundments, beach renourishment, exotic plant and animal surveys and control techniques, manatee protection, and seagrass bed surveys. Efforts would be made to expand partnerships with local universities and community colleges, such as Florida Atlantic University and Indian River Community College, to conduct research associated with the recovery of many plant and animal species.

Availability of Resources: Additional fiscal resources are needed to conduct this use. Existing staff is unable to review and administer the large number of special use permit requests and monitor use as part of routine management duties.

Anticipated Impacts of Use: There can be some negative impacts from scientific research on the refuge. Impacts such as trampling vegetation, all-terrain vehicle use, and temporary disturbance to wildlife would occur. A small number of individual plants or animals may be collected for further study. These collections would not likely adversely affect refuge plant and animal populations. Removal of plant and animal material from the refuge as well as the potential to accidentally introduce exotic plants and animals must be carefully controlled and monitored. Some other impacts from research would include: (1) noise disturbance by helicopter, airplane, airboat, truck, or car which may temporarily displace wildlife; (2) physical presence of people or equipment which could temporarily displace wildlife; (3) ground disturbance by stirring of sediments from walking on site or the use of equipment; and (4) water disturbance (churning) from equipment. Despite these impacts, the knowledge gained from carefully considered and properly exercised research would provide information to improve management techniques and better meet the needs of trust resource species. Special use permits would contain restrictions necessary to ensure that research activities are compatible.

Public Review and Comment: In the final plan, this section will summarize the public comments derived from the public meeting, letters, and other sources.

Determination (check one below):

Use is Not Compatible

Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility: Each request for use of the refuge for research would be examined on its individual merit and evaluated in collaboration with the Ecological Services Field Office in Vero Beach, Florida, the regulatory branch of the Fish and Wildlife Service in south Florida. Questions of who, what, when, where, and why would be asked to determine if requested research contributes to the refuge purposes and could best be conducted on the refuge without significantly affecting the resources. If so, the researcher would be issued a special use permit, including any conditions or restrictions necessary to ensure compatibility. Requests to remove plant or animal material for commercial purposes would be particularly scrutinized. Progress would be monitored and the researcher would be required to submit annual progress reports and copies of all publications derived from the research. The refuge would not directly supply personnel or equipment to provide access for non-refuge personnel, unless arrangements were made prior to the issuance of the special use permit.

The refuge manager reserves the right to delegate a staff member to accompany permittee(s) at any time. Staff and resource availability would be determined by the refuge manager based on current refuge priorities and work plans. If a permittee needs assistance from refuge staff, the permittee(s) must request the assistance when applying for the permit. It is assumed that the permittee(s) would provide the appropriate support staff and equipment.

It is often necessary to gain information on refuge resources through the collection of samples for scientific purposes. These samples may include animals, plants, soil, and water and can provide valuable information to the refuge on population characteristics, contaminants, nutrients, and individual health. Collection of plants also may assist in the development of biological controls for exotic species such as Old World climbing fern. All animals would be collected following currently approved techniques as specified by scientific societies including the Society for the Study of Amphibians and Reptiles, the American Society of Mammologists, the American Ornithological Society, the Ichthyologists League, the Entomological Society of America, and the Xerces Society.

Surveys that disturb wildlife or vegetation often are necessary to gather information needed for refuge monitoring, research, and management. Surveys allowed under this compatibility determination include visual and auditory surveys of vegetation, mammals, birds, reptiles, amphibians, and insects and other invertebrates. These surveys may be completed any day of the year, at any and all hours of the day or night; surveys may be completed within a few hours or may take days, weeks, months, or years to complete.

Surveys would be conducted using standardized methods that minimize the impacts to wildlife. Access for surveys would be by approved means. These sampling and survey procedures assist the Fish and Wildlife Service to fulfill its mission by furthering local fish and wildlife conservation; increasing scientific knowledge; and helping further regional, national, and worldwide networked efforts to preserve and conserve wildlife and fisheries resources. Incidental take of other wildlife species, either illegally or unintentionally, may occur. However, incidental take would be very small and would not directly or cumulatively impact current or future populations of wildlife either on this refuge or in the surrounding areas. Implementation of an effective law enforcement program and development of site specific refuge regulations/special conditions would eliminate most incidental take problems.

Justification: The benefits derived from sound research provide a better understanding of species and the environmental communities present on the refuge. These benefits far outweigh any short-term disturbance or loss of individual plant and animals that might occur.

NEPA Compliance for Refuge Use Decision: Place an X in appropriate space.

- Categorical Exclusion without Environmental Action Statement
- Categorical Exclusion and Environmental Action Statement
- Environmental Assessment and Finding of No Significant Impact
- Environmental Impact Statement and Record of Decision

Mandatory 10- or 15-Year Re-evaluation Date: _____

Description of Use:*Pets*

Dogs on leashes have been permitted on the refuge since its establishment. This use occurs on the Jupiter Island beach (Atlantic Ocean) and along trails (Intracoastal Waterway). While the occurrence of pets is not a wildlife-dependent priority use, it is done in conjunction with enjoyment of the natural surroundings, including wildlife. Like most beach use, it is more prevalent on weekends and holidays than weekdays.

Availability of Resources: There are insufficient resources to completely monitor the refuge for dogs on leashes every day. There would be an increased cost to the refuge to provide adequate control of this issue, including increased surveillance, doggie walk bag distribution stations, and improved signage.

Anticipated Impacts of Use: Some members of the public perceive that dog presence is either not appropriate or incompatible with wildlife, particularly along the beach. It is suspected that dog scent may upset wildlife and that dogs may dig turtle nests and flush birds such as least terns and migratory birds near the Peck Lake area. While some members of the public maintain these beliefs, others do not, and there are no records of complaints or studies indicating such problems.

The refuge anticipates that as beach and trail use increases, the potential for problems with dog use will intensify. Refuge staff would monitor dog use on the beach, document problems as they occur, and reconsider the compatibility of this use, should the manager find that dog use materially affects wildlife on the refuge.

Public Review and Comment: In the final plan, this section will summarize the public comments derived from the public meeting, letters, and other sources.

Determination (check one below):

Use is Not Compatible

Use is Compatible with Following Stipulations

Stipulations Necessary to Ensure Compatibility: (1) Dog owners must be reminded of the leash law when entering the refuge either through signage or refuge staff; (2) Doggie walk bags for feces collection and instructions for disposal must be provided to dog owners; and (3) Law enforcement must be increased.

Should these stipulations become insufficient to address this issue, the following new procedures would be considered and implemented with sufficient notification to the public: (1) Prohibit dogs from the entire refuge; or (2) Prohibit dogs from selected and posted areas of the refuge.

Justification: Most dog owners are particularly careful and responsible pet owners who keep their dogs on leashes. Historically, this has been a public use on the refuge. Many people consider dogs their companions as they undertake the priority public uses such as fishing and wildlife observation. Unless the problem of dogs off leashes increases or if impacts to wildlife are documented, it would be unfair to penalize the majority of visitors who comply with the leash law in order to curtail this use without more documentation and public input.

NEPA Compliance for Refuge Use Decision: Place an X in appropriate space.

- Categorical Exclusion without Environmental Action Statement
- Categorical Exclusion and Environmental Action Statement
- Environmental Assessment and Finding of No Significant Impact
- Environmental Impact Statement and Record of Decision

Mandatory 10- or 15-Year Re-evaluation Date: _____

Approval of Compatibility Determination

The signature of approval is for all compatibility determinations considered within the comprehensive conservation plan. If one of the descriptive uses is considered for compatibility outside of the plan, the approval signature becomes part of that determination.

Refuge Manager: _____
(Signature/Date)

Regional Compatibility Coordinator: _____
(Signature/Date)

Refuge Supervisor: _____
(Signature/Date)

Regional Chief, National Wildlife Refuge System, Southeast Region: _____
(Signature/Date)

VII. SUBTROPICAL FLORIDA PARTNERS-IN-FLIGHT BIRD CONSERVATION PLAN: SECTION 2 AVIFAUNAL ANALYSIS

Figure 36. Priority bird species for peninsular Florida (Hobe Sound NWR): Entry criteria and selection rationale

Priority Entry Criteria ¹	Species	Total PIF Priority Species Score	Concern Score			Local Migratory Status ²	Geographical or Historical Notes
			Area Importance	Population Trend	% of BBS Population		
Ia.	Florida Scrub-Jay ⁵	35	5 ⁴	5 ⁴	100	R	Presently extirpated?
	Grasshopper Sparrow ⁵ (Florida)	35	5 ⁴	5 ⁴	100	R	Presently extirpated?
	Snail Kite ⁵ (Everglade)	34	5	4 ⁴	100?	D	
	Crested Caracara ⁵ (Florida pop.)	34	5 ⁴	4 ⁴		D	
	Snowy Plover (SE US)	34	5	5		D	Gulf side only
	Red Knot (SE US)	32	5	5		C	
	Piping Plover ⁵	31	4	5		C	
	Prairie Warbler (Florida)	31	5 ⁴	5 ⁴		D	
	Wood Stork ⁵ (SE US pop.)	30	5	4		D	
	Short-tailed Hawk (Florida pop.)	30	5 ⁴	3		D	
	Swallow-tailed Kite (SE US)	29	5	3	61.7	B	
	Red-cockaded Woodpecker ⁵	29	3 ⁴	3		R	
	Mottled Duck	29	5	4 ⁴	11.3?	D	
	American Kestrel (SE US)	28	5 ⁴	4 ⁴		R	
	Burrowing Owl (Florida)	28	5 ⁴	3		D	
	Bachman's Sparrow	28	5	3	18.9	D	
	Saltmarsh Sharp-tailed Sparrow	28	3	3		C	
	Painted Bunting (Eastern)	28	3 ⁴	3		D	
	American Oystercatcher (Eastern NA pops.)	28	5	3		D	

Figure 36. Priority bird species for peninsular Florida (Hobe Sound NWR): Entry criteria and selection rationale (Cont'd)

Priority Entry Criteria ¹	Species	Total PIF Species Score	Area Importance	Concern Score		Local Migratory Status ²	Geographical or Historical Notes
				Population Trend	% of BBS Population		
Ib.	Wilson's Plover	27	4	3		D	
	Nelson's Sharp-tailed Sparrow	27	3	3		C	
	Henslow's Sparrow	27	3	4		C	
	Black Rail	27	4	3		D	
	Sandhill Crane (Florida)	26	5 ⁴	1		R	
	Audubon's Shearwater (Caribbean)	26	5	3		P	
	Reddish Egret	26	4	3		D	
	Bicknell's Thrush	26	5	3		A	
	Yellow Rail	26	4	3		C	
	Buff-breasted Sandpiper	25	3	4		A	Most southbound migration
	Black-throated Blue Warbler	25	5	3		A	
	Seaside Sparrow	25	4 ⁴	3		D	Gulf populations
	Brown Pelican (SE US)	24	5	1 ⁴		D	
	Marbled Godwit	24	3	4		C	
	Bobolink	24	5	5		A	
	White Ibis	23	5	4		D	
	Sandhill Crane (Greater)	23	5	3		C	
	Solitary Sandpiper	23	5	3		A	
	Whimbrel	23	3	5		A	
	Stilt Sandpiper	23	4	3		A	
	Brown-headed Nuthatch	23	3	3		R	
	Cape May Warbler	23	5	3		A	
	Connecticut Warbler	23	5	3		A	

Figure 36. Priority bird species for peninsular Florida (Hobe Sound NWR): Entry criteria and selection rationale (Cont'd)

Priority Entry Criteria ¹	Species	Total PIF		Concern Score			Local Migratory Status ²	Geographical or Historical Notes
		Priority Species Score	Importance	Population Trend	% of BBS Population	Population		
Ib (cont.).	Cory's Shearwater	22	5	3		P		
	Clapper Rail	22	5	3		R		
	Semipalmated Sandpiper	22	5	5		A		
	Short-billed Dowitcher	22	5	5		C		
	Black Tern	22	5	5		A		
	Black Skimmer	22	5	5		D		
	Mangrove Cuckoo	22	3 ⁴	3		E		
	Gray Kingbird	22	3 ⁴	3	4.5?	B		
	Black-whiskered Vireo	22	3 ⁴	3		B		
	Loggerhead Shrike	22	5	5	4.1	D		
	Sedge Wren	22	4	2		C		
	Palm Warbler	22	5	5		C		
	II a.	American Bittern	21	4	5		C	
		Northern Bobwhite	21	4	5		R	
Black-bellied Plover		21	4	5		D		
Willet		21	5	3		D		
Western Sandpiper		21	5	3		C		
Common Ground-Dove		21	5	5	23.8?	R		
Red-headed Woodpecker		21	3	5	1.0	D		
Veery		21	4	5		A		
Pine Warbler		21	4	5		D		
Grasshopper Sparrow (Eastern)		21	5	5		C		
Least Bittern		20	5	3	7.0?	D		
Northern Harrier		20	4	4		C		
Limpkin		20	4 ⁴	4 ⁴	33.2?	R		
King Rail		20	5	3		D		
Ruddy Turnstone	20	3	4		D			
Least Sandpiper	20	5	5		C			
Dunlin	20	4	5		C			
Least Tern	20	5	4 ⁴	4.6?	B			

Figure 36. Priority bird species for peninsular Florida (Hobe Sound NWR): Entry criteria and selection rationale (Cont'd)

Priority Entry Criteria ¹	Species	Total PIF		Concern Score			Local Migratory Status ²	Geographical or Historical Notes
		Priority Species Score	Area Importance	Population Trend	% of BBS Population			
II a (cont.)	Yellow-billed Cuckoo	20	3	5		B		
	Gray Catbird	20	5	5		C		
	Eastern Towhee	20	5	5	7.9	D		
	Little Blue Heron	19	5	5	5.1	D		
	Tricolored Heron	19	5	3	17.3?	D		
	Yellow-crowned Night-Heron	19	5	3		D		
	American Avocet	19	3	3		C		
	Greater Yellowlegs	19	5	3		C		
	Sanderling	19	3	5		C		
	Pectoral Sandpiper	19	5	3		A		
Royal Tern	19	5	3		D			
Common Nighthawk	19	5	5	3.6	B			
II b.	Chuck-will's-widow	21	5	3	7.0	B		
	White-eyed Vireo	20	5	2	5.4	D		
III.	NONE							
IV.	Prothonotary Warbler	21	2	3		B		
	American White Pelican	20	4	1		C		
	Redhead	20	2	4		C		
	American Woodcock	20	2	4		D		
	Acadian Flycatcher	20	2	3		B		
	Yellow-throated Vireo	20	3	3		B		
	Yellow-throated Warbler	20	3	3		C		
	Hooded Warbler	20	2	3		B		
	Peregrine Falcon	19	5	1		A	Winters in small numbers	
	Northern Parula	19	5	2		C		

Figure 36. Priority bird species for Peninsular Florida (Hobe Sound NWR): Entry criteria and selection rationale (Cont'd)

Priority Entry Criteria ¹	Species	Total PIF		Concern Score			Local Migratory Status ²	Geographical or Historical Notes
		Priority Species Score	Importance	Population Trend	% of BBS Population			
IV (cont.).	Common Loon	18	4	3		C		
	Roseate Spoonbill	18	4	3		D		
	Wood Duck	18	4	2		D		
	Ring-necked Duck	18	3	2		C		
	Lesser Scaup	18	3	5		C		
	Red-shouldered Hawk	18	5	2		D		
	Eastern Kingbird	18	3	5		B		
	Summer Tanager	18	3	3		B		
	Eastern Meadowlark	18	4	5		D		
	Rusty Blackbird	18	2	5		C		
	Bald Eagle ⁵	17	4 ⁴	1		D		
	Blue-winged Teal	17	5	3		A		
	Barn Owl	17	3	3		D		
	Northern Flicker	17	4	5		D		
	Eastern Wood-Pewee	17	2	3		B		
	Eastern Towhee	17	4	3		D		
	Northern Pintail	16	3	5		C		
	Brown Thrasher	16	2	3		D		
	Black-and-white Warbler	17	3	3		C		
	Smooth-billed Ani	15	2	3		R		
	Blue-gray Gnatcatcher	14	3	2		C		

¹Entry criteria (Area Importance [AI] scores roughly mean "1" irregular and unpredictable occurrence, "2" rare to uncommon but regular occurrence, "3" low relative abundance, "4" moderate to high relative abundance, "5" highest relative abundance; Population Trend [PT] scores roughly mean "1" definite increase, "2" stable or possible increase, "3" trend unknown, "4" possible decrease, "5" definite decrease);

- Ia. **Overall Highest Priority Species.** Species with total score 28-35. Ordered by total score. Consider deleting species with AI ≤ 2 confirmed to be of peripheral occurrence and not of local conservation interest, but retain species potentially undersampled by BBS or known to have greatly declined during this century.
- Ib. **Overall High Priority Species.** Species with total score 22-27. Ordered by total score. Consider deleting species with AI ≤ 2 confirmed to be of peripheral occurrence and not of local conservation interest, but retain species potentially undersampled by BBS or known to have greatly declined during this century.
- II. **Area Priority Species.** Species with slightly lower score total 19-21 with PT + AI = 8 + (a) or with high percent BBS population (b). Ordered by total score. These are overall moderate priority species.

- III. Additional Species of Global Priority.** Add WatchList species (Partners in Flight-National Audubon Society priority species at national level), not already listed in either I or II, with AI=2+. Order by total score. Consider deleting species with AI=2 if confirmed to be of peripheral occurrence and not of local conservation interest, but retain if a local population is viable and/or manageable. These are also overall moderate priority species.
- IV. Local or Regional Interest Species.** Includes game or nongame species identified by State Working Groups. Also, may include species often meeting criteria for I or II within other physiographic areas and therefore of regional interest for monitoring throughout the Southeast. These are overall low priority species within physiographic area, but may be more important within one or more States (especially where multiple states have designated some special protective status on the species).

²Local Migratory Status, codes adapted from Texas Partners in Flight as follows:

- A =** Breeds in temperate or tropical areas outside of region, and winters in temperate or tropics outside of region (i.e., passage migrant).
- B =** Breeds in temperate or tropical areas including the region, and winters exclusively in temperate or tropics outside the region (i.e., includes both breeding and transient populations).
- C =** Breeds in temperate or tropical areas outside of region, and winters in both the region and in temperate or tropical areas beyond area (i.e., includes both transient and wintering populations).
- D =** Breeds and winters in the region, with perhaps different populations involved, including populations moving through to winter beyond the region in temperate or tropical areas (i.e., populations may be present throughout year, but may include a large number of passage migrants).
- E =** Species reaching distributional limits within the region, either as short-distance or long-distance breeding migrants, but at population levels above peripheral status.
- F =** Same as E except for wintering (non-breeding) migrants.
- R =** Resident, generally non-migratory species (though there may be local movements).
- RP =** Resident, non-migratory species, reaching distributional limits within the region, but at population levels above peripheral status.
- P =** Pelagic, breeding grounds outside of region, but can occur during breeding season.
- PB =** Post-breeding dispersal or non-breeding resident; species present during breeding season, but not known to be breeding in the region proper.

³Highest percent of breeding population recorded in temperate North America; numbers in " are likely projections; ? indicates species widespread outside of temperate North America and/or waterbirds poorly sampled by Breeding Bird Survey within physio. area.

⁴AI or PT score revised from what was derived by BBS data, or lack thereof, based on better local information.

⁵Species listed as either Federal Endangered or Threatened.

Figure 37. Species suites for Hobe Sound National Wildlife Refuge represent fairly discrete groups based on present and potential habitat.

Priority Level	Mangroves/ Tropical Hardwoods	Shrub-scrub	Forested Wetlands/ Hammocks	Transient Landbirds	Emergent Wetlands	Colonial Nesting Waders	Colonial Beach Nesters	Shorebirds ¹	Open Water
Extremely High	Wood Stork Short-tailed Hawk FL Prairie Warbler Shallow-tailed Kite	FL Scrub-Jay Painted Bunting	Short-tailed Hawk Swallow-tailed Kite		Wood Stork Mottled Duck	Wood Stork		Am. Oystercatcher	Piping Plover Red Knot
High	White-crowned Pigeon Reddish Egret Black-whiskered Vireo Brown Pelican Gray Kingbird White Ibis Mangrove Cuckoo	Gray Kingbird Palm Warbler Prairie Warbler	Bicknell's Thrush Black-throated Blue Warbler Boblink Cape May Warbler Connecticut Warbler	Black Rail Nelson's Sharp-tailed Sparrow Reddish Egret Yellow Rail Brown Pelican Am. Bittern Clapper Rail Sedge Wren	Reddish Egret White Ibis	Black Skimmer Brown Pelican White Ibis	Whimbrel Stilt Sandpiper Buff-breasted Sandpiper Solitary Sandpiper Wilson's Plover Short-billed Dowitcher Semipalmated Sandpiper	Brown Pelican Black Skimmer Marbled Godwit Black Tern	
Moderate	Little Blue Heron Bald Eagle Tricolored Heron Yellow-crowned Night-Heron Yellow-billed Cuckoo	White-eyed Vireo Common Ground-Dove Smooth-billed Ani Gray Catbird Eastern Towhee	Bald Eagle Limpkin Yellow-billed Cuckoo	Veery	Least Bittern Bald Eagle Northern Harrier Limpkin King Rail Little Blue Heron Tricolor Heron Yellow-crowned Night-Heron Loggerhead Shrike Common Nighthawk	Tricolor Heron Little Blue Heron	Least Tern Royal Tern Yellow-crowned Night-Heron	Sanderling Dunlin Gull-billed Tern Greater Yellowlegs Western Sandpiper Least Sandpiper American Avocet Willet Black-bellied Plover Ruddy Turnstone	Magnificent Frigatebird Bald Eagle Least Tern Royal Tern
Local or Regional Interest	Yellow-throated Warbler Northern Parula Little Blue Heron Black-and-white Warbler Blue-gray Gnatcatcher Roseate Spoonbill	Brown Thrasher	Yellow-throated Warbler Northern Parula Black-and-white Warbler Blue-gray Gnatcatcher	Barn Owl Peregrine Falcon Merlin	Peregrine Falcon Eastern Kingbird	Roseate Spoonbill	Peregrine Falcon Merlin		Common Loon Am. White Pelican Lesser Scaup Blue-winged Teal Northern Pintail Redhead Ring-necked duck

¹Shorebirds use estuaries and mangrove areas at low tide, beaches, etc. for foraging and may roost in coastal dune areas.

VIII. EXISTING AND POTENTIAL PARTNERS

Federal, State, and Local Agencies

Florida Inland Navigation District
Florida Fish and Wildlife Conservation Commission
Florida Department of Environmental Protection
Florida Marine Patrol
Florida Oceanographic Society
Florida Park Service
Indian River Marine Resources Council
Jupiter Island Police
Martin County Sheriff
Martin County Fire and Rescue
Martin County Mosquito Control District
National Oceanic and Atmospheric Administration
South Florida Interagency Fire Management Council
South Florida Water Management District
South Martin Regional Utility
St. Lucie County Mosquito Control District
Town of Jupiter Island
Treasure Coast Regional Planning Council
U.S. Army Corps of Engineers
U.S. Bureau of Land Management
U.S. Coast Guard
U.S. Geological Survey-Biological Research Division
(Florida Cooperative Fish and Wildlife Research Unit)
Martin County Commission
U.S. Department of Agriculture
 Animal and Plant Health Inspection Service

Private Landowners

South End Improvement Group, Inc.
Hobe Sound Land Company

Universities and Other Learning Institutions

Jupiter Community High School
Martin County School Board
Palm Beach Community College
Florida State University

Florida Atlantic University
St. Lucie County School Board
University of Florida
University of Miami
Indian River Community College

Organizations

Bush Wildlife Hospital
Ecological Associates, Inc.
The Nature Conservancy
Marine Resources Council
Martin County Audubon Society
Harbor Branch Oceanographic Institution, Inc.
Hobe Sound Chamber of Commerce
Hobe Sound Nature Center
Jupiter Island Garden Club
Seminole Tribes of Florida
Southeast Florida Archaeological Society
Treasure Coast Wildlife Hospital
Native Plant Society