

## SECTION C. APPENDICES

# I. GLOSSARY

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| <i>Adaptive management</i>             | The process of implementing projects 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 be modified to achieve desired conditions.  |
| <i>Alternative</i>                     | A set of objectives and strategies needed to achieve refuge goals and desired future conditions.   |
| <i>Anadromous</i>                      | Going from salt water to fresh water; such is said of salmon, shad, snook, or tarpon.  |
| <i>Approved acquisition boundary</i>   | A project boundary that the Director of the Fish and Wildlife Service approves upon completion of the detailed planning and environmental compliance process.  |
| <i>Breeding Bird Survey</i>            | A cooperative program of the Fish and Wildlife Service and the Canadian Wildlife Service for monitoring population changes in North American breeding birds by using point counts along roads (Koford et al., 1994).   |
| <i>Biological diversity</i>            | The variety of life 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>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>Categorical exclusion</i>           | A category of actions that do not individually or cumulatively have a significant effect on the human environment, and have been found to have no such effect in procedures adopted by a federal agency pursuant to the National Environmental Policy Act.   |
| <i>CFR</i>                             | Code of Federal Regulations.   |
| <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 Refuge 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.

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| <i>Conservation easement</i>       | A legal document that provides specific land-use rights to a secondary party. A perpetual conservation easement usually grants conservation and management rights to a party in perpetuity.   |
| <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 individuals from one region or place to another.  |
| <i>Cover type</i>                  | The present vegetation of an area.  |
| <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>Cultural resource inventory</i> | A professionally conducted study designed to locate and evaluate evidence of cultural resources present within a defined geographic area. Inventories may involve various levels, including background literature search, comprehensive field examination to identify all exposed physical manifestations of cultural resources, or sample inventory to project site distribution and density over a larger area. Evaluation of identified cultural resources to determine eligibility for the National Register follows the criteria found in 36 CFR 60.4 (Service Manual 614 FW 1.7). |
| <i>Cultural resource overview</i>  | A comprehensive document prepared for a field office that discusses, among other things, its prehistory and cultural history, the nature and extent of known cultural resources, previous research, management objectives, resource management conflicts or issues, and a general statement on how program objectives should be met and conflicts resolved. An overview should reference or incorporate information from a field office background or literature search described in Section VIII of the Cultural Resources Management Handbook (Service Manual 614 FW 1.7).            |
| <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>Disturbance</i>                 | Significant alteration of habitat structure or composition. May be natural (e.g., fire) or human-caused (e.g., timber harvest).   |
| <i>Early succession</i>            | Describes vegetative communities which have recently been disturbed.  |
| <i>Ecological succession</i>       | The orderly progression of an area through time from one vegetative community to another in the absence of disturbance.   |
| <i>Ecosystem</i>                   | A dynamic and interrelated complex of plant and animal communities and their associated non-living environment.   |

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| <i>Ecosystem management</i>       | Management of natural resources using system-wide concepts to ensure that all components and basic processes of an ecosystem are maintained indefinitely.  |
| <i>Edge effect</i>                | The tendency of a transitional zone between communities to support more species and higher population densities than any of the surrounding 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.   |
| <i>Endangered species (state)</i> | A plant or animal species in danger of becoming extinct or extirpated in a particular state within the near future if factors contributing to its decline continue. Populations of these species are at critically low levels or their habitats have been degraded or depleted to a significant degree.  |
| <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>Estuarine</i>                  | Deposited in an estuary; an inlet or arm of the sea where salt water and fresh water meet.   |
| <i>Even-aged forests</i>          | Forests that are composed of trees with a time span of less than 20 years between oldest and youngest individuals.   |
| <i>Even-aged management</i>       | A silvicultural method, designed primarily for timber production, in which all trees in a stand are of one age/size class. The forest is regulated by developing equal areas in each age/size class.   |
| <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>Fauna</i>                      | All the vertebrate and invertebrate animals of an area.  |
| <i>Federal trust resources</i>    | A trust is something managed by one entity for another who holds the ownership. The Fish and Wildlife Service holds in trust many natural resources for the people of the United States of America as a result of federal acts and treaties. Examples are species listed under the Endangered Species Act, migratory birds protected by international treaties, and native plant or wildlife species found on national wildlife refuges. |
| <i>Federal trust species</i>      | All species where the Federal Government has primary jurisdiction, including federally threatened and endangered species, migratory birds, anadromous fish, and certain marine mammals.  |
| <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).

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| <i>Feral</i>                      | A wild, free-roaming animal; may be a domestic escapee.   |
| <i>Fire regime</i>                | Description of the frequency, severity, and extent of fire that typically occurs in an area or vegetative type.   |
| <i>Flora</i>                      | All the plant species of an area.   |
| <i>Forb</i>                       | Broad-leaved herbaceous plant.  |
| <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>Fragmentation</i>              | The process of reducing size and connectivity of habitat patches. The disruption of extensive habitats into isolated and small patches.   |
| <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>Habitat restoration</i>        | Management emphasis designed to move ecosystems to desired conditions and processes, and/or to healthy forest lands, rangelands, and aquatic systems.   |
| <i>Herbicide</i>                  | A chemical agent used to kill plants or inhibit plant growth.   |
| <i>Home range</i>                 | The area supporting the daily activities of an animal, generally throughout the year.   |
| <i>Hydrological</i>               | Involving water flows or their distributions as related to evaporation, or flow to freshwater marshes, saltwater marshes, seas, estuaries, etc.   |
| <i>Indicator species</i>          | Plant or animal species that are assumed to be sensitive to habitat changes and represent the needs of a larger group of species.   |
| <i>Indigenous</i>                 | Living in and native to a specific area or environment.   |
| <i>Inholding</i>                  | Privately owned land inside the boundary of a national wildlife refuge.   |
| <i>Integrated pest management</i> | Methods of managing undesirable species (such as weeds) including: education, prevention, physical or mechanical methods of control, biological control, responsible chemical use, and cultural methods.  |

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| <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>Issue</i>                             | Any unsettled matter that requires a management decision.   |
| <i>Late succession</i>                   | Describes vegetative communities that have passed through the early stages of ecological succession in the absence of any disturbance.  |
| <i>Metapopulation</i>                    | A set of interacting populations of the same species.   |
| <i>Mid-story</i>                         | A layer of foliage intermediate in height between canopy and groundcover, litter layer, or soil surface.  |
| <i>Mid-succession forest</i>             | A forest generally characterized by even-aged structure resulting from human disturbance such as timber harvest. It may contain mature trees but, as a whole, does not exhibit functional or structural characteristics associated with old growth conditions.  |
| <i>Migratory</i>                         | Pertaining to the seasonal movement from one area to another and back.  |
| <i>Mitigation</i>                        | Reduction of negative impacts.  |
| <i>MMS</i>                               | Maintenance Management System. A national database which contains the unfunded maintenance needs of each refuge. Projects included are those required to maintain existing equipment and buildings, correct safety deficiencies for the implementation of approved plans, and meet goals, objectives, and legal mandates.   |
| <i>Monitoring</i>                        | The process of collecting information to track changes of selected parameters over time.  |
| <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</i>          | A designated area of land or water, or an interest in land or water, within the National Wildlife Refuge System.  |
| <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 species</i>                    | A species that, other than as a result of an introduction, historically occurred or currently occurs in a particular 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>Notice of Intent (NOI)</i>            | In the case of a federal action, such as analyzed in this documentation, an NOI is a notice that a comprehensive conservation plan and associated National Environmental Policy Act document will be prepared and considered (40 CFR 1508.22). Published in the Federal Register.   |

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| <i>Notice of Availability (NOA)</i> | An NOA is a notice that documentation is available to the public on a federal action, in this case, the comprehensive conservation plan. Published in the Federal Register.  |
| <i>Objective</i>                    | A concise and, where possible, quantitative target statement of what will be achieved. Objectives are derived from goals and provide the basis for determination of specific management strategies. They should be attainable and time-specific.   |
| <i>Partnerships</i>                 | A mutually beneficial, joint relationship between two agencies or an agency and landowner, etc.  |
| <i>Planning area</i>                | An area that may include lands outside existing refuge planning unit boundaries that are being studied for inclusion in the unit and/or partnership planning efforts. It may also include watersheds or ecosystems that affect those lands.  |
| <i>Planning team</i>                | Prepares the comprehensive conservation plan. Planning teams are interdisciplinary in membership and function. A planning team generally consists of the planning team leader; refuge manager and staff biologists; staff specialists or other representatives of Service programs; ecosystems, or regional offices; and state partnering wildlife agencies, as appropriate. |
| <i>Plant association</i>            | A classification of plant communities based on the similarity in dominance of all layers of vascular species in a climax community.  |
| <i>Plant community</i>              | An assemblage of plant species that is unique in its composition; that occurs in particular locations under particular influences; that is a reflection or integration of the environmental influences on the site, such as soil, temperature, elevation, solar radiation, slope, aspect, and rainfall; and that denotes a general kind of climax plant community.           |
| <i>Preferred alternative</i>        | The alternative identified in the draft comprehensive conservation plan and selected by the Fish and Wildlife Service as the one to best achieve the refuge purposes, vision, and goals.   |
| <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>Public</i>                       | Individuals, organizations, and groups; officials of federal, state, and local government agencies; Native American tribes; and foreign nations. It may include anyone outside the core planning team. It includes those who may or may not have indicated an interest in Service issues and those who do or do not realize that Service decisions may affect them.          |
| <i>Public involvement</i>           | A process that offers affected and interested individuals and organizations an opportunity to become informed about, and to express their opinions on, Service actions and policies. In the process, these views are studied thoroughly and thoughtful consideration of public views is given in shaping decisions for refuge management.                                    |
| <i>Record of decision (ROD)</i>     | A concise public record of decision prepared by a Federal agency, pursuant to the National Environmental Policy Act, that contains a statement of the decision, identification of all alternatives considered, identification of the environmentally preferable alternative, a statement as to whether all practical means to avoid or minimize                              |

environmental harm from the alternative selected have been adopted (and if not, why they were not), and a summary of monitoring and enforcement, where applicable, for any mitigation (40 CFR 1505.2).

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| <i>Refuge boundary</i>        | Lands acquired by the Fish and Wildlife Service within the current approved acquisition boundary.   |
| <i>Refuge purposes</i>        | Purposes specified in or derived from the law, proclamation, Executive Order, agreement, public land order, donation document, or administrative memorandum establishing, authorizing, or expanding a refuge or part of a refuge.   |
| <i>Refuge revenue sharing</i> | A 1978 Act (Public Law 95-469) which authorizes payments to counties in which Service-owned land is located. The amount of the payment is computed based on things such as the appraised value of Service fee land, number of acres of fee land, and net receipts collected by the Service for certain activities permitted on reserve lands (lands withdrawn from the public domain).    |
| <i>Refuge use</i>             | Any activity on a refuge, except administrative or law enforcement activity, carried out by, or under the direction of, an authorized Service employee.   |
| <i>Regeneration</i>           | A silvicultural method of harvesting and establishing tree reproduction at the same time.   |
| <i>RONs</i>                   | Refuge Operating 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>Rotation</i>               | Number of years between regeneration events in an even-aged management of forests.  |
| <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>Scrub habitat</i>          | A distinct and imperiled xeric vegetative community growing on high sandy ridges. This rapidly drained, dry plant community structure is characterized by an open, canopy-free landscape dominated by low shrubs interspersed with open patches of sand. Often sand pines are a component of this habitat type, but in a healthy habitat they do not dominate the vegetation composition. |
| <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>Silviculture</i>           | The theory and practice of controlling the establishment, composition, structure, and growth of forests to achieve management objectives. Primarily developed for timber production, silviculture can be used for a variety of purposes including biological conservation.  |
| <i>Sink</i>                   | Habitat in which local mortality exceeds local reproductive success for a given species.  |

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| Sink population                       | Population in low-quality habitat with a death rate exceeding the birth rate, thus depending on immigrants from a source population to maintain its density.   |
| <i>Snag</i>                           | Standing dead tree.  |
| <i>Source</i>                         | Habitat in which local reproductive success exceeds local mortality for a given species.   |
| <i>Source population</i>              | Population in high-quality habitat with a birth rate significantly exceeding mortality, and excess individuals leaving as migrants.  |
| <i>Special status species</i>         | Plants or animals which have been identified through either federal law, state law, or agency policy, as requiring special protection or monitoring. Examples include federally listed endangered, threatened, proposed, or candidate species; state-listed endangered, threatened, candidate, or monitor species; Fish and Wildlife Service species of management concern and species identified by the Partners-in-Flight Program as being of extreme or moderately high conservation concern. |
| <i>Species</i>                        | A group of organisms that 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>Species of management interest</i> | Those plant and animal species, while not falling under the definition of special status species, that are of management interest by virtue of being federal trust species such as migratory birds, important game species including white-tailed deer, furbearers such as American marten, important prey species including red-backed vole, or significant keystone species such as beaver.  |
| <i>Sound professional judgement</i>   | A finding, determination, or decision that is consistent with principles of sound fish and wildlife management and administration, available science and resources, and adherence to the requirements of the National Wildlife Refuge System Administration Act and other applicable laws.   |
| <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 action 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>Threatened species (state)</i>     | A plant or animal species likely to become endangered in a particular state within the near future if factors contributing to population decline or habitat degradation or loss continue.  |
| <i>Translocation</i>                  | Artificial movement of wild organisms between or within populations to achieve management objectives. Originally referring to the movement of animals from captive to wild populations, the term has been expanded to include movements (by artificial means) within and between wild populations.   |

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| <i>Understory</i>                                | Any vegetation with canopy below or closer to the ground than canopies of other plants.  |
| <i>Uneven-aged management</i>                    | A silvicultural method designed primarily for timber production in which trees of at least three age classes are present in the same stand. Stands are regulated by size class structure or volume.  |
| <i>Vegetation</i>                                | Plants in general, or the sum total of the plant life in an area.  |
| <i>Vegetation/habitat/<br/>forest cover type</i> | Land classification system based upon the concept of distinct plant associations.  |
| <i>Vision Statement</i>                          | A concise statement of the desired future condition of the planning unit, based primarily upon the Refuge System mission, specific refuge purposes, and other relevant mandates (Draft Service Manual 602 FW 1.5).   |
| <i>Watershed</i>                                 | The region draining into a river, river system, or body of water.  |
| <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 than prescribed (controlled) fire.                |
| <i>Wildlife-dependent recreation</i>             | Uses on a national wildlife refuge that involve 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. RELEVANT 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.

The Bon Secour 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

The Bon Secour National Wildlife Refuge 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 establishes conservation and land protection goals, objectives, and specific strategies for the refuge. Compatible recreation uses specific to the refuge have been identified in Appendix VII, Compatibility Determinations. The 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 Management Plan) to meet National Environmental Policy Act requirements for decision-making.

### *Migratory Bird Treaty Act (1918)*

This Act designates the protection of migratory birds as a federal responsibility. It enables the setting of seasons and other regulations including the closing of areas, federal or non-federal, to the hunting of migratory birds.

### *Migratory Bird Conservation Act (1929)*

This Act 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 (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 into a special U.S. Treasury account known as the Migratory Bird Conservation Fund and are not subject to appropriations.

### *Refuge Revenue Sharing Act of 1935, as amended (16 U.S.C. 715s)*

This Act provides for payments to counties in lieu of taxes, using revenues derived from the sale of products from refuges. Public Law 88-523 (1964) revised this Act and required that all revenues received from refuge products, such as animals, timber and minerals, or from leases or other privileges, be

deposited in a special U.S. Treasury account and net receipts distributed to counties for public schools and roads. Payments to counties were established as: 1) 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 2) 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), payment in lieu of taxes on public lands. The current and proposed management of this refuge under this comprehensive conservation plan is in compliance with this Act.

#### *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.

#### *National and Community Service Act of 1960 (42 U.S.C. 12401:104 Stat. 3127)*

Public Law 101-610, signed November 16, 1960, 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 Native American 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 the states, to the Secretaries of Agriculture and Interior, and to the Director of ACTION in order to carry out these responsibilities.

#### *Fish and Wildlife Act (1956)*

This Act established a comprehensive national fish and wildlife policy and broadened the authority for acquisition and development of refuges.

#### *Fish and Wildlife Coordination Act (1958)*

This Act allows the Fish and Wildlife Service to enter into agreements with private landowners for wildlife management purposes.

#### *Refuge Recreation Act (1962)*

This Act 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 these uses. It authorizes construction and maintenance of recreational facilities, as well as the acquisition of land for incidental fish and wildlife oriented recreational development or protection of natural resources. It also authorizes the collection of user fees.

#### *Land and Water Conservation Fund Act (1965)*

This Act authorizes the use of 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)*

This 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; establishes 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)*

This Act requires federally owned, leased, or funded buildings and facilities to be accessible to persons with disabilities.

*National Environmental Policy Act of 1969 (P.L. 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 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 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.

*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)*

This Act 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)*

This Act requires consultation with the U.S. Army Corps of Engineers for major wetland modifications.

*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 flood plains" 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." This Act authorized the purchase of wetlands from Land and Water Conservation Fund moneys, removing a prior prohibition on such acquisitions. 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.

*Federal Noxious Weed Act (1990)*

This Act 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.

*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.

*Americans With Disabilities Act (1992)*

This Act prohibits discrimination in public accommodations and services.

*Executive Order 12996, Management and General Public Use of the National Wildlife Refuge System (1996)*

This Order 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)*

This Order directs federal land management agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, to avoid adversely affecting the physical integrity of such sacred sites, and where appropriate, to maintain the confidentiality of sacred sites.

*National Wildlife Refuge System Improvement Act (1997)*

Public Law 105-57, amends the National Wildlife Refuge System Act of 1966 (16 U.S.C. 668dd-ee), providing guidance for management and public use of the National Wildlife 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: fishing, hunting, 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 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 management of each refuge consistent with that plan. When writing a plan, planning 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 or developing a comprehensive conservation plan.

## **HISTORIC PRESERVATION ACTS**

*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 requires 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.

*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), declares it a national policy to preserve historic sites and objects of national significance, including those located on refuges. It provides procedures for designation, acquisition, administration, and protection of such sites. Among other things, National Historic Sites and Natural Landmarks are designated under authority of this Act. As of January 1989, thirty-one national wildlife refuges contained such sites.

*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.

*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.

*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 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)*

This Law 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.

## *IV. SUMMARY OF PUBLIC COMMENTS*

In accordance with Fish and Wildlife Service guidelines and National Environmental Policy Act recommendations, public involvement has been a crucial factor throughout the development of the Draft Comprehensive Conservation Plan for Bon Secour National Wildlife Refuge. The following briefly summarizes the efforts taken to solicit public input and presents the results of the public consultation process. A detailed description of that process is provided in Chapter III of the Comprehensive Conservation Plan.

On February 19, 2003, the first of a series of public meetings was held in Gulf Shores after the initial development of management recommendations based on the Biological Review in 2000 and the Public Use Review in 2001. A planning team was formed to identify issues and concerns regarding the refuge and its wildlife, habitats, and management. Additional meetings were held from March through June 2003, to provide continuous information to the public and solicit further input. Efforts were taken to widely announce public meetings by publishing dates, times, and locations in local newspapers, as well as on flyers distributed to everyone on the comprehensive conservation plan mailing list.

A comment packet was designed to identify the importance of different refuge features and opportunities for the public, while also allowing for "free-hand" comments on values, issues, and concerns related to the refuge. This packet was available at all public meetings and at the refuge office and the Alabama Convention and Visitors Bureau, and it could also be requested via mail or e-mail. In addition, it was sent out to everyone on the plan's mailing list, the sea turtle volunteers, and the Friends of Bon Secour National Wildlife Refuge. Out of an estimated total of 500 comment packets thus distributed to the public, 102 completed forms (representing approximately 20 percent response) were returned to the refuge.

The majority of responses (75 percent) came from Alabama residents, most of them living within an hour's drive of the refuge. Out-of-state respondents included 10 different states within the United States and one visitor from overseas (Japan). Sixty-nine of all respondents (67 percent) indicated no affiliation with any organization, while the remaining 23 percent represented eight different organizations, predominantly the above-mentioned Friends group. Eighty-nine percent of all respondents said they had visited the refuge at least once.

Results show that the vast majority of the participants in this poll consider wildlife and ecosystem protection and conservation as the most important issues for the refuge to address. These were followed by a desire for more public education and involvement, increased law enforcement, and control of invasive species. Issues receiving the least support were mostly related to further development of recreational opportunities. Improving fishing opportunities and offering more recreational opportunities were disfavored by a majority of the respondents. A complete list of issues and their rankings is provided in Table 12.

**Table 12: Results of public evaluation of issues related to refuge management**

| Issue   | Agree or strongly agree | Disagree or strongly disagree | No opinion | Blank |
|---|-------------------------|-------------------------------|------------|-------|
| Conserve habitat for native wildlife and plants                                 | 101                     | 0                             | 1          | 0     |
| Protect threatened, endangered species and wildlife of special concern          | 100                     | 0                             | 1          | 1     |
| Protect the whole biological system   | 98                      | 1                             | 3          | 0     |
| Remove and control exotic, invasive species                                     | 90                      | 3                             | 7          | 2     |
| Work closely with community organizations                                       | 90                      | 1                             | 8          | 3     |
| Expand volunteer program  | 89                      | 2                             | 10         | 1     |
| Develop environmental education and interpretative programs                     | 88                      | 2                             | 10         | 2     |
| Increase law enforcement to protect refuge resources                            | 87                      | 6                             | 8          | 1     |
| Promote BSNWR to increase public knowledge and participation in refuge programs | 83                      | 4                             | 12         | 3     |
| Increase staff and funding to support refuge programs                           | 80                      | 6                             | 14         | 2     |
| Limit amount of new public use facilities                                       | 79                      | 18                            | 4          | 1     |
| Increase research opportunities & funding                                       | 74                      | 8                             | 17         | 2     |
| Limit public use of BSNWR to protect wildlife                                   | 69                      | 26                            | 7          | 0     |
| Build visitor & education center  | 66                      | 12                            | 17         | 7     |
| Improve public use facilities   | 51                      | 32                            | 16         | 3     |
| Improve accessibility of refuge facilities                                      | 46                      | 28                            | 22         | 6     |
| Improve fishing opportunities   | 36                      | 37                            | 27         | 2     |
| Provide more recreational opportunities   | 26                      | 64                            | 11         | 1     |

Among a choice of recreational activities on the refuge, wildlife observation, hiking, and nature study ranked topmost, listed on 87, 77, and 71 percent, respectively, of all the forms completed. Least in demand was fishing (22 percent), sea kayaking (18 percent), and boating (14 percent). Entries under "other activities" included birding, plant study, and volunteering, among others. Table 13 presents a complete list of activities and the degree of their preference by the public.

**Table 13: Preferred activities on the refuge**

| Activity                               | Times listed as preferred |
|--|---------------------------|
| wildlife observation                   | 87                        |
| hiking                                 | 77                        |
| nature study                           | 71                        |
| interpretation/environmental education | 63                        |
| photography                            | 60                        |
| beach activities                       | 36                        |
| fishing                                | 22                        |
| sea kayaking                           | 18                        |
| boating                                | 14                        |
| others (specified below)               | 13                        |
| birding                                | 6                         |
| plant study                            | 2                         |
| controlled camp fires                  | 1                         |
| turtle nest sitting                    | 1                         |
| volunteer                              | 1                         |
| dog walking                            | 1                         |
| blank                                  | 1                         |

When asked to list the values of the refuge, wildlife and habitat conservation was named the most often (by 45 respondents), followed by the natural environment (37), hiking and trails (21), and wildlife observation (20). Also repeatedly mentioned were beauty, birding, serenity, solitude, educational values, uniqueness, and other features mostly similar to those.

Listed a total of 57 times, the impacts of overdevelopment and overuse took a clear lead. Twenty-two respondents were concerned about commercialization and a possible shift of emphasis from wildlife to people, while both lack of funding and the inability to acquire more land were named 16 times. Other issues related to litter, insufficient law enforcement, need for more educational opportunities, and inadequate staffing.

On the list of unacceptable activities on the refuge, motor vehicles, motor boating, and camping made up the top three, with 21, 20, and 20 nominations, respectively. Hunting, pets, all-terrain vehicles, and jet skis were also rejected by many. Further listings included anything that impacts wildlife, fires, fishing, large picnics, off-trail hiking, and biking.



# *V. BUDGET REQUESTS, REFUGE OPERATING NEEDS (RONS), AND MAINTENANCE MANAGEMENT SYSTEM (MMS) NEEDS*

| RONS Project Name  | Project No. | Amount             |
|--|-------------|--------------------|
| 1. Protect refuge resources and visitors.  | RONS 96005  | \$159,000          |
| 2. Provide outreach and enhance visitor services at Bon Secour National Wildlife Refuge.   | RONS 00006  | 129,000            |
| 3. Standardize surveys and monitoring of Alabama beach mice, transient, nesting and wintering songbirds, shorebirds, marshbirds, and herpetofauna.                               | RONS 96007  | 139,000            |
| 4. Orient and educate visitors.  | RONS 04004  | 500,000            |
| 5. Eradicate invasive Chinese tallow trees and cogongrass.   | RONS 01001  | 60,000             |
| 6. Protect archeological resources through survey and planning.  | RONS 97001  | 60,000             |
| 7. Promote sea turtle conservation along the Alabama coast.  | RONS 02001  | 61,000             |
| 8. Evaluate scrub habitat for Alabama beach mouse.   | RONS 02002  | 157,000            |
| 9. Use prescribed fire to promote and maintain shrubs for transient songbird population.   | RONS 01003  | 54,000             |
| 10. Ecological role of prescribed fire in coastal ecosystems.  | RONS 02003  | 77,000             |
| 11. Distribution of birds in fire manipulated habitats.  | RONS 02004  | 75,000             |
| 12. Improve maintenance operations and facilities management.  | RONS 00007  | 87,000             |
| 13. Protect dune structure and habitat for Alabama beach mice by providing elevated boardwalks for beach access points.  | RONS 04005  | 305,000            |
| 14. Delineate rare plant communities.  | RONS 01006  | 22,000             |
| 15. Build and maintain databases containing biological resource data and spatial relationships for the Bon Secour National Wildlife Refuge and surrounding coastal environments. | RONS 04001  | 22,000             |
| 16. Manage forest structure to optimize migratory bird and gopher tortoise habitats on the Bon Secour National Wildlife Refuge.  | RONS 04002  | 50,000             |
| 17. Provide wildlife-dependent recreational opportunities in the Little Point Clear Unit.  | RONS 04006  | 60,000             |
| <b>TOTAL</b>   |             | <b>\$2,017,000</b> |

| MMS Project Name  | MMS #     | Amount           |
|---|-----------|------------------|
| 1. Improve maintenance operations and facilities management.  | MMS 00006 | \$350,000        |
| 2. Enhance wildlife-dependent recreational opportunities on the Jeff Friend Trail.                        | MMS 02006 | 48,000           |
| 3. Enhance wildlife-dependent recreational opportunities on the Pine Beach Trail.                         | MMS 02002 | 39,000           |
| 4. Create wildlife-dependent recreational opportunities in the Sand Bayou Unit.                           | MMS 04001 | 55,000           |
| 5. Provide environmental education opportunities and serve as a training ground for conservation interns. | MMS 97002 | 161,000          |
| 6. Enhance fishing opportunities at Gator Lake.   | MMS 02007 | 41,000           |
| <b>TOTAL</b><br>(does not include routine vehicle and equipment replacement)                              |           | <b>\$694,000</b> |

## VI. REFUGE BIOTA

(Wildlife species that have been reported on the refuge.)

### Loons

Red-throated Loon  
Arctic/Pacific Loon  
Common Loon

*Gavia stellata*  
*Gavia pacifica*  
*Gavia immer*

### Grebes

\*Pied-billed Grebe  
Horned Grebe  
Red-necked Grebe  
Eared Grebe  
Western Grebe

*Podilymbus podiceps*  
*Podiceps auritus*  
*Podiceps grisegena*  
*Podiceps nigricollis*  
*Aechmophorus occidentalis*

### Shearwaters, Petrels

Wilson's Storm-petrel  
Cory's Shearwater  
Greater Shearwater  
Sooty Shearwater  
Manx Shearwater  
Audubon's Shearwater

*Oceanites oceanicus*  
*Calonectris diomedea*  
*Puffinus gravis*  
*Puffinus griseus*  
*Puffinus puffinus*  
*Puffinus lherminieri*

### Tropicbirds

White-tailed Tropicbird

*Phaeton lepturus*

### Boobies and Gannets

Masked Booby  
Brown Booby  
Northern Gannet

*Sula dactylatra*  
*Sula leucogaster*  
*Morus bassanus*

### Pelicans and their allies

American White Pelican  
\*Brown Pelican  
Double-crested Cormorant  
Neotropic (Olivaceous) Cormorant  
Great Cormorant  
\*Anhinga  
Magnificent Frigatebird

*Pelecanus erythrorhynchos*  
*Pelecanus occidentalis*  
*Phalacrocorax auritus*  
*Phalacrocorax brasilianus*  
*Phalacrocorax carbo*  
*Anhinga anhinga*  
*Fregata magnificens*

### Hérons, egrets and allies

American Bittern  
\*Least Bittern  
\*Great Blue Heron  
\*Great Egret  
\*Snowy Egret  
\*Little Blue Heron  
\*Tricolored Heron  
\*Reddish Egret  
\*Cattle Egret  
\*Green-backed Heron  
\*Black-crowned Night-Heron  
\*Yellow-crowned Night-Heron

*Botaurus lentiginosus*  
*Ixobrychus exilis*  
*Ardea herodias*  
*Casmerodius albus*  
*Egretta thula*  
*Egretta caerulea*  
*Egretta tricolor*  
*Egretta rufescens*  
*Bubulcus ibis*  
*Butorides striatus*  
*Nycticorax nycticorax*  
*Nyctanassa violacea*

\*Glossy Ibis  
\*White Ibis  
\*White-faced Ibis  
Roseate Spoonbill  
Wood Stork

*Plegadis falcinellus*  
*Eudocimus albus*  
*Plegadis chihi*  
*Ajaia ajaja*  
*Mycteria americana*

### **Waterfowl**

Fulvous Whistling-Duck  
Tundra Swan  
White-fronted Goose  
Snow Goose  
Ross' Goose  
Brant  
Canada Goose  
\*Wood Duck  
Green-winged Teal  
American Black Duck  
\*Mottled Duck  
\*Mallard  
White-cheeked Pintail  
Northern Pintail  
Blue-winged Teal  
Northern Shoveler  
Gadwall  
American Wigeon  
Canvasback  
Redhead  
Ring-necked Duck  
Greater Scaup  
Lesser Scaup  
Harlequin Duck  
Oldsquaw  
Black Scoter  
Surf Scoter  
White-winged Scoter  
Common Goldeneye  
Bufflehead  
Hooded Merganser  
Common Merganser  
Red-breasted Merganser  
Ruddy Duck

*Dendrocygna bicolor*  
*Cygnus columbianus*  
*Anser albifrons*  
*Chen caerulescans*  
*Chen rossii*  
*Branta bernicla*  
*Branta canadensis*  
*Aix sponsa*  
*Anas crecca*  
*Anas rubripes*  
*Anas fulvigula*  
*Anas platyrhynchos*  
*Anas bahamensis*  
*Anas acuta*  
*Anas discors*  
*Anas clypeata*  
*Anas strepera*  
*Anas americana*  
*Aythya valisineria*  
*Aythya americana*  
*Aythya collaris*  
*Aythya marila*  
*Aythya affinis*  
*Histrionicus histrionicus*  
*Clangula hyemalis*  
*Melanitta nigra*  
*Melanitta perspicillata*  
*Melanitta fusca*  
*Bucephala clangula*  
*Bucephala albeola*  
*Lophodytes cucullatus*  
*Mergus merganser*  
*Mergus serrator*  
*Oxyura jamaicensis*

### **Vultures, Hawks and Allies**

\*Black Vulture  
\*Turkey Vulture  
\*Osprey  
\*American Swallow-tailed Kite  
Black-shouldered Kite  
\*Mississippi Kite  
\*Bald Eagle  
Golden Eagle  
Northern Harrier  
Sharp-shinned Hawk

*Coragypus atratus*  
*Cathartes aura*  
*Pandion haliaetus*  
*Elanoides forficatus*  
*Elanus caeruleus*  
*Ictinia mississippiensis*  
*Haliaeetus leucocephalus*  
*Aquila chrysaetos*  
*Circus cyaneus*  
*Accipiter striatus*

|                      |                           |
|----------------------|---------------------------|
| *Cooper's Hawk       | <i>Accipiter cooperii</i> |
| *Red-shouldered Hawk | <i>Buteo lineatus</i>     |
| *Broad-winged Hawk   | <i>Buteo platypterus</i>  |
| Short-tailed Hawk    | <i>Buteo brachyurus</i>   |
| Swainson's Hawk      | <i>Buteo swainsoni</i>    |
| *Red-tailed Hawk     | <i>Buteo jamaicensis</i>  |
| Ferruginous Hawk     | <i>Buteo regalis</i>      |
| Rough-legged Hawk    | <i>Buteo lagopus</i>      |
| American Kestrel     | <i>Falco sparverius</i>   |
| Merlin               | <i>Falco columbarius</i>  |
| Peregrine Falcon     | <i>Falco peregrinus</i>   |

### **Gallinaceous Birds (Quail, Turkey and Allies)**

|                    |                            |
|--------------------|----------------------------|
| *Wild Turkey       | <i>Meleagris gallopavo</i> |
| *Northern Bobwhite | <i>Colinus virginianus</i> |

### **Rails, Gallinules, Coots and Cranes**

|                   |                                   |
|-------------------|-----------------------------------|
| Yellow Rail       | <i>Coturnicops noveboracensis</i> |
| Black Rail        | <i>Laterallus jamaicensis</i>     |
| *Clapper Rail     | <i>Rallus longirostris</i>        |
| *King Rail        | <i>Rallus elegans</i>             |
| Virginia Rail     | <i>Rallus limicola</i>            |
| Sora              | <i>Porzana carolina</i>           |
| *Purple Gallinule | <i>Porphyryla martinica</i>       |
| *Common Moorhen   | <i>Gallinula chloropus</i>        |
| *American Coot    | <i>Fulica americana</i>           |
| Sandhill Crane    | <i>Grus canadensis</i>            |

### **Shorebirds**

|                         |                                    |
|-------------------------|------------------------------------|
| Black-bellied Plover    | <i>Pluvialis squatarola</i>        |
| Lesser Golden-Plover    | <i>Pluvialis dominica</i>          |
| *Snowy Plover           | <i>Charadrius alexandrinus</i>     |
| *Wilson's Plover        | <i>Charadrius wilsonia</i>         |
| Semipalmated Plover     | <i>Charadrius semipalmatus</i>     |
| Piping Plover           | <i>Charadrius melodus</i>          |
| *Killdeer               | <i>Charadrius vociferus</i>        |
| Mountain Plover         | <i>Charadrius montanus</i>         |
| *American Oystercatcher | <i>Haematopus palliatus</i>        |
| *Black-necked Stilt     | <i>Himantopus mexicanus</i>        |
| American Avocet         | <i>Recurvirostra americana</i>     |
| Greater Yellowlegs      | <i>Tringa melanoleuca</i>          |
| Lesser Yellowlegs       | <i>Tringa flavipes</i>             |
| Solitary Sandpiper      | <i>Tringa solitaria</i>            |
| *Willet                 | <i>Catoptrophorus semipalmatus</i> |
| Spotted Sandpiper       | <i>Actitis macularia</i>           |
| Upland Sandpiper        | <i>Bartramia longicauda</i>        |
| Whimbrel                | <i>Numenius phaeopus</i>           |
| Long-billed Curlew      | <i>Numenius americanus</i>         |
| Hudsonian Godwit        | <i>Limosa haemastica</i>           |
| Marbled Godwit          | <i>Limosa fedoa</i>                |
| Ruddy Turnstone         | <i>Arenaria interpres</i>          |
| Red Knot                | <i>Calidris canutus</i>            |
| Sanderling              | <i>Caladris alba</i>               |

|                           |                                 |
|---------------------------|---------------------------------|
| Semipalmated Sandpiper    | <i>Calidris pusilla</i>         |
| Western Sandpiper         | <i>Calidris mauri</i>           |
| Least Sandpiper           | <i>Calidris minutilla</i>       |
| White-rumped Sandpiper    | <i>Calidris fuscicollis</i>     |
| Baird's Sandpiper         | <i>Calidris bairdii</i>         |
| Pectoral Sandpiper        | <i>Calidris acuminata</i>       |
| Dunlin                    | <i>Calidrus tenuirostris</i>    |
| Curlew Sandpiper          | <i>Calidris ferruginea</i>      |
| Stilt Sandpiper           | <i>Calidrus himantopus</i>      |
| Buff-breasted Sandpiper   | <i>Tryngites subruficollis</i>  |
| Short-billed Dowitcher    | <i>Limnodromus griseus</i>      |
| Long-billed Dowitcher     | <i>Limnodromus scolopaceus</i>  |
| Common Snipe              | <i>Gallinago gallinago</i>      |
| *American Woodcock        | <i>Scolopax minor</i>           |
| Wilson's Phalarope        | <i>Phalaropus tricolor</i>      |
| Red-necked Phalarope      | <i>Phalaropus lobatus</i>       |
| Red Phalarope             | <i>Phalaropus fulicaria</i>     |
| Pomarine Jaeger           | <i>Stercorarius pomarinus</i>   |
| Parasitic Jaeger          | <i>Stercorarius parasiticus</i> |
| Long-tailed Jaeger        | <i>Stercorarius longicaudus</i> |
| *Laughing Gull            | <i>Larus atricilla</i>          |
| Franklin's Gull           | <i>Larus pipixcan</i>           |
| Bonaparte's Gull          | <i>Larus philadelphia</i>       |
| Ring-billed Gull          | <i>Larus delawarensis</i>       |
| *Herring Gull             | <i>Larus argentatus</i>         |
| Iceland Gull              | <i>Larus glaucoides</i>         |
| Lesser Black-backed Gull  | <i>Larus fuscus</i>             |
| Glaucous Gull             | <i>Larus hyperboreus</i>        |
| Greater Black-backed Gull | <i>Larus marinus</i>            |
| Black-legged Kittiwake    | <i>Rissa tridactyla</i>         |
| Sabine's Gull             | <i>Xema (Larus) sabini</i>      |
| Little Gull               | <i>Larus minutus</i>            |
| *Gull-billed Tern         | <i>Sterna nilotica</i>          |
| *Caspian Tern             | <i>Sterna caspia</i>            |
| *Royal Tern               | <i>Sterna maxima</i>            |
| *Sandwich Tern            | <i>Sterna sandvicensis</i>      |
| Roseate Tern              | <i>Sterna dougallii</i>         |
| *Common Tern              | <i>Sterna hirundo</i>           |
| *Forster's Tern           | <i>Sterna forsteri</i>          |
| *Least Tern               | <i>Sterna antillarum</i>        |
| Bridled Tern              | <i>Sterna anaethetus</i>        |
| Sooty Tern                | <i>Sterna fuscata</i>           |
| Black Tern                | <i>Chlidonias niger</i>         |
| *Black Skimmer            | <i>Rynchops niger</i>           |
| Brown Noddy               | <i>Anous stolidus</i>           |

**Pigeons, Doves**

\*Rock Dove

Band-tailed Pigeon

White-winged Dove

\*Mourning Dove

\*Common Ground-Dove

Eurasian Collared Dove

Ringed Turtle Dove

*Columba livia*

*Columba fasciata*

*Zenaida asiatica*

*Zenaida macroura*

*Columbina passerina*

*Streptopelia decaocto*

*Streptopelia risoria*

**Cuckoos**

Black-billed Cuckoo

\*Yellow-billed Cuckoo

Groove-billed Ani

*Coccyzus erythrophthalmus*

*Coccyzus americanus*

*Crotophaga sulcirostris*

**Owls**

\*Barn Owl

\*Eastern Screech-Owl

\*Great Horned Owl

Snowy Owl

Burrowing Owl

\*Barred Owl

Long-eared Owl

Short-eared Owl

*Tyto alba*

*Otus asio*

*Bubo virginianus*

*Nyctea scandiaca*

*Athene cunicularia*

*Strix varia*

*Asio otus*

*Asio flammeus*

**Goatsuckers**

Lesser Nighthawk

\*Common Nighthawk

\*Chuck-will's-widow

Whip-poor-will

*Chordeiles acutipennis*

*Chordeiles minor*

*Caprimulgus carolinensis*

*Caprimulgus vociferus*

**Swifts, Hummingbirds**

\*Chimney Swift

\*Ruby-throated Hummingbird

Black-chinned Hummingbird

Rufous Hummingbird

*Chaetura pelagica*

*Archilochus colubris*

*Archilochus alexandri*

*Selasphorus rufus*

**Kingfishers**

\*Belted Kingfisher

*Ceryle alcyon*

**Woodpeckers**

\*Red-headed Woodpecker

\*Red-bellied Woodpecker

Yellow-bellied Sapsucker

\*Downy Woodpecker

\*Hairy Woodpecker

\*Red-cockaded Woodpecker

\*Northern Flicker

\*Pileated Woodpecker

*Melanerpes erythrocephalus*

*Melanerpes carolinus*

*Sphyrapicus ruber*

*Picoides pubescens*

*Picoides villosus*

*Picoides borealis*

*Colaptes auratus*

*Dryocopus pileatus*

## **Flycatchers**

Olive-sided Flycatcher  
\*Eastern Wood-Pewee  
Yellow-bellied Flycatcher  
\*Acadian Flycatcher  
Alder Flycatcher  
Willow Flycatcher  
Least Flycatcher  
Eastern Phoebe  
Say's Phoebe  
Vermilion Flycatcher  
Ash-throated Flycatcher  
\*Great Crested Flycatcher  
\*Sulphur-bellied Flycatcher  
Tropical/Couch's Kingbird  
Western Kingbird  
\*Eastern Kingbird  
\*Gray Kingbird  
Scissor-tailed Flycatcher  
Fork-tailed Flycatcher

*Contopus borealis*  
*Contopus virens*  
*Empidonax flaviventris*  
*Empidonax virescens*  
*Empidonax alnorum*  
*Empidonax traillii*  
*Empidonax minimus*  
*Sayornis phoebe*  
*Sayornis saya*  
*Pyrocephalus rubinus*  
*Myiarchus cinerascens*  
*Myiarchus crinitus*  
*Myiodynastes luteiventris*  
*Tyrannus melancholicus/couchii*  
*Tyrannus verticalis*  
*Tyrannus tyrannus*  
*Tyrannus dominicensis*  
*Tyrannus forficatus*  
*Tyrannus dominicensis*

## **Martins and Swallows**

\*Purple Martin  
Tree Swallow  
\*Northern Rough-winged Swallow  
Bank Swallow  
\*Cliff Swallow  
Cave Swallow  
\*Barn Swallow

*Progne subis*  
*Tachycineta bicolor*  
*Stelgidopteryx serripennis*  
*Riparia riparia*  
*Hirundo pyrrhonota*  
*Petrochelidon fulva*  
*Hirundo rustica*

## **Jays and Crows**

\*Blue Jay  
American Crow  
\*Fish Crow

*Cyanocitta cristata*  
*Corvus brachyrhynchos*  
*Corvus ossifragus*

## **Chickadees and Titmice**

\*Carolina Chickadee  
\*Tufted Titmouse

*Parus carolinensis*  
*Parus bicolor*

## **Nuthatches**

Red-breasted Nuthatch  
\*White-breasted Nuthatch  
\*Brown-headed Nuthatch

*Sitta canadensis*  
*Sitta carolinensis*  
*Sitta pusilla*

## **Creepers**

Brown Creeper

*Certhia americana*

## **Wrens**

Rock Wren  
\*Carolina Wren  
Bewick's Wren  
House Wren  
Winter Wren  
Sedge Wren  
\*Marsh Wren

*Salpinctes obsoletus*  
*Thryothorus ludovicianus*  
*Thryomanes bewickii*  
*Troglodytes aedon*  
*Troglodytes troglodytes*  
*Cistothorus platensis*  
*Cistothorus palustris*

**Kinglets and Gnatcatchers**

Golden-crowned Kinglet  
Ruby-crowned Kinglet  
\*Blue-gray Gnatcatcher

*Regulus satrapa*  
*Regulus calendula*  
*Polioptila caerulea*

**Bluebirds, Thrushes and Robin**

Northern Wheatear  
\*Eastern Bluebird  
Veery  
Gray-cheeked Thrush  
Bicknell's Thrush  
Swainson's Thrush  
Hermit Thrush  
\*Wood Thrush  
\*American Robin

*Oenanthe oenanthe*  
*Sialia sialis*  
*Catharus fuscescens*  
*Catharus minimus*  
*Catharus minimus*  
*Catharus ustulatus*  
*Catharus guttatus*  
*Hylocichla mustelina*  
*Turdus migratorius*

**Thrashers**

Gray Catbird  
\*Northern Mockingbird  
Sage Thrasher  
\*Brown Thrasher

*Dumetella carolinensis*  
*Mimus polyglottos*  
*Oreoscoptes montanus*  
*Toxostoma rufum*

**Pipits**

American Pipit  
Sprague's Pipit

*Anthus rubescens*  
*Anthus spragueii*

**Waxwings**

Cedar Waxwing

*Bombycilla garrulus*

**Starling**

\*European Starling

*Sternus vulgaris*

**Shrike**

\*Loggerhead Shrike

*Lanius ludovicianus*

**Vireos**

\*White-eyed Vireo  
Bell's Vireo  
Blue-Headed Vireo  
\*Yellow-throated Vireo  
Warbling Vireo  
Philadelphia Vireo  
\*Red-eyed Vireo  
Black-whiskered Vireo  
Yellow-Green Vireo

*Vireo atricapillus*  
*Vireo bellii*  
*Vireo solitarius*  
*Vireo flavifrons*  
*Vireo gilvus*  
*Vireo philadelphicus*  
*Vireo olivaceus*  
*Vireo altiloquus*  
*Vireo flavoviridis*

## Warblers

Bachman's Warbler  
Blue-winged Warbler  
Golden-winged Warbler  
Tennessee Warbler  
Orange-crowned Warbler  
Nashville Warbler  
\*Northern Parula  
Yellow Warbler  
Chestnut-sided Warbler  
Magnolia Warbler  
Cape May Warbler  
Black-throated Blue Warbler  
Yellow-rumped Warbler  
Black-throated Gray Warbler  
Black-throated Green Warbler  
Blackburnian Warbler  
\*Yellow-throated Warbler  
\*Pine Warbler  
\*Prairie Warbler  
Palm Warbler  
Bay-breasted Warbler  
Blackpoll Warbler  
Cerulean Warbler  
\*Black-and-white Warbler  
\*American Redstart  
\*Prothonotary Warbler  
Worm-eating Warbler  
\*Swainson's Warbler  
Ovenbird  
Northern Waterthrush  
Louisiana Waterthrush  
\*Kentucky Warbler  
Connecticut Warbler  
Mourning Warbler  
\*Common Yellowthroat  
\*Hooded Warbler  
Wilson's Warbler  
Canada Warbler  
\*Yellow-breasted Chat

*Vermivora bachmanii*  
*Vermivora pinus*  
*Vermivora chrysoptera*  
*Vermivora peregrina*  
*Vermivora celata*  
*Vermivora ruficapilla*  
*Parula americana*  
*Dendroica petechia*  
*Dendroica pensylvanica*  
*Dendroica magnolia*  
*Dendroica tigrina*  
*Dendroica caerulescens*  
*Dendroica coronata*  
*Dendroica nigrescens*  
*Dendroica virens*  
*Dendroica fusca*  
*Dendroica dominica*  
*Dendroica pinus*  
*Dendroica discolor*  
*Dendroica palmarum*  
*Dendroica castanae*  
*Dendroica striata*  
*Dendroica cerulea*  
*Mniotilta vari*  
*Setophaga ruticilla*  
*Protonotaria citrea*  
*Helmitheros vernivorus*  
*Limnothlypis swainsonii*  
*Seiurus aurocapillus*  
*Seiurus noveboracensis*  
*Seiurus motacilla*  
*Oporornis formosus*  
*Oporornis agilis*  
*Oporornis philadelphia*  
*Geothlypis trichas*  
*Wilsonia citrina*  
*Wilsonia pusilla*  
*Wilsonia canadensis*  
*Icteria virens*

## Tanagers

\*Summer Tanager  
Scarlet Tanager  
Western Tanager

*Piranga rubr*  
*Piranga olivace*  
*Piranga ludoviciana*

## New World Finches

\*Northern Cardinal  
Rose-breasted Grosbeak  
Black-headed Grosbeak  
Blue Grosbeak  
\*Indigo Bunting  
\*Painted Bunting  
\*Dickcissel

*Cardinalis cardinalis*  
*Pheucticus ludovicianus*  
*Pheucticus melanocephalus*  
*Guiraca caerulea*  
*Passerina cyanea*  
*Passerina ciris*  
*Spiza americana*

## **Sparrows**

Green-tailed Towhee  
\*Eastern (Rufous-sided) Towhee  
\*Bachman's Sparrow  
American Tree Sparrow  
Chipping Sparrow  
Clay-colored Sparrow  
\*Field Sparrow  
Vesper Sparrow  
Lark Sparrow  
Lark Bunting  
Savannah Sparrow  
Grasshopper Sparrow  
Henslow's Sparrow  
Le Conte's Sparrow  
Nelson's Sharp-tailed Sparrow  
\*Seaside Sparrow  
Fox Sparrow  
Song Sparrow  
Lincoln's Sparrow  
Swamp Sparrow  
White-throated Sparrow  
White-crowned Sparrow  
Harris' Sparrow  
Dark-eyed Junco  
Lapland Longspur  
Smith's Longspur

*Pipilo chlorurus*  
*Pipilo erythrophthalmus*  
*Aimophila aestivalis*  
*Spizella arborea*  
*Spizella passerina*  
*Spizella pallida*  
*Spizella pusilla*  
*Pooecetes gramineus*  
*Chondestes grammacus*  
*Calamospiza melanocorys*  
*Passerculus sandwichensis*  
*Ammodramus savannarum*  
*Ammodramus henslowii*  
*Ammodramus leconteii*  
*Ammodramus nelsoni*  
*Ammodramus maritimus*  
*Passerella iliaca*  
*Melospiza melodia*  
*Melospiza lincolni*  
*Melospiza georgiana*  
*Zonotrichia albicollis*  
*Zonotrichia leucophrys*  
*Zonotrichia querula*  
*Junco hyemalis*  
*Calcarius lapponicus*  
*Calcarius pictus*

## **Blackbirds, Grackles, Cowbirds and Orioles**

Bobolink  
\*Red-winged Blackbird  
\*Eastern Meadowlark  
Western Meadowlark  
Yellow-headed Blackbird  
Rusty Blackbird  
Brewer's Blackbird  
\*Boat-tailed Grackle  
\*Common Grackle  
Bronzed Cowbird  
\*Brown-headed Cowbird  
\*Orchard Oriole  
Baltimore/Bullock's Oriole

*Dolichonyx oryzivorus*  
*Agelaius phoeniceus*  
*Sturnella magna*  
*Sturnella neglecta*  
*Xanthocephalus xanthocephalus*  
*Euphagus carolinus*  
*Euphagus cyanocephalus*  
*Quiscalus major*  
*Quiscalus quiscula*  
*Molothrus aeneus*  
*Molothrus ater*  
*Icterus spurius*  
*Icterus galbula/bullockii*

## **Old World Finches**

Purple Finch  
Pine Siskin  
\*American Goldfinch  
Evening Grosbeak

*Carpodacus purpureus*  
*Carduelis pinus*  
*Carduelis tristis*  
*Coccothraustes vespertinus*

## **Weaver Finches**

\*House Sparrow

*Passer domesticus*

## MAMMALS

White-tailed deer  
Coyote  
Gray fox  
Red fox  
Bobcat  
Feral hog  
Raccoon  
River otter  
Nine-banded armadillo  
Gray squirrel  
Southern flying squirrel  
Marsh rabbit  
Marsh rice rat  
Virginia opossum  
Eastern cottontail  
Eastern mole  
Florida woodrat  
Hispid cotton rat  
Cotton mouse  
Alabama beach mouse  
House mouse

*Odocoileus virginianus*  
*Canis latrans*  
*Urocyon cinereoargenteus*  
*Vulpes vulpes*  
*Felis rufus*  
*Sus scrofa*  
*Procyon lotor*  
*Lutra Canadensis*  
*Dasypus novemcinctus*  
*Sciurus carolinensis*  
*Glaucomys volans*  
*Sylvilagus aquaticus*  
*Oryzomys palustris*  
*Didelphis virginiana*  
*Sylvilagus floridanus*  
*Scalopus aquaticus*  
*Neotoma floridana*  
*Sigmodon hispidus*  
*Peromyscus gossypinus*  
*Peromyscus polionotus ammobaetes*  
*Mus musculus*

## REPTILES

### Sea turtles

Loggerhead sea turtle  
Green turtle  
Kemp's Ridley sea turtle

*Caretta caretta*  
*Chelonia mydas*  
*Lepidochelys kempii*

### Freshwater and terrestrial turtles

Northern diamond-backed terrapin  
Alligator snapping turtle  
Yellow-bellied slider  
Florida softshell turtle  
Eastern box turtle  
Gopher tortoise

*Malaclemys terrapin*  
*Macrolemys temminckii*  
*Trachemys scripta*  
*Apalone ferox*  
*Terrapene carolina*  
*Gopherus polyphemus*

### Lizards

Green anole  
Eastern fence lizard  
Eastern glass lizard  
Six-lined racerunner  
Broad-headed skink  
Five-lined skink

*Anolis carolinensis*  
*Sceloporus undulates*  
*Ophisaurus ventralis*  
*Cnemidophorus sexlineatus*  
*Eumeces laticeps*  
*Eumeces fasciatus*

### Snakes

Black racer  
Gray rat snake  
Eastern ribbon snake  
Southern copperhead  
Eastern coachwhip  
Florida pine snake  
Corn snake  
Southern ringneck snake  
Eastern Indigo snake  
Water snake  
Cottonmouth  
Pygmy rattlesnake  
Eastern diamondback rattlesnake  
Timber rattlesnake

*Coluber constrictor*  
*Elaphe obsoleta spiloides*  
*Thamnophis sauritus*  
*Agkistrodon contortrix*  
*Masticophis flagellum*  
*Pituophis melanoleucus*  
*Elaphe guttata*  
*Diadophis punctatus*  
*Drymarchon corais*  
*Nerodia sp.*  
*Agkistrodon contortrix*  
*Sistrurus miliarius*  
*Crotalus adamanteus*  
*Crotalus horridus*

## AMPHIBIANS

American bullfrog  
Southern leopard frog  
Southern toad  
Fowler's toad  
Squirrel treefrog  
Green treefrog  
Pig frog  
Spring peeper

*Rana catesbeiana*  
*Rana sphenoccephala utricularius*  
*Bufo terrestris*  
*Bufo woodhousii fowleri*  
*Hyla squirella*  
*Hyla cinerea*  
*Rana grylio*  
*Pseudacris crucifer*

## BEACH VEGETATION

|     |        |                                |  |        |
|-----|--------|--------------------------------|--|--------|
| *   | ** 353 | Three-seeded mercury           | <i>Acalypha gracilens</i>              | ***SWX |
| 551 | 486    | Gerardia                       | <i>Agalinis purpurea</i>               | SX     |
|     | 485    |                                | <i>A. maritima</i>                     | W      |
| 236 | 242    | Alligator weed                 | <i>Alternanthera philoxeroides</i>     | W      |
|     | 287    | Ragweed                        | <i>Ambrosia artemisifolia</i>          | X      |
|     | 247    | Devils walkingstick            | <i>Aralia spinosa</i>                  | X      |
| 518 | 467    | Red chokeberry                 | <i>Aronia arbutifolia</i>              | X      |
|     | 251    | Sandhill milkweed              | <i>Asclepias humistrata</i>            | DSX    |
|     | 486    | Yellow foxglove                | <i>Aureolaria flava</i>                | X      |
| 284 | 295    | Groundsel, Silverling          | <i>Baccharis halimifolia</i>           | BSWX   |
| 553 | 487    | Water hyssop                   | <i>Bacopa innominata</i>               | W      |
|     | 295    | Narrow leaved balduina         | <i>Balduina angustifolia</i>           | DSX    |
| 286 | 296    | Beggar tick                    | <i>Bidens mitis</i>                    | W      |
|     | 340    | Sea rocket                     | <i>Cakile constricta</i>               | B      |
|     | 381    | Red basil                      | <i>Calamintha coccinea</i>             | X      |
|     | 510    | Beautyberry                    | <i>Callicarpa americana</i>            | X      |
| 294 | 297    | Deer Tongue, Vanilla plant     | <i>Carphephorus odoratissimus</i>      | X      |
|     | 378    | Pignut hickory                 | <i>Carya glabra</i>                    | X      |
|     | 399    | Partridge pea                  | <i>Cassia fasciculata</i>              | SX     |
|     | 128    | Dune sandspur                  | <i>Cenchrus tribuloides</i>            | D      |
| 243 | 504    | Centella                       | <i>Centella asiatica</i>               | BW     |
|     | 400    | Butterfly pea                  | <i>Centrosema virginianum</i>          | BWX    |
| 524 | 472    | Buttonbush                     | <i>Cephalanthus occidentalis</i>       | BW     |
|     | 346    | Seaside rosemary               | <i>Ceratiola ericoides</i>             | DSW    |
| 20  | 54     | Atlantic white cedar           | <i>Chamaecyparis thyoides</i>          | X      |
|     | 354    | Sand-dune spurge               | <i>Chamaesyce ammannioides</i>         | D      |
|     | 298    | Bush goldenrod                 | <i>Chrysoma pauciflosculosa</i>        | DSX    |
|     | 300    | Golden aster                   | <i>Chrysopsis godfreyi f. godfreyi</i> | DSX    |
| 53  | 84     | Sawgrass                       | <i>Cladium jamaicense</i>              | W      |
|     |        | Reindeer moss, Reindeer lichen | <i>Cladonia rangifera</i>              | DSX    |
|     |        | British soldier                | <i>C. cristella</i>                    | DSX    |
|     | 400    | Butterfly pea                  | <i>Clitoria mariana</i>                | X      |
|     | 71     | Day flower                     | <i>Commelina communis</i>              | X      |

|     |     |                       |                                 |       |
|-----|-----|-----------------------|---------------------------------|-------|
|     | 382 | Rosemary              | <i>Conradina canescens</i>      | SX    |
|     | 302 | Horseweed             | <i>Conyza canadensis</i>        | X     |
|     | 356 | Silver-leaf croton    | <i>Croton punctatus</i>         | X     |
|     | 332 | Love vine, Dodder     | <i>Cuscuta sp.</i>              | DBSWX |
|     | 251 | Sand vine             | <i>Cynanchum angustifolium</i>  | DSX   |
| 376 | 345 | Titi                  | <i>Cyrilla racemiflora</i>      | W     |
|     | 405 | Beggar lice           | <i>Desmodium sp.</i>            | X     |
| 379 | 472 | Buttonweed            | <i>Dioda virginiana</i>         | WX    |
|     |     | Poor Joe              | <i>D. teres</i>                 | BSWX  |
| 379 | 346 | Persimmon             | <i>Diospyros virginiana</i>     | X     |
| 305 | 305 | Fireweed              | <i>Erechtites hieracifolia</i>  | WX    |
|     | 143 | Centipede grass       | <i>Eremochloa ophiuroides</i>   | BSX   |
| 92  | 105 | Hat pins              | <i>Eriocaulon decanglare</i>    | W     |
|     | 405 | Coral bean            | <i>Erythrina herbacea</i>       | X     |
|     | 307 | White thoroughwort    | <i>Eupatorium album</i>         | X     |
|     | 308 | Dogfennel             | <i>E. capillifolium</i>         | X     |
| 309 | 308 |                       | <i>E. mohrii</i>                | B     |
| 311 | 308 | Flat-topped goldenrod | <i>Euthamia minor</i>           | DBSWX |
|     | 243 | Cottonweed            | <i>Froelichia floridana</i>     | DX    |
|     | 348 | Dwarf huckelberry     | <i>Gaylussacia dumosa</i>       | X     |
|     | 368 | Crane's bill          | <i>Geranium carolina</i>        | WX    |
|     | 310 | Purple cudweed        | <i>Gnaphalium purpureum</i>     | B     |
| 554 | 487 | Gratiola              | <i>Gratiola hispida</i>         | S     |
|     | 310 | Scratch daisy         | <i>Haplopappus divaricatus</i>  | X     |
|     | 473 |                       | <i>Hedyotis uniflora</i>        | BDX   |
|     | 272 | Rockrose              | <i>Helianthemum arenicola</i>   | DSX   |
|     | 313 | Golden aster          | <i>Heterotheca subaxillaris</i> | BDSX  |
| 467 | 428 | Swamp mallow          | <i>Hibiscus grandiflora</i>     | W     |
| 250 | 505 | Seaside pennywort     | <i>Hydrocotyle bonariensis</i>  | DBW   |
| 421 | 370 | St. Peter's wort      | <i>Hypericum cistifolium</i>    | CS    |
| 421 | 371 | St. Peter's wort      | <i>H. crux-andreae</i>          | SX    |
| 425 | 372 | Pinweed               | <i>H. gentianoides</i>          | SX    |
| 431 | 370 | St. John's wort       | <i>H. reductum</i>              | BSW   |
|     | 247 | Sand holly            | <i>Ilex ambigua</i>             | X     |

|     |     |                            |                                  |      |
|-----|-----|----------------------------|----------------------------------|------|
|     |     | Dahoon                     | <i>I. cassine</i>                | W    |
|     | 262 | Gallberry                  | <i>I. glabra</i>                 | WX   |
|     | 264 | American holly             | <i>I. opaca</i>                  | X    |
|     | 265 | Yaupon                     | <i>I. vomitoria</i>              | SWX  |
|     | 146 | Cogongrass                 | <i>Imperata cylindrica</i>       | X    |
|     | 334 | Beach morning glory        | <i>Ipomoea imperati</i>          | D    |
|     |     | Arrow-leaved morning glory | <i>I. sagittata</i>              | WX   |
|     |     | Seashore elder             | <i>Iva imbricate</i>             | D    |
|     |     | Needlerush                 | <i>Juncus roemerianus</i>        | W    |
|     |     | Hairy wicky                | <i>Kalmia hirsute</i>            | X    |
|     |     | Salt marsh mallow          | <i>Kosteletzkya virginica</i>    | W    |
|     |     | Redfoot                    | <i>Lachnanthes carolinianana</i> | SW   |
| 95  | 105 | Bog buttons                | <i>Lachnocaulon engleri</i>      | B    |
|     | 273 | Pinweed                    | <i>Lechea sessilifolia</i>       | SX   |
|     | 317 | Blazing star               | <i>Liatris secunda</i>           | DSX  |
|     | 271 | Gopher apple               | <i>Licania michauxii</i>         | DSX  |
|     | 488 | Toadflax                   | <i>Linaria floridana</i>         | SX   |
| 455 | 422 | Yellow flax                | <i>Linum medium</i>              | B    |
| 357 | 260 | Lobelia                    | <i>Lobelia sp.</i>               | X    |
|     | 442 |                            | <i>Ludwigia alata</i>            | B    |
|     |     | Seedbox                    | <i>L. alternifolia</i>           | BSX  |
|     |     | Hairy primrose willow      | <i>L. pilosa</i>                 | BW   |
| 12  | 42  | Fox-tail clubmoss          | <i>Lycopodium alopecuriodes</i>  | BW   |
| 440 | 383 | Water horehound            | <i>Lycopus americanus</i>        | WX   |
| 388 | 350 | Fetterbush                 | <i>Lyonia lucida</i>             | SWX  |
| 463 | 426 | Loosestrife                | <i>Lythrum lineare</i>           | WB   |
|     | 427 | Southern magnolia          | <i>Magnolia grandiflora</i>      | SX   |
| 466 |     | Sweet bay                  | <i>M. virginiana</i>             | SWX  |
|     | 318 | Climbing hempweed          | <i>Mikania scandens</i>          | BSWX |
| 481 | 434 | Wax myrtle                 | <i>Myrica cerifera</i>           | BSWX |
|     | 373 | Parrot feather             | <i>Myriophyllum sp.</i>          | B    |
|     | 436 | Water-lily                 | <i>Nymphaea odorata</i>          | W    |
| 495 | 437 | Black gum                  | <i>Nyssa biflora</i>             | W    |
|     | 444 | Seaside evening primrose   | <i>Oenothera humifusa</i>        | D    |

|     |     |                        |                                   |      |
|-----|-----|------------------------|-----------------------------------|------|
|     | 258 | Cactus                 | <i>Opuntia humifusa</i>           | SX   |
|     |     | Cactus                 | <i>O. pusilla</i>                 | SX   |
|     | 440 | Wild olive             | <i>Osmanthus americanus</i>       | X    |
| 14  | 44  | Cinnamon fern          | <i>Osmunda cinnamomea</i>         | W    |
| 15  |     | Royal fern             | <i>O. regalis</i>                 | W    |
|     | 445 | Ladies' wood sorrel    | <i>Oxalis corniculata</i>         | SX   |
|     | 350 | Sourwood               | <i>Oxydendron arboretum</i>       | X    |
|     | 267 | Square flower          | <i>Paronychia erecta</i>          | DB   |
| 450 | 389 | Swamp redbay           | <i>Persea palustris</i>           | WX   |
| 194 | 156 | Common reed            | <i>Phragmites australis</i>       | W    |
| 579 | 511 | Cape weed, Frog fruit  | <i>Phyla nodiflora</i>            | W    |
| 395 | 358 | Leaf-flower            | <i>Phyllanthus urinaria</i>       | SX   |
|     | 447 | Pokeweed               | <i>Phytolacca Americana</i>       | D    |
| 390 | 350 | Pieris                 | <i>Pieris phillyreifolia</i>      | W    |
| 21  | 55  | Slash pine             | <i>Pinus elliotii</i>             | BSWX |
|     | 55  | Sand pine              | <i>P. clausa</i>                  | SX   |
|     | 319 | Grass-leaved aster     | <i>Pityopsis graminifolia</i>     | SX   |
| 325 | 321 | Camphor weed           | <i>Pluchea rosea</i>              | BX   |
| 509 | 453 | Bog bachelor's buttons | <i>Polygala lutea</i>             | WX   |
|     |     |                        | <i>P. polygama or grandiflora</i> | X    |
| 509 |     |                        | <i>P. ramosa or cymosa</i>        | BW   |
|     | 454 | Wireweed               | <i>Polygonella gracilis</i>       | DSX  |
|     |     | Jointweed              | <i>P. polygama</i>                | DSX  |
|     |     | Large-leaved jointweed | <i>P. macrophylla</i>             | DSX  |
| 513 | 456 | Dotted smartweed       | <i>Polygonum punctatum</i>        | W    |
|     | 48  | Resurrection fern      | <i>Polypodium polypodioides</i>   | X    |
|     | 423 | Polypremum             | <i>Polypremum procumbens</i>      | DS   |
| 210 | 190 | Pickrelweed            | <i>Pontederia cordata</i>         | W    |
|     | 458 | Pink purslane          | <i>Portulaca pilosa</i>           | S    |
| 414 | 374 | Mermaid weed           | <i>Proserpinaca pectinata</i>     | W    |
|     | 48  | Bracken                | <i>Pteridium aquilinum</i>        | X    |
| 255 | 506 | Mock bishop's weed     | <i>Ptilimnium capillaceum</i>     | WX   |
|     | 322 | False dandelion        | <i>Pyrrophappus carolinianus</i>  | X    |
|     | 364 | Scrub live oak         | <i>Quercus geminate</i>           | DSX  |
| 403 |     | Laurel oak             | <i>Q. laurifolia</i>              | X    |
|     |     | Turkey oak             | <i>Q. laevis</i>                  | X    |
|     |     | Myrtle oak             | <i>Q. myrtifolia</i>              | DSX  |
|     |     | Live oak               | <i>Q. virginiana</i>              | X    |
| 472 | 431 | Meadow beauty          | <i>Rhexia cubensis</i>            | B    |
|     | 243 | Winged sumac           | <i>Rhus copallina</i>             | X    |

|     |     |                                |                                |      |
|-----|-----|--------------------------------|--------------------------------|------|
|     | 475 |                                | <i>Richardia scabra</i>        | BSX  |
|     | 471 | Blackberry                     | <i>Rubus argutus</i>           | X    |
|     |     | Dewberry                       | <i>R. trivialis</i>            | DSX  |
| 409 | 368 | Marsh pink                     | <i>Sabatia brevifolia</i>      | X    |
| 409 |     | Marsh pink                     | <i>S. stellaris</i>            | W    |
| 34  | 67  | Arrowhead                      | <i>Sagittaria lancifolia</i>   | W    |
| 396 | 359 | Tallow tree                    | <i>Sapium sebiferum</i>        | W    |
| 546 | 479 | Lizard tail                    | <i>Saururus cernuus</i>        | W    |
| 359 | 490 | Sweet broom                    | <i>Scoparia dulcis</i>         | X    |
|     | 189 | Palmetto                       | <i>Serenoa repens</i>          | DSX  |
|     | 413 | Bladder-pod                    | <i>Sesbania vesicaria</i>      | X    |
| 234 | 241 | Sea purslane                   | <i>Sesuvium portulacastrum</i> | B    |
| 560 | 662 | Seymeria                       | <i>Seymeria cassioides</i>     | SX   |
|     | 429 | Indian hemp                    | <i>Sida rhomifolia</i>         | X    |
| 105 | 171 | Blue-eyed grass                | <i>Sisyrinchium atlanticum</i> | X    |
|     |     | Yellow blue-eyed grass         | <i>S. exile</i>                | X    |
|     | 193 |                                | <i>Smilax auriculata</i>       | BWSX |
|     |     | Catbrier                       | <i>S. bona-nox</i>             | X    |
|     |     | Bamboo vine                    | <i>S. laurifolia</i>           | X    |
|     |     | Wild sarsaparilla              | <i>S. pumila</i>               | X    |
|     | 324 | Goldenrods                     | <i>Solidago sp.</i>            | X    |
| 398 | 359 | Corkwood                       | <i>Stillingia aquatic</i>      | W    |
|     | 268 |                                | <i>Stipulicida setaca</i>      | DS   |
|     | 413 | Sand bean                      | <i>Strophostyles helvola</i>   | DBX  |
|     | 56  | Pond cypress                   | <i>Taxodium ascendens</i>      | W    |
| 447 | 388 | Wood sage                      | <i>Teucrium canadense</i>      | X    |
|     | 70  | Spanish moss                   | <i>Tillandsia usneoides</i>    | X    |
|     | 244 | Poison ivy                     | <i>Toxicodendron radicans</i>  | WX   |
|     | 72  | Spiderwort                     | <i>Tradescantia ohiensis</i>   | X    |
|     | 388 | Blue curls                     | <i>Trichostema dichotomum</i>  | X    |
|     | 262 | Venus'looking glass            | <i>Triodanis perfoliata</i>    | X    |
|     | 195 | Cattail                        | <i>Typha latifolia</i>         | W    |
|     | 166 | Sea-oats                       | <i>Uniola paniculata</i>       | D    |
|     | 421 | Floating bladderwort           | <i>Utricularia radiata</i>     | W    |
| 454 |     | Bladderwort                    | <i>U. sublata</i>              | BW   |
|     | 351 | Sparkleberry, Tree huckleberry | <i>Vaccinium arboretum</i>     | X    |
| 392 |     | Highbush blueberry             | <i>V. corymbosum</i>           | X    |
| 393 |     | Mayberry                       | <i>V. elliotii</i>             | X    |
|     | 352 | Dwarf huckleberry              | <i>V. myrsinites</i>           | SX   |
|     |     | Deerberry                      | <i>V. stamineum</i>            | X    |
|     | 516 | Muscadine                      | <i>Vitis rotundifolia</i>      | BWSX |

|     |     |                      |                                     |     |
|-----|-----|----------------------|-------------------------------------|-----|
|     | 198 | Yellow-eyed grass    | <i>Xyris sp.</i>                    | BW  |
|     | 65  | Beargrass            | <i>Yucca flaccida</i>               | X   |
| 130 | 123 | Threeawn             | <i>Aristida sp.</i>                 | D   |
| 125 | 118 | Broomsedge           | <i>Andropogon sp.</i>               | DBX |
|     |     |                      | <i>A. virginicus var. glaucus</i>   |     |
| 58  | 87  | Jointed flat sedge   | <i>Cyperus haspan</i>               | B   |
| 60  | 87  | Flat sedge           | <i>C. retorsus</i>                  | B   |
| 139 | 139 | Watergrass           | <i>Enchinocloa walterii</i>         | B   |
|     |     | Red lovegrass        | <i>Eragrostis oxylepis</i>          | DSX |
| 141 | 143 | Purple lovegrass     | <i>E. spectabilis</i>               | DSX |
| 68  | 94  | Saltmarsh fringerush | <i>Fimbristylis castanea</i>        | B   |
| 71  | 94  | Rush fuirena         | <i>Fuirena scripoidea</i>           | B   |
| 106 | 174 | Big-headed juncos    | <i>Juncus megacephalus</i>          | B   |
|     | 152 | Beachgrass           | <i>Panicum amarum var. amarulum</i> | D   |
|     | 152 | Beachgrass           | <i>P. amarum var. ararum</i>        | D   |
|     | 136 |                      | <i>P. portoricense</i>              | DX  |
|     | 136 |                      | <i>P. sphaerocarpon</i>             | D   |
|     | 153 | Torpedo grass        | <i>P. repens</i>                    | DB  |
| 176 | 153 | Switchgrass          | <i>P. virgatum</i>                  | D   |
| 198 | 159 | Bluestem             | <i>Schizachyrium maritimum</i>      | D   |
| 203 | 162 | Marsh hay            | <i>Spartina patens</i>              | B   |

\* Represents Pages in *Florida Wetland Plants* by J. D. Tobe, et al.

\*\* Represents Pages in *Guide to the Vascular Plants of the Florida Panhandle* by A. F. Clewell

\*\*\* Represents Habitat Codes

D = Dunes

B = Beach swales

W = Wetlands

S = Scrub

X = Xeric woodlands, roadsides



# VII. COMPATIBILITY DETERMINATIONS

This set of compatibility determinations describes the wildlife-dependent and other uses that may be included in the public use program under the preferred alternative (Alternative D), as described in the Draft Comprehensive Conservation Plan for Bon Secour National Wildlife Refuge. It determines the conditions under which each use is considered compatible with the purposes, vision, and goals of the refuge and the mission of the National Wildlife Refuge System.

Under the National Wildlife Refuge System Administration Act of 1966, the Refuge Recreation Act of 1962, the National Wildlife Refuge System Improvement Act of 1997, and agency policy, the Service may not permit recreational uses on a national wildlife refuge unless those uses are first determined to be compatible wildlife-dependent uses. 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 the Refuge System mission and the purposes of the refuge: 1) wildlife observation, photography, and hiking; 2) swimming and beach use; 3) recreational fishing; 4) environmental education and interpretation; and 5) scientific research.

**Refuge Name:** Bon Secour National Wildlife Refuge.

**Establishing and Acquisition Authorities:** Fish and Wildlife Act 1956, Special Legislation, Endangered Species Act, Consolidated Farm and Rural Development Act.

**Refuge Purposes:** "...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).

"...for the development, advancement, management, conservation, and protection of fish and wildlife resources..." 16 U.S.C. 742f(a)(4) "...for the benefit of the United States Fish and Wildlife Service in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude...." 16 U.S.C. 742f(b)(1) (Fish and Wildlife Act of 1956).

"...this habitat should be preserved to ensure the well-being of these [nationally endangered and threatened species, such as the brown pelican, bald eagle, and several species of sea turtles, as well as many more species identified by the state to be of special concern] and other species, to serve as a living laboratory for scientists and students to provide wildlife-oriented recreation for the public." 94 Stat. 483, dated June 9, 1980 (Act to establish the Bon Secour National Wildlife Refuge).

"...to conserve an undisturbed beach dune ecosystem which includes a diversity of fish and wildlife, and their habitat." 94 Stat. 484, dated June 9, 1980 (Act to establish the Bon Secour National Wildlife Refuge).

"...for conservation purposes...." 7 U.S.C. 2002 (Consolidated Farm and Rural Development Act).

**National Wildlife Refuge System Mission:** The mission, 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."

Compatibility determinations for each description listed were considered separately. For brevity, the preceding sections from "Refuge Uses" through "National Wildlife Refuge System Mission" are only written once within this Draft Comprehensive Conservation Plan for Bon Secour National Wildlife Refuge, they are part of each descriptive use and become part of that compatibility determination, if considered individually or outside of the plan.

### **Description of Uses:**

#### *Wildlife Observation, Photography, and Hiking*

Wildlife observation and photography represent two of the six legislated wildlife-dependent priority public uses of the National Wildlife Refuge System. Hiking and backpacking could be considered as supporting uses of these priority public uses.

An estimated 100,000 people visit the refuge each year, and many of these visitors engage in wildlife observation, photography, and hiking (including walks on the beach). Refer to the draft comprehensive conservation plan for specific recommendations related to new facilities and other public uses.

Primary areas for these uses include three trails (i.e., Pine Beach, Jeff Friend, and Gator Lake) and the beaches of the Perdue and Fort Morgan units. Habitats used include maritime forests, dunes, beaches, and marshes. Approximately 100 acres of the 7,000 acres of the refuge are used frequently by visitors.

The refuge is open seven days per week during daylight hours and these uses could occur anytime during these hours. Summer has the highest use of any season followed by winter. Most users park at the trailheads or the parking lot on Mobile Street. In addition, many visitors stop by the refuge office to obtain information and use the restroom facilities. Any improvements to infrastructure are described in the draft comprehensive conservation plan.

These uses are popular according to responses from a survey sent to the public as part of the comprehensive conservation planning process. Wildlife observation, photography, and hiking were listed as three of the top five preferred activities on the refuge. Opportunities to engage in these activities exist at Gulf State Park (10 miles from the refuge), however, in Alabama, the intact dune ecosystem is particularly unique to Bon Secour National Wildlife Refuge.

**Availability of Resources:** Administrative costs are outlined in the draft comprehensive conservation plan. There are no significant additional administrative costs expected at this time. No special equipment, facilities, or improvements are necessary to support these activities. Trail and sign maintenance is expected to run approximately \$1,500 per year.

**Anticipated Impacts of Use:** At current levels of use, short-term impacts of these uses are not expected to be significant. Long-term effects of these uses are not expected to be significant unless there is a substantial increase in the number of visitors. There are no anticipated cumulative effects of these uses with current levels of visitors.

**Public Review and Comment:** The period of public review and comment began 02/01/2003, and ended 06/30/2003. Methods used to solicit public review and comment included a posted notice at refuge headquarters, a letter sent to adjacent landowners, a letter sent to other interested

persons, two public meetings, and a questionnaire mailed as part of the planning process. An additional 60-day comment period will occur when the draft plan is distributed to the public. Appendix IV summarizes the public comments.

**Determination (check one below):**

Use is Not Compatible

Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:** These uses will be allowed only during daylight hours. Some areas of the refuge may be closed if excessive disturbance to wildlife (e.g., nesting shorebirds) is documented.

**Justification:** Wildlife observation and photography are two of the six legislated high priority uses of the Refuge System. In addition, these uses are consistent with the purposes of the refuge as described in its establishing legislation including "to provide wildlife-oriented recreation for the public" (Act to establish Bon Secour National Wildlife Refuge). At this time, the levels of visitation are not considered to have a significant impact on the resources of the refuge.

**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 Uses:***Swimming and Beach Use*

Swimming and beach use are popular, historic uses of the refuge. Approximately 100,000 people visit the refuge each year, and many of these users visit the beaches of the Perdue and Fort Morgan units. Some swimming may also occur in Little Lagoon, but this area is not frequently used. These habitats are used by threatened and endangered sea turtles and the endangered Alabama beach mouse.

Refuge beaches are open during daylight hours seven days per week, year-round. Primary use occurs during the summer months. Typically, visitors utilize the parking lot on Mobile Street to use the Perdue Unit beaches, or park along the beach access road in the Fort Morgan Unit to use those beaches.

Many other beaches are available to the public along the Alabama Gulf Coast, however, the refuge is unique by having undeveloped beaches with a relatively low density of people. Tourists and locals come to the refuge beaches for a degree of solitude and tranquility that cannot be found on other Alabama beaches.

Refer to the draft comprehensive conservation plan for a description of infrastructure improvements or law enforcement issues related to beach use. Facilities necessary to support these uses are also detailed in the draft plan.

**Availability of Resources:** Costs of administration and management are outlined in the draft comprehensive conservation plan. Maintenance costs of signs, parking areas, and boardwalks are estimated at \$1,000 per year. Offsetting revenues such as entrance fee proposals are explained in the draft plan.

**Anticipated Impacts of the Use:** Short-term impacts of swimming and beach use could include disturbance of nesting shorebirds, Alabama beach mice, sea turtles, and/or other wildlife, as well as degradation of habitat. An excessive amount of garbage could result from use of refuge beaches, which could lead to wildlife injury.

Long-term impacts of swimming and beach use could include reduction of shorebird nesting on refuge beaches. Beach use and swimming could result in cumulative losses of habitat, especially for nesting shorebirds, if the level of visitation significantly increases in the future.

**Public Review and Comment:** The period of public review and comment began 02/01/2003, and ended 06/30/2003. Methods used to solicit public review and comment included a posted notice at refuge headquarters, a letter sent to adjacent landowners, a letter sent to other interested persons, two public meetings, and a questionnaire mailed as part of the planning process. An additional 60-day comment period will occur when the draft plan is distributed to the public. Appendix IV summarizes the public comments.

**Determination (check one below):**

Use is Not Compatible

Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:** Refuge beaches are closed after dark to protect sea turtles, Alabama beach mice, and shorebirds from disturbance. Some areas of the beach may be closed if significant disturbance of nesting shorebirds is documented. The dune walk-over on Mobile Street will be maintained to discourage visitors from walking on the dunes in beach mouse habitat.

**Justification:** Swimming and beach use are existing, historic uses of the refuge. These activities do not currently conflict with wildlife-dependent priority public uses. Refuge signs and management activities (e.g., sea turtle nest markers) may educate a constituency of the public about wildlife issues that otherwise would not be exposed to these issues if the beaches were closed. For example, beach visitors frequently approach staff and volunteers to ask questions when a sea turtle nest is being marked or excavated.

**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:**  
*Recreational Fishing*

Recreational fishing is one of the six legislated wildlife-dependent priority public uses of the National Wildlife Refuge System. An estimated 2,000 anglers per year visit Bon Secour Refuge to participate in either saltwater or freshwater fishing.

Most fishing occurs from the shoreline on the Perdue and Fort Morgan units. Some fishing occurs in Bon Secour and Mobile bays along the Sand Bayou, Little Point Clear, and Little Dauphin Island units, although access is limited. Gator Lake and Little Lagoon, located in the interior of the Perdue Unit, are also used by anglers.

Few improvements are proposed as part of the preferred alternative. The Fort Morgan beach access road and Mobile Street are the two main access points for shoreline anglers. Boaters access the refuge from public boat launches located off-refuge. The public accesses Gator Lake and Little Lagoon by pulling a canoe trailer on foot from the Pine Beach trailhead and using a non-motorized boat or an electric trolling motor. All other fishing access to the refuge is either by foot or by anchoring a boat in a public waterway, such as the Gulf of Mexico or Bon Secour Bay, and then accessing the refuge on foot.

Fishing is a year-round activity on Bon Secour Refuge. It occurs seven days per week only during daylight hours, with the exception of night fishing on the Fort Morgan Unit. Night fishing will be regulated under a special permit that is awarded by a drawing that limits the number of anglers and defines the season when the use is allowed.

Fishing is wildlife-dependent and very popular on the refuge. Gator Lake is one of only two freshwater lakes on the immediate Alabama Gulf Coast. The Fort Morgan Unit is well known regionally as a top fishing spot, especially for redfish. Although other saltwater fishing opportunities exist in the area, waters accessible by the refuge are known by locals as supporting some of the best fishing in this part of the state.

**Availability of Resources:** Administrative expenses including law enforcement expenses are outlined in the draft comprehensive conservation plan. Maintenance costs of trails and signs are expected to be approximately \$1,500 per year. No monitoring costs of fish populations are expected, since fisheries data for nearly all of the affected areas should be available from other federal and state agencies. A permit fee to cover administrative costs of the special night fishing season will be collected.

**Anticipated Impacts of Use:** Some short-term disturbance to shorebirds and other wildlife is expected. Potential long-term impacts would include the loss of nesting habitat due to disturbance of shorebirds in areas of the beach where the highest use occurs (e.g., Fort Morgan Unit). The fishing program is not expected to have substantial cumulative effects on resources. Should the level of use become much greater in the future, the impacts would have to be re-evaluated and the use altered to limit those impacts.

**Public Review and Comment:** The period of public review and comment began 02/01/2003, and ended 06/30/2003. Methods used to solicit public review and comment included a posted notice at refuge headquarters, a letter sent to adjacent landowners, a letter sent to other interested persons, two public meetings, and a questionnaire mailed as part of the planning process. An additional 60-day comment period will occur when the draft plan is distributed to the public. Appendix IV summarizes the public comments.

**Determination (check one below):**

Use is Not Compatible

Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:** Any areas where shorebirds are determined to be excessively disturbed, especially during nesting season, will be closed to fishing. Access to Gator Lake will continue to be on foot and only non-motorized boats or boats with electric trolling motors will be allowed on the lake. Motorized boat access to the refuge from Little Lagoon, the Gulf of Mexico, Bon Secour Bay, and Mobile Bay would have to be from public boat launches off-refuge. Night fishing will only occur during a specified season that will not interfere with the sea turtle nesting and hatching season. The Fort Morgan Unit is the only location where night fishing will be allowed during this season.

**Justification:** Recreational fishing and its associated boating uses are consistent with the purposes of the refuge, as described in its establishing legislation "to provide wildlife-dependent recreation for the public" (Act to establish Bon Secour National Wildlife Refuge). This use is one of the preferred activities by the public, according to comments received during the comprehensive conservation planning process.

**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 Uses:**

### *Environmental Education and Interpretation*

Environmental education and interpretation are existing uses on Bon Secour National Wildlife Refuge. These uses are two of the six legislated wildlife-dependent, priority public uses of the National Wildlife Refuge System. Each year the refuge hosts 10-20 groups involved with one of these two uses for a total of about 600 users. Additionally, approximately 100,000 people visit the refuge each year, many of whom walk at least one of the three nature trails.

Environmental education and interpretation primarily occur on refuge trails including Pine Beach, Jeff Friend, and Gator Lake. Additionally, the Centennial Trail is currently under construction on the Perdue Unit. These programs take place in a variety of habitats including maritime forests, dunes, and beaches. In the dune ecosystem, endangered Alabama beach mice use the areas where these programs occur; however, beach mice are nocturnal (U.S. Fish and Wildlife Service 1987) and most of these programs only occur during daylight hours. If night programs are initiated (e.g., herp walks), then participants will only be allowed in areas that are not beach mouse habitat as determined by refuge staff. In addition, damage to habitat will be minimal, since participants are rarely led off of a trail during a program.

These uses occur on approximately 100 acres of the refuge, including the trails and immediately adjacent lands. Parking is located at each trailhead, except for the Gator Lake trail, where users typically park along the edge of Mobile Street.

Each year, approximately 600 visitors are led on educational or interpretive walks on the refuge, either by refuge staff or volunteers. Some refuge equipment, such as binoculars, may be provided during tours but more typically visitors will provide their own.

The refuge contains an intact dune ecosystem, which has nearly disappeared from the rapidly developing Alabama Gulf Coast. The associated habitats, along with the maritime forest on the refuge, are unique to this area, so similar opportunities do not exist near the refuge. Other opportunities in different habitats, such as upland pine woods, are available at nearby Gulf State Park and other public lands.

**Availability of Resources:** The draft comprehensive conservation plan contains estimates of costs for refuge administration and management. Environmental education materials cost an estimated \$5,000 per year. The refuge has adequate resources to fund these programs. Maintenance costs are estimated to be \$1,000 per year for the currently existing trails. No user fees are in effect at this time. User fees may be collected in the future, however, this is more likely to occur near beach access points than at trailheads.

**Anticipated Impacts of Uses:** Environmental education and interpretation are consistent with the purposes of the Refuge System and Bon Secour Refuge. The impact of these activities on wildlife is minimized through the use of refuge trails and the enforcement of day-use only policies of the refuge, with the exception of some guided night tours by refuge or volunteer staff.

No significant resources should be diverted from other activities, since most of these tours are conducted by refuge volunteers. When refuge staff lead tours, the time is well spent since these programs are identified as high priority wildlife-dependent uses.

These uses will not have significant direct or indirect long-term impacts on wildlife and habitat at current levels, as long as they occur on established trails, or only occasionally off trails.

If public use increases on the refuge, there would be a potential for a cumulative effect of these activities on wildlife and habitat. However, many of the surveys outlined in the comprehensive conservation plan (e.g., beach mouse and shorebird monitoring) would assist refuge staff in monitoring the effects of public use on these species.

**Public Review and Comment:** The period of public review and comment began 02/01/2003, and ended 06/30/2003. Methods used to solicit public review and comment included a posted notice at refuge headquarters, a letter sent to adjacent landowners, a letter sent to other interested persons, two public meetings, and a questionnaire mailed as part of the planning process for the refuge. An additional 60-day comment period will occur when the draft plan is distributed to the public. Appendix IV summarizes the public comments.

**Determination (check one below):**

Use is Not Compatible

Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:** No guided tours or other educational or interpretive uses will be allowed in the dunes at night to prevent disturbance of Alabama beach mice.

Identified nesting areas for shorebirds will be avoided during these uses.

**Justification:** Environmental education and interpretation are consistent with the purposes of the refuge as described in its establishing legislation including "to serve as a living laboratory for scientists and students and to provide wildlife-dependent recreation for the public" (Act to establish the Bon Secour National Wildlife Refuge). These uses are strongly supported by the public according to comments received during the comprehensive conservation planning process.

Literature and References: U.S. Fish and Wildlife Service. 1987. Recovery Plan for the Alabama Beach Mouse (*Peromyscus polionotus ammobates*). 45pp.

**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:**

### *Scientific Research*

Scientific research (including collecting and conducting surveys) is an existing use of the refuge. It is not one of the six legislated wildlife-dependent priority public uses of the National Wildlife Refuge System. However, this public use contributes to the staff's knowledge concerning flora and fauna of the refuge and often provides information that assists the habitat management program. Current research projects include: interior habitat modification for the Alabama beach mouse (Auburn University); neotropical migratory bird trapping and banding to determine habitat use, energetic condition, stop-over habits, temporal pattern of fall migration, disease occurrence (University of Southern Mississippi), and Christmas bird count.

Generally, these research projects or surveys involve approximately 10-20 workers per year and minimal staff time. Personnel typically stay in the refuge bunkhouse (except for Christmas bird count participants).

Research uses on the refuge can occur in any area. Currently, Alabama beach mouse research occurs on the Perdue and Fort Morgan units. The bird banding station is located on the northern portion of the Fort Morgan Unit. Two Christmas bird counts encompass at least some of all five refuge units. Most research takes place in dune or scrub habitat.

Long-term research projects may occur year-round. Special surveys are usually one day in duration.

For beach mouse research, Fish and Wildlife Service equipment, such as a Gyrotrac, may be used to clear vegetation as agreed upon in research proposals and cooperative agreements. The University of Southern Mississippi provides all equipment for bird banding on the refuge. These projects involve approximately 10 workers per year.

The refuge contains the largest tract of contiguous Alabama beach mouse habitat, so similar areas for research are not available. For neotropical migratory bird research, the refuge is unique to the area with the large number of migrants that use the refuge and the facilities that are available (e.g., bunkhouse) to support researchers. Other surveys such as the Christmas bird count are large-scale projects where national coverage is the goal.

**Availability of Resources:** Administrative costs are outlined in the draft comprehensive conservation plan. Some maintenance of trails at the banding station is expected. These costs should not exceed \$200 per year. Most other costs are the responsibility of the user.

Researchers currently pay rent at the rate of \$10 per day for each worker to stay in the Nunley Bunkhouse on the refuge. This revenue helps to offset the cost of utilities and maintenance for the duration of the project.

**Anticipated Impacts of Use:** Scientific research is consistent with one of the establishing purposes of the refuge. As with every proposed research project, a Special Use Permit will be issued and a Section 7 Consultation (if appropriate) will be conducted. For threatened and endangered species, or species of concern or in decline, research designed to monitor, enhance, and sustain these populations will be emphasized. Habitat management projects with implications to enhance management on the refuge for particular species or suites of species will be encouraged. Scientific research is not expected to have cumulative impacts on resources and because each project is reviewed on an individual basis, will be controlled. Should requests to conduct research become overwhelming, higher emphasis will be granted to research related to threatened and endangered species and priority habitats, such as dunes and scrub lands. Finally, research for the sake of pure research, with no application to management practice, will be highly scrutinized and discouraged.

**Public Review and Comment:** The period of public review and comment began 02/01/2003, and ended 06/30/2003. Methods used to solicit public review and comment included a posted notice at refuge headquarters, a letter sent to adjacent landowners, a letter sent to other interested persons, two public meetings, and a questionnaire mailed as part the planning process. An additional 60-day comment period will occur when the draft plan is distributed to the public. Appendix IV summarizes the public comments and the Service's responses to those comments.

**Determination (check one below):**

Use is Not Compatible

Use is Compatible with Following Stipulations

**Stipulations Necessary to Ensure Compatibility:** Surveys, research, and collecting will be evaluated on a case-by-case basis through Section 7 consultations, special use permits, or other documents.

**Justification:** Use of the refuge for scientific collection, surveys, and research is consistent with the purposes of the refuge as described in its establishing legislation including "to serve as a living laboratory for scientists and students" (Act to establish the Bon Secour National Wildlife Refuge). Research activities provide important benefits to the refuge and its natural resources. Research can lead to better management decisions and has the potential to further the purposes of the refuge and the mission of the National Wildlife Refuge System.

**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 described 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)

## DENYING PROPOSED USE WITHOUT DETERMINING COMPATIBILITY

### Description of Use:

#### *Dogs on Refuge*

Which criteria for denying a proposed use without determining compatibility are relevant? Select all that apply. (603 FW 2.10 D)

- Conflicts with other resource or management objectives;
- Other than wildlife-dependent recreational use and not manageable within available budget and staff;
- Inconsistent with public safety.

Why are these criteria relevant?

Dog use on the refuge conflicts with resource and management objectives. One of these objectives is to identify, conserve, manage, enhance, and restore populations of native fish and wildlife species representative of coastal Alabama, with special emphasis on migratory birds and threatened and endangered species. Shorebirds, including endangered species such as least terns and piping plovers, are disturbed by dog use on the refuge. Dogs may also dig up nests of threatened and endangered sea turtles. Their effect on the endangered Alabama beach mouse is unknown, but is considered incompatible as dogs dig in the dunes and burrow sites.

This use is also considered an other than wildlife-dependent recreational use and is not manageable within the budget allocated to the refuge. Resources are not available to enforce leash rules. Hundreds of complaints have been received concerning dogs off-leash on refuge beaches and trails.

Dog use may be inconsistent with public safety since there have been incidences of visitors being bitten or attacked by unrestrained dogs on the refuge.

## DENYING PROPOSED USE WITHOUT DETERMINING COMPATIBILITY

### Description of Use:

#### *Bicycling*

Which criteria for denying a proposed use without determining compatibility are relevant? Select all that apply. (603 FW 2.10 D)

- Inconsistent with public safety;

Why are these criteria relevant?

At present, the only trails on the refuge (Pine Beach, Jeff Friend, Gator Lake) are primarily used by five of the six high priority user groups of the Refuge System including: fishing, wildlife observation, photography, environmental education, and interpretation. Bicycling on the refuge is not compatible with these uses on the currently existing trails due to safety concerns, since these user groups tend to stop frequently along the narrow, winding paths of these trails.

