ENVIRONMENTAL ASSESSMENT
FOR THE
IMPLEMENTATION OF THE
INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN
FOR
45th SPACE WING

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LIST OF ACRONYMS AND ABBREVIATIONS

45SW	45th Space Wing
45SW/CC	45th Space Wing/Commander
45 CES/CEV	45th Civil Engineer Squadron/Environmental Flight
AEIs	Air Emissions Inventories
AF	Air Force
AFI	Air Force Instruction
AFPD	Air Force Policy Directive
AOCs	Areas of Concern
ATVs	All Terrain Vehicles
BASH	Bird Aircraft Strike Hazards
BMP	Best Management Practice
BO	Biological Opinion
CAA	Clear Air Act
CCAFS	Cape Canaveral Air Force Station
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon Monoxide
dB	Decibel
dBA	"A-weighted" decibel
DOD	Department of Defense
DoDD	Department of Defense Directive
DoDI	Department of Defense Instruction
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ERP	Environmental Resource Permit
ESA	Endangered Species Act
FAAQS	Florida Ambient Air Quality Standards
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FDF	Florida Division of Forestry
FDNR	Florida Department of Natural Resources
FESOP	Federally Enforceable State Operating Permit
FNAI	Florida Natural Areas Inventory
FONSI	Finding of No Significant Impact
FWCC	Fish and Wildlife Conservation Commission
GIS	Geographic Information System
HAPs	Hazardous Air Pollutants
INRMP	Integrated Natural Resource Management Plan
IRP	Installation Restoration Program
JDMTA	Jonathan Dickinson Missile Tracking Annex
KSC	Kennedy Space Center
LDN	Day-Night Average Sound Level

LMP	Light Management Plan
MBTA	Migratory Bird Treaty Act
MTA	Malabar Transmitter Annex
NAAQS	National Ambient Air Quality Standards
NASA	National Aeronautics & Space Administration
NEPA	National Environmental Policy Act
NFA	No Further Action
NOx	Nitrogen Oxide
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Preservation
NWI	National Wetland Inventory
OPAREAS	Sustainment of Ranges and Operating Areas
OSHA	Occupational Safety and Health Administration
PAFB	Patrick Air Force Base
PBFD	Palm Bay Fire Department
PCBs	Polychlorinated biphenyls
PM	Particulate Matter
PTE	Potential to Emit
ROI	Region of Influence
SAIA	Sikes Act Improvement Amendments
SHPO	State Historic Preservation Office
SJRWMD	St. John’s River Water Management District
SOx	Sulfur Oxides
T&E	Threatened & Endangered
USAF	United States Air Force
USDA	United States Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
VOCs	Volatile Organic Compounds

FINDING OF NO SIGNIFICANT IMPACT
AND FINDING OF NO PRACTICABLE ALTERNATIVE

Environmental Assessment for the Implementation of the 45th Space Wing Integrated Natural Resources Management Plan, PAFB, FL

Pursuant to the Council on Environmental Quality regulations, the provisions of the *National Environmental Policy Act of 1969* (40 CFR Parts 1500-1508), and *Environmental Impact Analysis Process* (32 CFR Part 989), the United States Air Force (AF) conducted an assessment, hereby incorporated by reference, of the potential environmental consequences of the Proposed Action to implement the updated (2006-2008) Integrated Natural Resources Management Plan (INRMP) in an effective manner. The INRMP will guide natural resources management at the 45th Space Wing (45 SW). Implementing the INRMP would conserve and protect natural resources, build upon established relationships with federal, state and local agencies, and sustain the military mission at 45 SW.

The 45 SW INRMP integrates inventories, best management practices, plans, and programs related to natural resource management. The INRMP would incorporate principles of ecosystem management and would contain sufficient information for resource managers to make informed decisions and enhance the practice of adaptive management. The only viable alternative considered to the Proposed Action was the No Action Alternative, in which the 45 SW would continue to operate with an outdated INRMP.

No significant environmental impacts were identified that would require the completion of an Environmental Impact Statement. Additional supplemental analyses, including Environmental Assessments, when warranted, shall be accomplished when project specific details are realized and can be analyzed sufficiently. This Environmental Assessment (EA) will be incorporated by reference for any additional analyses. In accordance with the Endangered Species Act and Magnuson Stevens Fisheries Act, Section 7 and Essential Fish Habitat (EFH) consultations will be accomplished for projects that may affect threatened and endangered species and/or EFH. The 45 SW INRMP has been coordinated with U.S. Fish and Wildlife Service, National Marine Fisheries and the Florida Fish and Wildlife Conservation Commission with minor revisions requested that were incorporated. The following paragraphs identify and summarize some less than significant and some beneficial impacts of the Proposed Action with implementation of the INRMP.

Air Quality: Proposed project activities, would be expected to produce short-term, intermittent air quality impacts from fugitive emissions (particulate matter) and other common air pollutants/greenhouse gases (nitrogen oxides, carbon monoxide, and sulfur dioxide) from project equipment/vehicles during scrub restoration activities and controlled burns. While the periodic prescribed burning at 45 SW would emit smoke during the actual burning event, the small amount of acreage burned at any one time and the varied schedule for burning would not create significant impacts to air quality or greenhouse gas emissions. A schedule of controlled burns attempts to mimic the historic natural fire regime. Fifty years of fire suppression has intensified the potential for larger and more dangerous fires creating poor air quality. These procedures are designed to ensure compliance with federal, state, and local requirements.

Biological Resources: By using an integrated management system, existing biological resources would be protected from significant negative impacts by keeping INRMP

activities in line with mission needs following all legal requirements; beneficial impacts to biological resources would be anticipated. The actions implemented as a result of specific INRMP goals and objectives would ensure compliance with environmental laws while enhancing the environment. These actions include scrub habitat restoration, invasive species management, threatened and endangered species protection and monitoring, fish and wildlife protection and monitoring, migratory and resident bird protection and monitoring, protection of coastal habitat, and wetland and aquatic habitat restoration and protection. In addition, the INRMP includes specific management plans for the Florida Scrub jay and sea turtles that would be coordinated with other natural resource management plans such as invasive species control and integrated pest management to achieve optimal habitats for wildlife and vegetation.

Cultural Resources: There would be no significant impacts to cultural resources from implementing the INRMP. Using an integrated management system, positive impacts would be anticipated to historically significant buildings and archaeological sites with invasive species management by reducing resource integrity breaches while also delineating new resources that may be encountered with land clearing activities.

Geology and Soils: By implementing Best Management Practices to prevent erosion during INRMP activities, no significant impacts to soils would be anticipated and potential negative impacts (*e.g.,* sheet flow and gully erosion) would be avoided. All land clearing activities, including scrub restoration, that have the potential to impact soils were evaluated in the 2005 Programmatic Environmental Assessment for land clearing activities on 45SW assets (FONSI received 26 May 2005). No significant impacts are anticipated from these actions. Coordination with 45 SW CEVR (Installation Restoration Program) will also prevent the disturbance/spread of existing contaminated soils.

Water Resources: Land disturbance activities have the potential to accelerate erosion. Erosion and sediment control measures would be designed and implemented to retain sediment on-site and prevent violations of State and Federal water quality standards. Any erosion or shoaling that could cause adverse impacts to water resources would be controlled using Best Management Practices.

Aquatic habitats will be improved through a multi-disciplinary approach to preventing non-point source pollution, utilizing aquatic safe pesticides and minimizing pesticides as much as practical, and using adaptive management for outdoor recreation planning.

Any permit requirements will be met to prevent negative impacts to water resources and wetlands. There would be no significant impacts to water resources from implementing the INRMP.

Hazardous Materials and Wastes: The proposed activities may require/generate small quantities of hazardous materials/wastes, such as fuels and lubricants associated with equipment operation, fertilizers and pesticides. All wastes generated will be managed in accordance with all federal, state, local and installation regulations and directives. No significant impacts would result from hazardous materials and waste. Pesticide usage for invasive vegetation will be controlled, monitored and used according to label requirements. Should an accidental spill occur, the CCAFS Spill Prevention Control and Countermeasures Plan, and the 45SW Hazardous Material Response Plan (OPLAN 32-3) would be followed. Project personnel would be familiar with spill prevention and response procedures in order to be prepared for accident response.

Health and Safety: There would be no significant impacts to health and safety from implementing the INRMP. Some INRMP actions may have the potential to impact health and safety such as prescribed burns, utilization of All Terrain Vehicles for beach surveys,

mixing hazardous materials (pesticides), and potential interaction with dangerous wildlife could result in adverse impacts to the health and safety of personnel. However, adherence to AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Protection, and Health,* and proper use of Personal Protection Equipment would minimize any potential impacts. In addition, integrating risk management into natural resource planning would promote positive impacts to health and safety. Examples of risk management include the prescribed burn notification system and the integration into site planning such that osprey platforms are installed outside of the flight line.

Infrastructure and Transportation: The scrub habitat restoration and invasive species management actions identified in the INRMP are anticipated to indirectly improve the utility corridors, lines of sight, and security clear zones when activities occur in these areas. Utility outages from overgrown exotic vegetation interfering with utility lines, utility stations, wells, and wastewater pumping stations would be minimized. Impacts may also occur to roadways during prescribed burns when roads are closed and traffic is re-directed in the action area. However, no significant impacts are anticipated.

Land Use and Zoning: There would be potential positive impacts to land use from implementing the INRMP. Currently, 45 SW lands are managed for multiple uses. Implementation of the Grounds Maintenance and Outdoor Recreation Plans will enhance land use and emphasize sound land management practices.

Federal consistency is a Coastal Zone Management Act requirement in which federal activities, including development, that may have an reasonable foreseeable effect on coastal resources must be consistent with the state federally approved Coastal Management Program (15 CFR Part 930, Subpart C). The Proposed Action is deemed consistent with the Florida Coastal Management Program. The Air Force will ensure that the Action continues to be consistent to the maximum extent practicable.

Noise: Even though land clearing activities would generate noise, which although not continuous, could be disruptive for brief periods to wildlife and individuals in the immediate area, no significant impacts are anticipated from implementing the INRMP. Implementing the INRMP would not cause excessive noise or significant negative impacts due to noise.

Socioeconomics: Socioeconomics comprise such interrelated resources as population, employment, income, temporary living quarters (during construction activities), and public finance as defined in Executive Order (EO) 12898, *Addressing Environmental Justice for Minority and Low-Income Populations.* It is not anticipated that the Proposed Action will affect employment patterns on a permanent basis or induce substantial growth or growth-related impacts. No adverse effects are anticipated for minority and low-income populations as natural resource management actions are on base and generally do not impact economics. However, removing invasive vegetation on 45 SW properties will benefit the surrounding community by eliminating another potential seed source. The INRMP has received a public review period which allowed all local populations a chance to comment. The INRMP would be integrated with other Installation plans. As a result of this coordination, resource management activities would result from one plan and would be carried out more efficiently and effectively resulting in cost savings and beneficial impacts to all resource types.

No Action Alternative: The No Action Alternative is the continuation of an out-of-date INRMP. However, it does not fully comply with DoD regulations derived from the Sikes Act Improvement Amendments (SAIA) that mandate the preparation and implementation of INRMPs. Selection of the no action alternative is not considered a viable option, as it

would not enable the 45 SW to utilize the best management techniques and options available to support mission requirements while protecting and enhancing valuable natural resources. Another more environmentally preferable alternative was not identified that would protect sensitive species, restore native habitats, and satisfy mission requirements.

Cumulative Impacts: Cumulative impacts were considered for the Proposed Action and the No Action Alternative. Actions should cumulatively contribute to improvements of the condition and viability of natural resources at the 45 SW, specifically biological resources through the improvement of habitat and surveys to better manage species. Some cumulative negative impacts to migratory birds and sea turtles could result with flushing and startling of these species during nesting/hatching or foraging with INRMP activities when combined with mission actions such as security and Bird Aircraft Hazard patrols, and public use of beaches and shorelines for fishing/boating access. However, the integration of the INRMP into other base plans that interact with natural resources could minimize potential negative impacts by using appropriate land management practices, knowing species behaviors to minimize disturbance, adequately addressing carrying capacity, and preventing geographic and genetic isolation of plant and animal species that could interfere with future mission accomplishments.

Cumulative impacts can also be reduced through conservation of different types of habitat through study of species utilization and preferences. The 45 SW INRMP delineates habitat restoration goals and plan implementers are currently researching options that will sustain the mission including off-site mitigation and conservation easement options.

None of these cumulative impacts are anticipated to significantly impact human health or the environment.

Practicable Alternatives and Environmental Effects

Section 1 of Executive Order (EO) 11988, *Floodplain Management*, directs each federal agency to provide leadership and take action to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities for federally undertaken construction and improvement projects. If it is determined that the only practicable alternative consistent with the law and with the policy set forth in this EO requires action in a floodplain, the agency is required to design or modify its action in order to minimize potential harm to or within the floodplain, and circulate a notice containing an explanation of why the action is proposed to be located in the floodplain, prior to taking the action.

Section 1 of, Executive Order 11990 *Protection of Wetlands*, directs each federal agency to provide leadership and take action to minimize destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities for (1) acquiring, managing, and disposing of Federal lands and facilities; and (2) providing Federally undertaken, financed, or assisted construction and improvements; and (3) conducting Federal activities and programs affecting land use, including water resources. A Finding of No Practicable Alternative (FONPA) must be submitted to Headquarters United States Air Force (HQ USAF/A4/7) when the alternative selected is located in wetlands or floodplains, and must discuss why no other practicable alternative exists to avoid impacts.

The Proposed Action at CCAFS, PAFB, MTA, and JDMTA would result in the implementation of an updated INRMP. The Proposed Action would have unavoidable impacts to wetlands because some INRMP actions such as invasive removal, sea turtle

monitoring and native plantings would be required to occur in surface waters and/or adjacent floodplains, including wetlands. These actions are designed to enhance protection of natural resources by conserving and monitoring native communities that may also encompass endangered, threatened, and rare species. For example, hand clearing of invasive species, instead of mechanical removal, would improve wetlands with minimal impact, resulting in positive change to wetlands. In addition, INRMP activities will not result in a loss of wetland acreage. INRMP implementation will not cause harm to the floodplain or result in increased risk to human safety. No other more environmentally preferable alternative was identified that would meet the Sikes Act requirements.

Finding of No Significant Impact

This Draft EA and FONSI/FONPA was made available to the affected public for comment period through notification in a locally reviewed newspaper. The EA and FONSI/FONPA was made available by placing them on file in the local public libraries of Satellite Beach and Cape Canaveral. The Draft EA and FONSI/FONPA was sent to the Florida Department of Environmental Protection's state Clearinghouse which provided interagency review by several state organizations found in Appendix B of the EA. The EA's Proposed Action was deemed consistent with the Florida Coastal Management Program, and other agencies concurred that the Proposed Action is consistent with their relevant policies and objectives.

In accordance with the Council on Environmental Quality Regulations implementing the National Environmental Policy Act of 1969 (Public Law 91-190, 42 U.S.C. §§4321-4347), as amended, and 32 CFR 989, 15 Jul 1999, and amended 28 Mar 2001, an assessment of the identified environmental effects has been prepared for the INRMP at 45 SW Mainland Assets, Florida. I find that the action will have no significant impact on the quality of the human environment; thus, an Environmental Impact Statement is not warranted.

Finding of No Practicable Alternative

Pursuant to Executive Orders 11990 and 11988, the authority delegated by SAFO 780-1, and 32 CFR Part 989 and taking the submitted information into account, I find that there is no practicable alternative to this action that will require some land management activities in wetlands and floodplains. However, the proposed action includes all practical measures to minimize harm to the environment and provides a positive net benefit to wetlands and floodplains.

Carlos R. Cruz-Gonzalez — 15 Sep 08

CARLOS R. CRUZ-GONZALEZ
Colonel, USAF
Deputy Director of Installations
and Mission Support

Date

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1.0 Purpose and Need for Action

This Environmental Assessment (EA) has been prepared in accordance with the requirements of the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations, *Environmental Impact Analysis Process*, as promulgated in Title 32 of the Code of Federal Regulations (CFR) Part 989, and Department of Defense (DOD) Directive 6050. The EA evaluates the potential environmental impacts associated with the proposed action.

Chapter 1.0 of this EA discusses the background for this action, gives a brief description of the Proposed Action, introduces the purpose of and need for the action, identifies the location of the project, and highlights issues raised during the assessment process. Chapter 2.0 discusses project alternatives and compares the environmental consequences of the alternatives. Chapter 3.0 describes the affected environment of the Proposed Action. Chapter 4.0 assesses the potential environmental consequences of implementing the alternatives and discusses potential cumulative impacts for each resource. Chapter 5.0 details the conclusions of the assessment, and Section 6.0 contains a list of the references used in the preparation of this document. Section 7.0 contains a list of preparers for this EA.

Accordingly, this EA analyzes the environmental consequences and benefits of implementing the current Integrated Natural Resources Management Plan (INRMP) for 45th Space Wing (45SW).

1.1 Background

The 45SW has a history of commitment to natural resources management. The 45SW manages its natural resources in accordance with the Department of Defense (DOD) Biodiversity conservation strategy. This strategy is based on an ecosystem management approach to natural resource programs.

1.1.1 Description of the Proposed Action

The Proposed Action included in this EA is for the implementation of the current INRMP that will serve as the roadmap for the management of 45SW's natural resources for the coming years. As a result, the evaluation of the environmental impacts for the Proposed Action and alternative are programmatic in nature.

1.1.2 Purpose and Need for the Action

As a guardian of public lands, it is the mission of the 45SW natural resources management program to maintain and improve, when feasible, the existing level of biodiversity using sound ecological principles in order to maintain the economic and aesthetic values of public lands. This effort involves ensuring Installation compliance with natural resources laws and regulations, as well as providing public access and customer service support to Installation operations, tenants, military personnel and their families, the research and education community, and the general public.

In addition the INRMP fulfills requirements pursuant to the Sikes Act Improvement Amendments (SAIA) of 1997 which is designed to "promote

effectual planning, development, maintenance, and coordination of wildlife, fish and game conservation and rehabilitations on military reservations." The following are required by the SAIA:

- Preparation and implementation of an INRMP;
- Coordination during preparation and implementation of the INRMP with the U.S. Fish and Wildlife Service (USFWS) and the appropriate state fish and wildlife agencies;
- Mutual agreement between the military and USFWS and state agencies with respect to those elements of the INRMP that are subject to otherwise applicable legal authority (e.g., Endangered Species Act requirements);
- Opportunity for public commenting on the INRMP;
- INRMPs must contain specific projects that can be implemented on an annual basis and projected out over at least five years.

Frequent revisions of the INRMP assure the Installation stays ahead of the implementation schedule. The 45th Civil Engineer Squadron/Environmental Flight (45 CES/CEV) proposes to manage 45SW's natural resources by implementing an updated INRMP. The INRMP will comply with environmental laws, regulations, and policies including Air Force Instruction (AFI) 32-7064 *Integrated Natural Resource Management* (17 September 2004); AFI 32-7065, *Cultural Resources Management* (01 June 2004); AFI 13-212, Volume 1 *Range Planning and Operations* (07 August 2001); AFI 91-202, *The U.S. Air Force Mishap Prevention Program* (01 August 1998); Air Force Policy Directive (AFPD 32-70, *Environmental Quality* (20 July 1994); Department of Defense Directive (DoDD) 3200.15, *Sustainment of Ranges and Operating Areas* (OPAREAS) (10 January 2003); DoDD 4715.1 *Environmental Security* (24 February 1996); DoDD 4715.11, *Environmental and Explosives Safety Management on Department of Defense Active and Inactive Ranges within the United States* (10 May 2004); and Department of Defense Instruction (DODI) 4715.3, *Environmental Conservation Program* (3 May 1996).

The natural resources identified in the INRMP are incorporated into the General Plan for the 45SW in regards to natural resource conservation opportunities and future development activity at the Installation. It also builds upon relationships established with federal, state, and local agencies; and supports the military mission of the Installation. The INRMP would emphasize the continuation of 45SW's current natural resources management program. This program includes an emphasis on fostering wise use of water resources; designating conservation land-use to protect wetlands, forests and grasslands; controlling invasive/exotic vegetation; conserving and enhancing healthy native wildlife communities and endangered, threatened, and rare species by maintaining and managing the current refuges and wildlife corridors.

The INRMP will be the 45SW's plan for managing natural resources for the near future. The purpose of this EA is to evaluate the potential effects of the natural resources management alternatives considered for 45SW, and to summarize and

compare the potential environmental consequences of each alternative. The Proposed Action supports integrated natural resources management, that is, at a minimum, in compliance with existing laws, regulations, and policies. Another purpose of this EA is to determine whether the preparation of an Environmental Impact Statement (EIS) is required, or if a Finding of No Significant Impact (FONSI) is warranted. If this EA supports a FONSI, the Proposed Action will be implemented, and the INRMP will be continually reviewed and updated as required to support mission or environmental changes. Of course, supplemental EAs may be required that tier from this EA if projects require more detailed analysis not covered within this document.

1.1.3 Location

1.1.3.1 CCAFS

Cape Canaveral Air Force Station (CCAFS) is the largest installation under the 45SW and contains the largest amount of biological diversity. CCAFS is located in the state of Florida along the Atlantic coast in Brevard County on the Canaveral Peninsula approximately 20 miles north of Patrick Air Force Base. The Canaveral Peninsula is a barrier island located approximately 155 miles south of Jacksonville, 210 miles north of Miami and approximately 60 miles east of Orlando. The northern boundary of CCAFS abuts the Kennedy Space Center (KSC) boundary on the barrier island. The southern boundary abuts Port Canaveral. The Atlantic Ocean borders CCAFS along its eastern margin. CCAFS occupies approximately 15,800 acres.

1.1.3.2 PAFB

Patrick Air Force Base (PAFB) is located on a barrier island on the central east coast of Florida, south of the city of Cocoa Beach. The main base covers approximately 1,937 acres and is bounded by the Atlantic Ocean on the east and the Banana River on the west. PAFB is presently the home of Headquarters, 45SW, a unit of the Air Force Space Command.

1.1.3.3 Malabar Transmitter Annex

Malabar Transmitter Annex (MTA) is located at 5060 South Minton Road (State Route 509) in Palm Bay, Florida. The site is approximately eight miles southwest of Melbourne and 35 miles southwest of CCAFS. MTA consists of the entire 25th Section of Township 28 South, Range 36 East, in Brevard County. This square mile section comprises 640 acres of forest, wet flatwoods, grassy fields, abandoned runways, and several transmitter and support buildings. MTA is one of five 45SW mainland Florida instrumentation sites.

1.1.3.4 Jonathan Dickinson Missile Tracking Annex

The Jonathan Dickinson Missile Tracking Annex (JDMTA) consists of approximately 11 acres in the southern end of Jonathan Dickinson State Park in Martin County, on Florida's East coast. JDMTA provides radar, telemetry, communications, command and timing instrumentation data from space vehicle launches at CCAFS and KSC. Adjacent to JDMTA is Jonathan Dickinson State Park, which comprises of 11,383 acres in southern Martin County.

Figure 1-1: 45th Space Wing Mainland Assets

2.0 Alternatives Including the Proposed Action

The National Environmental Policy Act emphasizes consideration and evaluation of reasonable alternatives to meet proposed objectives while minimizing environmental impacts. The CEQ's regulations on implementing NEPA require that a No Action Alternative be included in the analysis. Each alternative other than the No Action Alternative must meet "purpose and need" objectives to be considered reasonable.

The NEPA process allows 45 SW natural resource managers to utilize an interdisciplinary approach in planning and in decision-making. It also provides an opportunity to objectively examine and compare various alternative approaches to natural resources management to facilitate the decision-making process. Natural resources management practices in the United States have been dictated in part by historical needs for and uses of the land and its resources. Changing attitudes to management have been driven by many issues including social, economic, and political, as well as by increases in scientific knowledge and understanding of the environment. Because of improved understanding of the interrelatedness of natural resource systems, we are more aware today of the potential threats to the natural systems in which we depend.

2.1 Summary of Alternatives

As part of the NEPA process, only one alternative to the Proposed Action was identified that could potentially provide a full range of options to natural resource managers. The No Action Alternative would result in continuing to operate with an outdated INRMP, and provides a baseline for comparison of the Proposed Action. The Proposed Action would result in ecosystem management under an updated integrated natural resources management approach.

2.1.1 Proposed Action—Integrated Ecosystem Management under an INRMP

This integrated ecosystem management alternative emphasizes a comprehensive and integrated approach to natural resources management. It considers all of the available baseline studies and surveys that 45SW has completed in preparation for implementation of ecosystem management practices. Many ongoing initiatives and actions that would occur under the No Action Alternative would continue or advance to the next phase of implementation. The integrated plan that would be implemented under this alternative includes the specific goals and objectives that have been updated for key resource management areas.

Under this alternative, implementation of the INRMP would be under the direction of the 45 CES/CEV, but various offices and agencies including USFWS; NMFS; Florida Fish and Wildlife Conservation Commission (FWC); and Florida Department of Environmental Protection (FDEP) would also have a role in the plan's implementation. Implementation of the INRMP would result in a desired land condition for the 45SW that sustains and restores native ecosystems and is

based on ecosystem management principles established by the Air Force. The ecosystem management principles seek to do the following:

- Maintain or restore native ecosystem types;
- Maintain or re-establish viable populations of native flora and fauna;
- Identify and eradicate exotic and invasive species;
- Maintain and restore hydrological processes; and
- Identify and manage imperiled natural communities and species.

Specific goals and objectives for each 45SW installation have been identified that will aid in the implementation of the INRMP. The goals and objectives for each installation are identified below. Management actions required to meet these goals and objectives can be found in Chapter 7 of the INRMP.

CCAFS

Goal 1: Employ ecosystem management principles to manage the natural resources on CCAFS while ensuring mission sustainability.

- Restore, enhance and maintain 500 acres per year of scrub habitat using mechanical methods and prescribed burns to mimic a natural fire-maintained ecosystem.
- Determine the effectiveness of current scrub habitat management practices by FY10.
- Restore, enhance and maintain coastal habitat through the restoration and/or enhancement of 1,000 linear feet per year of dunes, coastal berms, or coastal strand.
- Restore, enhance and maintain wetland areas.
- Restore 20% of adversely impacted natural resource areas every three years.
- Develop management recommendations for the minor vegetative communities by FY10.

Goal 2: Support the 45SW mission and comply with the Endangered Species Act (ESA) and negotiated requirements with regulatory agencies by assessing, protecting, monitoring and managing threatened and endangered (T&E) species and their habitat.

- Conduct annual sea turtle monitoring to comply with the Endangered Species Act.
- Remove faunal species that negatively impact T&E species and/or habitat to meet the sea turtle recovery plan goals.
- Ensure compliance with all Biological Opinions (BO) and 45th Space Wing Instruction 32-7001, *Light Management*.
- Comply with all Biological Opinions and Florida Scrub-jay recovery plan goals by annually monitoring the Scrub-jay population and its reproductive success.

- Develop management recommendations for the southeastern beach mouse by FY09.
- Determine population and develop management recommendations for T&E species not mentioned above by FY10.

Goal 3: Manage non-threatened and endangered native species by promoting biodiversity and utilizing methods that enhance these species and their habitats.

- Relocate gopher tortoises impacted by projects and development to ensure population viability.
- Monitor the deer population at CCAFS.
- Develop management recommendations for CCAFS's aquatic resources by FY 11.
- Develop management recommendations for CCAFS's reptile and amphibian species by FY12.

Goal 4: Sustain CCAFS natural resources in a manner that reduces natural resource impacts at the Skid Strip and sustains migratory and resident bird populations.

- Manage wildlife habitat to minimize Bird/Aircraft Strike Hazards (BASH).
- Manage habitat at CCAFS to sustain migratory and resident bird populations.

Goal 5: Support the 45SW mission and minimize the impacts of invasive and pest species on CCAFS's natural resources.

- Annually control 10% of the total invasive plant species acreage on the installation and assess effectiveness of treatment.
- Assess the effectiveness of invasive plant eradication and removal.

Goal 6: Provide a natural resource management program that utilizes a Geographic Information System (GIS) and technology to collect data and manage CCAFS's natural resources.

- Ensure data collection and storage procedures are compatible with the 45th Civil Engineering Geo Integration Office point of contact.
- Create, utilize and maintain accurate GIS data on natural resource management activities at CCAFS.
- Develop a digital photo library of CCAFS's habitat types by FY10.

Goal 7: Protect natural resources through implementation of a conservation law enforcement program.

- Ensure compliance with the Endangered Species Act.
- Ensure personnel adhere to State fishing regulations.

Goal 8: Protect natural resources through training and education of base personnel.

- Conduct personnel awareness training on T&E species.
- Protect natural resources through education and outreach.

PAFB

Goal 1: Ensure mission sustainability by restoring, enhancing and maintaining PAFB barrier island habitat for base natural resources utilizing ecosystem management principles.

- Restore, enhance and maintain dunes and coastal strand.
- Restore, enhance and maintain wetland areas.
- Restore, enhance and maintain surface water resources.
- Develop a management strategy by FY09 to restore adversely impacted natural resource areas.

Goal 2: Support the 45SW mission while complying with the ESA by assessing, protecting, monitoring and managing T&E species and their habitat.

- Conduct annual sea turtle monitoring to comply with all current BOs.
- Remove faunal species that negatively impact T&E sea turtles and/or habitat to meet the sea turtle recovery plan goals.
- Ensure compliance with current BO for light management and 45th Space Wing Instruction 32-7001.
- Protect manatees in PAFB waterways.
- Update management recommendations for least terns.
- Determine the population and develop management recommendations for threatened and endangered species not mentioned above by FY10.

Goal 3: Manage non-T&E and their habitat by promoting biodiversity while ensuring mission sustainability.

- Identify populations of non-T&E species and their habitats on base and develop management strategies if applicable
- Develop management recommendations for faunal species, including reptiles and amphibians by FY11.
- Develop management recommendations for PAFB's aquatic resources by FY12.

Goal 4: Sustain PAFB resident bird populations and annual migrations per the MBTA in a manner that reduces natural resource impacts to the airfield operations.

- Coordinate conservation projects that may affect the airfield zone with the BASH officer to minimize bird/aircraft strikes.
- Manage habitat at PAFB to sustain migratory and resident bird populations.

Goal 5: Support the 45SW mission while minimizing the impacts of invasive species on PAFB's natural resources and assess the effectiveness of treatments.

- Annually control 10% of the total invasive plant species acreage on the installation.

Goal 6: Provide a natural resource management program that utilizes a GIS and technology to collect data and aid in the management of PAFB's natural resources.

- Ensure data collection and storage procedures are compatible with the 45th Civil Engineering Geo Integration Office point of contact (GeoBase).
- Create, utilize and maintain accurate GIS data in natural resource management activities at PAFB.

Goal 7: Protect natural resources at PAFB through implementation of a conservation law enforcement program.

- Ensure compliance with the ESA and State fishing regulations.

Goal 8: Protect natural resources through training and education of base personnel.

- Conduct personnel awareness training on T&E species
- Protect natural resources through education and outreach.

JDMTA

Goal 1: Employ ecosystem management principles to manage the natural resources on JDMTA while ensuring mission sustainability.

- Maintain scrub habitat, as required, to promote wildlife.
- Maintain a robust and successful relationship with Jonathan Dickinson State Park via correspondence/meetings with park officials.

Goal 2: Support the 45SW mission and comply with the ESA by assessing, protecting, monitoring and managing T&E species and their habitat.

- Protect the Florida perforate lichen, *Cladonia perforata*, by tracking population health, growth, movement, and changes in environmental condition of habitat.
- Maintain required heterogeneous mosaic of habitat that is rotationally treated to keep a preferred Scrub jay canopy height.
- Ensure there are no impacts to the Florida Scrub jay due to 45SW actions on JDMTA.

Goal 3: Manage non-T&E native species and their habitat by promoting biodiversity.

- Identify populations of non-T&E species on property, develop management strategies, and program projects that include habitat enhancement and creation by FY09.
- Protect native wildlife.

Goal 4: Manage bird habitat to support annual migrations and resident populations while complying with MBTA.

- Manage habitat to support resident bird species and annual migrations on JDMTA.

Goal 5: Reduce and control invasive species in support of the 45SW mission.

- Identify and control invasive plant species acreage utilizing mechanical methods, herbicides and bio-controls.

Goal 6: Develop and maintain a thorough data collection and processing system for management of natural resources.

- Update and improve natural resource data sets and information.
- Utilize GIS data in 45SW decision-making.

MTA

Goal 1: Maintain mission sustainability while restoring, enhancing and maintaining flatwoods, depression marshes, and hydric hammocks for native species employing ecosystem management principles.

- In coordination with the Florida Division of Forestry (Brevard County coordinator) and the Palm Bay Fire Department (PBFD), develop a management strategy to maintain MTA habitat using mechanical methods and prescribed burns to mimic a natural fire-maintained ecosystem.
- Determine opportunities to restore, enhance and maintain depression marsh/wetland areas and other adversely impacted areas.

Goal 2: Support the 45SW mission through assessing, protecting, monitoring and managing T&E species and their habitat to comply with the ESA.

- Identify and protect T&E species on Malabar Transmitter Annex.

Goal 3: Manage non-T&E native species and their habitat by promoting biodiversity while ensuring mission sustainability.

- Protect native wildlife.
- Identify and develop management recommendations by FY10 for faunal and flora species.

Goal 4: Manage bird habitat to support annual migrations and resident populations while complying with the Migratory Bird Treaty Act.

- Manage habitat to protect resident birds and annual migrations.

Goal 5: Reduce and control invasive species while supporting the 45SW mission.

- Develop an invasive plant species strategy by FY08 utilizing mechanical methods and herbicides.

Goal 6: Develop and maintain a thorough data collection and processing system for management of natural resources.

- Update and improve natural resource data sets and information.
- Utilize GIS data in 45SW decision-making.

2.1.2 No-Action Alternative

The No Action Alternative for the Proposed Action would be the continued implementation of the overall program philosophy and practices under the existing INRMP that is out of date. Under the No Action Alternative, 45SW would continue to embrace biodiversity conservation. Consistent with the principles of ecosystem management, the 45SW would continue to manage lands in a manner that promotes preservation and enhancement of native communities and the existing diversity of species within communities.

2.2 Comparison of Environmental Consequences

This section discusses the environmental consequences of the alternatives considered within this EA. The CEQ's regulations for implementing NEPA (40 CFR Part 1508.27) require that the context and intensity of an impact or effect be considered to determine the significance of the impact. Significance can vary in relation to the context of the chosen alternative of the Proposed Action. Context may include considering the effects on a national, regional, or local basis. Both short- and long-term effects may be relevant. Impacts are also evaluated in terms of their intensity or severity. Factors contributing to this intensity or severity include the following:

- The degree to which the action affects public health or safety;
- Unique characteristics of the geographic area such as proximity to cultural resources, public lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas;
- The degree to which effects of the action on the quality of the human environment are likely to be highly uncertain or controversial;
- The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration;
- Whether the action is related to other actions with individually insignificant, but cumulatively significant, impacts;
- The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places (NRHP) or may cause loss or destruction of significant scientific or cultural resources;
- The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the ESA; and
- Whether the action threatens to violate a federal, state, or local law or requirements imposed for environmental protection.

Table 2-1 provides a comparison of the environmental consequences associated with the implementation of the alternatives by individual resource. As outlined in Section 4.0, three levels of impact are defined.

- No Impact - No impact is predicted.
- No Significant Impact - An impact is predicted, but the impact does not meet the intensity/context significance criteria for the specific resource. Impact may be beneficial or adverse.
- Significant Impact - An impact is predicted that meets the intensity/context significance criteria for the specific resource.

If the Proposed Action were selected, the 45SW would implement the current INRMP. The INRMP would provide an inventory of natural resources and outline procedures for managing soil, timber, wildlife, grassland, etc. for the benefit of biological and wildlife resources on 45SW. The plan would serve as a guide for developing and maintaining 45SW lands consistent with the military mission and national policies on conservation of resources.

The Proposed Action would have several beneficial impacts to the environment. The plan should have positive impacts to biological resources, infrastructure and transportation, land use, and water resources. Resource areas where no significant impacts are expected include air quality, hazardous materials and waste, and health and safety. No impacts are anticipated for cultural resources,

geology and soils, noise, and socioeconomics. The primary INRMP activities at 45SW installations that are evaluated in this assessment include:

- Scrub Habitat Restoration;
- Invasive Species Management;
- Threatened and Endangered Species Protection/Monitoring;
- Fish and Wildlife Protection/Monitoring;
- Migratory and Resident Bird Protection/Monitoring;
- Protection of Coastal Habitat; and
- Wetland and Aquatic Habitat Restoration/Protection.

If the No Action alternative were selected, the 45SW would embrace biodiversity conservation and would continue to operate without an updated INRMP. Similar impacts would be anticipated from the No Action Alternative.

INRMP Action	Air Quality	Biological Resources	Cultural Resources	Geology and Soils	Hazardous Materials and Waste	Health and Safety	Infrastructure and Transportation	Land Use	Noise	Socioeconomics	Water Resources
Scrub Habitat Restoration	X	+	0	0	X	X	X	0	0	0	0
Invasive Species Management	X	+	0	0	X	X	+	+	0	0	+
Threatened & Endangered Species Protection/Monitoring	0	+	0	0	X	X	0	0	0	0	0
Fish & Wildlife Protection/Monitoring (Non-T&E)	0	+	0	0	X	0	0	0	0	0	0
Migratory & Resident Bird Protection/Monitoring	0	+	0	0	X	0	0	0	0	0	0
Protection of Coastal Habitat	0	+	0	0	X	X	0	0	0	0	+
Wetland & Aquatic Habitat Restoration/Protection	0	+	0	0	X	X	0	0	0	0	+

+--Beneficial non-significant impact
X—No significant impact
- -- Adverse, significant impact
0—No impact

Table 2-1: Potential Impacts Anticipated from INRMP Activities

2.2.1 Issues Eliminated from Detailed Analysis

Although potential environmental impacts were initially investigated for eleven resource areas, no impacts were identified for cultural resources, geology and soils, noise and socioeconomics. No further analysis was deemed necessary for these particular areas of consideration; however, the following is a summary of the analysis for these categories.

2.2.1.1 Cultural Resources

Cultural resources can be generally divided into two broad categories: archaeological sites (either historic or prehistoric), and historic buildings or structures. In 1994, a Historic Properties Survey of CCAFS was published that delineates the boundaries of all known archaeological sites on the Installation. No archaeological resources are known to exist on PAFB, MTA or JDMTA. Although CCAFS and PAFB have structures listed on the NRHP, no evidence was found to indicate the existence of any historical sites on MTA or JDMTA.

As a result of the congressionally mandated Man In Space Alternatives Study conducted by the National Park Service, CCAFS was designated a National Historic Landmark District in 1984. National Historic Landmarks are buildings, sites, districts, structures, and objects that have been determined by the Secretary of the Interior to be nationally significant in American history and culture. In this case, the CCAFS National Historic Landmark District is comprised of six discontiguous properties that are all listed on the NRHP. In addition to the National Historic Landmark District, an additional seven properties at CCAFS have been determined to be eligible for listing on the NRHP: Please refer to the INRMP for a listing of these properties.

CCAFS also contains significant archaeological resources. Numerous studies and excavations have been conducted at CCAFS to gather data and refine the boundaries of the archaeological sites at CCAFS. The most recent archaeological investigation was completed during the summer of 1999. Fifty-six archaeological sites have been identified, 11 of which have been determined to be eligible for listing on the NRHP. Five sites are known to contain human remains and are afforded additional protection under state and Federal regulations.

PAFB has several potentially eligible historic structures from the World War II and Cold War eras that were identified in prior cultural resource surveys. It is anticipated that several structures will be removed from the list and some structures may be added after completion of the current re-evaluation by the PAFB archaeologist/cultural resource manager and the Florida State Historic Preservation Office (SHPO).

The potential to unearth archeological resources during project activities does exist as some of the proposed work involves soil disturbances. Land clearing with heavy equipment would disturb soils, especially when clearing to mineral soils for firebreaks. Prescribed burning could heat, distort, and in some cases

destroy archeological remains. In order to prevent these potential impacts, work within areas known to contain archeological resources would not generally occur. However, when the mission requires work near archeological sites, clearing would be completed with hand tools under the supervision of an archeologist familiar with the resources of concern.

In order to preserve the 45SW historical legacy, all work scheduled to occur adjacent to historic facilities must be coordinated with the 45CES/CEV. As with all facilities, firebreaks would be established around historic structures for burning activities. Manual tree felling would only be conducted near historic structures when there is no potential for damage to occur to historic facilities.

All-terrain vehicles are used to conduct daily surveys of sea turtles at CCAFS and PAFB and may also be used in areas other than the beach to reduce fuel consumption and to have access to archeological sites located deep in the woods. Potential impacts to cultural resources at CCAFS from All-Terrain Vehicles (ATVs) would be minimized by using designated paths and cross-overs in order to minimize damage to any archeological resources.

Federal cultural resource preservation statutes mandate that if artifacts become apparent during activities, work in the immediate vicinity of the cultural materials would cease and the Florida SHPO would be consulted through the 45SW CES. (Federal Register, Rules and Regulations, Dec. 4, 1995, Vol. 60, No. 232:62161, Section 10.5).

By establishing an integrated management system, existing cultural resources would be protected from encroachment by Installation activities. No impacts to cultural resources are anticipated from INRMP activities.

2.2.1.2 Noise

Low to moderate levels of noise may be generated by INRMP activities, primarily from machinery (i.e., dozer). The decibel (dB) is the accepted standard unit for measuring the level of noise and is generally adjusted to the “A-weighted” logarithmic scale (dBA) to better correspond to the normal human response to different frequencies. Several metrics have been developed for multiple-noise event analysis. The one most commonly used is the LDN (Day - Night Average Sound Level) metric. This is the dBA level averaged over a 24-hour period, with an additional ten-dBA penalty added for noise events occurring between 10 p.m. and 7 a.m. (because noise at night is judged to be more annoying than noise during the day). The threshold noise level for compatible land uses is an LDN of 65 dBA. Areas outside (less than) the 65 dBA LDN contour are compatible with residential and other noise-sensitive land uses. Activities associated with the Proposed Action typically have a dBA between 65 and 100, at a distance of 50 feet (USEPA, 1971). No impacts would be anticipated since all work activities of the Proposed Action would be confined to daylight hours to avoid nuisance noise in the evenings.

The use of personal hearing protection devices would preclude impacts to personnel. Noise abatement devices on equipment and vehicles further

minimize the potential for adverse effects from noise to personnel and wildlife. It is anticipated that the moderate level of noise generated from INRMP activities would act as a warning mechanism for wildlife within the construction site, and should help alleviate impacts to animals inhabiting land affected by the Proposed Action. There would be no impacts to noise expected from implementing the revised INRMP.

2.2.1.3 Geology and Soils

The soil survey of Brevard County, Florida, 1974, identifies eleven different soil types within CCAFS with the three most prominent soils comprising the Canaveral-Palm Beach-Welaka association. This association is made up of nearly level and gently sloping ridges interspersed with narrow wet sloughs that generally parallel the ridges and extends the entire length of the County along the coast near the Atlantic Ocean. The most prevalent type of soil is Canaveral Peninsula. Canaveral soils are on moderately low ridges and consist of a mixture of light-colored quartz sand grains and multicolored shell fragments. The major soils in this area are moderately well drained to excessively drained and sandy throughout. The soils are exceptionally dry, even though the water table is often near the surface during rainy periods.

No impacts to geology and soil are anticipated from the Proposed Action. Measures to minimize soil erosion (*e.g.,* sheet flow and gully erosion) would be implemented during INRMP activities. INRMP activities that can induce soil erosion include mechanical treatments, burning vegetation, construction of firebreaks, and ATV use for species monitoring. Prior to and during land clearing and burning activities, erosion and sediment control measures designed to retain sediment on-site and to prevent violations of State water quality standards would be implemented. Any erosion or shoaling that could cause adverse impacts to water resources would be minimized using the Best Management Practices (BMPs) established by the Florida Division of Forestry and where applicable BMPs specified in the Environmental Resource Permit (ERP) and National Pollutant Discharge Elimination System (NPDES) permit. Although these activities may result in short-term impacts to soil such as erosion, the long-term enhancement of the natural resources outweigh the minimal impacts.

Herbicides can have a potential to impact soils and groundwater if applied improperly. Some herbicides have a tendency to permeate well drained and sandy soils and can come in contact to groundwater. Also some herbicides can and cannot be applied directly to water. Some wetlands are affected by invasive species and herbicide application should be applied with caution. Following the regulations in the invasive species control plans will alleviate impacts to these areas.

Erosion control is important to consider in invasive species control. Invasive species will compete with the native plant life and can disrupt soil chemistry and cause degradation to native wildlife, and drastically alter coastal environments. It is imperative to follow regulations in the invasive species control plans. By following these regulations impacts to geology and soils would be minimal.

2.2.1.4 Socioeconomics

Socioeconomics comprise such interrelated resources as population, employment, income, temporary living quarters (during construction), and public finance. It is not anticipated that the Proposed Action will affect employment patterns on a permanent basis or induce substantial growth or growth-related impacts. No increase in population levels would results. Because the INRMP would be integrated with other Installation plans, resource management activities would be carried out more efficiently and effectively resulting in cost savings and beneficial impacts to all resource types. Planned INRMP projects are identified in Appendix A. There are no anticipated adverse impacts to minority or low-income populations due to the Proposed Action.

3.0 Affected Environment

This section describes the environmental characteristics that may be affected by the Proposed Action. The affected environment is described in order to provide a context for understanding the potential impacts. Those components of the affected environment that are of greater concern relevant to the potential impacts are described in greater detail.

Eleven broad environmental components were initially considered to provide a context for understanding the potential effects of the Proposed Action and to provide a basis for assessing the significance of potential impacts. Federal and/or state environmental statutes, many of which set specific guidelines, regulations, and standards, regulate several of these environmental components. These standards provide a benchmark that assists in determining the significance of environmental impacts under the NEPA evaluation process. The compliance status of each project area with respect to environmental requirements was included in the information collected on the affected environment. The preliminary areas of environmental consideration were air quality, biological resources, cultural resources, hazardous materials and waste, health and safety, infrastructure and transportation, land use, noise, geology and soils, socioeconomics, and water resources. However, cultural resources, noise, geology and soils, and water resources were eliminated from further consideration.

3.1 Air Quality

All of the Installations included in the proposed action areas are located in counties that are in attainment with National Ambient Air Quality Standards (NAAQS) and Florida Ambient Air Quality Standards (FAAQS).

3.1.1 CCAFS

This Air Force (AF) Station is considered a major source of air pollution (i.e., criteria and hazardous air pollutants) and therefore is subject to the Title V Air Operating Permit requirements of the Clean Air Act (CAA). Currently, CCAFS operates under an active Title V Permit and is preparing an application package for submission to FDEP for modification of the Title V Air Operating Permit requesting limitations on Hazardous Air Pollutants (HAPs) for facility-wide emission sources.

3.1.2 PAFB

In 1997, PAFB became a minor source of HAPs emissions. At this time, PAFB voluntarily accepted limitations on the HAP Potential To Emit (PTE) for Base-wide emissions sources through a Federally Enforceable State Operating Permit (FESOP). This method of permitting allowed PAFB to become a minor source of HAPs. The FESOP limits the Base's PTE to 22 tons of HAPs per year and 8 tons per year for each HAP.

3.1.3 MTA

MTA is exempt from Title V requirements per Florida Administrative Code (FAC) 62-210.300(3)(b)1. There are no major sources of air emissions at MTA. The only source of air emissions at MTA would be from emergency generators. The generators operate on diesel fuel and the total fuel consumption is less than 32,000 gallons per year. The generators are therefore exempt from air permitting and/or reporting requirements per FAC 62-210.300(3)(a)20.

3.1.4 JDMTA

Jonathan Dickinson Missile Tracking Annex is also exempt from Title V requirements per FAC 62-210.300(3)(b)1. There are no major sources of air emissions at JDMTA. The only source of air emissions at JDMTA would be from emergency generators. The generators operate on diesel fuel and the total fuel consumption is less than 32,000 gallons per year. The generators are therefore exempt from air permitting and/or reporting requirements per FAC 62-210.300(3)(a)20.

3.2 Biological Resources

This section describes biological resources by major biotic habitat for each Installation. Detailed descriptions of these habitats can be found in Tab S of the INRMP. Special-status species include state and federal Species of Special Concern, T&E species, rare species, and migratory birds. Information in this section is derived from existing documentation, and more detailed information can be found in Tabs A through D and Tab S of the INRMP.

Terrestrial and aquatic resources on the 45SW include vegetation and wildlife communities in a variety of ecological associations, and the management of these resources is overseen by several federal agencies. The ESA declares that it is the policy of Congress that all federal departments and agencies shall seek to conserve T&E species. Further, the act directs federal agencies to use their authority in furtherance of the purposes of the ESA.

The 45SW is in the process of developing a programmatic BO for the managed species on the 45SW. The purpose of this BO is to define all the routine mission related activities that have the potential to impact T&E species on the 45SW. The BO will detail mission impacts to natural resources, establish ground rules for consultations, identify techniques to minimize impacts to managed species, and summarize mitigation options. Once completed, this document will benefit the AF, USFWS, and the 45SW's natural resources by identifying specific agency responsibilities, streamlining consultations, and documenting mission related natural resource management impacts.

3.2.1 CCAFS

3.2.1.1 Vegetation Communities and Wildlife

The topographic position of natural communities on CCAFS reflects the various erosional and depositional processes of coastal land formation. Generally, older communities are found on the western margin of the Canaveral Peninsula, along

the Banana River; newer and successional communities are forming along the eastern coast. The current vegetative communities found on CCAFS are described below in the general order of the zones they occupy, east to west (Figure 3-1). Wildlife species, including sensitive and special-status species, are discussed by vegetation community.

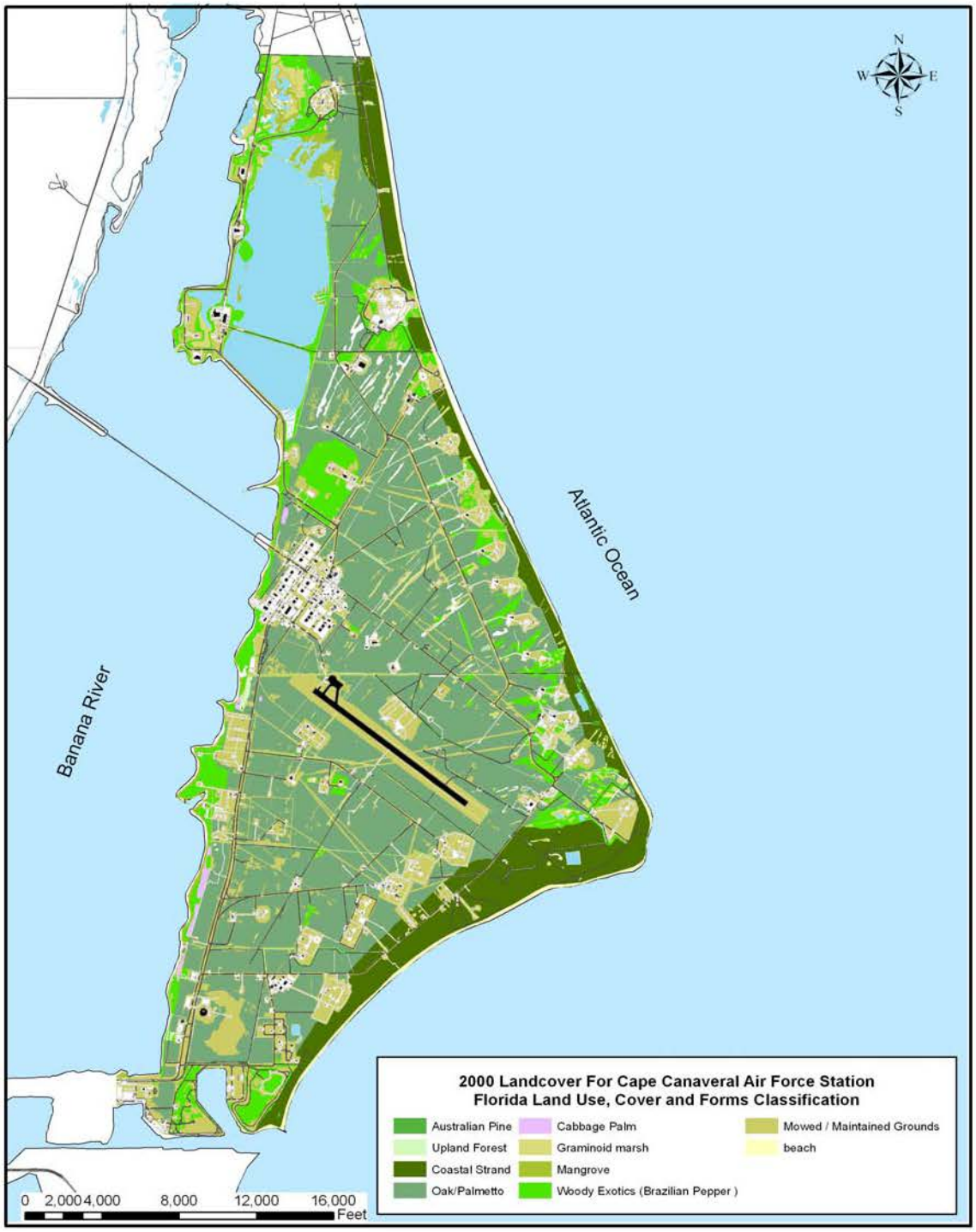

Figure 3-1: Vegetative Communities on Cape Canaveral Air Force Station

Invasive Species

Most of the areas on CCAFS that are disturbed, including roads, utility corridors, and launch complexes, have a healthy invasive species component. Brazilian pepper *(Schinus terebinthifolius)* predominates the invasive flora at CCAFS with six other invasive weeds present in lower densities. The most widespread of these is Australian pine (*Casuarina equisetifolia)*. Australian pine trees grow singly or as small, dense groves scattered across the base. In addition, cogon grass (*Imperata cylindrica*), melaleuca (*Melaleuca quinquenervia*), mistletoe (*Phoradendron serotinum*), and small populations of thistles (*Cirsium* spp.) and nettles (*Urtica* spp.) are present. (Invasive Plant Species Control Plan for CCAFS, 2004) The presence of these and other invasive species is discussed below by habitat type.

Beach Dunes

Of all the community types on CCAFS, beach dunes receive the most direct influence from the coastal processes of erosion and deposition. Dunes are highly unstable and dynamic communities. Beach dunes are inhospitable environments for most plant species, which must be able to tolerate a constantly shifting substrate, salt deposition, and abrasion from wind-blown sands. Species typical of CCAFS beach dunes include sea oats (*Uniola paniculata*), beach elder (*Iva imbricata*), railroad vine (*Ipomea pes-caprae*), beach croton (*Croton punctatus*), bitter panic grass (*Panicum amarum*), salt grass (*Distichlis spicata*), camphorweed (*Heterotheca subaxillaris*), and beach cordgrass (*Spartina patens*).

State-listed plant species found on dunes at CCAFS are coastal vervain (*Glandularia maritima*), beach star (*Remirea maritima*), and sea lavender (*Tournefortia gnaphalodes*).

Several rare animal species are documented on CCAFS beach dunes. The southeastern beach mouse *(Peromyscus polionotus niveiventris)* inhabits beach dunes and adjacent communities. A colony of least terns (*Sterna antillarum*) has been documented to nest on CCAFS beaches. Black skimmers (*Rynchops niger*) have also been documented nesting on the beach. Beaches on CCAFS are also very important nesting habitat for two species of sea turtles, the Atlantic green sea turtle (*Chelonia mydas)* and loggerhead turtle *(Caretta caretta)*. There have been documented nestings by the endangered leatherback turtle (*Dermochelys coriacea)* as well.

Coastal Grasslands

This flat, open community lies directly landward of the beach dunes on CCAFS. It occurs in two types of situations: on relatively young deposits of sand on prograding beaches, and in low areas where saltwater overwash has killed woody strand vegetation. Coastal grasslands are densely vegetated areas that contain mostly herbaceous species, although woody species such as varnish leaf (*Dodonea viscosa*), wax myrtle (*Myrica cerifera*), and saw palmetto (*Serenoa repens*) are scattered throughout.

Two State-listed plant species occur in coastal grasslands on CCAFS: coastal vervain and Florida lantana (*Lantana depressa* var. *floridana*).

Gopher tortoises (*Gopherus polyphemus)*, southeastern beach mice, deer, and raccoons *(Procyon lotor)* are just a few of the wildlife species that inhabit coastal grasslands. Least terns and black skimmers may nest in the transition zone between the beach dunes and coastal grassland if the vegetation is sparse.

Coastal Strand

This community develops in the absence of natural disturbance on somewhat older deposits of sand, inland of beach or coastal grassland. It is a dense, shrub-dominated community that grades landward into scrub or maritime hammock. The most distinctive feature of coastal strand is the wedge-shaped profile of its low canopy, which is constantly pruned and shaped by windborne salt spray.

Beach star and coastal vervain are two State-listed plant species which have been documented from disturbed areas and natural openings in coastal strand on CCAFS.

Florida scrub jay (*Aphelocoma coerelescens)*, Florida mouse (*Podomys floridanus)*, and southeastern beach mouse are T&E species that have been observed in coastal strand at CCAFS. Gopher tortoise burrows are common in clearings in the strand. Burrows provide important refugia for Eastern indigo snakes (*Drymarchon corais couperi)*, eastern diamondback rattlesnakes (*Crotalus adamanteus*) and Florida pine snakes (*Pituophis melanoleucus mugitus)*.

Coastal Interdunal Swales

Receding shorelines dating from the Pleistocene era have left behind a series of old dune ridges alternating with swales on CCAFS. These relict sand deposits form long ridges that are usually oriented in a northeast to southwest direction. The ridges and swales are conspicuous on topographic maps and aerial photographs of CCAFS. Swales are seasonally saturated or inundated from groundwater part of the year and support distinctive wetland plant communities.

Coastal interdunal swales are open, grassy habitats with few woody plants. The swales are dominated by grasses. A variety of wetland herbs may be present in the wetter swales. A species of *Nostoc*, a cyanobacteria, forms a wet, slippery, dark green groundcover in swales during wet periods and a thick, black crust during dry spells. An alga, *Chara spp*., is also present in pools in wet swales. Drier swales support a scattering of woody shrubs and stunted trees, including wax myrtle, live oak, saw palmetto, and groundsel tree (*Baccharis halimifolia*). Weedy invasive species that are found in some swales include Brazilian pepper and Madagascar periwinkle (*Catharanthus roseus*).

Coastal vervain, a State-listed plant species that requires open, sunny conditions, has been observed in dry swales.

Gopher tortoises have been observed in these coastal interdunal swales; however, their burrows are more common in drier swales. Wading birds, such as

the great egret (*Ardea alba)* and great blue heron *(Ardea herodias)*, forage in the wetter swales. Bobcats have also been observed in the swales.

Scrub

Three phases of the scrub community occur on CCAFS: coastal oak scrub, oak scrub, and rosemary scrub.

Coastal Oak Scrub

Occurring directly landward of beach dunes is Coastal oak scrub or, if they are present, coastal strand or grassland. Coastal oak scrub consists of dense, salt-pruned thickets of live oak, sand live oak, myrtle oak (*Quercus myrtifolia)*, and buckthorn, sometimes densely interwoven with catbrier. Scrub may occupy the same landscape position as coastal strand, but its low species diversity and oak dominance distinguish it.

Oak Scrub

Occurring inland of coastal scrub, out of the salt-spray zone, primarily occupying the oldest, most weathered sand deposits on the Canaveral Peninsula is the oak scrub. Oak scrub on CCAFS occupies the highest, driest habitats. It grades westward into maritime and hydric hammock along the Banana River and eastward into maritime hammock, coastal strand, or coastal oak scrub.

Rosemary Scrub

Rosemary scrub occurs in only one location on CCAFS, at the north end bordering the Banana River. The rosemary scrub is relatively open, with scattered clumps of rosemary interspersed with dense thickets of myrtle oak and sand live oak. Openings among the shrubs are either bare or vegetated with gopher apple, hog plum, and shiny blueberry. The herb layer is sparse but more diverse than in oak scrub. Gopher tortoises and scrub jays are often seen in the rosemary scrub.

Xeric Hammock

This community consists of scrubby, dense, low canopy forest with little understory other than saw palmetto (Florida Natural Areas Inventory (FNAI) and Florida Department of Natural Resources (FDNR), 1990). Large portions of the interior of CCAFS meet this description. Xeric hammock occupies many of the broad, old dune ridges that angle across CCAFS, interspersed with coastal interdunal swales.

Xeric hammock is species depauperate: the canopy is composed of live oak and the shrub layer of saw palmetto. American beautybush (*Callicarpa americana*) and groundsel tree are weedy shrubs that may occur in xeric hammocks. The occasional presence of scrub-related species such as myrtle oak, fetterbush (*Lyonia lucida*), and rusty lyonia in the shrub layer suggest that some xeric hammock is overgrown scrub in need of fire. Herb species are few but usually include wingstem (*Verbesina virginica*), passionflower (*Passiflora incarnata*), and climbing aster (*Aster carolinianus*). Occasionally, herb species from adjacent swales may occur in openings within the xeric hammocks. Woody vines are the

most conspicuous and diverse component of xeric hammocks. Muscadine grape, Calusa grape, catbrier, pepper vine (*Ampelopsis arborea*) and Virginia creeper are found in most xeric hammock. Large expanses of grapevines, commonly draped across the canopy of scrub and xeric hammock on CCAFS, are evidence of fire suppression.

Maritime Hammocks

Maritime hammock is found on CCAFS in two locations: on the east side of the Installation, just landward of coastal strand, referred to here as Atlantic maritime hammock; and on the west side of the Canaveral Peninsula, bordering the Banana River, referred to as Banana River maritime hammock. The distinction between the types of maritime hammock blends toward the north end of CCAFS where the peninsula narrows to less than half a mile. Atlantic maritime hammock would not be impacted by the Proposed Action.

Banana River Maritime Hammock

Banana River maritime hammocks largely occupy a ridge of shell midden along the west side of CCAFS. Banana River maritime hammocks differ from the Atlantic maritime hammocks in several respects. They are somewhat sheltered from direct impacts of storms, as well as salt spray; they are found in association with Indian shell middens and mounds, which have soils with higher pH and permeability; and they have also received more direct impacts from settler and homesteading activities.

Banana River maritime hammocks are bordered by scrub to the east and frequently intergrade with hydric hammocks and small basin swamps to the west. These hammocks are ecologically significant since they provide habitat for numerous tropical species that approach their northern limits in these forests.

Banana River maritime hammock is also home to many introduced plant species that have persisted from earlier in the century when these sites supported homesteads and fruit groves. Some invasive fruit species observed include mango (*Mangifera indica)*, papaya *(Carica papaya*), avocado (*Persea americana*), guava (*Psidium guajava*), strawberry guava (*P. cattleianum*), banana (*Musa x paradisiaca*), sour orange (*Citrus auranticum*), sweet orange (*C. sinensis*), and rose apple (*Syzygium jambos*). Escaped invasive ornamentals include Mexican flame vine (*Senecio confusus*), devil's tongue (*Sansevieria hyacinthoides*), bamboo (*Arundo donax*), and chandelier plant (*Kalanchoe tubiflora*).

Two state-listed plant species occur in Banana River maritime hammock on CCAFS: satinleaf (*Chrysophyllum oliviforme*) and hand fern (*Ophioglossum palmata*), an epiphytic fern. No rare animals have been observed in these communities.

Hydric Hammock

Hydric hammock occurs west and down slope from the shell ridge of maritime hammock along the western side of CCAFS. Elevated areas within the hydric hammock also support patches of maritime hammock. Included within the hydric

hammock are other small unseparated swamp communities, including a persimmon (*Diospyros virginiana*) -dominated basin swamp. In many areas, the hydric hammock directly borders the Banana River; however, it often grades into a sawgrass-willow (*Cladium jamaicense-Salix caroliniana)* or cattail (*Typha domingensis*) marsh. Hydric hammocks are very beautiful communities, with a distinctly tropical aspect to them. Unfortunately, Brazilian pepper is also common in the understory of even the intact hydric hammocks, having invaded from nearby disturbed areas.

No listed plants or animals have been identified in hydric hammock on CCAFS.

3.2.1.2 Wetlands and Floodplains

Wetlands are defined in AFI 32-7041, *Water Quality Compliance* (10 December 2003), as those areas that are inundated by surface or ground waters that support plants and animals that need saturated or seasonally saturated soil to grow and reproduce.

Wetlands are the transition zones between dry upland ecosystems and deeper aquatic habitats. Each wetland area is unique according to its surrounding geologic, hydrologic, and climatic conditions. Wetlands are integral to maintaining the health of naturally watery places; they provide flood control, aquifer recharge, coastal protection, and act to help filter pollutants from the ecosystem. Wetlands often support a wide range of rare and endangered aquatic plants and wildlife, and humans have relied on wetlands as a source of food and recreation for centuries.

A floodplain is the lowland adjacent to a river, lake, or ocean. Floodplains are designated by the frequency of the flood that is large enough to cover them. Flood frequencies, such as the 100-year flood, are determined by plotting a graph of the size of all known floods for an area and determining how often floods of a particular size occur.

Wetland communities on CCAFS can be grouped into two major categories: freshwater wetlands (approximately 1,308 acres) and estuarine wetlands (approximately 504 acres). Freshwater wetlands include interdunal swales, ponds, depression marshes, borrow pits, and canals. Estuarine wetlands include mangrove swamp, salt marsh, salt pans, borrichea/glasswort marsh and various impounded estuarine wetlands. The National Wetland Inventory (NWI) for CCAFS was completed in 1994 and Figure 3-2 illustrates the type and location of wetlands on CCAFS based on the NWI survey.

Salt Marshes

These communities exist among the intertidal shorelines and tidal wetlands of the Indian River lagoon system throughout CCAFS. The majority of the riverfront of the Banana River along CCAFS has been disturbed by the construction of mosquito control ditches and dikes or construction of facilities by the AF to support their programs. Some remnants of a salt marsh exist west of LC 40. These areas have been isolated from the waters of the Banana River and are experiencing a succession change to a freshwater marsh community.

Brackish Water Impoundments

There are four major brackish water impoundments located on CCAFS. The impoundments were created by construction of a power line access roadway across the tips of convoluted portions of the North Banana River shoreline. An additional impounded area exists between LC-40 and the LC-41 transporter roadways. This area appears to have originally existed as a salt marsh dominated by non-woody vegetation. Observations show cattails and some woody species are invading this habitat since the Banana River no longer influences it. Wading birds have been observed in this area, but the extent of utilization has not been determined.

Mangrove Wetlands

Estuarine wetlands dominated by woody cover are typically mangrove communities located on the fringes of the Banana River and adjacent impoundments. Mangrove communities are very fragile and can easily be altered by dredging, flooding, impounding and clearing. Mangrove leaf detritus is an important energy source within the complex marine food chain. Florida Statute 861.02 protects mangroves, and two species are listed as Species of Special Concern by the State. Unfortunately, Brazilian pepper is competing with the mangroves in this habitat.

Due to its riparian locations, species diversity within a mangrove habitat is widely varied. Use of mangrove communities on CCAFS by wading birds and migratory waterfowl is extensive, but fish receive the majority of the energy flowing from this association.

No rare plants are known from the estuarine communities. However, American alligators (*Alligator mississippiensis*), ospreys, bald eagles (*Haliaeetus leucocephalus*), and northern harriers (*Circus cyaneus)* have been observed in the marshes and swamps.

Freshwater Wetlands

Freshwater wetlands are interdunal swales, drainage canals, and watersheds that have undergone succession and are currently in the marsh stage. There are approximately 52 miles of drainage canals comprising 63 acres of surface water on CCAFS. Marsh-like conditions exist in some sections of the CCAFS drainage canal system and other low-lying areas associated with topographic undulations between relic dune ridges transecting CCAFS. Several of these marshy areas are temporary, resulting from seasonal variation in precipitation. The areas are periodically utilized by resident and migratory wildlife species but will not be cited specifically here due to their seasonal variability.

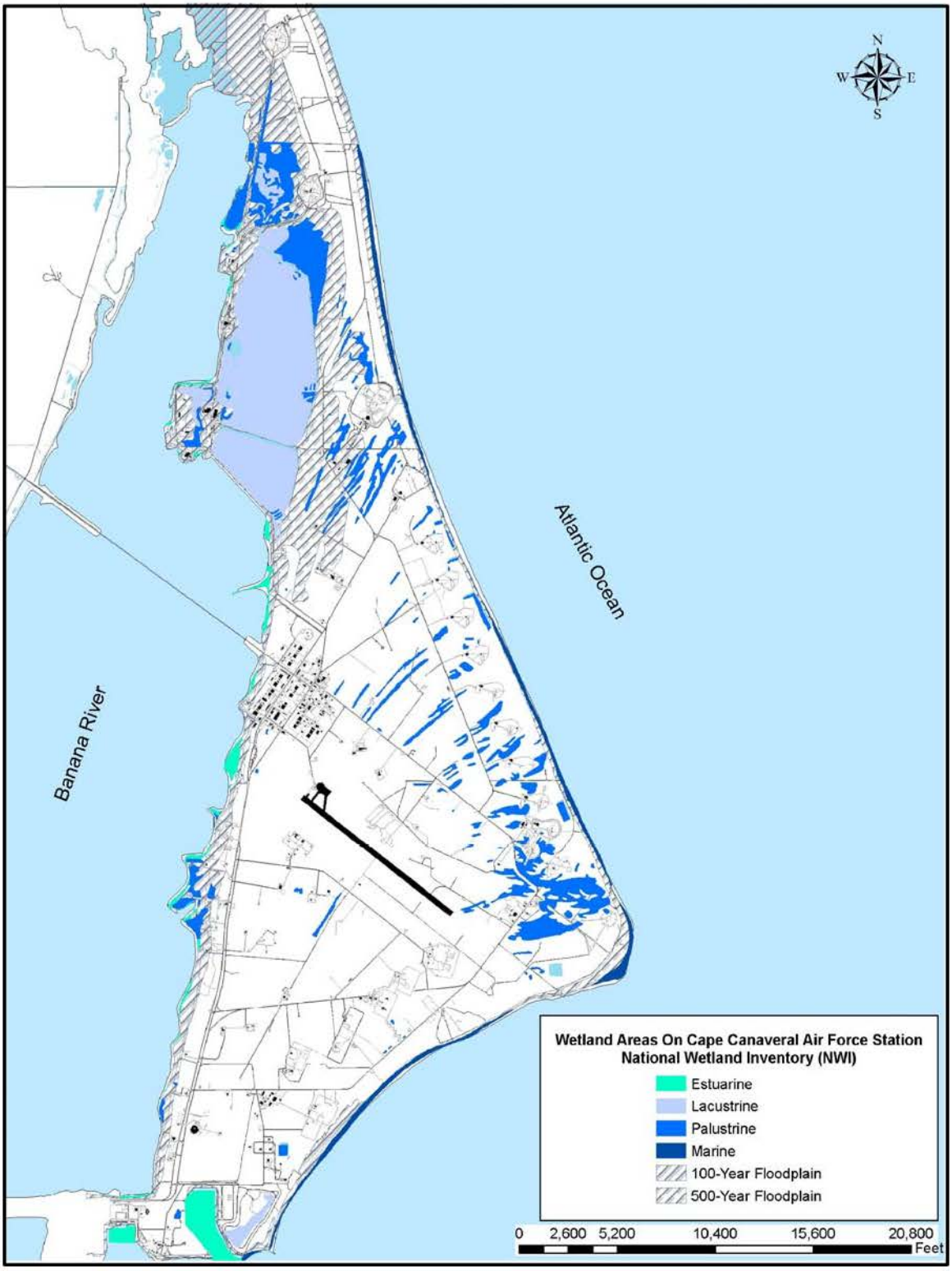

Figure 3-2: National Wetland Inventory (NWI) for CCAFS

3.2.1.3 Threatened, Endangered and Sensitive Species

AFI 32-7064, *Integrated Natural Resource Management*, instructs military installations to develop and implement programs to protect and conserve federally listed threatened and endangered plants and wildlife. CCAFS natural resource managers must also recognize state-listed species when evaluating potential impacts to the quality of their habitat.

The FNAI conducted a comprehensive biotic survey of CCAFS for the 45SW. This two-year survey was completed in December 1997 and covered rare, T&E flora and fauna, migratory birds, and outstanding natural communities. These species lists are subject to change pending future species listings. There is no formally designated critical habitat under Section 4 of the ESA located on CCAFS. Figure 3-3 represents known sensitive species on CCAFS, and Table 3-1 and Table 3-2 contain a complete list of the threatened and endangered species found on CCAFS. The following list summarizes the number of federal and state-listed species know to occur on or in the vicinity of CCAFS:

- Eight mammal species;
- Ten amphibian and reptile species; and
- Seventeen bird species.

A brief description of some of the federally listed T&E species on CCAFS follows. Please refer to the INRMP for a more detailed discussion of the T&E species on 45SW properties.

American Alligator

The American alligator is federally listed as threatened due to its similarity in appearance to another endangered species, the American crocodile. The species has made a strong recovery in Florida. Alligators inhabit and reproduce in all CCAFS waters. A demographic study to assess the health and viability of the alligator population at CCAFS is programmed for 2012.

Atlantic Loggerhead Sea Turtle

Atlantic loggerhead turtles are listed as a threatened species by USFWS. Each year between May and August loggerhead turtle nests are deposited on the CCAFS beach.

During the 2005 nesting season 1,916 nests were deposited on CCAFS. Loggerhead nesting comprised 96% of the sea turtle nesting activity on CCAFS. In 2004 the nest to crawl ratio was calculated to be 1:0.89.

Atlantic Green Sea Turtle

The Atlantic green sea turtle was federally listed as an endangered species in 1978. In 2005, 163 green sea turtles deposited nests on CCAFS. Additionally, a population of juvenile Atlantic green sea turtles inhabits the CCAFS Trident Basin and adjacent near-shore waters.

Leatherback Sea Turtle

The USFWS listed the leatherback sea turtle as an endangered species in 1970. Leatherback nests can be found along the shores of the Atlantic, Pacific and Indian Oceans. Nesting on CCAFS was first documented in 1986 when a single leatherback nest was recorded by CCAFS biologists.

During the 2005 nesting season, CCAFS biologists recorded eight leatherback nests. Nesting by leatherback turtles this far north is infrequent and CCAFS nesting activity cannot be considered critical to the continued survival of the species.

Eastern Indigo Snake

Federally listed as a threatened species, the eastern indigo snake has been identified throughout CCAFS from road kills and field observations.

The major threats to the indigo snake on CCAFS are habitat loss and vehicle strikes. Controlled access and minimal development on CCAFS results in a relatively stable habitat capable of maintaining a population of indigo snakes close to that which would occur in a similar but undisturbed area.

Florida Scrub jay

The USFWS proposed the Florida Scrub jay for listing as a threatened species without critical habitat designation in 1986. Following review of the proposed listing, USFWS formally listed the Florida Scrub jay as threatened on 3 June 1987 (52 Federal Register 20715).

Since the majority of Scrub jays are located on federal lands regulated by Section 7 of the ESA, no critical habitat was established for the species.

Distribution of the Florida Scrub jay is restricted to scrub communities associated with relic dunal deposits on peninsular Florida. The Scrub jay shows an obligatory reliance on oak species, especially those growing in low dense thickets interspersed with open sandy areas. The majority of habitats utilized by Scrub jays are located on coastal barrier islands and excessively drained inland sand ridges; areas also favored by developers. It is estimated that the Scrub jay currently occupies about half of its historical range, and has suffered an equal depletion of its population.

Arctic Peregrine Falcon

Peregrine falcons use CCAFS dune habitats from about September through May as an important wintering area.

This crow-sized raptor feeds on other avian species. The large number of birds inhabiting or wintering on CCAFS is assumed to be the primary attraction of these falcons. In addition to an abundant and dependable supply of prey, the falcons also require the standing trunks of dead vegetation adjacent to feeding areas for roosting.

Southeastern American Kestrel

The southeastern American kestrel occupies a portion of the southeastern coastal plain from South Carolina south to Alabama and Florida. It is listed by the state as a threatened species. It is difficult to differentiate the subspecies found on CCAFS from the more widespread American Kestrel (*F. s. sparverious*), which winters in Florida. Kestrels have been observed on numerous occasions at CCAFS; however, none have been identified to subspecies. Observations have been made throughout CCAFS.

Bald Eagle

The bald eagle was recently de-listed, but is still protected by several laws. Although numerous active bald eagle nests have been reported on KSC, they do not nest on CCAFS, but are regularly seen utilizing CCAFS as a foraging area. Nests are typically built in tall pine trees near lakes, marshes or coastlines. CCAFS has a few tall stands of pine trees; however, no nests have been documented to date.

Wood Stork

Wood storks are a federally listed endangered species. Wood storks have been observed feeding in the CCAFS drainage canal system. In addition, these birds rest along the canal banks and in adjacent fields. The birds' use of land at CCAFS varies seasonally and annually; therefore, no critical habitat has not been identified.

Least Tern

Least terns are a state listed threatened species. Least terns nest along sandy or gravel beaches on the southern portion of CCAFS and on gravel rooftops in the industrial area of CCAFS.

They are very sensitive to disturbance when nesting and can be very aggressive if their nest is approached. Least terns typically nest on CCAFS between April and August.

Southeastern Beach Mouse

The Southeastern beach mouse was listed by USFWS as a threatened species on 12 May 1989. The beach mouse is a sub-species of the common, widely distributed oldfield mouse. Beach mice populations are restricted to the coastal dune and coastal strand communities along Florida's central east coast.

The historical distribution of this species was from Ponce Inlet (Volusia County), south to Hollywood Beach (Broward County). Human alteration of the coastal barrier islands has resulted in the extirpation of the beach mouse from the majority of its range.

The most viable populations are now located on federal lands, including the Canaveral National Seashore, Merritt Island National Wildlife Refuge/KSC and CCAFS. The coastal dune habitat is afforded considerable protection, and

Section 7 of the ESA protects the species. Currently no critical habitat for the beach mouse has been designated.

West Indian Manatee

Manatees are one of the few marine mammals known to inhabit the local salt-water lagoon system. They are federally listed as endangered due to the low population level within the continental United States.

The USFWS has designated the Indian and Banana Rivers as critical manatee habitat. The northern Banana River, north of the NASA Causeway has had restricted boat access since 1963. An increasing number of manatees using the region (Provancha and Provancha 1988) inspired the USFWS to deny public power boats access to nearly all of the Banana River waters adjacent to CCAFS. The turning basin, west of Hangar AF, supports an exceptionally high concentration of manatees. Manatees may also be found in the port area, particularly in the Trident Basin.

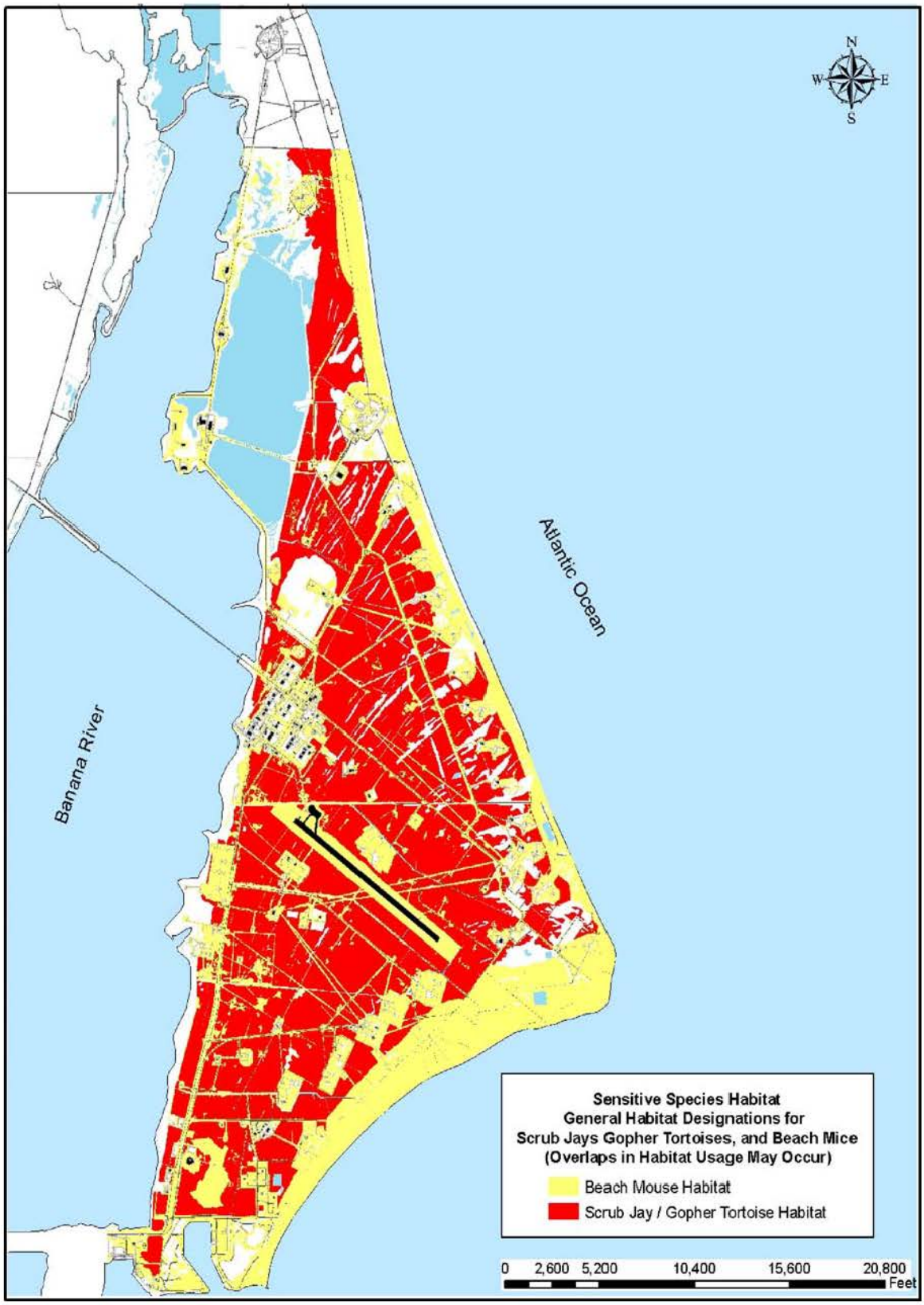

Figure 3-3: Potential Scrub Jay, Gopher Tortoise, and Beach Mouse Habitat on CCAFS.

Status of Threatened, Endangered, and Sensitive Plants

Table 3-1 provides a list of protected and sensitive plants that are found on CCAFS, along with the status of each. There are no known Federally-listed plants on CCAFS.

Table 3-1: Status of Endangered and Threatened Plants on CCAFS

Scientific Name	Common Name	Status
		FDA[1]
Asclepias curtissii	Curtiss' milkweed	E
Chamaesyce cumulicola	Sand dune spurge	E
Chrysophyllum oliviforme	Satinleaf	T
Lantana depressa var. *floridana*	Florida lantana	E
Lechea cernua	Nodding pinweed	T
Myrcianthes fragrans	Nakedwood, Simpson's stopper	T
Ophioglossum palmatum *(Cheiroglossa palmata)*	Hand fern	E
Opuntia stricta	Shell mound prickly-pear cactus	T
Remirea maritime	Beach star	E
Scaevola plumieri	Scaevola, inkberry	T
Tournefortia gnaphalodes *(Argusia gnaphalodes)*	Sea lavender	E
Verbena maritime *(Glandularia maritima)*	Coastal vervain	E

1Chapter 5B-40 FAC 2003)
E= Endangered
T= Threatened

Status of Threatened, Endangered and Sensitive Animals

Table 3-2 provides a list of protected animals that are found on CCAFS, along with the status of each. There are Federally-listed animals on CCAFS.

Table 3-2: Status of Threatened and Endangered, and Species of Special Concern Found on CCAFS

Common Name	Scientific Name	Status	
		USFWS[1]	FFWCC[2]
American Alligator	*Alligator mississippiensis*	T (S/A)	SSC
Loggerhead Sea Turtle	*Caretta caretta*	T	T
Atlantic Green Sea Turtle	*Chelonia mydas*	E	E
Leatherback Turtle	*Dermochelys coriacea*	E	E
Gopher Tortoise	*Gopherus polyphemus*		T
Eastern Indigo Snake	*Drymarchon corais couperi*	T	T
Florida Pine Snake	*Pituophis melanoleucus mugitus*		SSC
Roseate Spoonbill	*Ajaia ajaja*		SSC
Florida Scrub jay	*Aphelocoma coerelescens*	T	T
Piping Plover	*Charadrius melodus*	T	T
Little Blue Heron	*Egretta caerulea*		SSC
Reddish Egret	*Egretta rufescens*		SSC
Snowy Egret	*Egretta thula*		SSC
Tricolored Heron	*Egretta tricolor*		SSC
White Ibis	*Eudocimus albus*		SSC
Peregrine Falcon	*Falco peregrinus*		E
Southeastern American Kestrel	*Falco sparverius paulus*		T
American Oystercatcher	*Haematopus palliatus*		SSC
Wood Stork	*Mycteria Americana*	E	E
Brown Pelican	*Pelecanus occidentalis*		SSC
Black Skimmer	*Rynchops niger*		SSC
Least Tern	*Sterna antillarum*		T
Southeastern Beach Mouse	*Peromyscus polionotus niveiventris*	T	T
Florida Mouse	*Podomys floridanus*		SSC
Florida Manatee	*Trichechus manatus*	E	T

[1]**USFWS**
E=Endangered: species in danger of extinction throughout all or a significant portion of its range.
T=Threatened: species likely to become endangered within the foreseeable future throughout all or a significant portion of its range.
T(S/A)**=**Threatened due to similarity of appearance to a species which is federally listed such that enforcement personnel have difficulty in attempting to differentiate between the listed and unlisted species.
[2]**FFWCC**
SSC=Species of Special Concern

3.2.1.4 Migratory Birds

This AF Base is home to numerous birds listed on the USFWS migratory bird list, all of which are protected at the Federal level by the Migratory Bird Treaty Act (MBTA). All but a few bird species (e.g., pigeons, European starlings, etc.) found on CCAFS are on this list. Please refer to Tab A, Fish and Wildlife, of the current INRMP for a detailed listing of birds known to inhabit 45SW mainland properties.

3.2.2 PAFB

3.2.2.1 Vegetation Communities and Wildlife

Invasive Species

Two invasive plant species predominate PAFB: Brazilian pepper and Australian pine. These species are most often found in undeveloped areas and on the margins of improved/semi-improved areas. Brazilian pepper is typically found as isolated individuals in dense clumps around buildings and roads, or as long rows around waterways on the south and west boundaries of PAFB. FDEP and PAFB natural resource personnel have also identified hydrilla (*Hydrilla verticillata*) in the canals at PAFB. Australian pines grow singly or as small, dense groves along the coast of the Banana River on the west side of the Base, and around the southeastern end of the airfield. Three other species that are considered noxious weeds are present, but in small numbers – cogon grass on the airfield, isolated melaleuca trees on the golf course, and isolated patches of torpedo grass around lagoons and ponds on the golf course. (Invasive Plant Species Control Plan for PAFB, 2004)

Sand Dunes

Sand dunes on PAFB support a narrow strip of vegetation bordered by the Atlantic Ocean, State Route A1A, Base Housing, or areas of mowed grass (Figure 3-4). The flora of the dunes includes four major elements: common dune or coastal strand species such as sea oats, bitter panicum (*Panicum amarum* Ell), beach sunflower (*Helianthus debilis*), sea grape, and railroad vine; less common, State-listed dune species, beach star, inkberry (*Scaevola plumieri*), and prickly pear cactus; native species on disturbed or open areas such as ragweed (*Ambrosia artemisiifolia*), begger-ticks (*Bidens pilosa*), and southern crabgrass (*Digitaria ciliaris*); and introduced species such as sow thistle (*Sonchus asper*) and simpleleaf chastetree (*Vitex trifolia*).

Wildlife

Various species of wildlife inhabit, utilize, or frequent PAFB. The Installation is located on a barrier island and these types of ecosystems are important natural areas that support many plants, animals, and natural communities. Barrier islands along the Atlantic coast are especially important for nesting sea turtles, populations of small mammals, and as foraging and loafing habitat for a variety of resident and migratory shorebirds, wading birds, and songbirds.

3.2.2.2 Wetlands and Floodplains

Wetland ecosystems are considered to be some of the most biologically productive of all habitats, but are very limited at PAFB. A few areas intermittently support saltwater grasses, and the river estuarine salt marsh community is known to exist on the Banana River shoreline. However, natural processes continually change these areas by filling them with sand or by removing sandbars and draining the areas with storms and high rain events that flush the Banana River's waters up canals connected to the river. Figure 3-4 illustrates NWI wetlands, jurisdictional waters designated by the Army Corps of Engineers, and 100-year floodplains.

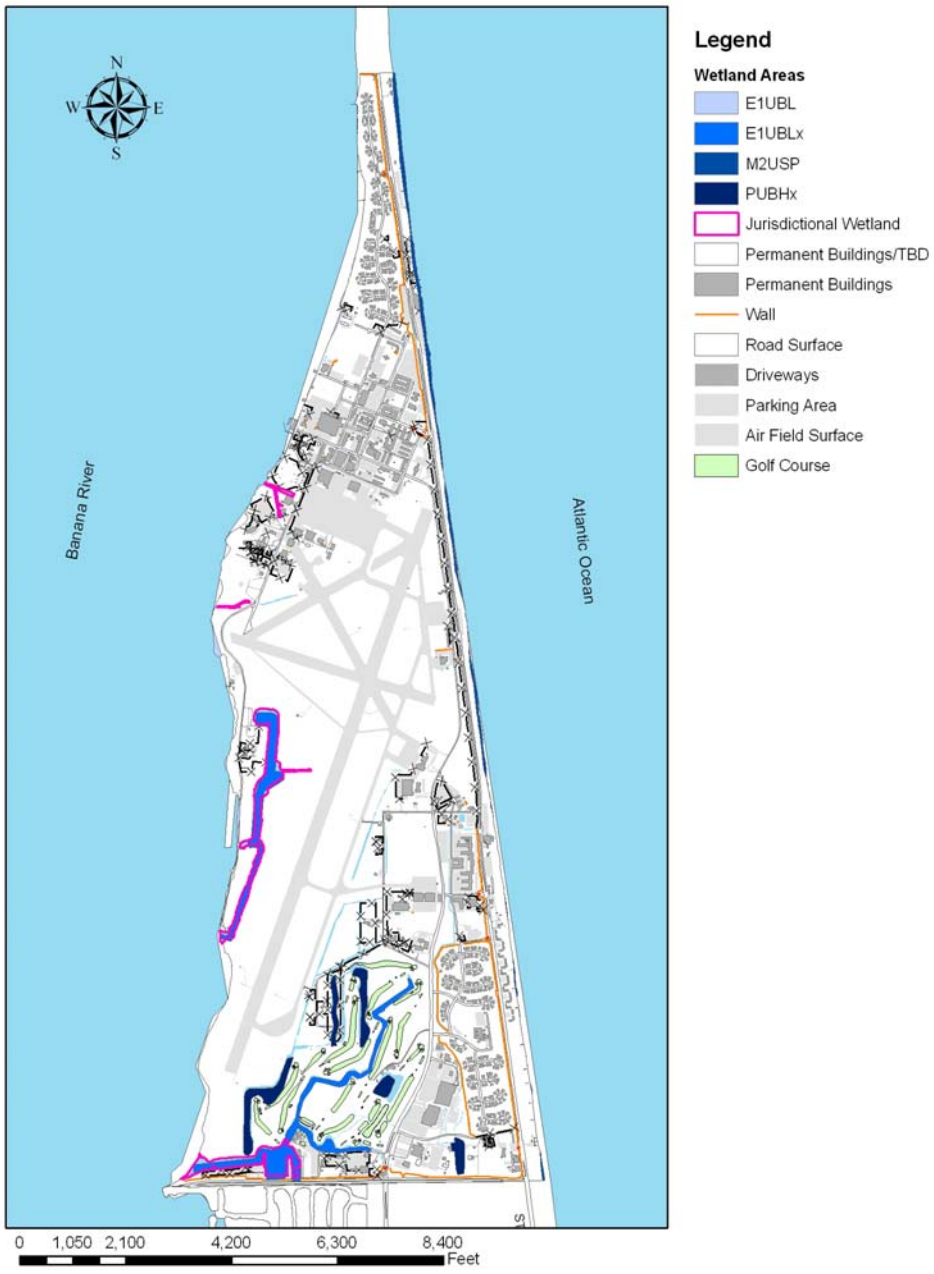

Figure 3-4: National Wetland Inventory for Patrick Air Force Base

3.2.2.3 Threatened, Endangered and Sensitive Species

A comprehensive biotic survey of PAFB was completed in December 1997 and covered rare, threatened and endangered flora and fauna, migratory birds, and outstanding natural communities (Oddy et al., 1997). These species lists are subject to change pending future species listings.

The following list summarizes the number of federal and state-listed species know to occur on or in the vicinity of PAFB:

- 5 mammalian species;
- 8 amphibian and reptile species; and
- 15 bird species.

There is no formally designated critical habitat on PAFB, as defined under Section 4 of the ESA. The current threatened, endangered, and sensitive species present on PAFB include: Florida manatee *(Trichechus manatus)*, American alligator, Atlantic loggerhead turtle, Atlantic green sea turtle, leatherback turtle, hawksbill turtle (*Eretmochelys imbricate)*, gopher tortoise, Eastern indigo snake, roseate spoonbill, piping plover *(Charadrius melodus)*, little blue heron, reddish egret (*Egretta rufescens)* , snowy egret, tricolored heron, white ibis (*Eudocimus albus)*, southeastern American kestrel (*Falco sparverius paulus)*, Arctic peregrine falcon (*Falco peregrinus tundrius)*, American oystercatcher (*Haematopus palliates*), bald eagle, wood stork, brown pelican, black skimmer, and least tern.

Appendix D of the INRMP contains a detailed description of the T&E species found on PAFB. Many of the federally listed T&E species on PAFB are similar to those found on CCAFS and a brief description of some of these species were previously detailed in the CCAFS T&E species section. The nesting sea turtle populations at PAFB are of special interest and nesting data is detailed below.

During the 2007 nesting season 946 nests were deposited on PAFB. Loggerhead nesting comprised 97% of the sea turtle nesting activity on PAFB. In 2007, 39 green sea turtles and four leatherback sea turtles deposited nests on PAFB. The false crawls to nests ratio is generally 2 to 1 on PAFB for loggerhead and green turtles.

Although no Federal-listed T&E plant species have been identified at PAFB, the following plants listed by the State of Florida have been observed on Base: spider lily, beach star, inkberry, and prickly pear cactus. State law also affords some protection to the black mangrove, red mangrove, and white mangrove which occur along the Banana River shoreline and the edges of some canals.

PAFB is located along one of the major migratory pathways for neotropical migrants that breed in eastern North America. Therefore, habitat on PAFB that is suitable for migrant birds is of conservation concern. During various other surveys conducted at PAFB in 1996, many neotropical migrants were observed using the dune habitat.

3.2.3 MTA

3.2.3.1 Vegetation Communities and Wildlife

The natural communities on MTA have been altered due to extensive development (Figure 3-5). Alterations include direct disturbances such as airfield pavement, mowed antenna fields, roads, structures, and military exercise areas, and indirect disturbances such as the suppression of the natural fire regime and the modification of the hydrology. Occurrences of relatively higher quality mesic flatwoods and of depression marshes have been documented on MTA.

Although MTA is surrounded by commercial and residential development, it provides available habitat for common wildlife species including migratory and resident songbirds, amphibians, reptiles, and mammals. Appendix B of the INRMP contains a list of the common animals observed on MTA.

Hydric soils and potential wetlands have been determined by SJRWMD in the wet flatwoods area in the southeast area of the Annex, and the hydric hammock area in the northwest sector.

Invasive Species

Brazilian pepper comprises the majority of noxious weeds present on MTA. In addition, small populations of cogon grass, torpedo grass, mimosa, and thistles have been identified. (Invasive Plant Species Control Plan for CCAFS, 2004)

Hydric Hammock

An area dominated by cabbage palms occurs in the flatwoods near the center of the south boundary of MTA. This may have been hydric hammock prior to the digging of the adjacent Melbourne-Tillman Canal. The discontinuous canopy consists of dense clusters of widely scattered palms. Only rarely does a live oak, slash pine *(Pinus elliottii)*, or Hercules club appear among the palms. The noxious Brazilian pepper is an abundant shrub or small tree in this community. The ground cover is sparse in most areas with the herb wood sage (*Salvia riparia*), being locally abundant, and the common terrestrial toothed orchid (*Habenaria odontopetala*), occurring as scattered individuals. A small but healthy population of epiphytic hand fern (*Cheiroglossa palmata*) has been documented on cabbage palms in three locations within this area.

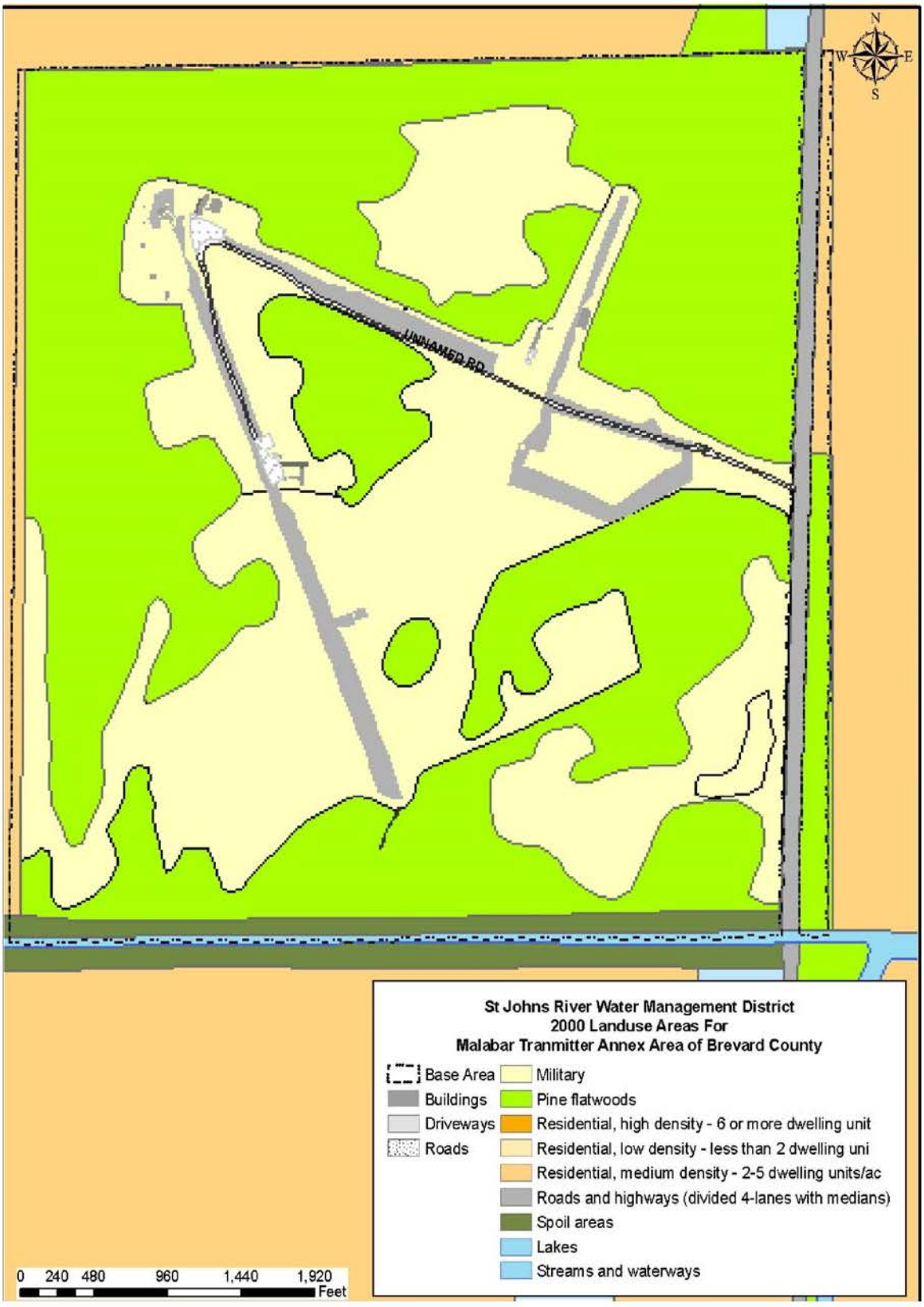

Figure 3-5: St Johns River Water Management District Land Use Map for the Malabar Transmitter Annex

Small fragments of what may also have been a hydric hammock cover about one acre at the northern boundary in the northwest section. The fragments are situated between mesic flatwoods and a depression marsh. This hammock is divided in two by the perimeter security fence and patrol road. The larger and more diverse part is north of the fence. The closed canopy of mature live oak covers abundant cabbage palms of various stages. Three tropical shrub species are present here: twinberry is abundant north of the perimeter security fence, wild coffee is common, and wild lime (*Zanthoxylum fagara*) is rare.

Mesic Flatwoods

Mesic flatwoods make up most (about 200 acres) of the forested areas remaining on MTA. They have a younger mature to older mature slash pine canopy and a light to heavy saw palmetto understory. The ground cover ranges from good to poor quality, reflecting past land clearing activities and fire suppression. Flatwoods of good quality occur in the northeast corner, the extreme southeast corner, and the center of the western side. The largest area of approximately 20 acres borders Minton Road at the north end of the Annex, and has a canopy of mature slash pine. A tall thicket of dense saw palmetto dominates the vegetation in the southeast corner and western side. Small openings in the middle of these areas have natural ground cover of wiregrass plus low shrubs of dwarf live oak and pawpaw (Asimina reticulata). The slash pine canopy is very sparse with trees mainly restricted to the openings or the periphery.

Similar but less diverse flatwoods cover another 20 acres just south of the entrance road. Most of this section has dense saw palmetto. The other mesic flatwoods on MTA are poor quality since they lack a natural ground cover due to past land clearing. They generally have a canopy of young to mature pines and sparse saw palmetto understory.

Wet Flatwoods

Wet flatwoods occur (with included small depression marshes) on approximately 80 acres in the southeast corner of MTA. Their condition makes their exact boundaries hard to delineate. However, hydric soils have been determined by SJRWMD in the wet flatwoods area in the southeast and the hydric hammock area in the northwest sector. The soils in these areas are another indicator for the wetland designation. This community has experienced fire suppression and disturbances such as drainage, mowing, and land clearing.

The scattered slash pine canopy has mostly younger mature trees. The sparse shrub stratum contains occasional wax myrtle and cluster-leaf St. John's wort (*Hypericum cistifolium*). The ground cover is fairly diverse including common carpetgrass (*Axonopus affinis*), big carpetgrass (*Axonopus furcatus*), coinwort (*Centella asiatica*), bald-headed carphephorus (*Carphephorus carnosus*), and pink sundew (*Drosera capillaris*).

3.2.3.2 Wetlands and Floodplains

The natural communities at MTA have been fragmented by human disturbances. The natural wetlands consist of depression marshes and wet flatwoods with scattered slash pine in the canopy. No 100-year floodplains are mapped on MTA. Figure 3-6 illustrates NWI wetlands used as a planning level survey. Actual wetlands as related to permitting requirements will be identified on a case-by-case basis using field surveys for hydrology, soil, and vegetation characteristics.

Canals

The deep Melbourne Tillman Canal borders the south boundary of the property and acts as the final destination of the water drained from the site by the two lesser conduits. They are filled with vegetation, primarily common cattail, primrose willow (*Ludwigia peruviana*), Caroline willow (*Salix caroliniana*), arrowhead, maidencane, and water pennywort. The narrower and shallower ditches are predominantly composed of pickerelweed (*Pontederia cordata*), arrowhead, blue hysop (*Bacopa caroliniana*), maidencane, and torpedo grass. The more numerous swales are shallower still and vary from having many to no wetland plant species. Those in dry areas are frequently mowed and often dominated by bahia grass (*Paspalum notatum*).

Depression Marsh

Small depression marshes are scattered around MTA. All have been affected by drainage and fire suppression, but their presence is detected because of their persisting wetland plant species.

Depression marsh covers approximately 1.5 total acres in the northeast quarter of the northwest quarter of MTA. These somewhat continuous shallow depressions form a mosaic with the prevalent mesic flatwoods. This marsh system has been given a marginal rank by FNAI due to its small size, lack of burning, and altered drainage.

A small isolated depression marsh of lower quality and less than 0.25 acre in size occurs west of the runway near the middle of MTA. Several other small depression marshes are in the southeast corner of MTA within the wet flatwoods. Young slash pines are invading this open area. Four other tiny wet depressions occur further south. These small remnants barely function as marshes and are of poor quality due to long-term drainage. Marsh indicator species found here include sawgrass, buttonbush, lanceleaf arrowhead, pickerelweed, and fireflag. Brazilian pepper is not yet a problem in the wetland areas but is widespread in nearby disturbed areas.

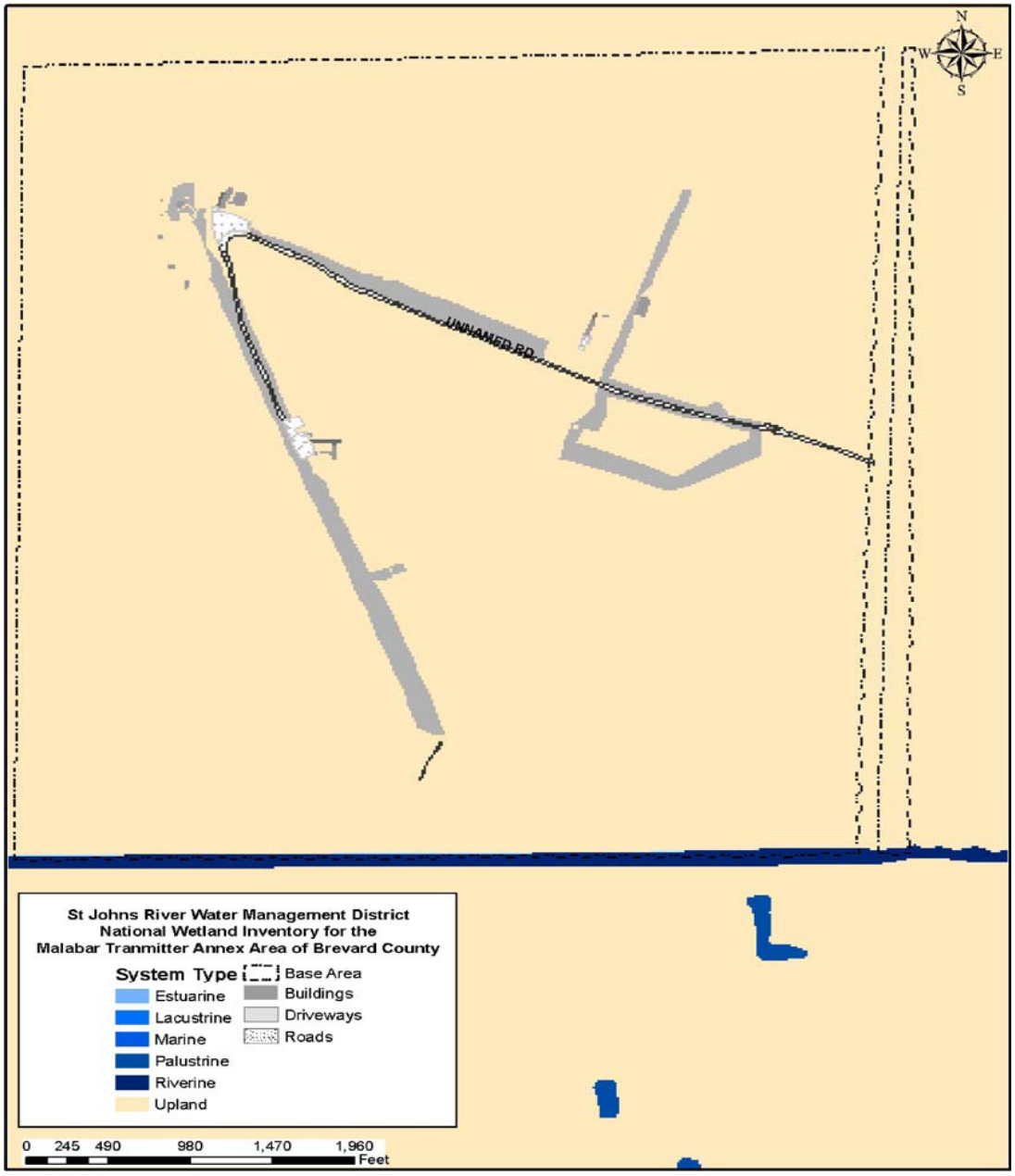

Figure 3-6: NWI wetlands for Malabar Transmitter Annex

3.2.3.3 Threatened, Endangered and Sensitive Species

Only one rare plant species has been observed on MTA. A small but healthy population of the epiphytic hand fern which is listed as State of Florida-endangered grows on cabbage palms in three locations; however, since the 2004 hurricanes it has not been observed.

Several other unusual plant species have been observed on MTA. A small population of orchid crested coco (*Eulophia alata*) was found on the southeast side of the intersection of the northeast-southwest and north-south runways. The orchids are approximately 30 feet from the mowed edge in an "island" of mesic flatwoods with many cabbage palms.

Three tropical shrub species are present in the maritime hammock at the north boundary. North of the perimeter security fence are abundant twinberry, common wild coffee, and one plant of wild lime. Inside the fence at the northwest corner of the live oaks are a few twinberry and wild coffee on a low ridge.

There is no formally designated critical habitat under Section 4 of the ESA located on MTA. The gopher tortoise, now designated as State threatened, has been documented on MTA. Currently, one Federally-listed species is found at MTA, the Eastern indigo snake. The indigo snake has been identified on MTA through a shed skin only. The shed skin of an Eastern indigo suggests that a remnant population may exist at MTA, although biologists performing surveys have observed no individuals. MTA has suitable habitat preferred by indigo snakes and the presence of gopher tortoise burrows provides denning sites for individuals that may be present.

3.2.4 JDMTA

3.2.4.1 Vegetation Communities and Wildlife

Most (about 80%) of the property is developed. The remaining 20% is comprised of scrub "islands" typical of the rosemary scrub habitat. These scrub islands are vegetated primarily by the following dominant plants: scrub oak (*Quercus inopina*), sand live oak, sand pine, Florida rosemary, saw palmetto, and wild blueberry (*Vaccinium spp.*).

Fauna on JDMTA consists of wildlife normally associated with scrub communities, including raccoons, opossums, and occasionally a white-tailed deer that is able to get inside the fence.

3.2.4.2 Wetlands and Floodplains

This property is located in the southern part of Jonathan Dickinson State Park. Wetlands and 100-year floodplains have not been identified on this site.

Invasive Species

Brazilian pepper tree is the predominant invasive species that has been identified on JDTMA. However, cogon grass and Earleaf acacia have also been documented at JDMTA. (Invasive Plant Species Control Plan for CCAFS, 2004)

3.2.4.3 Threatened, Endangered, and Sensitive Species

Florida perforate cladonia (*Cladonia perforata*) is the only listed plant found on JDMTA (Federally- and State-endangered). The perforate lichen found on JDMTA has been relocated to Jonathan Dickinson State Park under a BO coordinated with Jonathan Dickinson State Park for a fence and tower replacement project. The listed lichen is now only found in fragmented pieces on JDMTA, pieces too small to relocate. All lichen was carefully moved to recipient plots that were identified using a GPS, and the data was provided to Jonathan Dickinson State Park for location to prevent fire impact with their controlled burns.

The threatened Florida scrub jay has been known to visit JDMTA, but has not been observed nesting within the Annex. The Florida scrub jay has, though, been observed nesting on adjacent park lands. Additionally, the presence of gopher tortoises has been reported at JDMTA.

3.3 Hazardous Materials and Waste

The AF has established procedures for the handling, storage and disposal of hazardous materials on 45SW properties. These procedures include the proper storage, mixing, and use of herbicides and pesticides. Personnel applying these hazardous materials must have a State and/or DOD applicator's license. For specific guidance on the proper use, storage, or disposal of a hazardous material, the label will be followed. The procedures also require that aquatic habitat invasive weed control must utilize herbicides labeled for low aquatic impact.

Similarly, procedures have also been established for the handling, storage and disposal of hazardous waste (O-Plan 19-14). These programs are designed to prevent adverse impacts to the installations' environment resulting from the use of hazardous materials. With the exception of a potential accidental release (spill), the use of hazardous materials and generation of hazardous wastes by operations on 45SW properties has very little potential to adversely impact wildlife species or their habitats. With regard to spills, the AF has developed and implemented a comprehensive spill plan and program that has successfully prevented adverse impacts to 45SW environmental attributes from inadvertent releases of hazardous materials.

3.3.1 CCAFS

One area of concern regarding potential impacts from hazardous materials is the Atlantic coastal beach, which constitutes the eastern boundary of the installation. Periodically, drums, containers and other suspicious items are washed onto the CCAFS beach by normal tide fluctuation. The majority of these items are discarded from ocean-going vessels and identification of the contents is not easily obtainable. In some cases where contents have been analyzed, hazardous substances were identified. It is not possible to prevent items from washing ashore, however, periodic beach patrols are conducted by the Security Department Wildlife Control Officer to promptly discover potentially harmful items

on the beach and remove such items before they can create an adverse impact to natural resources.

Studies performed through the Installation Restoration Program (IRP) at CCAFS have identified 69 sites with confirmed contamination and 51 Areas of Concern (AOCs) with suspected contamination.

As of August 2000:

- 49 AOCs have been approved for No Further Action (NFA);
- Two AOCs currently undergoing investigation to determine need for additional action;
- 26 sites currently undergoing investigation/clean-up;
- 25 sites approved for NFA;
- 18 sites in long term monitoring and/or institutional controls.

Launch Complex 34, currently under NASA accountability, is one other area of major concern to CCAFS officials. This location has been identified as a prime area for future launch operations that will follow the Space Shuttle Program. However, potentially hazardous substances have been identified at this site. These substances include hydrocarbon fuels, trichloroethane, waste oils, and polychlorinated biphenyls (PCBs).

Fire Training Area 17, a former fire fighter training location, was an area used for fire training sessions on CCAFS from 1965 until 1985. The exercises consisted of releasing waste fuels and solvents into an unlined pit, igniting the pooled commodities and extinguishing the blaze. The result of this produced an area approximately two acres in size that contains residual contaminants in the form of a “free-layer” of product and a saturated soil vadose zone. This area continues to be a source of downgradient groundwater and surface water contamination. CCAFS installed and operated an air sparging system that was designed to cut-off and eliminate solvent contamination found in the groundwater prior to its release to a nearby drainage canal. The source area remediation entailed the excavation of contaminated subsurface soils, on-site treatment using a batch process and a priority solvent to cleanse the soils to a safe level prior to returning the treated soils back into the excavation. This work was completed in 1998 (M. Kershner, pers. com. 2000).

3.3.2 PAFB

Similar to CCAFS, the Atlantic coastal beach is an area of concern regarding potential impacts from hazardous materials. The beach constitutes the eastern boundary of PAFB. Security patrols and sea turtle monitors as well as the public can call in, any unusual containers or suspicious items that wash ashore for removal, testing, and disposal.

3.3.3 MTA

MTA is a conditionally exempt small quantity generator, generating less than 100kg of hazardous waste per month. A waste accumulation point is located adjacent to Bldg 00006. The majority of waste generated at MTA is non-hazardous (oils, off-spec fuels, water contaminated with oils and lubricants),

primarily from generator/equipment maintenance. Occasionally, due to facility maintenance (i.e., painting) hazardous waste is generated. MTA has its own Environmental Protection Agency (EPA) Identification number for hazardous waste generation.

3.3.4 JDMTA

JDMTA is also a conditionally exempt small quantity generator. This means they generate less than 100 kg of hazardous waste per month. Facility 28002 is the waste accumulation point on the annex. Most of the wastes generated are non-hazardous (oils, off-spec fuels, waster contaminated with oils and lubricants, etc.). Occasionally larger quantities of hazardous waste are generated by maintenance operations such as painting. For these situations, JDMTA has its own EPA ID number for hazardous waste generation.

There have been no indications of a hazardous waste release prior to 1984 when the IRP began at the 45SW. Therefore, no IRP investigations have taken place at JDMTA. The annex could be eligible for funding if there was an indication of contamination.

3.4 Health and Safety

Health and safety includes consideration of any activities, occurrences, or operations that have the potential to affect one or more of the following.

- The well-being, safety, or health of workers – Workers are considered to be persons directly involved with the operation producing the effect or who are physically present at the operational site.
- The well-being, safety, or health of members of the public – Members of the public are considered to be persons not physically present at the location of the operation, including workers at nearby locations whoa re not involved in the operation and the off-installation population.

The standards applicable to the evaluation of health and safety effects differ for workers and the public; thus, it is useful to consider each separately.

Occupational Safety and Health Administration (OSHA) is responsible for protecting worker health and safety in non-military workplaces. OSHA regulations are found in 29 CFR. For Air Force operations, AFI 91-301 and AFI 91-302, contain the Air Force's Safety program, and provide the basis for worker safety programs.

3.5 Infrastructure and Transportation

Traffic would only be temporarily delayed to allow project vehicles to safely enter and exit work areas and to slow the flow of traffic adjacent to active work zones. Modifications to the existing infrastructure and transportation system would not occur. Less than significant impacts are anticipated to infrastructure and transportation from the proposed action.

3.6 Land Use

The AF, as a federal landowner, is obligated to act responsibly and effectively in the use of natural resources under their control. The proposed action is a multiple land use approach that is compatible with the mission of the 45SW and various Federal and State acts that require protection of human health and the environment. The proposed action is consistent with the 2002 CCAFS General Plan.

3.6.1 CCAFS

Open space includes areas managed for natural resources and is the largest land use category at CCAFS. However, lands used as setbacks or security buffers are included in the open space category. Actual land available for development is significantly less than 9,988 acres due to the development constraints associated with managing the Natural Resources on CCAFS.

Land Use figures at CCAFS are derived from the 2002 CCAFS General Plan. The following table summarizes the land uses at CCAFS.

Table 3-4: CCAFS Existing Land Use

Land Use	Acres
Launch Operations	1,455
Launch & Range Support	3,424
Airfield	354
Runway/Taxiway/Apron	81
Port Operations	78
Industrial	463
Open Space	9,988
Public Outreach	98
Total:	**15,941**

3.6.2 PAFB

The real estate at PAFB totals 2,002 acres. Grounds consist of all land and water acreage for which the 45SW Commander (45SW/CC) has responsibility (including outlying and satellite areas). Land use at PAFB is dominated by the 728 acre airfield area. Administrative facilities, including 45SW command facilities, account for 75 acres and are concentrated in the cantonment area or "main base". Smaller commercial, community services, unaccompanied housing, and industrial facilities are also concentrated in this area just north of the airfield. Another large administrative parcel, containing the Air Force Technical Applications Center building, is located on the southeastern quadrant of the base. Table 3-5 summarizes the existing land use acreages at PAFB.

Table 3-5: PAFB Existing Land Use

Land Use	Acres
Administrative	75
Aircraft Operations/Maintenance	34
Airfield Area	728
Community Commercial	73
Community Service	12
Housing Accompanied	153
Housing Unaccompanied	23
Industrial	217
Launch and Range Control	2
Medical	22
Open Space (Beach, River Shore, Undeveloped)	329
Outdoor Recreation (Golf Course, Beach Parking Area, Pavilions, Fields, Family Camping)	252
Water	82
Total:	**2,002**

The Community Center, including the Commissary, Base Exchange, and Medical Clinic, is located on the southern edge of PAFB. Outdoor recreation areas include the golf course and marina in the southwest, family camping and picnic areas along the Banana River, and four designated recreation areas on the Atlantic Ocean. Family housing is divided into two distinct neighborhoods: North Housing and Central Housing. The South Housing area has been privatized.

3.6.3 MTA

Semi-improved lands include grounds on which maintenance is performed for operational requirements. At MTA, semi-improved grounds surround the numerous antenna facilities, boresight towers and clear lines-of-site. Semi-improved grounds are maintained at a height between 4" and 15". Fertilizer is applied on an as needed basis. There are approximately 250 acres of semi-improved grounds at MTA.

No grounds maintenance is performed on the unimproved land at MTA. Unimproved land at MTA comprises approximately 270 acres and includes timber and forest lands, areas around ponds, ditches, and swamps, visual barriers and wildlife habitat areas.

The land occupied by buildings, abandoned runways, streets and other pavements is identified as land under facilities. This area corresponds with real estate records. At MTA, the land under facilities consists of 120 acres.

Land at MTA is classified into four basic ground utilization types. These lands and uses are summarized in the table below.

Table 3-6: MTA Existing Land Use

Land Use	Acres
Structures	80
Pavements	119
Semi-Improved Grounds	250
Unimproved Grounds	270
Total:	719

3.6.4 JDMTA

Land use at JDMTA is planned and managed to support its mission of providing radar and telemetry data for launches at CCAFS and KSC. The 45 CES/CEV does not currently have figures for total improved and unimproved grounds. It is estimated that approximately nine acres are considered improved and the remaining two acres are unimproved. A chain link fence topped with barbed wire surrounds the entire facility. A security clear zone of between 10- 30 feet wide is maintained around much of the inner fence perimeter. The security clear zone is comprised mostly of fine white quartz sand vegetated with a mixture of native and non-native grasses.

3.7 Water Resources

Water resources include both surface water and groundwater. To protect these resources, and human health, Congress has enacted the Clean Water Act and the Safe Drinking Water Act. The EPA also established water quality standards to protect water resources.

3.7.1 CCAFS

The surficial and Floridan aquifer systems underlie CCAFS. The approximately 70-foot-thick surficial aquifer system, generally comprised of sand and marl, is unconfined. The water table in the aquifer is generally a few feet below the ground surface. The surficial aquifer is recharged by infiltration of precipitation through the thin vadose zone.

Cape Canaveral Air Force Station is within the Florida Middle East Coast Basin and situated on a barrier island that separates the Banana River from the Atlantic Ocean. This basin contains three major bodies of water: the Banana River immediately to the west, Mosquito Lagoon to the north, and farther west, the Indian River, separated from the Banana River by Merritt Island. All three water bodies are estuarine lagoons, with circulation provided mainly by wind-induced currents.

Bordering CCAFS is the Port Canaveral area, including the Trident Turning Basin. The port is an artificial harbor that supports both commercial and industrial activities. The Canaveral Locks connect the harbor to the Banana River. Civilian and military vessels use two of the Port Canaveral turning basins. A third basin (eastern), constructed by the Navy for the Trident Program, is restricted to military vessels.

There are approximately 52 miles of drainage canals comprising 63 acres of surface waters on CCAFS. Canals were constructed by the AF to provide drainage of low-lying areas. The major canals of this system have certainly altered the hydrology on CCAFS but now offer habitat for numerous species of fish and wildlife.

Presently, there are six borrow pits on CCAFS that were excavated in the past to support construction of new facilities. Over the years, ecological succession has transformed these pits into productive fresh water ponds. Two of the ponds are

connected to the CCAFS drainage canal system. Wading birds and migratory waterfowl wintering on CCAFS use the ponds for feeding and resting.

3.7.2 PAFB

The major surface waters in the area are the Atlantic Ocean (which bounds PAFB on the east) and the Banana River (which bounds PAFB on the west). The water resources on PAFB include five man-made ponds totaling 31.3 acres. The Base also contains 4.1 miles of drainage ditches and 40.2 acres of canals. Most of the drainage ditches contain water throughout the year because they intersect the surficial aquifer. Other than drainage ditches and stormwater retention ponds, there are no surface water resources located on the north or south housing areas.

The Installation is underlain by both confined and unconfined aquifers. The hydrologic units (aquifers) underlying PAFB include the surficial aquifer; semi-artesian and artesian aquifers within the Caloosahatchee Marl, Tamiami Limestone, and Hawthorn Group; and the artesian Floridan aquifer. The surficial aquifer underlying PAFB is the major hydrostratigraphic system that can be influenced by Base operations. This system, consisting primarily of marine sands, shell fragments, and coquina limestone, extends approximately 50 feet below sea level. The water table is generally within five feet of the ground surface. The surficial groundwater flows primarily toward the Banana River. Low-levels of contaminants (e.g., Volatile Organic Compounds (VOC), petroleum hydrocarbons, and heavy metals) originating from PAFB IRP sites have been detected in surficial groundwaters at the Base.

Groundwater at PAFB occurs under unconfined (water table), semi-confined, and confined (artesian) conditions. The unconfined aquifer, composed of Holocene and Pleistocene age surficial deposits of marine sand, shell fragments, and sand conglomerate of the Anastasia Formation, is recharged by direct infiltration or rainfall. The generalized direction of groundwater flow in the surficial aquifer is westward, toward the Banana River. Localized flow in the surficial aquifer is from topographic highs (mounds, swells, dune ridges) toward surface water bodies (creeks, ponds, drainage canals).

3.7.3 MTA

A network of swales and canals drain stormwater that ponds in low-lying areas of MTA. The existing runways are used for roads and none of the swales were constructed as stormwater management facilities. The soils at MTA are very permeable and the majority of stormwater that runs off the pavements percolate prior to reaching the nearest swale.

3.7.4 JDMTA

There are no surface waters located in the immediate vicinity of the Annex.

4.0 Environmental Consequences

This Chapter describes the potential environmental impacts associated with managing natural resources at CCAFS, PAFB, JDMTA, and MTA under the Proposed Action and the No Action Alternative. Components of the affected environment that are of greater concern are described in greater detail.

Eleven broad environmental components were initially considered to provide a context for understanding the potential effects of the Proposed Action and as a basis for assessing the significance of potential impacts. The areas of environmental consideration were air quality, biological resources; cultural resources; hazardous materials and waste; health and safety; infrastructure and transportation; land use; noise; geology, soils and water resources; and socioeconomics. Following a preliminary analysis, it was determined that no impacts or less than significant impacts would be anticipated to cultural resources, geology and soils, noise, and socioeconomics. These environmental areas are not discussed in this Chapter. A brief overview of the anticipated environmental consequences to these resource areas as a result of the Proposed Action is presented in Section 2.2.1

Federal, State, and local environmental laws and regulations were reviewed to assist in determining thresholds for assessing environmental impacts in fulfillment of NEPA requirements. Proposed activities were evaluated to determine their potential to result in significant environmental consequences using an approach based on the interpretation of significance outlined in the CEQ regulations for implementing the procedural provisions of NEPA (40 CFR 1500-1508) and AFI 32-7061, *The Environmental Impact Analysis Process* (1995).

Guidelines used for the assessment of potential impacts and the determinations of their significance were identified in Chapter 2.0. Thresholds for determining impact significance are based on the applicable compliance standard. When feasible, these criteria correspond to Federal- or State-recognized criteria, and are determined using the associated standardized methods. In the absence of compliance standards, the thresholds are based upon Federal- or State-recommended guidance, professional standards, and/or best professional judgments.

The INRMP is designed to promote integrated management of natural resources of the 45SW. Impacts will be identical to all installations, to include CCAFS, PAFB, MTA, and JDMTA unless otherwise stated.

4.1 Air Quality

Air Force Instruction 32-7040, *Air Quality*, identifies AF requirements for an air quality compliance program. The AF must achieve and maintain compliance with all applicable Federal, State, and local standards for air quality compliance.

Table 4-1: Other Applicable Regulatory Requirements

Law or Rule	Permit/Action(s)	Requirement	Agency or Organization
Air Force Instruction (AFI) 32-7040	Estimate air emissions	Track quantity of vegetation burned and vehicle/equipment use and estimate air emissions for PAFB and CCAFS for inclusion in the Air Emissions Inventory (AEI).	United States Air Force (USAF)
Clean Air Act (CAA)	Title V air operating permit	Comply with existing Title V air operating permit.	U.S. Environmental Protection Agency (EPA), Florida Department of Environmental Protection (FDEP)
5I-2 and 62-256, Florida Administrative Code (FAC)	Burn permit and burn requirements	Contact Florida Division of Forestry (FDF) and local fire departments before burning and comply with setback, time, weather and staffing requirements.	FDF and FDEP
National Ambient Air Quality Standards (NAAQS) and Florida Ambient Air Quality Standards (FAAQS)	Ambient air quality maintenance	Implement measures to protect health and safety, property and minimize nuisances such as impaired visibility.	USEPA; FDEP

Criteria pollutants are those chemicals for which ambient air quality standards have been promulgated. These criteria pollutants are emitted primarily from combustion sources such as power plants, boilers, aircraft engines, automotive engines, solid waste incinerators and burn pits. These pollutants are regulated and controlled so that the concentration does not exceed either short-term or long-term standards. Under the CAA, federal actions must not cause or contribute to any new violation of air quality standards, increase the frequency or severity of any existing violation, or delay the timely attainment of any air quality standard or interim milestone.

Non-criteria pollutants are all other air pollutants that are regulated and controlled by emission standards or other health-risk based criteria. As the various portions mandated by the 1990 CAA Amendments are promulgated by the EPA, the number of regulated pollutants has continued to grow. These pollutants may be emitted from many different sources, such as the use of solvents in paint,

automobile maintenance, and metals and organic emissions from solid waste incineration activities.

The following sections describe the impacts to the environment from the Proposed Action and the No Action Alternative.

4.1.1 Proposed Action

A plan to improve air quality is not specifically addressed in the INRMP. However, no significant impacts to air quality are anticipated from implementation of procedures and processes identified in the INRMP.

INRMP Action	Air Quality
Scrub Habitat Restoration	X
Invasive Species Management	X
Threatened & Endangered Species Protection/Monitoring	0
Fish & Wildlife Protection/Monitoring (Non-T&E)	0
Migratory & Resident Bird Protection/Monitoring	0
Protection of Coastal Habitat	0
Wetland & Aquatic Habitat Restoration/Protection	0

+ --Beneficial non-significant impact
X—No significant impact
- -- Adverse, significant impact
0—No impact

Land clearing, open burning of cleared vegetation, and prescribed burning activities would affect air quality through smoke emissions from burning activities, exhaust emissions from machinery used in land clearing, and the suspension of dust particles (i.e., particulate matter (PM)) during project activities. Smoke from fires is a complex mixture of carbon, tars, liquids and gases. The bulk of air pollutants generated by burning activities are PM, carbon monoxide (CO), and Volatile Organic Compounds (VOCs). Nitrogen oxides (NOx) are also produced in relatively small quantities compared to other pollutants. Sulfur oxides (SOx) are produced in negligible quantities due to low elemental sulfur content of forest fuel. Clearing activities would produce fugitive PM (i.e., the suspension of particles) when disturbing soils. Project machinery would emit CO, NOx and SOx.

Although small amounts of fugitive dust and combustive emissions would be generated from earthwork type activities, minor increases in these pollutants would not be sufficient to cause any change in the NAAQS attainment status. Impacts on visibility resulting from smoke emissions would be localized and only last for the duration of the burn. Pile (i.e., open burning) and prescribed burning would be performed in accordance with the provisions of 62-256 and 5I-2 of the FAC, meeting applicable setback, time, weather, staffing, and notification requirements. Burn operations would be conducted during optimal smoke dispersion periods.

Florida law requires a permit to conduct open burning in the State. This authorization must be obtained from the Division of Forestry. The person responsible for conducting the burn must be in attendance at a location upwind from the fire for the entire period of the burn. The burn cannot be allowed to produce smoke, soot, odors, visible emissions, heat, flame, radiation or other conditions to such a degree as to create a nuisance. On the day of the burn, prior to setting the fire, coordinating agencies (Fire, Security and Safety Departments) and adjacent property owners would be notified.

When planning and conducting fires, the Prescribed Fire Manager and Burn Boss must exercise their responsibilities in a way that meets CAA standards (Public Law 95-95) and best serves the public interest. Fire stewardship emphasizes the immediate safety aspects of personnel conducting the burn; the health, safety, and property of others that may be directly affected by the fire; and the potential for off-site effects of smoke on public health and visibility. Fires produce varying quantities of smoke, an elusive by-product that can be a major concern; therefore, smoke management would be addressed in every fire plan.

Both CCAFS and PAFB are currently designated as major sources of air pollution with active Title V Air Operating Permits. The current CCAFS and PAFB Title V Air Operating Permits would not need to be amended, as the impacts associated with the Proposed Action would be minor and are covered by the existing permits. Neither annex (*i.e.*, JDMTA and MTA) has significant air emission sources therefore they are both exempt from air permit requirements.

Both CCAFS and PAFB quantify air emissions from all activities, including burn operations, vehicle emissions, and land clearing, are entered into the respective Air Emissions Inventories (AEIs) annually, in accordance with AFI 32-7040. Minor emissions from land clearing and burning operations would be estimated and included in subsequent AEIs. The annexes are not required to maintain AEIs because they do not have significant air emission sources. Therefore, air emissions would not be quantified at JDMTA or MTA.

Herbicides management techniques use a broad application spray which could be picked up in the air. As a general rule, the herbicide should not be applied when wind velocities exceed 10 mph. Ideal application times are when there is little wind (usually early morning) or the wind blows gently away from non-target sites.

In addition, prescribed burns can impact the air quality in and around the 45SW installations. Brazilian pepper is from the same family as poison ivy. When burning Brazilian pepper, those involved should use caution from getting in the smoke. Adhering to burn prescriptions on prescribed burns can minimize impacts.

No significant impacts are anticipated to air quality from implementation of the Proposed Action.

4.1.2 No-Action Alternative

If the No Action Alternative were chosen, the revised INRMP would not be implemented; the use of the present outdated INRMP would continue. No

significant impacts would be anticipated since there would be no change to the general types of activities in the area.

4.2 Biological Resources

The AF is committed to the long-term management of all natural areas on its installations, as directed by AFI 32-7064, *Integrated Natural Resources Management.*

The potential to positively impact biodiversity does exist with certain management components of the INRMP. Ecosystem management focuses on systems rather than on single-species.

4.2.1 Proposed Action

The Proposed Action is to implement the revised INRMP for the coming years in a manner that ensures the conservation, enhancement and management of natural resources at the 45SW. By using an integrated management approach, existing natural resources would be protected from adverse impacts as a result of installation activities, and beneficial impacts to natural resources would be expected.

INRMP Action	Biological Resources
Scrub Habitat Restoration	+
Invasive Species Management	+
Threatened & Endangered Species Protection/Monitoring	+
Fish & Wildlife Protection/Monitoring (Non-T&E)	+
Migratory & Resident Bird Protection/Monitoring	+
Protection of Coastal Habitat	+
Wetland & Aquatic Habitat Restoration/Protection	+

+ --Beneficial non-significant impact
X—No significant impact
- -- Adverse, significant impact
0—No impact

4.2.1.1 Vegetation Communities and Wildlife

<u>Vegetation</u>

Invasive species are identified on all of the 45SW installations. Executive Order (EO) 13112 of February 3, 1999 – Invasive Species, Sikes Act, as amended (16 United States Code [U.S.C] 6700, and various other federal and state regulations and policies mandate control of invasive species on DOD or Federal lands to reduce their ecological and economical impact.

The implementation of the INRMP will integrate the management of invasive species through policies and procedures outlined in the 45SW *Policy on Land Clearing Activities*, Invasive Pest Management Plan, invasive species control plans, and the INRMP. Because invasive species control cannot be achieved by just using a single management plan, all of these plans must be utilized to

achieve the goal of controlling invasive species on the 45SW installations. Through the integration of using prescribed burns, herbicide applications, mechanical removal, and constant monitoring, invasive species can be controlled and/or eradicated on the 45SW installations.

Invasive plants are very aggressive, highly productive plants that actively intrude or encroach upon and replace native and agricultural plants. Invasive weeds can crowd out or compete with native grasses and other plants that provide habitat for wildlife, birds, and fish. The elimination and/or control of invasive species would allow the native wildlife and vegetation habitat to thrive in these areas.

Scrub habitat restoration also utilizes invasive species management and will have beneficial impacts on vegetation because invasives such as Brazilian pepper would be eradicated or controlled in the scrub habitat. Flora will be disturbed in the short-term successional changes during scrub habitat restoration activities. However, in the long-term, the species should develop into plant communities typical of the area with the burn regime allowing release of seed banks. Overall, beneficial impacts are anticipated.

Invasive wildlife can have an impact on native flora and fauna. The Proposed Action considers impacts that pest wildlife present, specifically impacts created by raccoons and feral hogs, and implements control programs for these animals. The raccoon population control program seeks to minimize the depredation of the protected sea turtle nests by raccoons on CCAFS beaches. This program utilizes both trapping and shoot-on-sight procedures to remove the raccoons from CCAFS in order to increase the hatch success of sea turtles.

Feral hogs emigrating from KSC create the potential for serious damage and safety hazards throughout CCAFS. Hogs can damage improved grounds, create hog/vehicle and/or hog/aircraft strike hazards, and can impact the survival of state and Federally listed species. Specifically, hogs have historically impacted the sea turtle preservation program at CCAFS through depredation of sea turtle nests. The INRMP includes measures to shoot and trap the hogs to control the population in an effort to aid the recovery plan for sea turtles. The hog depredation rate has been reduced significantly to approximately 13% since the initiation of the program in 1985. Beneficial impacts to native flora and fauna are anticipated from invasive wildlife controls.

Wildlife

Impacts to wildlife due to land clearing activities associated with scrub habitat restoration are anticipated. Some impacts will be short-term in which animals will move from the disturbance area. Some impacts have the potential to be long-term if animals with burrows choose not to return to the area after disturbance is completed. No significant impacts are anticipated.

The controlled burning and invasive species management activities such as mowing, herbicide applications and manual removal that are utilized in scrub habitat have a secondary benefit of enhancing habitat for Florida white-tailed deer, squirrels, rabbits, gopher tortoises, quail, and doves. In addition to benefits provided to Scrub jays, the prescribed burning results in an increase in yield and quantity of herbage, legumes, browse from hardwood sprouts for the animals, as

well as the creation of openings for feeding, caching, and travel. Beneficial impacts are anticipated from scrub habitat restoration activities.

4.2.1.2 Wetlands and Floodplains

The INRMP addresses protection of wetlands, as required per Executive Order 11990, and floodplains, per Executive Order 11988, with established goals for project implementation as well as education of personnel. The implementation of the Proposed Action would require work in wetlands and floodplains, but all activities would be beneficial for these resources with restoration and enhancement as the objectives. Some disturbance of these resources would be required with potential short-term negative impacts, however the net result will be positive. For example, to control and/or eliminate invasive pest plants growing in wetlands, some native grasses may be secondarily destroyed, but they will rebound once the invasive is removed from the area. Projects have been established to remove Brazilian pepper from around mangroves thereby allowing mangrove swamps to mature and provide natural shoreline protection, erosion reduction, and habitat quality improvements.

The invasives torpedo grass and hydrilla are found to grow in wetlands and waterways of the 45 SW (especially PAFB); their dense nature interferes with the breeding/nesting of many species of water fowl and aquatic wildlife. Restoring the wetlands will improve native wetland plant communities as well as increase the reproductive success of associated fauna. Aquatic invasive management will also involve herbicides and FWCC-permitted triploid grass carp which will improve water flow and quality.

There are no mandated wetland monitoring programs at the 45SW. However, natural resource managers periodically conduct site assessments of the wetland resources to monitor wetland health and minimize potential negative impacts. Specific INRMP activities include creating and/or improving two acres of wetlands per year by removing man-made barriers, impoundments or installing culverts to restore natural connections between estuarine wetlands and the Banana River. In addition, the 45SW will analyze the condition of the coastal habitat and prioritize locations for restoration and enhancement based on impacts from erosion, storm damage and the existence and health of dune vegetation. INRMP activities include replanting 1,000 linear feet per year of coastal areas identified for restoration and enhancement in an effort to restore, enhance and maintain the coastal habitat. All wetland restoration activities would require permits. Beneficial impacts are anticipated from the activities utilized to protect the coastal habitat.

4.2.1.3 Threatened, Endangered and Sensitive Species

Consultations with USFWS and NMFS occurred during review of the INRMP and have been incorporated into this EA in Appendix B. All existing Biological Opinions have been incorporated into the INRMP as regulatory requirements and integrated with 45 SW general habitat enhancement goals. Specific projects that the 45 SW believes may affect a listed or protected species will undergo separate analyses and informal or formal consultation as warranted to allow for regulatory terms and conditions as required.

Florida Scrub Jay

The Region of Influence (ROI) for scrub habitat restoration activities encompasses all of CCAFS. Although the Florida Scrub jay has been sighted at JDMTA, no nests have been identified at this location. The Florida Scrub jay is not known to occur on PAFB or MTA.

The implementation of the INRMP will allow for the management of the threatened Florida Scrub jay through policies and procedures outlined in the INRMP, Scrub Jay Management Plan, Scrub Habitat Restoration Plan, and the Scrub Habitat Compensation Plan. Because scrub management cannot be achieved through a single management action, all of these plans must be integrated in order to achieve the goal of a viable population of Florida Scrub jays inhabiting CCAFS and surrounding JDMTA. The scrub also serves as a habitat for other rare and endangered species in addition to the Florida Scrub jay (*Aphelocoma coerulescens*), including the southeastern beach mouse (*Peromyscus polionotus niveiventris*), and the gopher tortoise (*Gopherus polyphemus*). Since the scrub habitat restoration activities integrate other management strategies from the Integrated Pest Management Plan, invasive species control plans, and the 45SW *Policy on Land Clearing Activities,* invasive species in scrub habitat are controlled and/or eradicated, and openings in the scrub are controlled and enhanced through herbicide application and innovative land clearing methodologies. Land clearing shall be mindful of nesting locations during the nesting season (1 March to 30 June). Beneficial impacts are anticipated from these activities including a restoration of the scrub and increased habitat for T&E species.

Sea Turtles

There are numerous predators of sea turtle eggs and hatchlings; therefore, the 45SW annually conducts sea turtle conservation efforts to protect the nests of all threatened and endangered sea turtle species (loggerhead, green and leatherback). Specific details on the sea turtle preservation activities at CCAFS are contained in Tab D of the INRMP, and include annual monitoring. During this activity, biologists mark and monitor the fate of sea turtle nests deposited on CCAFS and partner with the FWCC on a statewide Index Nesting Beach Survey assessment program. In addition, an ongoing research project to monitors the juvenile Atlantic green sea turtles, and is programmed to continue in the coming years. The results of this research are incorporated into the management of this population at CCAFS.

Reduction of sea turtle nest predators on CCAFS is accomplished by live-trapping and removal of animals from the beach and strand areas. The raccoon and the feral hog are the dominant predators. Tomahawk live traps baited with sardines are used for raccoon collection. Beach trapping is conducted by setting multiple traps in areas of intense raccoon activity. On CCAFS, trapping is conducted from late April through late June using single traps at various locations. In addition, nighttime drives are conducted by the J-BOSC Security Police/Wildlife Control Officer, and those raccoons found near the beach are eliminated. Feral hog (*Sus scrofa*) trapping and removal is performed by the J-

BOSC Security Police/Wildlife Control Officer and members of the Florida Hog Hunters' Association.

A small number of nests are protected using 4' x 4' sections of welded wire fence. These screens are placed over the nest and secured in place with rebar anchors at each corner. This allows hatchlings to escape from the nest upon emergence, yet reduces potential nest disturbance by predators, such as raccoons and feral hogs. A limited number of loggerhead nests are screened each year, due to the extended time required to locate a nest and screen it. Most green and leatherback turtle nests are protected with predator screens. Beneficial impacts to the turtles' viability are anticipated.

Disorientation events have decreased significantly on CCAFS since the establishment of Light Management Plans (LMPs), in conjunction with an extensive light shielding effort of sea turtle nests deposited in areas prone to disorientation. On CCAFS, there has been a reduction in disoriented nests from 160 in 1990 to as few as 16 in 1995. Projects occurring in or near coastal waters are reviewed to assess potential impacts to marine mammals, manatees and sea turtles residing in the area. Provisions are made during construction activities to ensure that there are no negative impacts to marine animals. Beneficial impacts such as an increase in the number of sea turtles at CCAFS are anticipated to result from these activities.

Southeastern Beach Mouse

A detailed three year demographic study is currently underway to determine the population characteristics and health of the southeastern beach mouse in interior oak scrub sites and coastal areas at CCAFS. Beneficial impacts to the southeastern beach mouse population are anticipated as a result of this INRMP activity.

Gopher Tortoise and Eastern Indigo Snake

Scrub restoration activities also have the potential to directly impact species such as gopher tortoises and eastern indigo snakes. Although never observed on CCAFS, slow moving gopher tortoises could be run over by heavy equipment performing cutting activities. Concerns regarding heavy equipment collapsing and entombing tortoises during routine cutting activities has been dismissed based on studies by the FWCC (Joan Berish, pers. comm.) and the U.S. Army Corps of Engineers.

When activities are likely to disturb gopher tortoise burrows, CCAFS biologists will relocate tortoises to other suitable areas on CCAFS. Biologists would move tortoises no more than 2-3 weeks prior to ground disturbance to ensure tortoises do not move back and re-populate the area. All tortoise relocation will be completed in accordance with the Gopher Tortoise Relocation Permit (WR04151c), issued to the AF. This permit allows natural resource managers to relocate up to 150 tortoises during a three-year period. Trapping is conducted by experienced personnel and in accordance with required State permits for these types of activities. Although rare, tortoises have been injured or killed during backhoe operations. If a tortoise is injured during relocation activities, it will be transported immediately to a licensed local wildlife rehabilitator or veterinarian

experienced in treating injured tortoises. If injured or killed, the FWCC will immediately be notified. Tortoises held overnight will be kept isolated from one another to prevent the spread of Upper Respiratory Tract Disease. Animals will be handled briefly and gently to reduce harm or stress to the animal. The AF is required to submit a report for each relocation project. Beneficial impacts to the viability of the gopher tortoises are anticipated from relocation activities. The newly developed State gopher tortoise interim policy will be incorporated into 45 SW tortoise management as the Relocation Permit is revised as required. The FWS Standard Eastern Indigo Snake Protection Measures will be implemented as required for the site that will be disturbed.

Florida Manatee

INRMP projects have been programmed to identify manatee use of PAFB waterways and research methods to enhance their habitat and reduce impacts from watercraft or construction activities by FY10. Herbicides would not be used in areas known or suspected to support manatees. Beneficial impacts are expected to the viability of the manatee population from habitat enhancement and potential impact reduction.

Florida Perforate Lichen

At JDMTA, INRMP activities will protect the Florida perforate lichen, *Cladonia perforata*, by annually tracking population health, growth, movement, and changes in environmental condition of habitat. Beneficial impacts are anticipated to the lichen population.

Migratory Birds

Occasionally, the presence of a migratory bird nest or egg prevents or delays operations for the 45SW. Nests and/or eggs will be removed, on an as needed basis, in association with operation of government vehicles, weather towers, launch support structures/launch towers or if severe damage to infrastructure due to bird activity is observed.

The INRMP considers the BASH encompassing PAFB and CCAFS. No single solution exists to the BASH problem and a variety of techniques and organizations are involved in the control program. While focusing on bird hazard, this plan also encompasses all wildlife hazards posed to aircraft, including alligators.

Bird dispersal equipment used to disperse flocks of birds found on runways, overruns, taxiways, and ramps include the following non-lethal methods: 1) Bioacoustics-taped distress or alarm calls of actual birds. 2) Pyrotechnics-this could include M-8 very pistols and 12 gauge shotgun scare cartridges. 3) Radio Controlled Gas Cannons-used to compliment, but not replace active bird dispersal operations. Birds are shot when other harassment techniques have failed, and the depredation is absolutely necessary. The 45SW has obtained the permit required to take migratory birds, and all lethal numbers are recorded and reported. Although the BASH program allows aircraft/airfield personnel the opportunity to disperse birds to ensure the safety of personnel and aircraft on or near the airfield, a secondary impact results from the dispersal of birds and potential reduction of wildlife fatalities. All actions affecting wetlands will be

implemented in such a way as to prevent long term negative impacts to dependent bird species. No significant impacts are anticipated.

4.2.2 No-Action Alternative

Under the No Action alternative, the revised INRMP would not be implemented; the use of the present outdated INRMP would continue. Because the No Action Alternative activities would be similar to those described in the Proposed Action, biological impacts are anticipated to be similar to those identified in the Proposed Action. Overall, beneficial impacts to biological resources would occur.

4.3 Hazardous Materials and Waste

AFI 32-7042, *Solid and Hazardous Waste Compliance*, identifies compliance requirements for all solid and hazardous waste, except radioactive waste.

4.3.1 Proposed Action

Hazardous materials (i.e., fertilizers and pesticides) would be used under the INRMP actions; however, no significant impacts would be expected. The Air Force has established procedures for the handling, storage and disposal of hazardous materials and waste. With the exception of a potential accidental release (spill), the use of hazardous materials and the generation of hazardous waste from INRMP activities are not anticipated to significantly impact wildlife species and/or their habitat. A comprehensive spill program has been established that addresses procedures to minimize spill impacts.

Specific INRMP activities have been identified that may utilize hazardous materials such as lubricants and fuels associated with land clearing activities. In addition, herbicides would be used and applied in accordance with labels. Any hazardous waste would be identified, removed, and disposed of in accordance with current regulations. Although not anticipated, any additional hazardous materials/waste generated due to the implementation of the proposed action would be identified and removed in accordance with existing regulations.

Using the hazardous waste/hazardous materials procedures identified in the INRMP, no significant impacts are expected to the environment.

INRMP Action	Hazardous Materials and Waste
Scrub Habitat Restoration	X
Invasive Species Management	X
Threatened & Endangered Species Protection/Monitoring	0
Fish & Wildlife Protection/Monitoring (Non-T&E)	0
Migratory & Resident Bird Protection/Monitoring	0
Protection of Coastal Habitat	X
Wetland & Aquatic Habitat Restoration/Protection	X

X—No significant impact
- -- Adverse, significant impact
0—No impact

4.3.2 No-Action Alternative

No significant impacts from hazardous materials and waste would occur from the No Action Alternative since no changes would occur.

4.4 Health and Safety

AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Protection, and Health* program summarizes AF requirements for the protection of health and safety.

4.4.1 Proposed Action

There would be no significant impacts to health and safety expected from implementing the current INRMP to ensure the wise protection, use and management of resources at the 45SW. However, potential non-significant impacts may inadvertently occur from INRMP activities. Activities such as conducting prescribed burns, using All ATVs, mixing hazardous materials (pesticides), and potential interaction with dangerous wildlife could result in adverse impacts to the health and safety of personnel. All appropriate regulations, including OSHA regulation 29 CFR 1926, S*afety and Health Regulations for Construction*, would be followed during project activities. Burn operations would follow air quality human health protective measure requirements and burn personnel would meet State of Florida training and certification requirements. No significant impacts are anticipated. In addition, integrating risk management into natural resource planning would promote positive impacts to health and safety. Examples of these risk management tools include the burn notification system and the installation of osprey platforms outside of the flight line.

INRMP Action	Health and Safety
Scrub Habitat Restoration	X
Invasive Species Management	X
Threatened & Endangered Species Protection/Monitoring	X
Fish & Wildlife Protection/Monitoring (Non-T&E)	X
Migratory & Resident Bird Protection/Monitoring	X
Protection of Coastal Habitat	X
Wetland & Aquatic Habitat Restoration/Protection	X

X—No significant impact
- -- Adverse, significant impact
0—No impact

4.4.2 No-Action Alternative

No significant impacts to health and safety would occur from the No Action alternative since no changes would occur.

4.5 Infrastructure and Transportation

Infrastructure and transportation includes utilities, solid waste management, and transportation networks. AFI 32-7042, *Solid and Hazardous Waste Compliance*, identifies compliance requirements for solid waste. The following sections describe the impacts to the environment from the Proposed Action and the No Action Alternative pertaining to infrastructure and transportation.

4.5.1 Proposed Action

The scrub habitat restoration and invasive species management actions identified in the INRMP are anticipated to indirectly improve the utility corridors, Lines of Sight, and security clear zones when activities occur in these areas. Utility outages from overgrown exotic vegetation interfering with utility lines, utility stations, wells, and wastewater pumping stations would be minimized. Impacts may also occur to roadways during prescribed burns when roads are closed and traffic is re-directed in the action area, and there exists a threat of destruction of 45SW assets during the burns. All precautions would be taken to prevent any such occurrence. No significant impacts are anticipated.

INRMP Action	Infrastructure & Transportation
Scrub Habitat Restoration	X
Invasive Species Management	X
Threatened & Endangered Species Protection/Monitoring	0
Fish & Wildlife Protection/Monitoring (Non-T&E)	0
Migratory & Resident Bird Protection/Monitoring	0
Protection of Coastal Habitat	0
Wetland & Aquatic Habitat Restoration/Protection	0

X—No significant impact
- -- Adverse, significant impact
0—No impact

4.5.2 No-Action Alternative

If the No Action Alternative were chosen, the updated INRMP would not be implemented; the use of the present outdated INRMP would continue. No significant impacts are anticipated from the implementation of this alternative.

4.6 Land Use

4.6.1 Proposed Action

The objectives of the INRMP include conservation of the 45SW natural resources by adopting land-use practices that preserve and/or restore the habitat while preventing damage or destruction of the valuable natural resources. The long-term monitoring programs identified for restoration, erosion control, and natural resource projects are designed to maintain and/or improve current land use areas. INRMP activities such as invasive species management and habitat restoration may have temporary impacts to land use, but will result in positive impacts to native plant communities and wildlife. Although the short-term loss of

vegetation from fire can increase the risk of soil erosion, prescribed burning will benefit the land use by reducing the hazard fuel loading of the land and infusing added nutrients to the soil. Periodic monitoring of wildlife may result in a temporary closing of outdoor recreational areas, but would not result in any significant impacts to land use.

INRMP Action	Land Use
Scrub Habitat Restoration	X
Invasive Species Management	X
Threatened & Endangered Species Protection/Monitoring	X
Fish & Wildlife Protection/Monitoring (Non-T&E)	X
Migratory & Resident Bird Protection/Monitoring	X
Protection of Coastal Habitat	X
Wetland & Aquatic Habitat Restoration/Protection	X

X—No significant impact
- -- Adverse, significant impact
0—No impact

4.6.2 No-Action Alternative

If the No Action Alternative is chosen, the updated INRMP would not be implemented. No significant impacts are anticipated, and beneficial impacts would be expected for land use.

4.7 Water Resources

AFI 32-7041, *Water Quality Compliance,* identifies essential AF actions to achieve and maintain compliance with the Clean Water Act, and other applicable Federal, State, and local water quality standards. The following sections describe impacts from the Proposed Action to water resources

4.7.1 Proposed Action

The activities described in the Proposed Action are designed to protect and enhance water resources. However, some INRMP activities may impact water resources, such as habitat restoration and land clearing, invasive species control, and ATV use for species monitoring. Practices to control erosion to prevent impacts to waterways are specified in the INRMP, along with methods to minimize negative impacts (*e.g.,* devegetation). A water quality certification (as part of an ERP) would be acquired from FDEP or the locally designated water district, for all work requiring a dredge and fill permit. An ERP may be required for actions affected wetlands or surface waters. A NPDES permit would be obtained for all activities that disturb more than one acre and have the potential to impact surface waters, except when the silviculture exemption applies.

Prior to and during land clearing and burning activities, erosion and sediment control measures designed to retain sediment on-site and to prevent violations of State water quality standards would be implemented. Any erosion or shoaling would be mitigated using the BMPs established by the Florida Division of Forestry and where applicable BMPs specified in the ERP and NPDES permit.

Providing guidelines to 45SW personnel and contractors prior to the commencement of activities, would avoid unnecessary costs to correct contamination problems and allow contractual agreements to include avoidance measures for impacting water resources.

INRMP Action	Water Resources
Scrub Habitat Restoration	X
Invasive Species Management	X
Threatened & Endangered Species Protection/Monitoring	X
Fish & Wildlife Protection/Monitoring (Non-T&E)	X
Migratory & Resident Bird Protection/Monitoring	X
Protection of Coastal Habitat	X
Wetland & Aquatic Habitat Restoration/Protection	X

X—No significant impact
- -- Adverse, significant impact
0—No impact

4.7.2 No-Action Alternative

No significant impacts would be anticipated to water resources from the No Action Alternative since no changes would occur.

4.8 Cumulative Impacts

Cumulative effects can become potentially critical when the chosen action (for example, developing an INRMP with specific, targeted management initiatives) interacts, either directly or indirectly, with other unrelated actions (past, present, or in the foreseeable future). This type of interaction should be rare because an INRMP by design incorporates existing Installation planning documents and management plans, and is to be reviewed and updated routinely. INRMPs are designed to follow an ecosystem approach. They also involve establishing partnerships with federal, state, and local groups. These INRMP characteristics further reduce the possibility for cumulative effects arising that have not already been considered within the INRMP. By their nature, integrated planning, ecosystem management, and partnering are techniques that reduce negative cumulative effects. As new, relevant issues or initiatives arise, they would be considered in the INRMP at review periods. In this way, the INRMP is maintained as an active reference document that describes 45SW's planned natural resources management for the coming years.

Outside the actions included in the INRMP, several general actions may result in cumulative effects. For example, major changes in military mission; major funding or personnel reductions; and significant changes in local, county, or state planning and development (for example, changes in land use of the surrounding area, major highway construction) could interact with natural resources management initiatives at 45SW and result in cumulative effects.

Specific INRMP actions that have the potential to create cumulative impacts include the use of ATVs on the beaches associated with the sea turtle patrol. This activity when combined with the existing ATVs patrols for security and explosive ordnance disposal as well as public use of beaches and outdoor recreation activities such as fishing/boating may cumulatively increase disturbance to sea turtle nesting and hatching activities and migratory bird foraging. The flushing/startling of any wildlife will raise the animals' stress level and increase energy consumption thereby reducing energy stores. If repeated frequently, such disturbances can impact reproduction and survivorship. Coordination of these patrols, using proper tire pressure to prevent ruts, avoiding the upper dune, and developing an Outdoor Recreation plan with carrying capacity/ maximum usage guidelines will aid in minimizing any potential negative cumulative impacts to the turtles, migratory birds, native coastal wildlife and dune vegetation in general.

INRMP actions associated with construction activities include surveys for threatened and endangered species before clearing; however, surveys aren't performed specifically for migratory birds. The impact of flushing these areas may include decreased energy reserves for the birds and reduced nesting and foraging habitat. Additionally, an effort is required to flush birds from the airfield areas (PAFB, CCAFS, Antigua and Ascension) for non-destructive removal, and a small number of migratory birds must be shot under FWS depredation permit for aircraft/aircrew safety. Yet, recent migratory bird studies conducted through the INRMP are locating the most utilized and suitable habitat to incorporate conservation and restoration specifically for migratory birds in addition to scrub restoration for the Florida Scrub jay. Globally migratory birds are being impacted in many different ways. Actions on 45 SW properties should not cause significant cumulative impacts to these species considering the 45 SW efforts to conserve and improve utilized habitat and prevent unnecessary killing of birds with good land management practices established in coordination with the Bird Aircraft Strike Hazard Plan.

The INRMP specifies established habitat restoration goals. Future mission activities (e.g., construction) may encroach on existing scrub habitat. Because the land available for scrub habitat mitigation is limited on 45 SW properties, the AF may reach a time when there is no habitat available for the 4:1 mitigation required when removing scrub vegetation. If this occurs, a cumulative impact on biological resources will be realized. The 45 SW is currently researching options to identify how to manage development while meeting habitat restoration goals when all scrub habitat has been restored on site, including partnering opportunities with Brevard County for offsite restoration.

INRMP activities such as heavy machinery operation during scrub restoration are not anticipated to impact gopher tortoises. Based on a U.S. Army Corps of Engineers study on burrow collapse due to heavy vehicles and the subsequent impact of gopher tortoises, it was concluded that no significant change occurs in the tortoise's home range or daily movement patterns. Therefore, no cumulative impact is anticipated to the gopher tortoises from habitat restoration activities. The relocation of the gopher tortoises that may occur during 45 SW construction projects would have beneficial cumulative impacts because the species would be

moved to a more suitable habitat. However, if future mission activities remove appropriate habitat from gopher tortoise or Eastern Indigo Snake use to an unbalanced degree then cumulative impacts may occur causing the same requirement for partnering with outside agencies for conservation easements and offsite restoration.

Although air emissions would slightly increase with land clearing activities (from fossil fuel burning and scrub burning during prescribed fires), the cumulative impact of these activities when combined with other mission activities such as launches, demolition, and construction would be negligible. Although greenhouse gases are produced through INRMP actions, the amount of activity occurring on 45 SW properties is small compared to global emissions, so the cumulative impact should not be significant. Additionally, new equipment will be reviewed for fuel efficiency, reduced emissions, biofuel use, etc., prior to purchase to reduce future greenhouse gas emissions.

Herbicide usage will remain steady with the invasive control program until prolific species are brought under control. Thousands of acres of 45 SW property are affected by invasive vegetation which require chemical treatment for effective removal. The invasive program generally has utilized an average of 345 pounds of active ingredient annually on mainland 45 SW properties (over 18,000 acres) since concerted tracking in 2006 with herbicide usage approximating about 1/3 to 2/3 of total pesticide/herbicide usage for all of the mainland properties depending on other seasonal base applications such as at the golf course or general base application for pest weeds/insects. Applications of chemicals for invasive control are within label requirements and are used appropriately depending on habitat type to reduce impacts, i.e., aquatic environment. INRMP activities for invasive treatment should not cause negative cumulative impacts especially if pesticide/herbicide usage is reduced as invasive vegetation is controlled. However, a cumulative impact may be realized in combination with other base applications and surrounding community usage because pesticides/herbicides do leach from soils into ground water/surficial aquifers, however, limited research has been conducted to determine their affect on drinking water or flora/fauna that depend on this water for survival. Chemical movement/migration in water along with other chemical reactions are site specific, it is unclear how long it would take to assess impacts without an in-depth study that must include hundreds of variables for an entire drainage basin/watershed. A cumulative impact can be assumed, however pesticide/herbicide usage for INRMP activities on 45 SW properties would be a small contributor compared to agriculture and combined public use (especially if applied improperly).

None of these cumulative impacts are anticipated to significantly impact human health or the environment.

Specific positive cumulative impacts to biological resources (and biodiversity), infrastructure and transportation, land use, and water resources would be expected from implementation of the current INRMP.

Forested areas would be managed by different methods. Prescribed burning and selective tree cutting would improve wildlife and bird nesting cover and provide

seed supplies. Threatened and endangered species' habitat would also be enhanced.

Managing forested areas is expected to minimize risk to the installation infrastructure and overall mission. For instance, a prescribed burn is performed under controlled conditions with firebreaks established to protect resources. These burns minimize fuel loads of standing and downed vegetation. During the burns, smoke and fire intensity can be manipulated. Wildfires in unmanaged areas can harm structures, disrupt utility systems, negatively impact space flight hardware, and interrupt other mission activities. The overall time and cost to respond to wildfires and natural disasters, utility system disruptions and other incidents, would be reduced and the associated mission disruptions and restoration costs minimized for infrastructure.

There would be positive, cumulative impacts expected to land use from implementing the INRMP, as a result of multiple use of 45 SW lands and the associated long-term improvements to forests and wildlife habitat quality and biodiversity.

Positive cumulative impacts to water quality would result from good erosion control measures and subsequent decreases in stream siltation, and minimal erosion and wetland pollution by using proper best management practices.

Proposed demographic surveys and continued monitoring of T&E species will provide valuable data needed to develop future management techniques and projects to enhance biodiversity and current conservation programs.

Both of the evaluated alternatives have a significant potential for identifying potential conflicts or cumulative impacts early. In addition, the Proposed Action provides 45SW's natural resource managers with ability to respond to issues that could potentially result in negative cumulative effects. The Proposed Action contains sufficient flexibility in its initiatives to allow adaptive management. The increased management efforts for water, soils, and wildlife and habitat resources under the Proposed Action, as well as the integration of the management activities would allow 45 SW to respond to and limit negative cumulative effects. Changes in mission, funding, or personnel reductions or changes in off-base land-use planning and development would be responded to through adaptive management and would be incorporated into the subsequent update of the INRMP. Updating the INRMP could realign the management intensities to support mission or other changes and so avoid cumulative effects.

4.9 Conflicts with Federal, State, or Local Land Use Plans, Policies, and Controls

The INRMP for 45SW would have no significant impacts on the existing land use itself and presents no conflicts with federal, regional, state, or local land use plans, policies, or controls.

4.10 Energy Requirements and Conservation Potential

Anticipated energy requirements of INRMP activities can be accommodated within the energy supply of the region. Energy requirements would be subject to any established energy conservation practices.

4.11 Natural or Depletable Resource Requirements and Conservation Potential

Diesel and unleaded fuels and engine oil would be required to power project equipment such as bulldozers, roller/choppers, feller/bunchers, chainsaws, and trucks. Other than the use of vehicle fuels for project activities, the proposed action requires no significant use of natural or depletable resources.

4.12 Irreversible or Irretrievable Commitment or Resources

Although the Proposed Action would result in some irreversible and irretrievable commitment of resources such as fuel and labor, this commitment of resources is not significantly different from that necessary to support current mission activities taking place on 45SW-managed lands.

4.13 Biological Diversity

Biological diversity, or the variety of life and its processes, is a basic property of nature that provides enormous ecological, economic, and aesthetic benefits. The loss of biodiversity is recognized as a major national as well as global concern with potentially profound ecological and economic consequences.

Conservation of biodiversity is a national goal provided for in the framework of NEPA. This goal is to anticipate and evaluate the effects of federal actions on biodiversity and actively manage for the reduction of the impact of these effects as well as the promotion of restoration to previously impacted areas.

The basic goal of biodiversity conservation is to maintain naturally occurring ecosystems, communities, and native species. For the Proposed Action alternatives evaluated in this EA, impacts to biodiversity would not be significant.

4.14 Adverse Environmental Effects That Cannot Be Avoided

There are no adverse environmental effects from the Proposed Action that cannot be minimized. There will be some short-term impacts to the environment from activities associated with implementation of the current INRMP. Land maintenance activities are often noisy and disruptive. Birds and other wildlife would relocate from the impacted areas while disruptive activities are on-going and move back into the area when the activities have ended. It is the intent of the INRMP to leave impacted areas in better condition as suitable and more diverse wildlife habitat than they were previously. It is important that disruptive activities be avoided, when possible, in sensitive areas during peak breeding and nesting seasons. Habitat improvements and increased biodiversity should be evident from implementing the INRMP. Overall impacts from implementing the INRMP are considered positive.

4.15 Relationship Between Short-Term Uses of the Human Environment and the Maintenance and Enhancement of Long-Term Productivity

The Proposed Action, to implement the current INRMP, would ensure habitat quality, important resource protection, and long-term sustainable recreation.

4.16 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

The proposed action would not substantially affect human health or the environment and would not exclude persons from participation, deny persons the benefits, or subject persons to discrimination because of their race, color, or national origin.

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5.0 Conclusion

This EA reviewed the proposed management of 45SW natural resources. Two management options were examined. The Proposed Action would most effectively manage and preserve 45SW's natural resources as required by federal regulations and DOD and AF policies. If the Proposed Action were selected, 45SW would implement the current INRMP. The INRMP would outline procedures for managing the 45SW's natural resources such coastal/dune and scrub habitat, invasive species and pests, and water resources, for the benefit of resident fish and wildlife resources. The plan would serve as a guide for developing and maintaining 45SW lands consistent with the military mission and national policies on conservation of resources.

It is anticipated that the 45SW's mission may impact the environment at the installations when conducting activities that include: land clearing, construction, exterior lighting, ground and surface water discharges, training activities, airfield operation and noise, fuel and oxidizer processing, hazardous materials and waste generation, launch activities, and the installation restoration program. However, the INRMP was developed to support mission while protecting and enhancing the 45SW's natural resources. Any future impacts that may have the potential to significantly impact the environment would be analyzed in documentation prepared in accordance with National Environmental Policy Act.

Under the Proposed Action, compliance with applicable state and federal laws as well as pertinent DOD and AF regulations and guidance documents would continue. Emphasis would be placed on objectives that stress the importance of ecosystem integrity and biodiversity. As a result, essential habitat areas located on 45SW installations would be identified so that enhancement of these resources can be directed more effectively. Under this alternative, there would be no significant impacts to air quality, hazardous materials and waste, or noise. Beneficial impacts would be anticipated to biological resources, cultural resources, health and safety, infrastructure and transportation, land use, geology and soils, socioeconomics, and water resources. In addition, there are no significant cumulative impacts expected under this alternative. Minimization measures (*i.e. Biological Opinions)* in addition to those specified in Chapter 4 are necessary to reduce impacts to a less than significant level.

The most apparent beneficial impact associated with the Proposed Action results from the coordinated nature of implementation of the current INRMP. The INRMP would be integrated with other Installation initiatives and plans (*i.e.*, Sea Turtle Preservation Plan, Florida Scrub Jay Management Plan, Scrub Habitat Restoration Plan, Outdoor Recreation Plan, Conservation Law Enforcement Plan, Lands and Grounds Plan, invasive species control plans, Bird Hazard Reduction Plan, Wildland Fire Management Plan, etc.). As a result of improved coordination, there would be beneficial impacts to all resource categories. All resource management activities would result from one plan and would be carried out more efficiently and effectively, resulting in cost savings and beneficial impacts to all resource types.

If the No Action Alternative were selected, 45SW would continue to implement the overall program philosophy and practices under the existing INRMP. Under this alternative, various management plans would continue to be used, in whole or in part, to support the Installation's natural resources program. However, this plan would not be updated with current information and plans and would not meet the Sikes Act requirement that the INRMP is updated as needed. Under this alternative, there are no impacts or no significant impacts to air quality, cultural resources, geology and soils, socioeconomics, hazardous materials and waste, or noise. Beneficial impacts would be anticipated for biological, infrastructure and transportation, land use, and water resources.

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Appendix A

45SW Natural Resource Work Plan

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CCAFS Work Plan

FY	Project Number	Action	Description	INRMP Action Number	Funding Priority
Annually	In-House	Prioritize Land Management Units (LMUs) for restoration	Meet periodically (in house biologists and contractors) to prioritize scrub LMUs to restore based on previously-prepared LMUs and mission requirements	1.1.1	NA
Annually	In-House	Conduct Prescribed Burning	Whenever mission requirements allow.	1.1.3	NA
Annually	In-House	Analyze scrub habitat management techniques	Meet annually to evaluate data and determine plan for next FY	1.2.1	NA
Annually	In-House	Review Biological Opinions	Review active Biological Opinions annually and program actions if necessary	All	NA
Annually	In-House	Evaluate coastal habitat	Meet annually to evaluate coastal habitats and identify new projects	1.3.1	NA
Annually	In-House	Review wetlands and Impoundments	Review to identify new wetlands and/or projects and prioritize	1.4.1 1.4.3	NA
Annually	In-House	Incorporate any new wetland data into GIS	Incorporate any new wetland data into GIS	1.4.2	NA
Annually	In-House	Coordinate wetland restoration plans, if applicable	Hold meeting with regulators to discuss/approve any wetland restoration proposals or wetland issues.	1.4.4	NA
Annually	In-House	Identify adversely impacted natural resource areas	Identify, prioritize and program areas to restore. (i.e. abandoned lines of sight, staging areas, etc.)	1.5.1 1.5.2	NA
Annually	In-House	Add any adversely impacted natural resource areas to GIS	Add any adversely impacted natural resource areas to GIS	1.5.3	NA
Annually	In-House	Conduct Daily sea turtle monitoring during season	Conduct monitoring as part of participation in Sea Turtle Index Nesting Beach Survey	2.1.1	NA
Annually	In-House	Prepare Annual Sea Turtle Nesting Summary Report	Prepare and submit Annual Sea Turtle Nesting Summary Report	2.1.2	NA
Annually	In-House	Conduct inland and beach trapping of raccoons, feral hogs and other predators.	Obtain services of professional trapper with in-house assistance to trap predators	2.2.1 2.2.2	NA
Annually	In-House	Distribute 45 SWI on Light Management prior to nesting season	Distribute 45 SWI on Light Management prior to nesting season and educate base populace via base newspaper and email notifications	2.3.1	NA
FY	**Project Number**	**Action**	**Description**	**INRMP Action Number**	**Funding Priority**

Annually	In-House	Conduct Light Inspections	Frequency per current Biological Opinion	2.3.2	NA
Annually	In-House	Note facilities which are non-compliant	Determine facilities which are non-compliant and notify facility managers	2.3.3	NA
Annually	In-House	Survey project sites for presence of active gopher tortoises	Surveys done as needed. Identify recipient sites, tag and record tortoises prior to relocation.	3.1.1 3.1.2 3.1.3	NA
Annually	In-House	Conduct Annual deer census	Conduct Annual deer census	3.2.1	NA
Annually	In-House	Participate in the Bird Haz Working Group and provide natural resource information as required.	Participate in the Bird Haz Working Group and provide natural resource information as required.	4.1.1 4.1.2	NA
Annually	In-House	Perform annual osprey nesting census	Perform annual osprey nesting census	4.2.2	NA
Annually	In-House	Conservation Law Enforcement Patrols	45 SW Conservation Officer will patrol acreage on a routine basis to ensure compliance with State, Federal and local natural resource laws and regulations	7.1.1 7.2.1 7.2.2	NA
Annually	In-House	Conduct Annual Natural Resource & EIAP Training	Conduct Annual NEPA and Natural Resource Training for design engineers and determine other training needs for base personnel. Update training materials.	8.1.1 to 8.1.6	NA
Annually	In-House	Maintain Training for CEVP personnel	Ensure NR personnel maintain proficiency as needed (i.e. annual burn training, sea turtle workshop, etc.)	8.1.1 to 8.1.6	NA
Annually	In-House	Conduct educational sea turtle walks	Conduct sea turtle walks for Wing leadership and other interested parties	8.2.1	NA
Annually	In-House	Participate in Community Natural Resource Events	Participate in events to educate public on natural resource protection and 45 SW activities (i.e. Bird Festival, Boy Scouts, conferences, etc.)	8.2.1 8.2.2	NA

FY	Project Number	Action	Description	INRMP Action Number	Funding Priority
2009					
2009	In-House	Develop a SOW to monitor diversity and health of vegetative communities.	SOW to include use of GPS/GIS, final report requirements and management recommendations for future implementation	1.6.1	NA
2009	In-House	Identify other species of concern regarding Sea Turtle nest predation	Identify other species of concern regarding Sea Turtle nest predation	2.2.3	NA
2009	In-House	Incorporate SEBM data into GIS	Incorporate SEBM data into GIS	2.5.3	NA
2009	In-House	Discuss dynamics and trends of SEBM and re-address permit	Meet with UCF and FWS to discuss and coordinate recommendations for the SEBM	2.5.4	NA
2009	In-House	Identify T&E species of concern not specifically addressed in this document	Identify T&E species of concern not specifically addressed in this document	2.6.1	NA

2009	In-House	Research avenues to obtain capability to examine tortoises for URTDs	Research avenues to obtain capability to examine tortoises for URTDs; obtain permits if feasible	3.1.4	NA
2009	In-House	Identify all aquatic habitats	Identify all aquatic habitats	3.3.1	NA
2009	In-House	Identify all reptile/amphibian habitats	Identify all reptile/amphibian habitats	3.4.1	NA
2010					
2010	In-House	Develop SEBM management recommendations	Develop SEBM management recommendations and coordinate with FWS	2.5.4	NA
2010	In-House	Incorporate aquatic habitat data into GIS	Incorporate aquatic habitat data into GIS	3.3.2	NA
2010	In-House	Incorporate reptile/amphibian habitat data into GIS	Incorporate reptile/amphibian habitat data into GIS	3.4.2	NA
2011					
2011	In-House	Develop Recommendations for other T&E species, if applicable	Develop Recommendations for other T&E species, if applicable	2.6.2	NA
2011	In-House	Coordinate with appropriate agencies any management recommendations for "other" T&E species	Set up meeting w/ FWCC and FWS, if needed	2.6.3	NA
2011	In-House	Develop SOW for Aquatic resources management plan or develop the plan	Develop SOW for Aquatic resources management plan or develop the plan	3.3.3	NA
2011	In-House	Develop SOW for Reptile/amphibian management plan or develop the plan	Develop SOW for Reptile/amphibian management plan or develop the plan	3.4.3	NA

Contract Actions					
FY	**Project Number**	**Action**	**Description**	**INRMP Action Number**	**Funding Priority**
2006 (year funded)					
2006	SXHT057046	RESIDENT & MIGRATORY BIRD SURVEY, PH I	Provide first phase of a 45 SW resident & migratory bird survey to provide data to support bird management recommendations	4.2.1	Completed
2006	DBEH067322	SCRUB HABITAT RESTORATION, COMPARTMENT 6	Restoration of this compartment is for mitigation for the EPF and was funded by the NRO	1.1.2 1.1.3 1.1.4	Completed
2006	DBEH067323	SCRUB JAY HABITAT STUDY, PH1	This habitat study is for mitigation for the EPF and was funded by the NRO	1.1.2 1.1.3 1.1.4 1.2.1	Completed
2006	DBEHOS100006	MGT, HABITAT, SCRUB JAY, RESTORATION	Restore and enhance scrub habitat using mechanical methods and prescribed burns to mimic natural fire-maintained ecosystem.	1.1.1 1.1.2 1.1.3	Completed
2006	DBEHOS100106	MONITOR, SPECIES, SCRUB JAY	Comply with the Biological Opinion and Florida Scrub-jay recovery plan goals by annually monitoring the Scrub-jay population and its reproductive success.	2.4.1 2.4.2	Completed
2006	DBEHOS100206	MGT HABITAT, WILDLAND FIRE	Provide prescribed burn support by professional foresters	1.1.3	Completed

2006	DBEHOS100506	MONITOR HABITAT, INVASIVE SPECIES	Assess the effectiveness of invasive plant eradication and removal and retreat as necessary. Incorporate into GIS.	5.2.1	Completed
2006	DBEHOS256406	MONITOR JUVENILE GREEN SEA TURTLES, TRIDENT	Monitor the sea turtle population by quarterly sampling at the Trident Basin.	2.1.3	Completed
2006	DBEHOS725106	MANAGEMENT HABITAT, BARRIER ISLAND	Restore and enhance 45 SW properties thru invasive species removal and/or enhancement of coastal habitat.	1.3.2	Completed
2006	DBEHOS725406	MONITOR, SPECIES, SEA TURTLE	Provide equipment and supplies to effectively monitor sea turtle population per the current Biological Opinion.	2.1.1	Completed
2006	DBEHOS725506	MONITOR, SPECIES, SE BEACH MOUSE	Provide equipment and supplies to manage the Southeastern Beach Mouse.	2.5.5	Completed
2007 (year funded)					
2007	DBEH077287	CONS-SCRUB JAY HABITAT STUDY, PH2	This habitat study is for mitigation for the EPF and was funded by the NRO	1.1.2 1.1.3 1.1.4 1.2.1	In progress
2007	DBEH077283	BIOLOGICAL SURVEY OF TRIDENT BASIN	Provide a comprehensive inventory of sea life in the Trident basin and document seasonal changes.	2.6.1 3.3.3	In progress
2007	DBEH077284	INVASIVE VEG CONTROL, BRAZ PEPPER	Remove and control invasive plant species by mechanical methods and herbicides.	5.1.2	In progress
2007	DBEH077285	INVASIVE VEG CONTROL, COGON GRASS	Remove and control invasive plant species by mechanical methods and herbicides.	5.1.2	In progress
2007	DBEH100044	REVEGETATE SAND BARRIERS	Restore, enhance and maintain coastal habitat through dune construction, dune plantings and sand fencing as needed.	1.3.2	In progress
2007	SXHT057037	RESIDENT & MIGRATORY BIRD SURVEY, PH II	Provide second phase of a 45 SW resident & migratory bird survey to provide data to support bird management recommendations	4.2.1	In progress
2007	DBEH077295	INVASIVE CONTROL, AERIAL APPLICATION	Spray Trident and Poseidon Spoil Areas for invasive vegetation to prevent further spread	5.1.2	In progress
2007	DBEHOS100007	MGT, HABITAT, SCRUB JAY, RESTORATION	Restore and enhance scrub habitat using mechanical methods and prescribed burns to mimic a natural fire-maintained ecosystem.	1.1.1 1.1.2 1.1.3	In progress
2007	DBEHOS100107	MONITOR, SPECIES, SCRUB JAY	Comply with BO and FL Scrub-jay recovery plan goals by annually monitoring the Scrub-jay population and its reproductive success.	2.4.1 2.4.2	In progress
2007	DBEHOS100207	MGT HABITAT, WILDLAND FIRE	Provide prescribed burn support by professional foresters	1.1.3	In progress
2007	DBEHOS100507	MONITOR HABITAT, INVASIVE SPECIES	Assess the effectiveness of invasive plant eradication and removal and retreat as necessary. Incorporate into GIS.	5.2.1	In progress
2007	DBEHOS725507	MONITOR, SPECIES, SE BEACH MOUSE	Provide equipment and supplies to manage the Southeastern Beach Mouse.	2.5.5	In progress
2007	DBEHOS256407	MONITOR JUVENILE GREEN SEA TURTLES, TRIDENT	Monitor the sea turtle population by semi-annual sampling at the Trident Basin.	2.1.3	In progress

2007	DBEHOS725107	MANAGEMENT HABITAT, BARRIER ISLAND	Restore and enhance 45 SW properties thru invasive species removal and/or enhancement of coastal habitat.	1.3.2	In progress
2007	DBEHOS725407	MONITOR SPECIES, SEA TURTLES	Provide equipment and supplies to effectively monitor sea turtle population per the current Biological Opinion.	2.1.1	In progress
2007	DBEH077299	Air Quality Monitoring Equipment, Burn Support	Purchase equipment to be able to monitor air quality (smoke, particulates) to ensure protection of Wing assets.	1.1.3	In progress
2008 (year funded)					
2008	DBEH087273	CONS-SCRUB JAY HABITAT STUDY, PH3	This habitat study is for mitigation for the EPF and was funded by the NRO	1.1.2 1.1.3 1.1.4 1.2.1	4
2008	DBEH087266	INVASIVE VEG CONTROL, BRAZ PEPPER	Remove and control invasive plant species by mechanical methods and herbicides.	5.1.2	8
2008	DBEH087267	INVASIVE VEG CONTROL, COGON GRASS	Remove and control invasive plant species by mechanical methods and herbicides.	5.1.2	9
2008	DBEH100046	REVEGETATE SAND BARRIERS	Restore, enhance and maintain coastal habitat through dune construction, dune plantings and sand fencing as needed.	1.3.2	15
2008	DBEH087282	CONS-ENHANCE WILD LAND FIREFIGHTING CAPABILITY	Provide training, equipment, materials to enhance wild land fire fighting capabilities	1.1.3	10
2008	DBEH087283	CONS-INVASIVE CONTROL, BURNS MOUND & CX 18	Remove and control invasive plant species by mechanical methods and herbicides.	5.1.2	17
2008	DBEH087290	CONS-HABITAT RESTORATION, PRESCRIBED BURNS	Restore and enhance scrub habitat using mechanical methods and prescribed burns to mimic a natural fire-maintained ecosystem.	1.1.1 1.1.2 1.1.3	1
2008	DBEH087291	CONS-GOPHER TORTOISE MONITOR & RELOCATION	Provide support to monitor the gopher tortoise population and relocate on an as needed basis	2.6.3	12
2008	DBEHOS100008	MGT, HABITAT, SCRUB JAY, RESTORATION	Restore and enhance scrub habitat using mechanical methods and prescribed burns to mimic a natural fire-maintained ecosystem.	1.1.1 1.1.2 1.1.3	5
2008	DBEHOS100108	MONITOR, SPECIES, SCRUB JAY	Comply with the Biological Opinion and Florida Scrub-jay recovery plan goals by annually monitoring the Scrub-jay population and its reproductive success.	2.4.1 2.4.2	2
2008	DBEHOS100208 DBEH087282	MGT HABITAT, WILDLAND FIRE	Provide prescribed burn support (Equipment and Manpower) by professional forester.	1.1.3	3
2008	DBEHOS100508	MONITOR HABITAT, INVASIVE SPECIES	Assess the effectiveness of invasive plant eradication and removal and retreat as necessary. Incorporate into GIS.	5.2.1	16
2008	DBEHOS725508	MONITOR, SPECIES, SE BEACH MOUSE	Provide equipment and supplies to manage the SEBM.	2.5.1	13
2008	DBEHOS256408	MONITOR JUVENILE GREEN SEA TURTLES, TRIDENT	Monitor the sea turtle population by semi-annual sampling at the Trident Basin.	2.1.3	7
2008	DBEHOS725108	MANAGEMENT HABITAT, BARRIER ISLAND	Restore and enhance 45 SW properties thru invasive species removal and/or enhancement of coastal habitat.	1.3.2	11

2008	DBEHOS725408	MONITOR SPECIES, SEA TURTLES	Provide equipment and supplies to effectively monitor sea turtle population per the current Biological Opinion.	2.1.1	6
2008	DBEHOS725708	CONS- RECORDKEEPING, SDSFIE COMPLIANCE	Update natural resource databases in GIS, collect new data using GPS and integrate into SDSFIE GIS geodatabases	6.2.3	14
2008	DBEH087280	Exotic Veg Removal, Protection of Cultural Resources	Remove exotic vegetation from the areas where they are impacting our historic assets.	5.2.1	18
2009 (year to be funded)					
2009	DBEH097277	CONS-SCRUB JAY HABITAT STUDY, PH4	This habitat study is for mitigation for the EPF and was funded by the NRO	1.1.2 1.1.3 1.1.4 1.2.1	3
2009	DBEH097272	RECONNECT LAKE BEHIND CX 16 TO CANAL, HABITAT ENHANCEMENT	Restore wetland area by removing man-made obstructions.	1.4.5	15
2009	DBEH097273	CONS- RE-ESTABLISH WOOD STORK ROOKERY	Re-establish Wood Stork Rookery	4.2.4	13
2009	DBEH057330	CONS- NATURAL INFRASTRUCTURE MGMT, WETLAND RESTORATION, CX-40	Restore wetland area by removing man-made obstruction and replacing with a culvert.	1.4.5	16
2009	DBEH097261	CONS- COASTAL MARITIME HAMMOCK EVALUATION/DELINEATION	Evaluate and delineate Coastal Marine Hammock areas	4.2.3	14
2009	DBEH097268	CONS- MGT, INVASIVE VEG CONTROL, BRAZ PEPPER	Remove and control invasive plant species by mechanical methods and herbicides.	5.1.2	7
2009	DBEH097280	CONS- INVASIVE VEG CONTROL, LC 9, 10, 31, 32	Remove and control invasive plant species by mechanical methods and herbicides.	5.1.2	9
2009	DBEH097269	INVASIVE VEG CONTROL, COGON GRASS	Remove and control invasive plant species by mechanical methods and herbicides.	5.1.2	8
2009	DBEH100047	CONS- REVEGETATE SAND BARRIERS	Restore, enhance and maintain coastal habitat through dune construction, dune plantings and sand fencing as needed.	1.3.2	11
2009	DBEHOS100009	CONS-MGT, HABITAT, SCRUB JAY, RESTORATION	Restore and enhance scrub habitat using mechanical methods and prescribed burns to mimic a natural fire-maintained ecosystem.	1.1.1 1.1.2 1.1.3	1
2009	DBEHOS100109	CONS-MONITOR, SPECIES, SCRUB JAY	Comply with the Biological Opinion and Florida Scrub-jay recovery plan goals by annually monitoring the Scrub-jay population and its reproductive success.	2.4.1 2.4.2	4
2009	DBEHOS100209	CONS-MGT HABITAT, WILDLAND FIRE	Provide prescribed burn support by professional foresters	1.1.3	2
2009	DBEHOS100509	CONS-MONITOR HABITAT, INVASIVE SPECIES	Assess the effectiveness of invasive plant eradication and removal and retreat as necessary. Incorporate into GIS.	5.2.1	10
2009	DBEHOS725509	CONS-MONITOR, SPECIES, SE BEACH MOUSE	Provide equipment and supplies to manage the Southeastern Beach Mouse.	2.5.5	12
2009	DBEHOS256409	CONS-MONITOR JUVENILE GREEN SEA TURTLES, TRIDENT	Monitor the sea turtle population by semi-annual sampling at the Trident Basin.	2.1.3	6

2009	DBEHOS725409	CONS-MONITOR SPECIES, SEA TURTLES	Provide equipment and supplies to effectively monitor sea turtle population per the current Biological Opinion.	2.1.1	5
2010 (year to be funded)					
2010	DBEH107267	CONS-SCRUB JAY HABITAT STUDY, PH5	This habitat study is for mitigation for the EPF and was funded by the NRO	1.1.2 1.1.3 1.1.4 1.2.1	4
2010	DBEH107261	CONS- RECONNECT CANALS, CX 12/13	Restore wetland area by removing man-made obstructions.	1.4.5	16
2010	DBEH107268	CONS-INVASIVE SPECIES CONTROL, LC 14	Removal and herbicide treatment of invasive vegetation species	5.2.1	12
2010	DBEH107363	CONS- SCRUB HABITAT RESTORATION/RUBBLE REMOVAL, OBSERV RD	Remove rubble and restore scrub habitat with native vegetation for FL scrub-jay use.	1.5.4	14
2010	DBEH107262	CONS- SURVEYS OF BORROW PITS, PONDS, CANALS & DITCHES	Biological survey of CCAFS surface waters to develop management recommendations if required.	3.3.1 3.3.3 3.4.1	15
2010	DBEH087268	CONS- SCRUB JAY SNAKE PREDATION STUDY	Determine extent of snake predation on the Florida Scrub-jay.	2.4.3	13
2010	DBEH107255	INVASIVE VEG CONTROL, BRAZ PEPPER	Remove and control invasive plant species by mechanical methods and herbicides.	5.1.2	7
2010	DBEH107256	INVASIVE VEG CONTROL, COGON GRASS	Remove and control invasive plant species by mechanical methods and herbicides.	5.1.2	8
2010	DBEHOS100010	CONS-MGT, HABITAT, SCRUB JAY, RESTORATION	Restore and enhance scrub habitat using mechanical methods and prescribed burns to mimic a natural fire-maintained ecosystem.	1.1.1 1.1.2 1.1.3	1
2010	DBEHOS100210	CONS-MGT HABITAT, WILDLAND FIRE	Provide prescribed burn support by professional foresters.	1.1.3	2
2010	DBEHOS100510	CONS-MONITOR HABITAT, INVASIVE SPECIES	Assess the effectiveness of invasive plant eradication and removal and retreat as necessary. Incorporate into GIS.	5.2.1	9
2010	DBEHOS100110	CONS-MONITOR, SPECIES, SCRUB JAY	Comply with the Biological Opinion and Florida Scrub-jay recovery plan goals by annually monitoring the Scrub-jay population and its reproductive success.	2.4.1 2.4.2	3
2010	DBEHOS256410	CONS-MONITOR JUVENILE GREEN SEA TURTLES, TRIDENT	Monitor the sea turtle population by semi-annual sampling at the Trident Basin.	2.1.3	6
2010	DBEHOS725510	CONS-MONITOR, SPECIES, SE BEACH MOUSE	Provide equipment and supplies to manage the Southeastern Beach Mouse.	2.5.5	10
2010	DBEHOS725110	CONS-MANAGEMENT HABITAT, BARRIER ISLAND	Restore and enhance 45 SW properties thru invasive species removal and/or enhancement of coastal habitat.	1.3.2	11
2010	DBEHOS725410	CONS-MONITOR SPECIES, SEA TURTLES	Provide equipment and supplies to effectively monitor sea turtle population per the current Biological Opinion.	2.1.1	5
2011 (year to be funded)					

2011	DBEH117258	CONS- WETLAND RESTORATION, FSA 1 West	Restore wetland area	1.4.5	13
2011	DBEH097274	CONS- ENHANCE LEAST TERN NESTING HABITAT	Enhance least tern habitat at CCAFS to sustain migratory/resident bird populations	4.2.4	14
2011	DBEH117253	CONS-INVASIVE VEG CONTROL, BRAZ PEPPER, CCAFS	Remove and control invasive plant species by mechanical methods and herbicides.	5.1.2	6
2011	DBEH117254	CONS-INVASIVE VEG CONTROL, COGON GRASS, CCAFS	Remove and control invasive plant species by mechanical methods and herbicides.	5.1.2	7
2011	DBEH117266	CONS-INVASIVE VEG CONTROL, LC 19	Remove and control invasive plant species by mechanical methods and herbicides.	5.1.2	8
2011	DBEH117260	CONS- SELECTIVE OAK REMOVAL, SCRUB RESTORATION	Remove select large oak trees to enhance Fl Scrub Jay habitat.	1.1.2	9
2011	DBEHOS100011	CONS-MGT, HABITAT, SCRUB JAY, RESTORATION	Restore and enhance scrub habitat using mechanical methods and prescribed burns to mimic a natural fire-maintained ecosystem.	1.1.1 1.1.2 1.1.3	1
2011	DBEHOS100111	CONS-MONITOR, SPECIES, SCRUB JAY	Comply with the Biological Opinion and Florida Scrub-jay recovery plan goals by annually monitoring the Scrub-jay population and its reproductive success.	2.4.1 2.4.2	3
2011	DBEHOS100211	CONS-MGT HABITAT, WILDLAND FIRE	Provide prescribed burn support by professional foresters.	1.1.3	2
2011	DBEHOS100511	CONS-MONITOR HABITAT, INVASIVE SPECIES	Assess the effectiveness of invasive plant eradication and removal and retreat as necessary. Incorporate into GIS.	5.2.1	10
2011	DBEHOS256411	CONS-MONITOR JUVENILE GREEN SEA TURTLES, TRIDENT	Monitor the sea turtle population by semi-annual sampling at the Trident Basin.	2.1.3	5
2011	DBEHOS725111	CONS-MANAGEMENT HABITAT, BARRIER ISLAND	Restore and enhance 45 SW properties thru invasive species removal and/or enhancement of coastal habitat.	1.3.2	11
2011	DBEHOS725411	CONS-MONITOR, SPECIES, SEA TURTLE	Provide equipment and supplies to effectively monitor sea turtle population per the current Biological Opinion.	2.1.1	4
2011	DBEHOS725511	CONS-MONITOR, SPECIES, SE BEACH MOUSE	Provide equipment and supplies to manage the Southeastern Beach Mouse.	2.5.5	12
2012 (year to be funded)					
2012	DBEH127251	CONS-INVASIVE VEG CONTROL, BRAZ PEPPER, CCAFS	Remove and control invasive plant species by mechanical methods and herbicides.	5.1.2	6
2012	DBEH127252	CONS-INVASIVE VEG CONTROL, COGON GRASS, CCAFS	Remove and control invasive plant species by mechanical methods and herbicides.	5.1.2	7
2012	DBEH127262	CONS-INVASIVE VEG CONTROL, LC 19 EAST	Remove and control invasive plant species by mechanical methods and herbicides.	5.1.2	8

2012	DBEH127255	CONS-EVAL & RESTOR OF ISOLATED WETLANDS, HIF, CMPT 6	Evaluate wetland restoration and provide wetland enhancement at the HIF, Compartment 6	1.4.1 1.4.5	12
2012	DBEH127254	DEMOGRAPHIC STUDY, ALLIGATORS	Provide demographic survey to develop management recommendations for CCAFS's alligator population	3.4.1	13
2012	DBEHOS100012	CONS-MGT, HABITAT, SCRUB JAY, RESTORATION	Restore and enhance scrub habitat using mechanical methods and prescribed burns to mimic a natural fire-maintained ecosystem.	1.1.1 1.1.2 1.1.3	1
2012	DBEHOS100112	CONS-MONITOR, SPECIES, SCRUB JAY	Comply with the Biological Opinion and Florida Scrub-jay recovery plan goals by annually monitoring the Scrub-jay population and its reproductive success.	2.4.1 2.4.2	3
2012	DBEHOS100212	CONS-MGT HABITAT, WILDLAND FIRE	Provide prescribed burn support by professional foresters.	1.1.3	2
2012	DBEHOS100512	CONS-MONITOR HABITAT, INVASIVE SPECIES	Assess the effectiveness of invasive plant eradication and removal and retreat as necessary. Incorporate into GIS.	5.2.1	9
2012	DBEHOS256412	CONS-MONITOR JUVENILE GREEN SEA TURTLES, TRIDENT	Monitor the sea turtle population by semi-annual sampling at the Trident Basin.	2.1.3	5
2012	DBEHOS725112	CONS-MANAGEMENT HABITAT, BARRIER ISLAND	Restore and enhance 45 SW properties thru invasive species removal and/or enhancement of coastal habitat.	1.3.2	10
2012	DBEHOS725412	CONS-MONITOR, SPECIES, SEA TURTLE	Provide equipment and supplies to effectively monitor sea turtle population per the current Biological Opinion.	2.1.1	4
2012	DBEHOS725512	CONS-MONITOR, SPECIES, SE BEACH MOUSE	Provide equipment and supplies to manage the Southeastern Beach Mouse.	2.5.5	11
2013 (year to be funded)					
2013	DBEHOS100013	CONS-MGT, HABITAT, SCRUB JAY, RESTORATION	Restore and enhance scrub habitat using mechanical methods and prescribed burns to mimic a natural fire-maintained ecosystem.	1.1.1 1.1.2 1.1.3	1
2013	DBEHOS100113	CONS-MONITOR, SPECIES, SCRUB JAY	Comply with the Biological Opinion and Florida Scrub-jay recovery plan goals by annually monitoring the Scrub-jay population and its reproductive success.	2.4.1 2.4.2	3
2013	DBEHOS100213	CONS-MGT HABITAT, WILDLAND FIRE	Provide prescribed burn support by professional foresters	1.1.3	2
2013	DBEHOS100513	CONS-MONITOR HABITAT, INVASIVE SPECIES	Assess the effectiveness of invasive plant eradication and removal and retreat as necessary. Incorporate into GIS.	5.2.1	6
2013	DBEHOS256413	CONS-MONITOR JUVENILE GREEN SEA TURTLES, TRIDENT	Monitor the sea turtle population by semi-annual sampling at the Trident Basin.	2.1.3	5
2013	DBEHOS725113	CONS-MANAGEMENT HABITAT, BARRIER ISLAND	Restore and enhance 45 SW properties thru invasive species removal and/or enhancement of coastal habitat.	1.3.2	7
2013	DBEHOS725413	CONS-MONITOR, SPECIES, SEA TURTLE	Provide equipment and supplies to effectively monitor sea turtle population per the current BO.	2.1.1	4
2013	DBEHOS725513	CONS-MONITOR, SPECIES, SE BEACH MOUSE	Provide equipment and supplies to manage the Southeastern Beach Mouse.	2.5.5	8

PAFB Work Plan

FY	Project Number	Action	Description	INRMP Action Number	Funding Priority
In-House Actions					
Annually	In-House	Evaluate coastal habitat	Meet annually to evaluate coastal habitats and identify new projects	1.3.1	NA
Annually	In-House	Survey wetlands and Impoundments	Survey to identify new wetlands and/or projects and prioritize	1.4.1 1.4.3	NA
Annually	In-House	Incorporate any new wetland data into GIS	Incorporate any new wetland data into GIS	1.4.2	NA
Annually	In-House	Coordinate wetland restoration plans, if applicable	Hold meeting with regulators to discuss/ approve any wetland restoration proposals.	1.4.4	NA
Annually	In-House	Identify adversely impacted natural resource areas	Identify, prioritize and program areas to restore. (ie. abandoned lines of sight, staging areas, etc.)	1.5.1 1.5.2	NA
Annually	In-House	Add any adversely impacted natural resource areas to GIS	Add any adversely impacted natural resource areas to GIS	1.5.3	NA
Annually	In-House	Review Annual Sea Turtle Nesting Summary Report and Contract	Review Annual Sea Turtle Nesting Summary Report and Contract	2.1.2	NA
Annually	In-House	Distribute 45 SWI on Light Management prior to nesting season	Distribute 45 SWI on Light Management prior to nesting season and educate base populace via base newspaper and email notifications	2.3.1	NA
Annually	In-House	Conduct Light Inspections	Frequency per current Biological Opinion	2.3.2	NA
Annually	In-House	Note facilities which are non-compliant	Determine facilities which are non-compliant and notify facility manager	2.3.3	NA
Annually	In-House	Participate in the Bird Hazard Working Group and provide natural resource data as required	Participate in the Bird Hazard Working Group and provide natural resource data as required	4.1.1 4.1.2	NA
Annually	In-House	Perform annual osprey nesting census	Perform annual osprey nesting census	4.2.2	NA
Annually	In-House	Evaluate PAFB east of A1A for SEMB	Evaluate PAFB east of A1A for SEMB	2.6.1	NA
Annually	In-House	Evaluate 45 SW Natural Resource geodatabases and update as needed (new data, SDSFIE, Environmental Mission Dataset requirements, etc.)	Evaluate 45 SW Natural Resource geodatabases and update as needed (new data, SDSFIE, Environmental Mission Dataset requirements, etc.)	6.2.3	NA
FY	**Project Number**	**Action**	**Description**	**INRMP Action Number**	**Funding Priority**

2009	In-House	Participate in Partners in Flight	Research requirements to determine 45 SW participation in Partners in Flight	4.2.5	NA
2009	In-House	Identify all aquatic habitats	Identify all aquatic habitats	3.3.1	NA
2009	In-House	Identify all reptile/amphibian habitats	Identify all reptile/amphibian habitats	3.4.1	NA
2010	In-House	Incorporate aquatic habitat data into GIS	Incorporate aquatic habitat data into GIS	3.3.2	NA
2010	In-House	Incorporate reptile/amphibian habitat data into GIS	Incorporate reptile/amphibian habitat data into GIS	3.4.2	NA
Contract Actions					
2006 (year funded)					
FY	**Project Number**	**Action**	**Description**	**INRMP Action Number**	**Funding Priority**
2006	SXHT057046	RESIDENT & MIGRATORY BIRD SURVEY, PH I **(45 SW)**	Provide first phase of a 45 SW resident & migratory bird survey to provide data to support bird management recommendations	4.2.1	Completed
2006	SXHT067253	INVASIVE VEGETATION CONTROL	Annually remove and control 10% of the total invasive plant species acreage on the installation.	5.1.1	Completed
2006	SXHTOS100206	MONITOR, HABITAT, SEA TURTLE NEST	Conduct annual sea turtle monitoring to comply with the current Biological Opinion.	2.1.1	Completed
2006	SXHTOS673706	MONITOR HABITAT, INVASIVE SPECIES	Annually remove and control 10% of the total invasive plant species acreage on the installation.	5.1.1	Completed
2007 (year funded)					
2007	SXHT057037	RESIDENT & MIGRATORY BIRD SURVEY, PH II **(45th SW)**	Provide second phase of a 45 SW resident & migratory bird survey to provide data to support bird management recommendations	4.2.1	In progress
2007	SXHT077251	INVASIVE REMOV/HABITAT RESTOR- PH I	Annually remove and control 10% of the total invasive plant species acreage on the installation. Restore for wildlife and low impact recreation.	5.1.1	In progress
2007	SXHT067017	CONS- SDSFIE 2.6 CONVERSION (DATA MANAGEMENT SUPPORT)	Create, utilize and maintain accurate GIS data in natural resource management activities at PAFB.	6.2.1	Completed
2007	SXHTOS673707	MONITOR, HABITAT, INVASIVE SPECIES	Annually remove and control 10% of the total invasive plant species acreage on the installation.	5.1.1	In progress
2007	SXHTOS100207	MONITOR, HABITAT, SEA TURTLE NEST	Conduct annual sea turtle monitoring to comply with the current Biological Opinion.	2.1.1	Completed
2007	SXHT037270	CONS-NOXIOUS WEED CONTROL & AQUATIC HABITAT IMPROVEMENT	Annually remove and control 10% of the total invasive plant species acreage on the installation. Remove invasives from aquatic resource areas.	5.1.1	In progress
2007	SXHT067018	CONS-AQUATIC WEED MANAGEMENT	Annually remove and control 10% of the total invasive plant species acreage on the installation. Utilize triploid grass carp biocontrol.	5.1.1	In progress

2007	SXHT087256	CONS-PLANT DUNE VEGETATION	Restore, enhance and maintain coastal habitat through the restoration and/or enhancement of 800 linear feet per year of dunes, coastal berms, or coastal strand.	1.2.1	Completed
2008 (year funded)					
2008	SXHT057051	CONS-INVASIVE REMOV/HABITAT RESTORATION-PH II	Annually remove and control 10% of the total invasive plant species acreage on the installation. Restore for wildlife and low impact recreation.	5.1.1	4
2008	SXHT097253	CONS - INVASIVE REMOV/HABITAT RESTORATION-PH III	Annually remove and control 10% of the total invasive plant species acreage on the installation. Restore for wildlife and low impact recreation.	5.1.1	5
2008	SXHT057038	CONS-SHORELINE RESTORATION, PH I, PAFB	Restore, enhance and maintain coastal habitat through the restoration and/or enhancement of 500 linear feet per year of river (wetland) shoreline.	1.2.1	3
2008	SXHTOS673708	CONS-MONITOR,& TREAT HABITAT, INVASIVE SPECIES	Annually remove and control 10% of the total invasive plant species acreage on the installation.	5.1.1	2
2008	SXHTOS100208	CONS-MGT, SPECIES, SEA TURTLE	Conduct annual sea turtle monitoring to comply with the current Biological Opinion.	2.1.1	In progress
2009 (year to be funded)					
2009	SXHT067024	CONS- MAINTENANCE, ENV MDL/MDS (NATURAL/ CULTURAL DATA)	Create, utilize and maintain accurate GIS data in natural resource management activities at PAFB.	6.2.1	4
2009	SXHT TBD	CONS- INVASIVE REMOVAL & URBAN FOREST PLAN, FAMCAMP, PAFB	Restore improved, semi-improved, and unimproved areas to near natural conditions.	1.5.1	5
2009	SXHT067026	CONS-MGT, INVASIVE SPECIES, DUNE PH I, PAFB	Annually remove and control 10% of the total invasive plant species acreage on the installation. Restore sea turtle nesting habitat and vegetative barrier that blocks artificial lighting.	5.1.1	3
2009	SXHTOS100209	CONS-MGT, SPECIES, SEA TURTLE	Conduct annual sea turtle monitoring to comply with the current Biological Opinion.	2.1.1	1
2009	SXHTOS673709	CONS- MGT, INVASIVE SPECIES, MONITOR & CONTROL	Annually remove and control 10% of the total invasive plant species acreage on the installation.	5.1.1	2
2010 (year to be funded)					
2010	SXHT067016	CONS-SHORELINE RESTORATION, PH II, PAFB	Restore, enhance and maintain coastal habitat through the restoration and/or enhancement of 500 linear feet per year of river/estuarine (wetland) shoreline.	1.2.1	3
2010	SXHT057050	CONS – MGT, INVASIVE SPECIES & HABITAT RESTORATION-PH IV	Annually remove and control 10% of the total invasive plant species acreage on the installation. Restore for wildlife and low impact recreation.	5.1.1	4
2010	SXHTOS100310	CONS- MGT, SPECIES, SEA TURTLE	Conduct annual sea turtle monitoring to comply with the current Biological Opinion.	2.1.1	1

2010	SXHTOS67025	CONS- MAINTENANCE, ENV MDL/MDS (NATURAL/ CULTURAL DATA)	Create, utilize and maintain accurate GIS data in natural resource management activities at PAFB.	6.2.1	6
2010	SXHTOS673810	CONS- MGT, HABITAT, COASTAL DUNE	Restore, enhance, and maintain sea turtle nesting habitat by planting dune vegetation in sparse or storm impacted areas to reduce disorientations.	1.2.1	5
2010	SXHTOS673710	CONS- MGT, INVASIVE SPECIES	Annually remove and control 10% of the total invasive plant species acreage on the installation.	5.1.1	2
2011 (year to be funded)					
2011	SXHTOS673811	CONS-MGT, HABITAT, COASTAL DUNE	Restore, enhance, and maintain sea turtle nesting habitat by planting dune vegetation in sparse or storm impacted areas to reduce disorientations.	1.2.1	3
2011	SXHTOS100311	CONS- MGT, SPECIES, SEA TURTLE	Conduct annual sea turtle monitoring to comply with the current Biological Opinion.	2.1.1	1
2011	SXHTOS673711	CONS- MGT, INVASIVE SPECIES	Annually remove and control 10% of the total invasive plant species acreage on the installation.	5.1.1	2
2011	SXHT067029	CONS- MGT, HABITAT, AQUATIC	Restore, enhance and maintain aquatic resources and provide management recommendations for prolonged quality.	3.3.3	7
2011	SXHT057049	CONS – MGT, INVASIVE SPECIES & HABITAT RESTORATION-PH V	Annually remove and control 10% of the total invasive plant species acreage on the installation. Restore for wildlife and low impact recreation.	5.1.1	5
2011	SXHT067028	CONS- MGT, INVASIVE SPECIES, DUNE PH II	Restore, enhance and maintain coastal habitat through the restoration and/or enhancement of 800 linear feet per year of dunes, coastal berms, or coastal strand.	1.2.1	4
2011	SXHTOS67026	CONS- MAINTENANCE, ENV MDL/MDS (NATURAL/ CULTURAL DATA)	Create, utilize and maintain accurate GIS data in natural resource management activities at PAFB.	6.2.1	6
2011	SXHT087255	CONS-CONSTRUCT 'BACK DUNE'	Restore, enhance and maintain coastal habitat through the restoration and/or enhancement of 800 linear feet per year of dunes, coastal berms, or coastal strand	1.2.1	11
2011	SXHT TBD	CONS- BIOCONTROL STUDY FOR GOLF COURSE PESTS	Annually remove and control 10% of the total invasive plant species acreage on the installation.	5.1.1	10
2011	SXHT TBD	CONS- BIOCONTROL STUDY FOR CATTAIL OVERGROWTH IN CANALS	Annually remove and control 10% of the total invasive plant species acreage on the installation.	5.1.1	8
2011	SXHT TBD	CONS-MGT, HABITAT, NATIVE WILDLIFE	Restore, enhance and maintain coastal habitat through the restoration and/or enhancement of 500 linear feet per year of dunes, coastal berms, or coastal strand, or river/estuarine shoreline.	1.1.1	9
2012 (year to be funded)					

2012	SXHTOS673812	CONS-MGT, HABITAT, COASTAL DUNE	Restore, enhance, and maintain sea turtle nesting habitat by planting dune vegetation in sparse or storm impacted areas to reduce disorientations.	2.1.1	4
2012	SXHTOS673712	CONS- MGT, INVASIVE SPECIES	Annually remove and control 10% of the total invasive plant species acreage on the installation.	5.1.1	2
2012	SXHTOS100312	CONS- MGT, SPECIES, SEA TURTLE	Conduct annual sea turtle monitoring to comply with the current Biological Opinion.	2.1.1	1
2012	SXHTOS67027	CONS- MAINTENANCE, ENV MDL/MDS (NATURAL/ CULTURAL DATA)	Create, utilize and maintain accurate GIS data in natural resource management activities at PAFB.	6.2.1	3
2012	SXHT087254	CONS-NEAR SHORE ROCK BOTTOM EVALUATION	Develop Sikes Act Cooperative Agreement and review Sabellarid worm rock reports provided through beach restoration monitoring contractor and determine if additional data is required (as requested by NOAA). Utilize Cooperative Agreement and develop management recommendations for PAFB's aquatic resources .	3.3.1	5
2013 (year to be funded)					
2013	SXHTOS100313	CONS- MGT, SPECIES, SEA TURTLE	Conduct annual sea turtle monitoring to comply with the current Biological Opinion.	2.1.1	1
2013	SXHTOS673713	CONS- MGT, INVASIVE SPECIES	Annually remove and control 10% of the total invasive plant species acreage on the installation.	5.1.1	2
2013	SXHTOS673813	CONS-MGT, HABITAT, COASTAL DUNE	Restore, enhance, and maintain sea turtle nesting habitat by planting dune vegetation in sparse or storm impacted areas to reduce disorientations.	2.1.1	4
2013	SXHTOS67028	CONS- MAINTENANCE, ENV MDL/MDS (NATURAL/ CULTURAL DATA)	Create, utilize and maintain accurate GIS data in natural resource management activities at PAFB.	6.2.1	3
2013	SXHT TBD	CONS- MGT, HABITAT, AQUATIC	Restore, enhance and maintain aquatic resources and provide management recommendations for prolonged quality.	3.3.3	5

JDMTA Work Plan

FY	Project Number	Action	Description	INRMP Action Number	Funding Priority
In-House Actions					
Annually	In-House	Identify adversely impacted natural resource areas	Identify, prioritize and program areas to restore. (I.e. abandoned lines of sight, staging areas, etc.). Develop a site restoration strategy and implement.	1.2.1 1.2.2 1.5.1 1.5.2	NA
Annually	In-House	Survey fence clear zone to ensure it is managed for the FL scrub jay per BO	Survey clear zone area to assess mowed and/or disc harrowing (semi-annual) the 30-ft clear zone fenced perimeter per BO to maintain security zone/fire break and possible Scrub Jay caching area	2.2.2	NA
Annually	In-House	Scrub Jay surveying	At least annually, survey JDMTA for presence of Scrub Jays and obtain Jonathan Dickinson State Park survey data for surrounding habitat	2.3.1	NA
Annually	In-House	Maintain successful relationship with Jonathan Dickinson State Park neighbor	Correspond (by phone or E-mail) or hold annual meetings with JDSP personnel to maintain a relationship that allows for data sharing	1.2.1	NA
Annually	In-House	Assess lichen areas	Assess lichen areas and relocation plots (BO) and make management recommendations if applicable	2.1.1	NA
Contract Actions					
FY	**Project Number**	**Action**	**Description**	**INRMP Action Number**	**Funding Priority**
2006	SXHT057046	RESIDENT & MIGRATORY BIRD SURVEY, PH I (45 SW)	Provide first phase of a 45 SW resident & migratory bird survey to provide data to support bird management recommendations	4.1	Completed
2007	SXHT057037	RESIDENT & MIGRATORY BIRD SURVEY, PH II (45th SW)	Provide second phase of a 45 SW resident & migratory bird survey to provide data to support bird management recommendations	4.1	In progress
2007	JJAE087270	CONS- INVASIVE VEG CONTROL, COGON GRASS, JDMTA	Annually remove and control 10% of the total invasive plant species acreage on the installation.	5.1.1	In progress
2008	N/A (Work order)	RETREATMENT OF SECURITY CLEAR ZONE/FIRE BREAK	Mow and/or disc harrow(semi-annual) the 30-ft clear zone fenced perimeter per BO to maintain security zone/fire break and possible Scrub Jay caching area	2.2.2	1
2009	N/A (Work order)	RETREATMENT OF SECURITY CLEAR ZONE/FIRE BREAK	Mow and/or disc harrow(semi-annual) the 30-ft clear zone fenced perimeter per BO to maintain security zone/fire break and possible Scrub Jay caching area	2.2.2	1

2009	JJAEOS673709	CONS- MGT, INVASIVE SPECIES, JDMTA	Annually remove and control 10% of the total invasive plant species acreage on the installation.	5.1.1	2
2010	JJAE107275	CONS- MGT, HABITAT, SCRUB JAY, ENHANCEMENT	Enhance scrub habitat to comply with the Biological Opinion to rotationally cut (5-year cycle) the 70-ft zone beyond the clear zone for a mosaic, preferred SJ nesting habitat treatment.	2.2.2	1
2010	JJAEOS673710	CONS- MGT, INVASIVE SPECIES, JDMTA	Annually remove and control 10% of the total invasive plant species acreage on the installation.	5.1.1	2
2011	N/A (Work order)	RETREATMENT OF SECURITY CLEAR ZONE/FIRE BREAK	Mow and/or disc harrow (semi-annual) the 30-ft clear zone fenced perimeter per BO to maintain security zone/fire break and possible Scrub Jay caching area	2.2.2	1
2011	JJAEOS673711	CONS- MGT, INVASIVE SPECIES, JDMTA	Annually remove and control 10% of the total invasive plant species acreage on the installation.	5.1.1	2
2012	JJAEOS673712	CONS- MGT, INVASIVE SPECIES, JDMTA	Annually remove and control 10% of the total invasive plant species acreage on the installation.	5.1.1	1
2013	N/A (Work order)	RETREATMENT OF SECURITY CLEAR ZONE/FIRE BREAK	Mow and/or disc harrow (semi-annual) the 30-ft clear zone fenced perimeter per BO to maintain security zone/fire break and possible Scrub Jay caching area	2.2.2	1
2013	JJAEOS673713	CONS- MGT, INVASIVE SPECIES, JDMTA	Annually remove and control 10% of the total invasive plant species acreage on the installation.	5.1.1	2
2015	JJAE 'TBD'	CONS-MGT, HABITAT, SCRUB JAY, ENHANCEMENT	Enhance scrub habitat to comply with the Biological Opinion to rotationally cut (5-year cycle) the 70-ft zone beyond the clear zone for a mosaic, preferred SJ nesting habitat treatment.	2.2.2	1

MTA Work Plan

FY	Project Number	Action	Description	INRMP Action Number	Funding Priority
In-House Actions					
Annually	In-House	Survey wetlands and Impoundments	Survey to identify new wetlands and/or projects and prioritize	1.4.1 1.4.3	NA
Annually	In-House	Incorporate any new wetland data into GIS	Incorporate any new wetland data into GIS	1.4.2	NA
Annually	In-House	Coordinate wetland restoration plans, if applicable	Hold meeting with regulators to discuss/ approve any wetland restoration proposals.	1.4.4	NA
Annually	In-House	Identify adversely impacted natural resource areas	Identify, prioritize and program areas to restore. (i.e. abandoned lines of sight, staging areas, etc.)	1.5.1 1.5.2	NA
Annually	In-House	Coordinate with PB Fire Dept and Dept of Forestry on Prescribed Burning	Coordinate with PB Fire Dept and Dept of Forestry on Prescribed Burning schedules and plans	1.1.1	NA
Annually	In-House	Conduct Deer Health Census	Conduct Deer Health Census	3.2.1	NA
Contract Actions					
FY	**Project Number**	**Action**	**Description**	**INRMP Action Number**	**Funding Priority**
2006	SXHT057046	RESIDENT & MIGRATORY BIRD SURVEY, PH I **(45 SW)**	Provide first phase of a 45 SW resident & migratory bird survey to provide data to support bird management recommendations	4.1	Completed
2007	SXHT057037	RESIDENT & MIGRATORY BIRD SURVEY, PH II **(45th SW)**	Provide second phase of a 45 SW resident & migratory bird survey to provide data to support bird management recommendations	4.1	In progress
2006	NYRL067301	INVASIVE VEGETATION CONTROL	Annually remove and control 10% of the total invasive plant species acreage on the installation.	5.1.1	Completed
2007	NYRL087271	CONS- MGT, INVASIVE VEGET CONTROL & FIRE FUEL REDUCTION	Conduct monitoring/treatment of all acreage where invasive plant species have been removed while reducing hazardous fuel loads.	5.2.1	In progress
2009	NYRL097287	CONS-MGT, INVASIVE SPECIES & WETLAND ENHANCEMENT	Restore, enhance and maintain depression marsh/wetland areas by creating/improving 0.5 acres/ year or biannually of wetlands.	1.4.1	1
2009	NYRLOS673709	CONS- MGT, INVASIVE SPECIES	Conduct annual monitoring/re-treatment of all acreage where invasive plant species have been removed.	5.2.1	2
2010	NYRLOS673710	CONS- MGT, INVASIVE SPECIES	Conduct annual monitoring/re-treatment of all acreage where invasive plant species have been removed.	5.2.1	2
2010	NYRL107273	CONS-MGT, INVASIVE SPECIES & WETLAND ENHANCEMENT	Restore, enhance and maintain depression marsh/wetland areas by creating/improving 0.5 acres/ year or biannually of wetlands.	1.4.1	1
2011	NYRL117275	CONS- MGT, INVASIVE VEGET CONTROL & FIRE FUEL REDUCTION	Conduct monitoring/treatment of all acreage where invasive plant species have been removed while reducing hazardous fuel loads.	1.4.1	1
2011	NYRLOS673711	CONS- MGT, INVASIVE SPECIES	Conduct annual monitoring/re-treatment of all acreage where invasive plant species have been removed.	5.2.1	2

2012	NYRL127270	CONS-MGT, INVASIVE SPECIES & WETLAND ENHANCEMENT	Restore, enhance and maintain depression marsh/wetland areas by creating/improving 0.5 acres/ year or biannually of wetlands.	1.4.1	1
2012	NYRLOS673712	CONS- MGT, INVASIVE SPECIES	Conduct annual monitoring/re-treatment of all acreage where invasive plant species have been removed.	5.2.1	2
2013	NYRL137267	CONS- MGT, INVASIVE VEGET CONTROL & FIRE FUEL REDUCTION	Conduct monitoring/treatment of all acreage where invasive plant species have been removed while reducing hazardous fuel loads.	1.4.1	1
2013	NYRLOS673713	CONS- MGT, INVASIVE SPECIES	Conduct annual monitoring/re-treatment of all acreage where invasive plant species have been removed.	5.2.1	2

Appendix B

Regulatory Consultations and Reviews

Florida Department of
Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

February 29, 2008

Ms. Keitha Dattilo-Bain
Department of the Air Force
45 CES/CEV
1224 Jupiter Street, M.S. 9125
Patrick AFB, FL 32925-3343

RE: Department of the Air Force – Final Draft Environmental Assessment (EA) and Integrated Natural Resources Management Plan (INRMP) for the 45th Space Wing Installations – Brevard County, Florida
SAI # FL200801023930C

Dear Ms. Dattilo-Bain:

The Florida State Clearinghouse, pursuant to Presidential Executive Order 12372, Gubernatorial Executive Order 95-359, the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended, and the National Environmental Policy Act, 42 U.S.C. §§ 4321, 4331-4335, 4341-4347, as amended, has coordinated a review of the referenced Final Draft EA and INRMP.

The St. Johns River Water Management District (SJRWMD) anticipates that some of the activities described in the Final Draft EA and INRMP will require permits from the SJRWMD. If impacts are proposed to wetlands or other surface waters, an Environmental Resource Permit (ERP) will be required in accordance with Sections 40C-42.022(2)(a) - (g), *Florida Administrative Code* (*F.A.C.*). During the permit application review process, the applicant would be required to demonstrate that any direct and secondary impacts to wetlands and wildlife have been avoided or minimized. Unavoidable impacts would require mitigation in accordance with the Unified Mitigation Assessment Method found in Chapter 62-345, *F.A.C.*, and compliance with the environmental review criteria in Chapter 12 of the SJRWMD Applicant's Handbook.

It was determined that several active eagle's nests, essential fish habitat and some possible bird rookeries are located in the vicinity of the Cape Canaveral and Patrick Air Force Bases. SJRWMD staff will seek comments from the U.S. Fish & Wildlife Service (USFWS) and/or the Florida Fish and Wildlife Conservation Commission (FWC) regarding possible impacts to any wetland-dependant listed species. Note that the USFWS and FWC

currently also have height restrictions on towers as they relate to possible adverse impacts to birds.

Any projects involving work below the ordinary high water elevation or safe upland line of the Banana River Aquatic Preserve or Indian River Lagoon would also require conformance with the applicable review criteria in Chapters 18-21 and/or 18-20, *F.A.C.* Please also note all required ERP permits must be issued prior to any clearing or other construction activities within a project area. For further information and assistance, please contact Ms. Susan Moor, Supervising Regulatory Scientist, in the Palm Bay Service Center at (321) 676-6626 or smoor@sjrwmd.com.

The FWC advises that the State of Florida recently reclassified the gopher tortoise (*Gopherus polyphemus*) to threatened status and has approved an interim policy. The subject INRMP should incorporate this interim policy to help protect and conserve gopher tortoises and their habitat. For additional information, please contact Mr. Rick McCann at (850) 410-0656 or Rick.McCann@MyFWC.com.

Based on the information contained in the Final Draft EA/INRMP and the enclosed state agency comments, the state has determined that, at this stage, the proposed federal activities are consistent with the Florida Coastal Management Program (FCMP). The federal agency must, however, address the concerns identified by our reviewing state agencies prior to project implementation. The state's continued concurrence with the project will be based, in part, on the adequate resolution of issues identified during this and subsequent reviews. The state's final concurrence of the project's consistency with the FCMP will be determined during the environmental permitting stage.

Thank you for the opportunity to review the subject document. Should you have any questions regarding this letter, please contact Ms. Suzanne E. Ray at (850) 245-2172.

Yours sincerely,

Sally B. Mann

Sally B. Mann, Director
Office of Intergovernmental Programs

SBM/ser
Enclosures

cc: Steven Fitzgibbons, SJRWMD
Mary Ann Poole, FWC

Dattilo-Bain, Keitha Ms Civ USAF AFSPC 45 CES/CEVP

From: Hawkins, Dale Civ 45 CES/CEVP
Sent: Monday, August 06, 2007 1:04 PM
To: 'John_Milio@fws.gov'; 'AnnMarie_Lauritsen@fws.gov'; 'Mike_Jennings@fws.gov'
Cc: Dattilo-Bain, Keitha Civ 45 CES/CEVP; Chambers, Angy L Civ 45 CES/CEVP; Sutherland, Robin L Civ 45 CES/CEVP
Subject: RE: draft INRMP and scrub jays
Attachments: Scrub Jay Census Numbers.ppt

Thank you for your comments. We would like to address two of the items.

1. Estimated dollar figure and assign funding priorities to your planned actions as described in Section 7.0 and Table 10 of the INRMP.

Estimated dollar figures were in the INRMP but were removed because it will be a public document and therefore potential bidding contractors can know in advance how much money will be available for a particular project. However, fyi we have been doing very well in receiving requested project funds at the rate of over $1M per year and we expect that trend to continue. The subject INRMP should help us with project justifications.

We will add funding priorities as you suggest but will leave off the dollar figures.

2. Scrub jays and burning 500 acres per year: Burning 500 acres per year has proved to be a difficult goal. Last year was the first time this goal has been reached. This year we have burned 346 acres so far. 500 acres per year is a goal, not an absolute. We will burn as often as weather and mission allow and exceed 500 acres if we can.

We do have a mechanical habitat restoration program and an invasives treatment program that through the first three quarters of this year alone have restored 502 acres of scrub habitat and treated 706 acres of invasive Brazilian pepper and cogon grass. So our program relies on much more than just prescribed burns to restore and maintain scrub habitat. The total habitat treated or burned so far this year was 1,554 acres. We hope this assuages your fears that we are not restoring enough habitat.

Scrub jay numbers are increasing. This year there are 391 birds in 126 groups at Cape Canaveral Air Force Station. Attached is a slide showing the scrub jay population history at CCAFS.

Again, thanks for your comments. Please feel free to visit with us anytime you are in the area.

Dale Hawkins
Conservation Element Team Lead
Cape Canaveral Air Force Station

(321) 853-6578
DSN 467-6578
cell 321 652-0252

-----Original Message-----
From: John_Milio@fws.gov [mailto:John_Milio@fws.gov]
Sent: Tuesday, July 31, 2007 3:28 PM
To: Sutherland, Robin L Civ 45 CES/CEVP
Cc: Hawkins, Dale Civ 45 CES/CEVP
Subject: Fw: draft INRMP and scrub jays

Ms Sutherland:

I believe the draft INRMP for the 45th Space wing is an extremely thorough document. My only comment, in addition to what is provided below, is that it is usually customary to include an estimated dollar figure and assign funding priorities to your planned actions as described in Section 7.0 and Table 10 of the INRMP.

John Milio, Fish and Wildlife Biologist
US Fish and Wildlife Service
6620 Southpoint Drive, South, Suite 310
Jacksonville, FL 32216
904/232-2580, x112, 904/232-2404 (FAX)
www.fws.gov/northflorida
----- Forwarded by John Milio/R4/FWS/DOI on 07/31/2007 03:08 PM -----

Ann Marie Lauritsen/R4/FWS/DOI
04/13/2007 01:38 PM

To: John Milio/R4/FWS/DOI
cc:
Subject: Fw: Re: draft INRMP and scrub jays

John,
INRMP comments-
Sea Turtle- We have worked extensively with CCAFS on their lighting. I have no further comments to the sea turtle part of their draft INRMP concerning lighting.

Southeastern beach mice-
Tab D- page 6, spelling of Southeastern beach mouse
Tab D- page 7-note- We are currently working with them to update their beach mouse programmatic.

Scrub-jays
We are concerned that the 500 acres that they propose to burn every year is not sufficient to obtain enough suitable habitat for scrub-jays to meet their INRMP goal.
Below is an email from Mike Jennings describing this in more detail.

Ann Marie Lauritsen, Wildlife Biologist
US Fish and Wildlife Service
6620 Southpoint Boulevard South Suite #310
Jacksonville, Florida 32216
904/525-0661
www.fws.gov/northflorida

To   Ann Marie Lauritsen/R4/FWS/DOI@FWS
cc
bcc
Subject   Re: draft INRMP and scrub jays
Michael Jennings/R4/FWS/DOI

04/12/2007 02:21 PM EDT

Ann Marie: Overall, the proposal looks OK. As you mention, however, the burning of 500 acres per year seems low and the numbers of acres to be treated under their proposal doesn't seem to match what they anticipate in terms of attaining suitable habitat (unless, of course, they are using the 500 acres as an average and more habitat will be treated early in the process - I didn't sum acreages from the table by year to see about this). For example, at the end of their management table (the colored table) they show about 6,500 acres of habitat to be treated. Using the 5-10 year burn-prescription window they cite in the text would result in the last treatment/burn occurring in 13 years from the initiation of burning (6500

acres divided by 500 acres per year). If we assume that habitat becomes sub-optimal at 7.5 years (their average), this would mean that nearly one half of the habitat would be greater than 6.5 years post-burn at any one time. In other words, nearly half of the habitat would be overgrown at any one time with the proposed management prescription.

I see that they propose adaptive management review and will use the results to modify the prescribed fire intervals. However, given what we already know from Dave Breininger's work in the area, it would seem reasonable to set the management target more aggressive (more acres per year burned). For instance, if they burned 1,000 acres every year, they would have a return interval of about 6.5 years (6,500 acres divided by 1,000 acres year), which is closer to their expected average prescription of 7.5 years.

Maybe I'm being pessimistic, but I think it will be more difficult to get them to burn more than 500 acres even if their adaptive management review indicates they need to burn more. Seems that it would be easier to back off of 1000 acres per year if needed, rather than try to increase above 500 acres per year.

Lets see if they'll go for 1,000 per year, or at least something more than 500.

Mike Jennings
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
6620 Southpoint Drive South, Suite 310
Jacksonville, FL 32216
904-232-2580 x113
www.fws.gov/northflorida

Ann Marie Lauritsen/R4/FWS/DOI
04/05/2007 09:31 AM

To
Michael Jennings/R4/FWS/DOI
cc

Subject
draft INRMP and scrub jays

Hi Mike,

I am attaching the scrub-jay sections (Tab D-2 and D-3) of Cape Canaveral's INRMP for your comments. It looks like they kept 300 groups as the number to meet their recovery goals but the yearly burning remains at 500 acres a year.

Ann Marie Lauritsen, Wildlife Biologist
US Fish and Wildlife Service
6620 Southpoint Boulevard South Suite #310
Jacksonville, Florida 32216
904/525-0661
www.fws.gov/northflorida
[attachment "Tab D-2 Florida Scrub-jay Management Plan 5 Dec 06.doc" deleted by Michael Jennings/R4/FWS/DOI] [attachment "Tab D-3 Scrub Habitat Restoration Plan 5 Dec 06.doc" deleted by Michael Jennings/R4/FWS/DOI]

Dattilo-Bain, Keitha Civ 45 CES/CEVP

From: Mark_Salvato@fws.gov
Sent: Monday, July 23, 2007 10:30 AM
To: Dattilo-Bain, Keitha Civ 45 CES/CEVP
Cc: Sutherland, Robin L Civ 45 CES/CEVP
Subject: 45 SW INRMP Comments (JDMTA site)

Dear Ms. Dattilo-Bain,

Thank you for providing the Fish and Wildlife Service (Service) the opportunity to review the Jonathan Dickinson Missile Tracking Annex (JDMTA) portion of the Integrated Natural Resource Management Plan (INRMP) for the U.S. Air Force' 45th Space Wing. The project site is located at Jonathan Dickinson State Park (JDSP) in Martin County, Florida. We understand the remaining portions of this INRMP (concerning project sites at Patrick Air Force Base and Cape Canaveral Air Force Station) are being consulted on with the Service's North Florida Ecological Services Office in Jacksonville, Florida.

We have reviewed the Management Goals and Objectives for maintaining and improving the natural environment which includes the following conservation measures for JDMTA (pages 121-123):

In order to minimize the adverse affects on Florida perforate cladonia (*Cladonia perforata*) JDMTA will monitor populations annually and coordinate with JDSP on any required relocations from the project site to the park;

In order to protect populations of Florida perforate cladonia and the Florida scrub-jay (*Aphelocoma coerulescens*) JDMTA will maintain a 30-foot-wide clear zone adjacent to the perimeter fence. This clear zone will provide a fire break that will facilitate prescribed burns conducted in JDSP for scrub enhancement;

In order to protect the Florida perforate cladonia and Florida scrub-jay JDMTA will maintain a 70-foot-wide strip (adjacent to the 30-foot-wide clear zone) that is a mosaic of scrub habitat. Scrub vegetation within this zone will be allowed to regenerate to a height preferred by scrub-jays. When the majority of scrub oaks grow beyond the preferred nesting height, the 70-foot-wide strip will be mechanically treated on a rotational basis to maintain heterogeneity within the scrub habitat.

In addition to the above measures already outlined in the INRMP, we also recommend incorporating the following conservation measures into the document:

1) In order to minimize the adverse effects to the scrub-jay during construction activities all land clearing and/or vegetation cutting will be conducted outside of the scrub-jay nesting season (March 1 to June 30). If any scrub-jay nests are encountered in the project vicinity, they will be surveyed before clearing begins to identify early nesting attempts;

2) In order to minimize the adverse effects to the eastern indigo snake (*Drymarchon corais couperi*) during construction activities the Service's *Standard Eastern Indigo Snake Protection Measures* will be implemented.

Based the conservation measures indicated in the INRMP and the inclusion of these two additional avoidance and minimization measures for the scrub-jay and indigo snake in the revised document, the Service believes this project will not adversely affect listed species occurring on JDMTA.

Thank you for the opportunity to review and comment on this INRMP.

Mark Salvato
Biologist
U.S. Fish and Wildlife Service
South Florida Ecological Services Field Office
1339 20th Street
Vero Beach, FL 32960-3559
772.562.3909 x 340
mark_salvato@fws.gov

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701-5511
(727) 824-5317; FAX (727) 824-5300
http://sero.nmfs.noaa.gov/

July 30, 2007 F/SER4:GG/pw

Mr. Robin Sutherland
Chief, Environmental Planning
45 CES/CEVP
1224 Jupiter St. MS 9125
Patrick AFB, Florida 32925-3343

Dear Mr. Sutherland:

NOAA's National Marine Fisheries Service (NMFS) reviewed the essential fish habitat (EFH) portion of the "2006 Integrated Natural Resources Management Plan" (INRMP), prepared for the 45th Space Wing, Patrick Air Force Base (PAFB), FL. The INRMP is a component of PAFB's General Plan and serves as the commander's decision document for natural resources management actions and associated compliance procedures. The INRMP integrates the natural resources management program of the 45th Space Wing with ongoing mission activities.

General Comments

Pursuant to section 305(b)(2) of the Magnuson-Stevens Act, Federal agencies must consult with NMFS regarding any of their actions authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken that may adversely affect EFH. For any Federal action that may adversely affect EFH, Federal agencies must provide NMFS with a written assessment of the effects of that action on EFH. The level of detail in an EFH Assessment should be commensurate with the complexity and magnitude of the potential adverse effects of the action. The assessment must contain: (1) A description of the action. (2) An analysis of the potential adverse effects of the action on EFH and the managed species. (3) The Federal agency's conclusions regarding the effects of the action on EFH. (4) Proposed mitigation, if applicable. If an expanded EFH consultation is necessary, the expanded consultation should also include: (i) Results of an on-site inspection to evaluate the habitat and the site specific effects of the project. (ii) Views of recognized experts on the habitat or species that may be affected. (iii) A review of pertinent literature and related information. (iv) An analysis of alternatives to the action that could avoid or minimize adverse effects on EFH.

EFH is defined by the Regional Fishery Management Councils for the species under their jurisdiction; NMFS defines EFH for highly migratory species under its jurisdiction. For the marine area surrounding PAFB, the South Atlantic Fishery Management Council (SAFMC) is the principal Council with management and EFH designation authority. In 1998, SAFMC

defined EFH through a comprehensive amendment to the fishery management plans under its jurisdiction. A copy of this comprehensive amendment is available at the Council's web site (*www.safmc.net*).

Specific Comments

Categories of EFH that occur within the operational boundaries of the 45th Space Wing PAFB and the Canaveral Air Force Station include live/hard bottom, coral reefs, submerged aquatic vegetation (SAV), oyster reefs, sandy offshore shoals/bars, tidal creeks, and coastal inlets. Federally managed fishery species that are associated with these habitats and occur within the vicinity of PAFB include penaeid shrimp, red drum, Spanish mackerel, cobia, spiny lobster, coral, and various species from the snapper-grouper complex. The INRMP adequately describes these EFH categories and their occurrence within the area.

As stated in the INRMP, all actions that could adversely affect EFH will be coordinated with NMFS. Impacts to EFH will be addressed through this coordination, which may include the NEPA process. In the past, NMFS the 45th Space Wing has successfully coordinated with NMFS the on a variety of projects, including beach nourishment, emergency beach nourishment, placement of buoys, and replacement of marina piling. In each case, the staff from the 45th Space Wing's Environmental Planning office worked diligently to comply with the intent of the Magnuson-Steven Act through the adoption recommendations made by NMFS to conserve and protect EFH. NMFS looks forward to continued coordination, and we offer no further comment on the INRMP.

Thank you for providing the opportunity to provide comments. Please direct related questions or comments to the attention of Mr. George Getsinger, at our Northeast Florida Office. He may be reached at 9741 Ocean Shore Drive, St. Augustine, Florida 32080, or by telephone at (904) 461 8674.

Sincerely,

/ for

Miles M. Croom
Assistant Regional Administrator
Habitat Conservation Division

cc: (via electronic mail)

PAFB, Keitha.Dattilo-Bain@patrick.af.mil
EPA, ATL
FWS, JAX
F/SER4
F/SER47, Getsinger

Dattilo-Bain, Keitha Ms Civ USAF AFSPC 45 CES/CEVP

From: Sutherland, Robin L Civ 45 CES/CEVP
Sent: Wednesday, July 18, 2007 4:48 PM
To: Dattilo-Bain, Keitha Civ 45 CES/CEVP
Subject: FW: INRMP

Keitha,
See below the one comment Walt can remember. Can you check T&E tab?
Thanks

-----Original Message-----
From: Walt.Wilson [mailto:Walt.Wilson@noaa.gov]
Sent: Wednesday, July 18, 2007 4:15 PM
To: Sutherland, Robin L Civ 45 CES/CEVP
Subject: Re: INRMP

Sutherland, Robin L Civ 45 CES/CEVP wrote:

>Thanks for your help Walt. Have you relocated permanently?
>
>
>-----Original Message-----
>From: Walt.Wilson [mailto:Walt.Wilson@noaa.gov]
>Sent: Wednesday, July 18, 2007 2:34 PM
>To: Sutherland, Robin L Civ 45 CES/CEVP
>Subject: INRMP
>
>Robyn, not sure what happened here I know I drafted a letter before I
>left for Olympia, Washington. I have sent Bob Hoffman the information I
>recall about it and he will ensure you get what you need in time.
>
>Sorry for the delay,
>
>Walt
>
>
Hi Robin,
No I expect I will be back in St. Pete around January. I did have an interview in Alaska the other day though. Kinda have mixed feelings though, I have a great job in a very good office working environment in St. Pete and that is hard to leave. This detail is giving me a bit of a change to figure out what I want to do. Right now, St. Pete wins.

Let me know if Bob does not get back to you, though I am sure he will.
The only comment I can recall was that the sea turtles were not included in the PAFB listing of species, and I think I mentioned that to you on the phone. There may have been some other minor details I added to the letter but I don't recall as I a few months back when I worked on it.

Walt

Florida Fish and Wildlife Conservation Commission

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Office of Policy and Stakeholder Coordination
Mary Ann Poole
Director
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Managing fish and wildlife resources for their long-term well-being and the benefit of people.

620 South Meridian Street
Tallahassee, Florida
32399-1600
Voice: (850) 488-4676

Hearing/speech impaired:
(800) 955-8771 (T)
(800) 955-8770 (V)

MyFWC.com

February 15, 2008

Ms. Lauren Milligan
Florida Department of Environmental Protection
Florida State Clearinghouse
3900 Commonwealth Boulevard, MS-47
Tallahassee, FL 32399-3000

RE: SAI #FL200801023930C, Department of the Air Force – Final Draft Environmental Assessment (EA) and Integrated Natural Resources Management Plan (INRMP) for 45th Space Wing (45 SW) Installations – Brevard and Martin Counties, FL

Dear Ms. Milligan:

The Division of Habitat and Species Conservation, Habitat Conservation Scientific Services Section, of the Florida Fish and Wildlife Conservation Commission (FWC) has coordinated agency review of the referenced document.

The INRMP covers approximately 18,400 acres of upland, estuarine, and marine resources within four installations in peninsular Florida, including Cape Canaveral Air Force Station, Jonathon Dickinson Missile Tracking Annex, Malabar Transmitter Annex, and Patrick Air Force Base. A diverse array of protected wildlife inhabit, frequent the 45 SW installations. Recognizing the importance of its mission in support of global operations, the 45 SW is also used for non-military operations including forest management, recreation, wildlife management, protecting threatened and endangered species, protecting natural areas, and protecting cultural resources. During August 2007, FWC was given an opportunity to coordinate and review the INRMP.

The EA evaluates the potential environmental impacts associated with the proposed action. The Proposed Action included in this EA is for the implementation of the current INRMP that will serve as the roadmap for the management of 45 SW's natural resources for future generations.

The State of Florida recently reclassified the gopher tortoise (*Gopherus polyphemus*) to threatened status and has approved an interim policy. The INRMP should incorporate this interim policy to help protect and conserve gopher tortoises and their habitat. For more information about the policy, please contact Rick McCann at 850-410-0656 or by email at rick.mccann@myfwc.com.

Based on this review, we find that the EA adequately addresses the fish and wildlife resources at 45 SW facilities and the Proposed Action is consistent with FWC's goals, policies, and objectives.

Sincerely,

Mary Ann Poole

Mary Ann Poole, Director
Office of Policy and Stakeholder Coordination

map/rb
ENV 1-3-2
45th Space Wing INRMP_1219