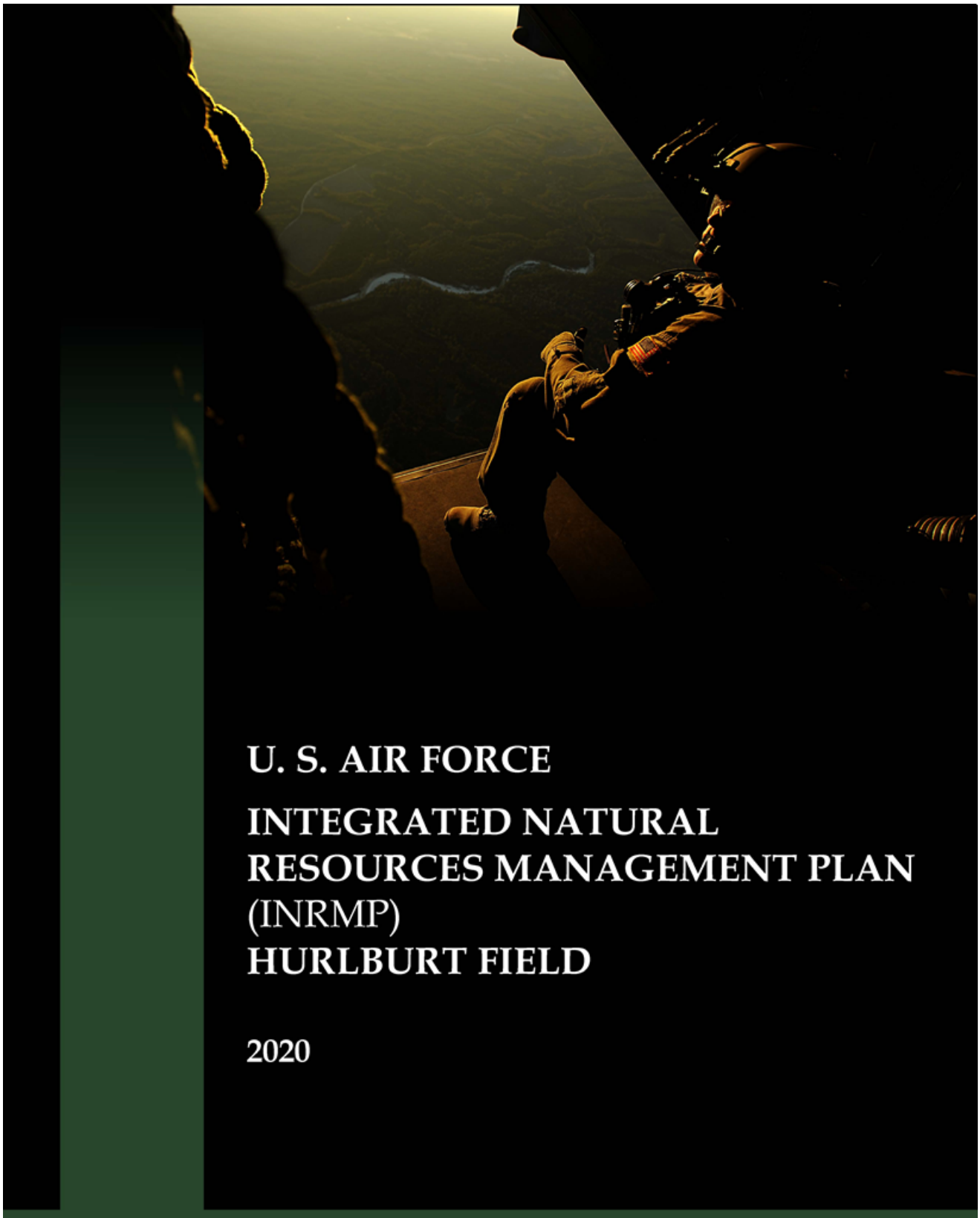
Department of the Air Force

Integrated Natural Resources Management Plan

Hurlburt

Installation Supplement



U. S. AIR FORCE

INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN (INRMP) HURLBURT FIELD

2020

Photo Credit: MSgt Jeremy Lock

ABOUT THIS PLAN

This installation-specific Environmental Management Plan (EMP) is based on the United States Air Force's (USAF) standardized Integrated Natural Resources Management Plan (INRMP) template. This INRMP has been developed in cooperation with applicable stakeholders, which includes Sikes Act cooperating agencies and/or local equivalents, to document how natural resources will be managed. Where applicable, external resources, including Air Force Instructions (AFIs); Department of Defense Instructions (DoDIs); USAF Playbooks; federal, state, and local requirements; Biological Opinions; and permits are referenced.

Certain sections of this INRMP begin with standardized, USAF-wide "common text" language that address USAF and Department of Defense (DoD) policy and federal requirements. This common text language is restricted from editing to ensure that it remains standard throughout all plans. Immediately following the USAF-wide common text sections are installation sections. The installation sections contain installation-specific content to address local and/or installation-specific requirements. Installation sections are unrestricted and are maintained and updated by the approved plan owner.

NOTE: The terms "Natural Resources Manager," "NRM," and "NRM/POC" are used throughout this document to refer to the installation person responsible for the natural resources program, regardless of whether this person meets the qualifications within the definition of a natural resources management professional in DoDI 4715.03, Natural Resources Conservation Program.

DOCUMENT CONTROL

Standardized INRMP Template

In accordance with (IAW) the Air Force Civil Engineer Center (AFCEC) Environmental Directorate (CZ) Business Rule (BR) 08, *EMP Review, Update, and Maintenance*, the standard content in this INRMP template is reviewed periodically, updated as appropriate, and approved by the Natural Resources Subject Matter Expert (SME).

This version of the template is current as of 06/26/2020 and supersedes the 2018 version.

NOTE: Installations are not required to update their INRMPs every time this template is updated. When it is time for installations to update their INRMPs, they should adopt the most recent version of this template available in the Plan Tool.

Installation INRMP

Record of Review – The INRMP is updated no less than annually, or as changes to natural resource management and conservation practices occur, including those driven by changes in applicable regulations. IAW the Sikes Act and AFMAN 32-7003, *Environmental Conservation*, the INRMP is required to be reviewed for operation and effect no less than every five years. An INRMP is considered compliant with the Sikes Act if it has been approved in writing by the appropriate representative from each cooperating agency within the past five years. Approval of a new or revised INRMP is documented by signature on a signature page signed by the Installation Commander (or designee), and a designated representative of the United States Fish and Wildlife Service (USFWS), state fish and wildlife agency, and National Oceanic and Atmospheric Administration (NOAA) Fisheries when applicable (AFMAN 32-7003).

Annual reviews and updates are accomplished by the installation Natural Resources Manager (NRM), and/or a Section Natural Resources Media Manager. The installation shall establish and maintain regular communications with the appropriate federal and state agencies. At a minimum, the installation NRM (with assistance as appropriate from the Section Natural Resources Media Manager) conducts an annual review of the INRMP in coordination with internal stakeholders and local representatives of USFWS, state fish and wildlife agency, and NOAA Fisheries, where applicable, and accomplishes pertinent updates. Installations will document the findings of the annual review in an Annual INRMP Review Summary. By signing the Annual INRMP Review Summary, the collaborating agency representative asserts concurrence with the findings. Any agreed updates are then made to the document, at a minimum updating the work plans.

INRMP APPROVAL/SIGNATURE PAGES

Installation Supplement

2020 5yr Review Official INRMP Signatures.pdf

Subject: 2022 Annual Installation INRMP Report

Topic 1: Sufficient numbers of qualified natural resources management personnel and resources are available to oversee implementation of projects and activities identified in the *INRMP Work Plan* (enclosure). Implementation Status: Green

The *Work Plan Implementation Table* (enclosure) outlines the activities required to achieve the goals and objectives of natural resource management on the installation. It also indicates by what means this activity was achieved, a.k.a with resources (funding) or installation natural resource professionals. The *Work Plan*, therefore, details the workload of qualified personnel and the level of funding required to implement the INRMP. In 2022, the number of qualified personnel required was one. Mr. John Turner, GS-12, is the AF designated Natural Resources POC and is responsible for NR management. USFWS partner support provided sufficient qualified personnel to execute deliverables. In 2022, a sufficient level of funding was available to complete projects proposed for completion in 2022. Project implementation is identified in the *Work Plan*.

Topic 2: Significant changes to the installation's mission requirements or its natural resources have not been identified, therefore, the current INRMP and enclosed *2022 Summary of Changes* are still current as to operation and effect per the Sikes Act. Implementation Status: Green
The 2022 *Summary of Changes* document (enclosed) tracks all minor updates made to the INRMP in 2022. No changes in the installation mission have occurred over the previous year that adversely impact natural resource management requirements to a degree that requires a revision to the current plan.

Topic 3: Projects identified in the INRMP have been budgeted for and implementation is on schedule as summarized in the attached *Work Plan Implementation Table* (enclosed). Implementation Status: Green

Topic 4 - Coordination with the USFWS and FWCC has occurred. Implementation Status: Green
Agency personnel and base natural resource personnel coordinated electronically to review implementation of the INRMP, review the Annual INRMP Review documentation, and to concur that the INRMP is still current as to operation and effect

Topic 5: Progress towards meeting the agreed upon goals and objectives for natural resources management was completed in 2022. Implementation Status: Green.

2022 Annual Review Partner Correspondence en lieu of Signatures:

[Non-DoD Source] Re: [EXTERNAL] INRMP correspondence
Yarbrough, Lisa <lisa_yarbrough@fws.gov>
Wed 8/10/2022 8:12 AM
To:KETZLER, LORRAINE P CIV USAF AFSOC 1 SOCES/CEIE <lorraine.ketzler@us.af.mil>
Cc:Ketzler, Lorraine P <lorraine_p_ketzler@fws.gov>;Martin, Catrina M <catrina_martin@fws.gov>;Aldredge, Robert A<robert_aldredge@fws.gov>
Hey Rain,
The Panama City Ecological Services field office has reviewed Hurlburt Fields INRMP and we do not have any comments. We appreciate the Air Force's commitment to protect and preserve the natural resources on the installation while they maintain their mission. I personally appreciate your dedication to this effort and to your continuing hard work on the restoration of the salamander ponds. Thank you.
Please let us know when you need our signature for the INRMP.
Thanks,
Lisa Yarbrough
Fish and Wildlife Biologist
Florida Ecological Services Field Office
Location: Panama City Office
1601 Balboa Ave, Panama City FL
850-769-0552 ext. 45225 (office)
850-640-8383 (cell)
Florida Ecological Services Office | U.S. Fish & Wildlife Service (fws.gov)

From: Kane, Arlo <Arlo.Kane@MyFWC.com>
Sent: Friday, August 5, 2022 6:25 AM
To: KETZLER, LORRAINE P CIV USAF AFSOC 1 SOCES/CEIE
Subject: [Non-DoD Source] RE: Hurlburt Field 2022 Annual INRMP Review
Hi Rain, sorry it took so long, I was waiting on some comments from our staff and have received none so I have no comments this year.
Arlo

Digital Signature

TURNER, JOHN D GS-12 USAF AFSOC 1 SOCES/CEIE	TURNER, JOHN D GS-12 USAF AFSOC 1 SOCES/CEIE Date: 08/22/2022 7:41:48 am

Lorraine Ketzler
USFWS Fish and Wildlife Service Biologist/Liaison
1 SOCES/CEIE Natural Resources

EXECUTIVE SUMMARY
Installation Supplement

The Sikes Act Improvement Act (SAIA) of 1997, 16 United States Code (USC) §670a et seq., as amended, requires federal military installations with significant natural resources to develop a long-range INRMP and implement cooperative agreements with other agencies. The INRMP serves as a key component of the Installation Development Plan (IDP), which provides background and rationale for the policies and programming decisions related to land use, resource conservation, facilities, and infrastructure development, and operations and maintenance to ensure they meet current requirements and provide for future growth. An INRMP is required by DoD and USAF Policy for Hurlburt Field. The INRMP is the primary guidance document for managing natural resources on Hurlburt Field.

Implementation of the INRMP will help ensure that Hurlburt Field property continues to support present and future mission requirements, while preserving, enhancing, and where possible, restoring ecosystem integrity. Over the long term, implementation of this and future INRMPs will guide base staff how to maintain or improve sustainability and biological diversity of all ecosystems on Hurlburt Field, support sustainable economies, human use, and the environment required for realistic military operations.

The INRMP clarifies DoD natural resource management on Hurlburt Field in accordance with federal, state, and local guidelines.

INRMP planning and decision-making is integrated with base comprehensive planning, proposed project planning, pest management planning, Bird/Wildlife Aircraft Strike Hazard (BASH) reduction planning, airfield management planning, and cultural resources management planning. INRMP information was gathered throughout the preparation process from a cross section of Hurlburt Field staff; users of base lands; representatives from the surrounding communities; and local, regional, and national agencies and organizations through interviews, meetings, and written questionnaires.

The SAIA of 1997, as amended, requires federal military installations with significant natural resources to develop a long-range INRMP and implement cooperative agreements with other agencies. The Natural Resources Management Goals presented in this INRMP are listed below:

GOAL 1: Mission First – Preserve, enhance, or expand current and future military air, ground, and water operations capacity through sound stewardship practices.
GOAL 2: Sikes Act & 32CFR Ch1 Part 190 Natural Resources Management Program – Promote opportunities for sustainable use by the public while enhancing collaboration and stewardship consistent with the military mission.
GOAL 3: Endangered Species Act – Conserve and protect natural biodiversity by restoring and maintaining Hurlburt's ecosystems in support of the military mission.

These goals are supported in the INRMP by objectives and projects, as well as management strategies and specific actions to achieve these goals. Goals and objectives are listed in Section 8.0 of the INRMP, and projects and activities are summarized in Section 10.0. This INRMP provides a description of the installations and the military missions, the environment on each installation, and specific natural resource management designed for sustainable military training. The implementation of this INRMP will ensure the successful accomplishment of the military mission while promoting adaptive management that sustains ecosystem and biological integrity and provides for multiple uses of natural resources. Specific goals in the Hurlburt Field INRMP are supported by its objectives and work plans, as well as management strategies and specific actions. Goals and objectives are listed in Section 8.0 of this plan, and projects and activities are summarized in Section 10.0.

1 OVERVIEW AND SCOPE

This INRMP was developed to provide for effective management and protection of natural resources. It summarizes the natural resources present on the installation and outlines strategies to adequately manage those resources. Natural resources are valuable assets of the USAF. They provide the natural infrastructure needed for testing weapons and technology, as well as for training military personnel for deployment. Sound management of natural resources increases the effectiveness of USAF adaptability in all environments. The USAF has stewardship responsibility for the physical lands on which installations are located to ensure all natural resources are properly conserved, protected, and used in sustainable ways. The primary objective of the USAF natural resources program is to sustain, restore, and modernize natural infrastructure to ensure operational capability and no net loss in the capability of USAF lands to support the military mission of the installation. The plan outlines and assigns responsibilities for the management of natural resources, discusses related concerns, and provides program management elements that will help to maintain or improve the natural resources within the context of the installation's mission. The INRMP is intended for use by all installation personnel. The Sikes Act is the legal driver for the INRMP.

1.1 Purpose and Scope

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The purpose of this INRMP is to serve as the primary guidance document for managing natural resources at Hurlburt Field. Hurlburt Field must provide a variety of environmental conditions and habitats in which to train airmen. The management of Hurlburt Field must be conducted in a way that provides for a sustainable, healthy ecosystem, with no net loss in the capability of the installation to support military training and missions. Installation commanders use INRMPs to manage natural resources more effectively to ensure installation lands remain available and in good condition to ensure installation mission sustainment.

This INRMP is intended to be consistent with the SAIA of 1997, 16 USC §670a et seq., as amended, and AFMAN 32-7003, as required by the DoD and USAF. This INRMP integrates all aspects of natural resources management with the rest of the Hurlburt Field mission, and therefore becomes the primary tool for managing the Hurlburt Field ecosystems and habitat while ensuring the successful accomplishment of the military mission at the highest possible levels of efficiency. The INRMP is the guide for the management and stewardship of natural resources present on Hurlburt Field property. A multiple-use approach will be implemented to allow for the presence of mission-oriented activities, as well as protecting environmental quality through the efficient management of natural resources. Hurlburt Field's approach to resource management aims to protect and enhance vital ecosystem services such as water conservation, soil formation, oxygen recharge, and nutrient cycling within the context of mission support. The preservation and enhancement of biodiversity on Hurlburt Field is implemented by detailed objectives outlined in the INRMP that are consistent with Air Force objectives and Hurlburt's mission. The INRMP will be implemented by the Hurlburt Field Environmental Element, Civil Engineer Squadron, an element of Air Force Special Operations Command (AFSOC), U.S. Air Force.

There are significant natural resources present at Hurlburt Field. This plan is a dynamic document that integrates all aspects of natural resources management with each other and the rest of the installation's mission. Management strategies should be monitored and adjusted as needed. Goals and objectives of this plan must be given consideration early in the planning process for projects and mission changes on the installation.

The INRMP provides sufficient and adequate protection and conservation of federally protected species and their habitats. Therefore, an approved INRMP precludes the need for USFWS and NOAA, National Marine Fisheries Service (NMFS) to formally designate critical habitat on military lands, and the National Defense Authorization Act of Fiscal Year (FY) 2004 changed the Endangered Species Act, Sec 4(a)(3) to prevent these agencies from doing so. The INRMP is prepared in cooperation with the USFWS, NMFS, FWC, Florida Department of Environmental Protection (FDEP), United States Army Corps of Engineers (USACE) AFCEC and Hurlburt Field Natural Resources. The NRM at Hurlburt Field also communicates with these groups and agencies on a project-by-project basis regularly throughout the year. The goal of these communications is to promote conservation initiatives throughout the installation and encourage input from state and federal partners.

1.2 Management Philosophy

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The INRMP serves as a key component of the Installation Development Plan, which provides background and rationale for the policies and programming decisions related to land use, resource conservation, facilities and infrastructure development, and operations and maintenance to ensure that they meet current requirements and provide for future growth. The INRMP supports the mission by identifying the natural resources present on the installation, developing management goals for these resources, and integrating these management objectives into the military requirements for mission operations/support and regulatory compliance to minimize natural resource constraints.

This INRMP outlines the steps needed to fulfill compliance requirements related to natural resources management and fosters environmental stewardship. It is organized into the following principal sections:

- An overview of the current status and potential future conditions of the natural resources
- Identification of potential impacts to or from natural resources
- The key natural resource management areas addressed
- Management recommendations that incorporate the installation's goals and objectives for natural resource management areas
- Specific work plans for effective implementation of the INRMP

Management issues and concerns, as well as goals and objectives, are developed from analysis of all the gathered information, and are reviewed by Hurlburt Field personnel involved with or responsible for various aspects of natural resources management. The INRMP was developed using an interdisciplinary approach and is based on existing information of the physical and biotic environments, mission activities, and environmental management practices at Hurlburt Field. Information was obtained from a variety of documents, interviews with installation personnel, on-site observations, and communications with both internal and external stakeholders. Coordination and correspondence with these agencies is documented and satisfies a portion of the requirements of 32 Code of Federal Regulations (CFR) 989, *Environmental Impact Analysis Process (EIAP)*. Goals and objectives require monitoring on a continuous basis and management strategies are updated whenever there are changes in mission requirements, adverse effects to or from natural resources, or changes in regulations governing management of natural resources.

Natural resources at Hurlburt Field are managed with an ecosystem management approach as directed by AFMAN 32-7003 and DoDI 4715.03. Ecosystem management is defined as the management to conserve major ecological services and restore natural resources while meeting the socioeconomic, political and cultural needs of current and future generations. The goal of ecosystem management on military lands is to ensure that military lands support present and future test and training requirements while conserving, improving, and enhancing ecosystem integrity. As described in DoDI 4715.03, and AFMAN 32-7003, the ecosystem management program for Hurlburt Field will incorporate the following elements as described in Table 1.

Table 1. Elements and Principles of Ecosystem Management

DoDI 4715.03 Elements	
1	Avoid single-species management and implement an ecosystem-based multiple species management approach, insofar as that is consistent with the requirements of the Endangered Species Act (ESA)
2	Use an adaptive management approach to manage natural resources
3	Evaluate and engage in the formation of local or regional partnerships that benefit the goals and objectives of the INRMP
4	Use the best available scientific information in decision-making and adaptive management techniques in natural resource management
5	Foster long-term sustainability of ecosystem services
AFMAN 32-7003 Principles	
1	Maintain or restore native ecosystem types across their natural range
2	Maintain or restore ecological processes such as wildland fire and other disturbance regimes where practical and consistent with the military mission
3	Maintain or restore the hydrological processes in streams, floodplains, and wetlands when feasible
4	Use regional approaches to implement ecosystem management on an installation by collaboration with other DoD components as well as other federal, state and local agencies, and adjoining property owners

	inflict long-term ecosystem damage or negatively impact the USAF mission

Biodiversity is the degree of variation of life within a given ecosystem, region, or even the entire planet. The DoD's challenge is to manage for biodiversity in a way that supports the military mission. An INRMP is identified by DoD as the primary vehicle for conserving biodiversity on military installations. Specific management practices identified in the Hurlburt Field INRMP have been developed to enhance and maintain biological diversity within the installation ecosystems. Ecosystem management includes biodiversity conservation and invasive species control as integral parts of ecosystem management. USAF installations should maintain or reestablish viable populations of all native species when practical and consistent with the military mission. USAF installations also should identify the presence of exotic and invasive species and implement programs to control and/or eradicate those species.

This plan presents both broad philosophical guidance as well as specific goals. INRMP planning and decision making is integrated with base comprehensive planning, proposed project planning, pest management planning, BASH reduction, airfield management planning, golf course environmental management planning, and grounds maintenance planning. Interdisciplinary input from a wide variety of operational organizations on Hurlburt Field as well as from various local, state, and federal agencies was incorporated into this plan. This same cross-agency, cross-discipline approach will be used in preparing all major revisions of the INRMP. In recognition of the existing Cooperative Agreement between the DoD, Department of Interior (DOI), and the State of Florida, represented by the 1 SOCES/CEIE, USFWS, and FWC respectively, the Installation Natural Resources Manager will work with respective agency personnel for the purposes of protecting, developing, and managing the fish and wildlife resources on Hurlburt Field, thereby achieving the goals and objectives of the INRMP.

The INRMP is focused on supporting the base mission requirements while complying with the Sikes Act (SA), Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), Clean Water Act (CWA), federal natural resource conservation laws and regulation, and various Executive Orders including Executive Order (EO) 11988 *Floodplains Management*, EO 11990 *Protection of Wetlands*, EO 13186 *Responsibilities of Federal Agencies to Protect Migratory Birds*, EO 12962 *Recreational Fisheries*, EO 11989 *Off-Road Vehicles on Public Lands*, and EO 13112 *Invasive Species*. See Appendix A for a summary of key legislation related to the design and implementation of the INRMP.

Finally, when feasible, Hurlburt Field should develop joint control strategies with other federal, state, and local cooperating agencies and adjacent landowners to increase the effectiveness of control measures and for the benefits illustrated in Figure 1.

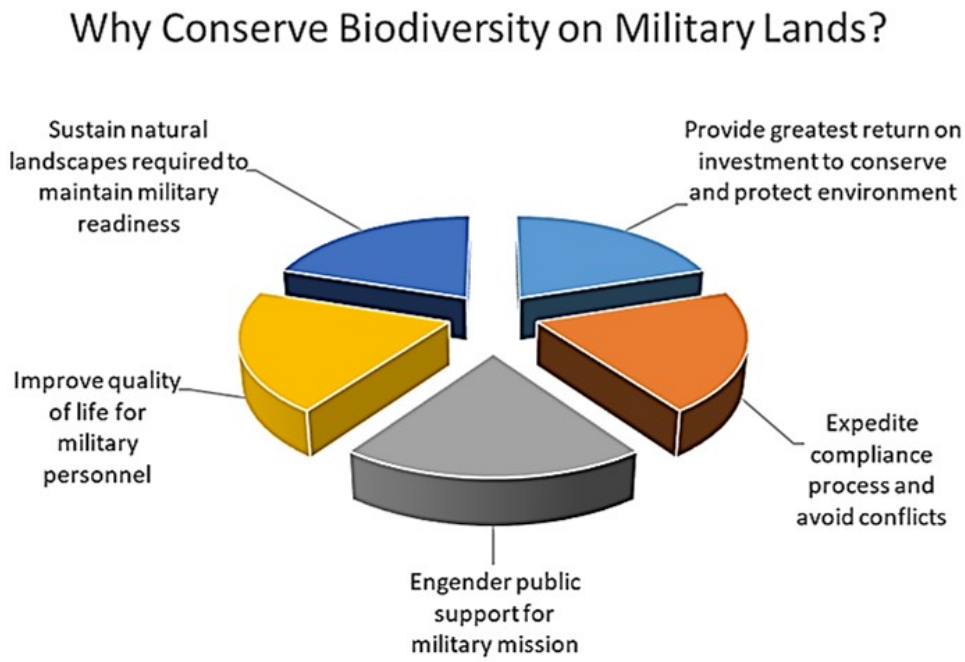

Figure 1. Why Conserve Biodiversity on Military Lands.

1.3 Authority

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The Sikes Act of 1960 (16 USC 670a-670o), as amended, provides for cooperation between the DOI, DoD, and State agencies in planning, developing, and maintaining natural resources on military reservations. The Sikes Act Improvement Amendment as contained in the FY 1998 National Defense Authorization Act specifically calls for the cooperative preparation and implementation of INRMPs on military installations.

DoDI 4715.03, *Natural Resources Conservation Program*, identifies the DoD policies and procedures concerning natural resources management and INRMP reviews, public comment, and endangered species consultation. INRMPs are required to be jointly reviewed by the USFWS, FWC, and Hurlburt Field for operation and effect on a regular basis, but not less often than every 5 years. Minor updates and continued implementation of an existing INRMP do not require need for public comment. Major revisions to an INRMP do require an opportunity for public review. The degree of endangered species consultation when updating or revising an INRMP depends upon specific projects identified in the INRMP and the amount of past consultation. Most updates and revisions will not require formal consultation. ESA Section 7 consultation is required for INRMPs that contain projects that may affect federally listed species or designated critical habitat. The need for such consultation should become apparent during the review for operation and effect and implemented if necessary as part of an INRMP revision.

Air Force Policy Directive (AFPD) 32-70, *Environmental Quality*, discusses general environmental quality issues, including proper cleanup of polluted sites, compliance with applicable regulations, conservation of natural resources, and pollution prevention.

AFMAN 32-7003, *Environmental Conservation*, implements the Sikes Act and the DoD directives by establishing the INRMP as the primary planning document for natural resources at AF installations. AFMAN 32-7003 establishes the Installation or Wing Commander as the signatory authority for approval of the INRMP. The commander's signature commits the AF to the goals and objectives of the INRMP. Once signed by the cooperating agencies (USFWS and FWC), the INRMP takes on the status of an interagency compliance agreement.

AFMAN 32-7003, *Environmental Conservation*, provides guidance on the preservation of cultural resources at USAF installations.

Additionally, this INRMP is prepared under authority of DoD Directive (DoDD) 4700.4, Natural Resources Management Program, DoDD 7310.5, Accounting for Production and Sale of Lumber and Timber Production, and AFPD 32-70, Environmental Quality.

Other federal and state laws and regulations that impact the management of natural resources at Hurlburt Field and that were considered during the preparation of this INRMP include:

- Federal Water Pollution Control Act of 1977 (the Clean Water Act)
- Endangered Species Act of 1973
- Archaeological Resources Protection Act of 1979
- Multiple-use and Sustained Yield Act of 1960
- Federal Land Policy and Management Act of 1976
- Fish and Wildlife Coordination Act
- Migratory Bird Treaty Act
- Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990
- Title 10 USC 2665 (Forest Management)
- Title 10 USC 2667 (Agricultural Outleasing)
- EO 11990 (Protection of Wetlands)
- EO 11987 (Exotic Organisms)
- EO 11989 (Off-road Vehicles on Public Land)
- EO 11988 (Floodplain Management)
- EO 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds)
- EO 13514 (Federal Leadership in Environmental, Energy, and Economic Performance)

DODI 4715.3, *Environmental Conservation Program*, is the overarching instruction for DoD natural and cultural resource management, and is the primary agent for implementing policy (including the Sikes Act), assigning responsibilities, and prescribing procedures for the integrated management of natural and cultural resources on DoD property. This Instruction also establishes the DoD Conservation Committee that reports to the Environmental, Safety, and Occupational Health (ESOH) Council Policy Board, and designates "DoD Executive Agents" to lead DoD implementation of primary conservation issues.

AFPD 32-70, *Environmental Quality*, establishes policies to: responsibly manage natural and cultural resources on U.S. Air Force properties, clean up past environmental damage, meet current environmental standards, plan future activities to minimize impacts, and eliminate pollution from U.S. Air Force activities whenever possible. Under this directive, an Air Force Environmental Quality Program was developed, which includes activities such as cleanup, compliance, conservation, and pollution prevention. Additionally, this directive states that the Air Force will pursue adequate funding to meet environmental legal obligations.

Other applicable guidance includes, DoD Instruction 7000.14, *DoD Financial Management Policy and Procedures.* A complete list of applicable regulatory guidance is found in Appendix A.

Installation specific policies, including state and local laws and regulations are summarized in Table 2.

Table 2. Installation Specific Policies	
Installation-Specific Policies (including State and/or Local Laws and Regulations)	
HFLD Instruction 13-204	Airfield Operations Instruction
HFLD Instruction 91-212	Bird/Wildlife Aircraft Strike Hazard (BASH) Plan

HFLD Instruction 91-202	Explosive Training Range
#199900679 (IP-DH)	USACE/FDEP Works in the Waters of Florida Joint Application
MB72881B-1	Migratory Bird Eagle Depredation
MB819019-0	Migratory Bird Depredation at Airports

1.4 Integration with Other Plans

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By its nature, an INRMP is multidisciplinary and provides the summary for natural resources at a specific installation. As a result, information from an INRMP is incorporated into other plans and these plans help identify management priorities and potential impacts to natural resources. Some of the plans are located in the Appendices of this INRMP. The INRMP is integrated and mutually supportive with the following Hurlburt Field plans:

- Installation Development Plan (IDP) – The INRMP is a key component plan of the IDP as detailed in the AFI 32-1015, *Integrated Installation Planning*. The INRMP identifies natural resource features that need to be considered and incorporated into the IDP, element management plans and other component plans and studies regarding future installation development.
- BearWise Plan – This plan addresses potential causes of human-bear conflict, appropriate management actions, and enforcement on Hurlburt Field.
- Land Management Plan – This plan outlines the mitigation area for Hurlburt Field. It outlines habitat types and land management unit descriptions. The Land Management Plan fulfills the USACE/FDEP Memorandum of Agreement (MOA) and permit (USACE/FDEP permit #199900679) requirements to monitor and manage the land units as mitigation for projects completed in the early 2000's, in perpetuity.
- Preservation Area Assessment and Management Plan (BIOME Assessment) – This plan evaluates the ecological condition and regulatory compliance status of the Wetland Preservation Area as described in the Land Management Plan on Hurlburt Field.
- BASH Hazard Reduction Plan – This plan summarizes the BASH program on Hurlburt Field, including hazing and control techniques, processes, responsibilities and management recommendations.
- Integrated Pest Management Plan (IPMP) – This plan outlines the management of pest species, including nuisance wildlife and invasive species, to minimize impact to mission, natural resources and the environment.
- Stormwater Pollution Prevention Plan (SWPPP) – This plan specifies how installation personnel prevent discharges to storm water of potential pollution from industrial operations. It contains procedures intended to minimize the risk of industrial storm water pollution in drainage areas located within the installation's boundaries.
- Integrated Cultural Resources Management Plan (ICRMP) – This plan outlines the management of cultural resources at Hurlburt Field, including archeological resources and historic structures.
- Gator Lakes Golf Course Environmental Management (GEM) Plan – The GEM Plan provides an environmentally friendly approach to golf course management on Hurlburt Field.
- The Integrated Solid Waste Management (ISWM) Plan – This plan contains procedures for the management of solid waste.

2 INSTALLATION PROFILE

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Office of Primary Responsibility (OPR)	1 SOCES/CEIE, Environmental Element, has overall responsibility for implementing the Natural Resources Management program and is the lead organization for monitoring compliance with applicable federal, state and local regulations

	Email: martin.tabor@us.af.mil
State and/or Local regulatory POCs (Include agency name for Sikes Act cooperating agencies)	USFWS: Name: Dr. Sean Blomquist Phone: 850-769-0552 ext. 45233 Email: sean_blomquist@fws.gov FWC: Name: Arlo Kane Phone: 850-767-3616 Email: arlo.kane@myfwc.com Florida Department of Environmental Protection: Name: Northwest District Submerged Lands and Environmental Resource Program (SLERP) Phone: 850-595-8300 Email: nwd_erp_applicaitons@floridadep.gov United States Army Corps of Engineers: Name: Special Projects and Enforcement Branch of the Regulatory Division of the United States Army Corps of Engineers Phone: 850-439-3474 Email: CorpsJaxReg-NL@usace.army.mil
Total Acreage Management by Installation	6,375 (2,580 hectares)
Total Acreage of Wetlands	3,328 (1,347 hectares)
Total Acreage of Lakes, Ponds, and other Waters of the U.S.	110.2 (44.6 hectares)
Total Acreage of Forested Land	3,764 (1,523 hectares)
Does Installation have Biological Opinions? (If yes, list title and date, and identity where maintained)	Yes, see EIAP records on eDASH
NR Program Applicability (Place a checkmark next to each program that must be implemented at the installation.	☑ Fish and Wildlife Management ☐ Outdoor Recreation and Access to Natural Resources ☐ Conservation Law Enforcement ☑ Management of Threatened, Endangered, and Host Nation-Protected Species ☑ Water Resource Protection ☑ Wetland Protection ☑ Grounds Maintenance ☑ Forest Management ☑ Wildland Fire Management ☐ Agricultural Outleasing

	☑ Integrated Pest Management Program ☑ Bird/Wildlife Aircraft Strike Hazard (BASH) ☑ Coastal Zones/Marine Resources Management ☑ Cultural Resources Protection ☑ Public Outreach ☐ Geographic Information Systems (GIS)

2.1 Installation Overview

2.1.1 Location and Area

Installation Supplement

Hurlburt Field is located on 6,375 acres (2,580 hectares) in Okaloosa County within the Florida Panhandle (Figures 2 and 3). The installation is about 35 miles (56 kilometers) east of Pensacola, is bordered by the cities of Mary Esther and Fort Walton Beach, and is located adjacent to the Santa Rosa Sound, contiguous with Eglin Air Force Base (AFB). Primary highway access to Hurlburt Field is via US 98. Hurlburt Field was formerly known as Eglin Auxiliary Field 9, and the installation retains close organizational and operational ties to Eglin and is bound to the north and west by Eglin AFB. A Host-Tenant Agreement exists between 96 Test Wing on Eglin and the 1 SOCES, and gives operational control of Hurlburt Field to the 1 SOCES. The total workforce at Hurlburt Field is 12,957, including 8,036 active-duty military, 753 guard and reservists, 1,858 civilian personnel, and 2,310 contractors. The installation also supports 11,066 military family members, and the surrounding community is home to approximately 18,000 retirees and their family members and/or survivors, many of whom rely on base facilities including the 1st Special Operations Medical Group (1 SOMDG) outpatient clinic and pharmacy. More information can be found by visiting https://installations.militaryonesource.mil/.

Hurlburt Field is divided into a western and an eastern section by a 9,600-foot (2,926-meter) runway and associated airfield. While most of the installation is located north of US 98, the "Soundside" area south of US 98 provides space for officer and enlisted housing, the Soundside Club, the petroleum, oil and lubricant (POL) marine dock, the installation marina and other outdoor recreational facilities. The western section of the installation, north of US 98, contains the flightline support functions for Hurlburt Field's fixed-wing missions, the main cantonment area, additional housing, and less developed areas containing the rifle range and Explosive Ordnance Disposal (EOD) operations. Red Horse operations and training, flightline support facilities for Hurlburt Field's rotary-wing missions, additional family housing, commercial (commissary, Base Exchange [BX], and other concessions), and medical facilities are located east of the airfield.

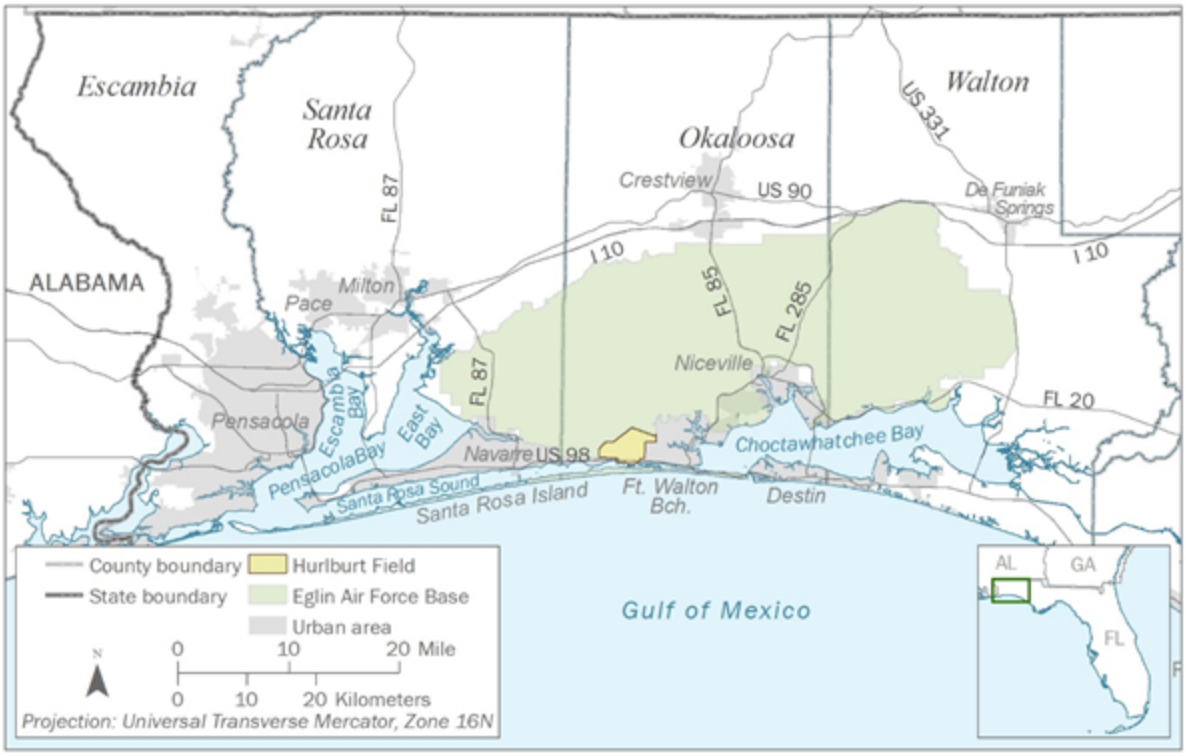


Figure 2. Location of Hurlburt Field and Surrounding Areas

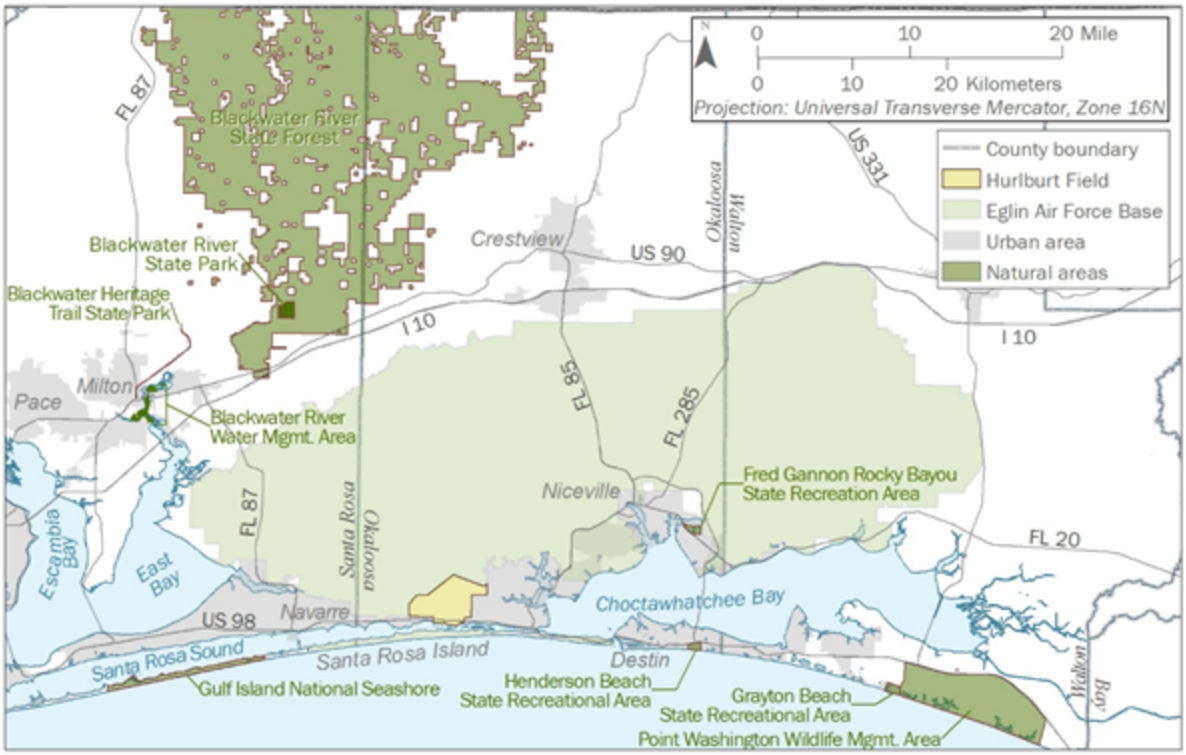


Figure 3. Local and Regional Natural Areas Adjacent to Hurlburt Field

2.1.2 Installation History

Installation Supplement

Hurlburt Field was one of the original small pilot and gunnery training fields built on the Eglin AFB complex in the 1940s. The field was named for 1st Lieutenant Donald W. Hurlburt, who was killed in an aircraft accident on the Eglin reservation in 1943. In March of that year, the first east-west runway was built in the location of present-day Tully Street. In 1955, the 17 Light Bombardment Wing arrived at Hurlburt Field from Minho, Japan to conduct routine training. Three years later, this unit was replaced by the 4751st Missile Wing of the Air Defense Command. Its mission was to test surface-to-air missiles launched from facilities on neighboring Santa Rosa Island.

Hurlburt Field's role in the development of special air warfare operations began with the phasing out of BOMARC missile testing and the activation of the 4400th Combat Crew Training Squadron in April 1961. At Eglin AFB (Hurlburt Field), the 4400th Combat Crew Training Squadron eventually became part of the Special Air Warfare Center (SAWC), which provided the Air Force with a counterinsurgency military assistance capability. On 18 April 1962, the Air Force also established the 1st Air Commando Group (1 ACG). Nine days later, on 27 April 1962, the Air Force organized and activated the 1 ACG under the SAWC. On 1 June 1963, the Air Force re-designated the 1 ACG as the 1st Air Commando Wing (ACW). The Air Force's actions showed the expanding role for special air operations in Vietnam.

On 8 July 1968, the Air Force re-designated SAWC as the Special Operations Forces (USAF SOF), and the 1 ACW as the 1st Special Operations Wing (1 SOW), which was assigned to the USAF SOF at Eglin AFB (Hurlburt Field), but was physically stationed at England AFB, Louisiana. On 1 July 1974, the Air Force inactivated the USAF SOF. This same day, the Air Force re-designated the 1 SOW as the 834th Tactical Composite Wing (834 TCW) at Hurlburt Field and assigned it under the Tactical Air Command. One year later, on 1 July 1975, the Air Force re-designated the 834 TCW as the 1 SOW at Hurlburt Field.

In 1983, the Air Force moved combat rescue and special operations under the 23rd Air Force in the Military Airlift Command (MAC). This move included the 1 SOW stationed at Hurlburt Field. As part of the 23rd Air Force, the 1 SOW personnel and equipment from Hurlburt Field were involved in Operation URGENT FURY on Grenada (1983), and Operation JUST CAUSE in Panama (1989-1990).

In May 1990, the Air Force re-designated the 23rd Air Force as the Air Force Special Operations Command (AFSOC) at Hurlburt Field. The Air Force recognized AFSOC as a major command under its restructuring. AFSOC continued in the role as the component of the U.S. Special Operations Command (USSOC). AFSOC units participated in Operations DESERT SHIELD and DESERT STORM in Saudi Arabia, Kuwait, and Iraq, and Operation CONTINUED HOPE in Somalia. The Air Force re-designated the 1 SOW as the 16 SOW in 1993 and later re-designated it back as the 1 SOW in November 2006. Since 1993, this command participated in numerous combat operations such as Operations IRAQI FREEDOM, ENDURING FREEDOM, NEW DAWN, and RESOLUTE SUPPORT.

2.1.3 Military Missions
Installation Supplement

Hurlburt Field is the home of Headquarters (HQ) AFSOC and is one of two installations in this Major Command. Cannon AFB, New Mexico in the high plains was added in 2009. The AFSOC mission is to organize, train, equip and educate Air Force special operations forces for worldwide deployment and assignment to regional unified command for conducting:

Unconventional warfare
Direct action
Special reconnaissance
Counterterrorism
Foreign internal defense
Humanitarian assistance
Psychological operations
Personnel recovery
Counter-narcotics

For more information please contact Hurlburt Field Public Affairs Office, 850-884-7196 or DSN 579-7196;

http://www.hurlburt.af.mil/.

The 1 SOW and Hurlburt Field also play host to several major partner units including AFSOC, 24th Special Operations Wing, 505th Command and Control Wing, 492d Special Operations Wing, and 823rd RED HORSE Squadron.

The 1 SOW at Hurlburt Field, FL is one of five Air Force active duty special operations wings and falls under the AFSOC.

The 1st Special Operations Wing is a pivotal component of AFSOC's ability to provide airpower to conduct special operations missions worldwide. The primary mission of the 1 SOW is to rapidly plan and execute specialized and contingency operations in support of national priorities. The wing's core missions include close air support, precision aerospace firepower, specialized aerospace mobility, Intelligence, Surveillance and Reconnaissance (ISR) operations, and agile combat support.

The 4 Special Operations Squadron (SOS) and 73 SOS fly AC-130J Ghostrider gunships for missions of close air support, armed reconnaissance, and interdiction associated with conventional and joint special operations forces. The 8 SOS utilizes the CV-22 Osprey, a highly specialized Bell-Boeing tilt-rotor aircraft, for insertion, extraction, and re-supply of unconventional warfare forces and equipment into hostile or enemy-controlled territory using air-land or airdrop procedures.

The 15 SOS employs the MC-130H Combat Talon II. Specially modified to support unconventional warfare and special operations forces worldwide, the Combat Talon II is capable of penetrating a hostile environment at low altitudes and in inclement weather to insert, extract and resupply special operations forces by low or high altitude airdrop or air-land operations. Secondary missions include psychological operations and helicopter and vertical lift air refueling.

The 34 SOS and 319 SOS flies the U-28A, a variation of the Pilatus PC-12 to provide a manned fixed wing, on-call/surge capability for Improved Tactical Airborne Intelligence, Surveillance and Reconnaissance (ISR), as well as intra-theater support, in support of Special Operations Forces. The 65 SOS is a deployed-in-garrison unit that flies the MQ-9 Reaper Remotely Piloted Aircraft operations around the globe, providing combatant commanders with ISR and precision strike capabilities.

Other components of AFSOC stationed at Hurlburt Field include the 24 SOW and the 492 SOW. The 24 SOW, which has strategically placed units worldwide and is composed of a disciplined special operations force of hand-selected Airmen leading joint operations, is U.S. Special Operations Command's tactical air and ground integration force and the Air Force's special operations ground force, leading global access, precision strike, personnel recovery, and battlefield surgery operations on the battlefield. The 492 SOW is responsible for the training and education of Air Force special operations forces as well as AFSOC's Aviation Foreign Internal Defense program, non-standard aviation program, innovation development, command-level weapons and tactics, and operational testing in support of Air Force Special Operations Forces throughout the world. Operating under the Total Force Integration (TFI) concept, the wing brings together the strengths of the active duty Air Force, the Air Force Reserve, the Air National Guard, Department of Defense civilians, and contract personnel to form an integrated training and education team dedicated to building new Air Commandos, and maintains a geographically separated unit at Duke Field, working alongside the Air Force Reserve Command's 919 SOW.

The mission of the 505th CCW is to improve warfighter capability through command and control (C2) testing, tactics development, and training. While their mission focuses on the Component Numbered Air Forces (C-NAF) and their attached and assigned forces, they are also tasked to support joint and coalition forces engaged in all aspects of C2, which is the integration of air, space, and cyber. Through a multi-disciplinary approach to training and development of tactics, techniques, and procedures for the C-NAF Headquarters; testing and training of key C2 systems; and comprehensive, realistic, cutting-edge operational through tactical-level live, virtual, and constructive exercises, the 505th is postured to provide the best possible support to the Soldiers, Sailors, Airmen, and Marines who are fighting and winning our nation's battles.

Hurlburt Field training missions are scheduled through Eglin, and, while munitions testing and evaluation take priority over training on the Eglin range, the predominately nighttime operations of Hurlburt Field's special operations aircraft and troops are generally compatible with other daytime uses of the range. Test Area A-77 is the most heavily used Eglin location for air-to-ground live fire training by Hurlburt Field-based units. Special Forces dropped by Hurlburt Field aircraft into drop zones scattered throughout the Eglin range span out in various directions depending upon the training objectives. Other frequently used Eglin live fire ranges include A-78, B-7, and R2914A:C52N. Airdrops and landings are accomplished at R29156A:B6 and R2914A:C61A/C5. Air refueling training takes place over the Gulf of Mexico in W151 designated airspace.

Hurlburt Field aircraft often egress and ingress along the northern border of the Eglin range near Crestview. These flights are associated with nighttime training missions in the mountains of eastern Tennessee and western North Carolina and northern Georgia (AFSOC/1SOW/PA, 2013).

Any headquartered or tenant organization on Hurlburt Field must consult 1 SOCES/CEIE when changes to mission requirements could adversely impact natural resources within the installation.

1 SOCES Customers are indicated in the attached pdf.

1 SOCES Customers

HURLBURT FIELD - 1 SOW	HURLBURT FIELD - 492 SOW
HURLBURT FIELD - 1 SOAOS	HURLBURT FIELD - 18 SOTES
HURLBURT FIELD - 1 SOCPTS	HURLBURT FIELD - 19 SOS
HURLBURT FIELD - 1 SOW	HURLBURT FIELD - 371 SOCTS
HURLBURT FIELD - 1 SOW CHAPEL	HURLBURT FIELD - 492 SOTRG
HURLBURT FIELD - 1 SOG	HURLBURT FIELD - 492 SOTRSS
HURLBURT FIELD - 1 SOSS	HURLBURT FIELD - AFSOC SOACS
HURLBURT FIELD - 11 IS/311 SOIS	HURLBURT FIELD - USAF SOS
HURLBURT FIELD - 15 SOS	**Partners/Tenants/Other Units**
HURLBURT FIELD - 319 SOS	HURLBURT FIELD - 14 WS
HURLBURT FIELD - 4 SOS	HURLBURT FIELD - 2 CWSS
HURLBURT FIELD - 8 SOS	HURLBURT FIELD - 2 SOS
HURLBURT FIELD - 23 SOWS	HURLBURT FIELD - 249 SOS
HURLBURT FIELD - 34 SOS	HURLBURT FIELD - 25 IOS
HURLBURT FIELD - 65 SOS	HURLBURT FIELD - 28 IS
HURLBURT FIELD - 73 SOS	HURLBURT FIELD - 361 ISRG
HURLBURT FIELD - 1 SOMSG	HURLBURT FIELD - 373 TRS DET 7
HURLBURT FIELD - 1 SOCES	HURLBURT FIELD - 39 IOS
HURLBURT FIELD - 1 SOCES DORMS	HURLBURT FIELD - 413 FLTS
HURLBURT FIELD - 1 SOCONS	HURLBURT FIELD - 435 TRS
HURLBURT FIELD - 1 SOCS	HURLBURT FIELD - 5 SOS
HURLBURT FIELD - 1 SOFSS	HURLBURT FIELD - 623 AOC
HURLBURT FIELD - 1 SOFSS CAT A&B	HURLBURT FIELD - 823 RHS/556 RHS
HURLBURT FIELD - 1 SOFSS CAT C	HURLBURT FIELD - AAFES
HURLBURT FIELD - 1 SOLRS	HURLBURT FIELD - ADC
HURLBURT FIELD - 1 SOSFS	HURLBURT FIELD - AFOSI DET 9
HURLBURT FIELD - BASE INFRASTRUCTURE	HURLBURT FIELD - AFOTEC
HURLBURT FIELD - LODGING	HURLBURT FIELD - AIRMAN'S ATTIC
HURLBURT FIELD - 1 SOMXG	HURLBURT FIELD - ANG RECURITER
HURLBURT FIELD - 1 SOAMXS	HURLBURT FIELD - ARMY USACE
HURLBURT FIELD - 1 SOMUNS	HURLBURT FIELD - CORVIAS
HURLBURT FIELD - 1 SOMXS	HURLBURT FIELD - DCSA
HURLBURT FIELD - 801 SOAMXS	HURLBURT FIELD - DECA
HURLBURT FIELD - 901 SOAMXS	HURLBURT FIELD - DESC
HURLBURT FIELD - 505 CCW	HURLBURT FIELD - HQ AFSOC
HURLBURT FIELD - 505 CS	HURLBURT FIELD - LCI
HURLBURT FIELD - 505 CTS	HURLBURT FIELD - OKALOOSA TAX COLLECTOR
HURLBURT FIELD - 505 TRG	HURLBURT FIELD - RESERVE RECRUITER
HURLBURT FIELD - 505 TRS	HURLBURT FIELD - Sierra Nevada Corp
HURLBURT FIELD - 505 TTG	HURLBURT FIELD - THRIFT STORE
HURLBURT FIELD - 605 TES	HURLBURT FIELD - USPS
HURLBURT FIELD - 705 TRS	HURLBURT FIELD - USSOCOM
HURLBURT FIELD - 24 SOW	HURLBURT FIELD - VACANT
HURLBURT FIELD - 23 STS	HURLBURT FIELD - Veterans Affairs
HURLBURT FIELD - 720 STG/720 OSS	
HURLBURT FIELD - STTS	

2.1.4 Natural Resources Needed to Support the Military Mission

Installation Supplement

Hurlburt Field and the mission of the 1 SOW requires sufficient open and maintained grass areas to provide an adequate clear zone for flight line operations. A heavily forested buffer area that extends from this clear zone to the interface with private property is beneficial to both the Air Force and the adjacent property owners. Hurlburt Field strives to maintain air and water quality standards to allow for new growth without further degrading the natural environment.

The EOD area, Small Arms Range and Dynamics of International Terrorism Range are the only range-type environments on Hurlburt Field where training takes place. Training involving the 1 SOW's aircraft/weapons is typically carried out on large land ranges on the adjoining Eglin AFB and the water ranges in the Gulf of Mexico. Low-level flying routes utilized by AFSOC extend over north Florida, Alabama, Georgia, Tennessee, South Carolina, and North Carolina.

The (300+ hectare) EOD area located on the westernmost part of the installation represents the greatest example of how threatened and endangered (T&E) species management and habitat sustainment can be balanced to achieve realistic experiences for military training without delay to the Air Force mission. The EOD Flight controls perimeter access to the area in conjunction with Security Forces personnel. An approximate (3 hectare) grid has been cleared for authorized activities which includes intentional detonation, all-terrain vehicle (ATV) training and range qualifications for explosives. Land navigation courses which occur throughout the area are conducted on foot. Close quarters training and mock set ups are performed in the modular buildings constructed for this purpose north of Red Horse Road only. While there is not free access to the area, scheduling around training days to perform land management activities in support of ecosystem sustainability is rarely a major concern. Natural resources (NR) staff working with EOD ensures awareness of and compliance with environmental recommendations by range users.

2.1.5 Surrounding Communities
Installation Supplement

Communities immediately surrounding Hurlburt Field include Fort Walton Beach and Mary Esther. Based on latest data, the estimated population for these areas is listed in Table 3.

Table 3. Population Data for Surrounding Areas

City/Municipality	Population
Destin	14,077
Fort Walton Beach	22,284
Shalimar	7,010
Navarre	31,378
Mary Esther	4,059
Cinco Bayou	23,127
Unincorporated	105,334

Source: www.Census.gov Demographic Profile (2019)

2.1.6 Local and Regional Natural Areas
Installation Supplement

The region of influence for mission activities at Hurlburt Field includes the surrounding counties of Okaloosa and Santa Rosa. The area immediately adjacent to the installation is primarily commercial and urban residential land; however, the area north of Hurlburt Field consists of military lands managed by Eglin AFB.

This landscape provides some of the last remaining breeding sites and upland habitat for the endangered reticulated flatwoods salamander (*Ambystoma bishopi*). In an even broader context of landscape ecology, Hurlburt Field's natural communities of wetlands, flatwoods, and sandhills are connected northward through Eglin across sparsely populated private lands and on to similar ecosystems found in Blackwater River State Forest 20 miles (32 kilometers) north of Hurlburt Field (Figure 3). Blackwater River State Forest, in turn, is adjacent to Conecuh National Forest in southern Alabama. These contiguous, publicly managed lands, provide an extensive forested corridor for numerous wildlife species.

Hurlburt Field contains a mixture of ecological communities including swamp, flatwoods, maritime hammock, cypress domes, and sandhill communities. For its physical size, Hurlburt Field plays an important role as a transitional area between coastal and inland ecosystems (1 SOCES, 2013). See Section 2.3 of this INRMP for more information about the vegetation and wildlife of Hurlburt Field.

2.2 Physical Environment

2.2.1 Climate

Installation Supplement

The climate of Hurlburt Field is subtropical. Summer weather conditions are dominated by maritime tropical air from the southeast, characterized by high humidity and frequent convective thunderstorms. Winter weather is dominated by continental polar air from the northwest, which frequently results in frontal storms lasting several days. Winter temperatures rarely fall below freezing and frost occurs infrequently. Wind speeds average 5 to 6 miles per hour (8-10 kilometers per hour) in all seasons, and winds are calm approximately 22 percent of the year. Ground-based inversions occur on the installation almost every morning and usually subside quickly with surface heating. The growing season averages about 275 days per year.

Precipitation occurs on average between 50 and 60 days per year and average annual precipitation is about 62 inches (1.6 meters). Peak rainfall occurs in July and August, while October and November are usually the driest months. Average monthly rainfall ranges from 3.4 inches (8.6 centimeters) in November to 7.4 inches (18.8 centimeters) in July. The prevailing winds are northerly year-round, except during May and July, when they are usually from the south and southwest, respectively (USACE, 1994). Hurlburt Field's close proximity to the coast creates daily sea breezes that affect regional prevailing winds.

The region is subject to periodic tropical storms, hurricanes, and tornadoes, generally from June through November. These cyclonic storms are most numerous in the month of September. Occasionally, high winds and heavy rainfall impact inland areas.

Storm Categories 1 through 5 measure wind speed, storm surge, and frequency using the Saffir/Simpson Hurricane Scale (National Weather Service). Storm surge areas are those regions that are subject to high water due to seawater blown inland during storms. The portion of Hurlburt Field principally south of US 98 and bordering Santa Rosa Sound occurs in such an area. Storm surge areas are determined from hurricane inundation zones and represent "worst case scenarios" of maximal flooding (such as during high tide) to identify vulnerable areas.

2.2.2 Landforms

Installation Supplement

Hurlburt Field encompasses 6,375 acres (2,580 hectares). This includes areas classified as *Improved* grounds, *Semi-improved* grounds, and *Unimproved* grounds. Most of the large bodies of open water (other than Santa Rosa Sound to the south) occur northeast of the airfield in the vicinity of the golf course. The largest body of fresh water is Hurlburt Lake, which has a surface area of approximately 25 acres (10 hectares).

Hurlburt Field is located within the Coastal Lowlands physiographic province, characterized by beach ridge plains, shorelines, and marine terraces formed during the Pleistocene epoch. The region consists of level to rolling terrain with upland areas separated by depressional and riverine/bay forested wetlands. The topography ranges from sea level to approximately 40 feet (12 meters) above mean sea level along the northeast boundary. Slopes range from 0 to 8 percent.

2.2.3 Geology and Soils

Installation Supplement

The general geologic sequence found above bedrock in the area of Hurlburt Field includes Jurassic evaporates, carbonates, and sandstones, and shales of Cretaceous and early Eocene age overlain by the Claiborne Group. The Claiborne Group consists of low permeability shales and limestones. The Ocala Group overlies the Claiborne Group and is a permeable limestone composed primarily of fossils. The Buccatunna Clay is at the top of the Ocala Group and is overlain by the Chickasawhay and Tampa Formations, which consist of vesicular limestone and dolomite with enlarged pores and fractures created by solution and acidic groundwater. The groundwater in this aquifer (the Floridan aquifer) is the principal source of water for Hurlburt Field and the surrounding region. Pensacola Clay overlies the Tampa Formation. This clay has very low permeability overall but becomes coarser and more permeable north and east of the installation. The Pensacola Clay is overlain by the surficial (Sand and Gravel) aquifer, which consists primarily of gravel, sands, and clay.

The near-surface mineral resources occurring on Hurlburt Field are sand, gravel, quartz, and clay. These resources are minable from shallow, open pits in the undifferentiated sediments and Pensacola Clay. Hurlburt Field does not contain sinkholes and is considered to be located in an area with no reasonable expectancy of earthquake damage (Earth Tech, 1994).

The soils of Hurlburt Field are derived from sedimentary deposits of fluvial and marine origin. The majority of soils are sandy and have low fertility. Soil density is relatively low, reflecting the high permeability of the surface soils and the relatively low direct runoff in the area. Erosion potential for all soils is considered slight due to the relatively level topography, except along Santa Rosa Sound, where it is moderate. Prime farmland soils do not occur within the installation.

A soil survey was completed for Okaloosa County (USDA, 1995). There are 12 soil types representing 12 soil series within Hurlburt Field (Figure 4). Seven of these are upland soil types, which are scattered throughout all but the northwest portion of the installation. These soils include Chipley and Hurricane Complex, Foxworth Sand, Kureb Sand, Lakeland Sand, Mandarin Sand, Resota Sand, and Urban Land.

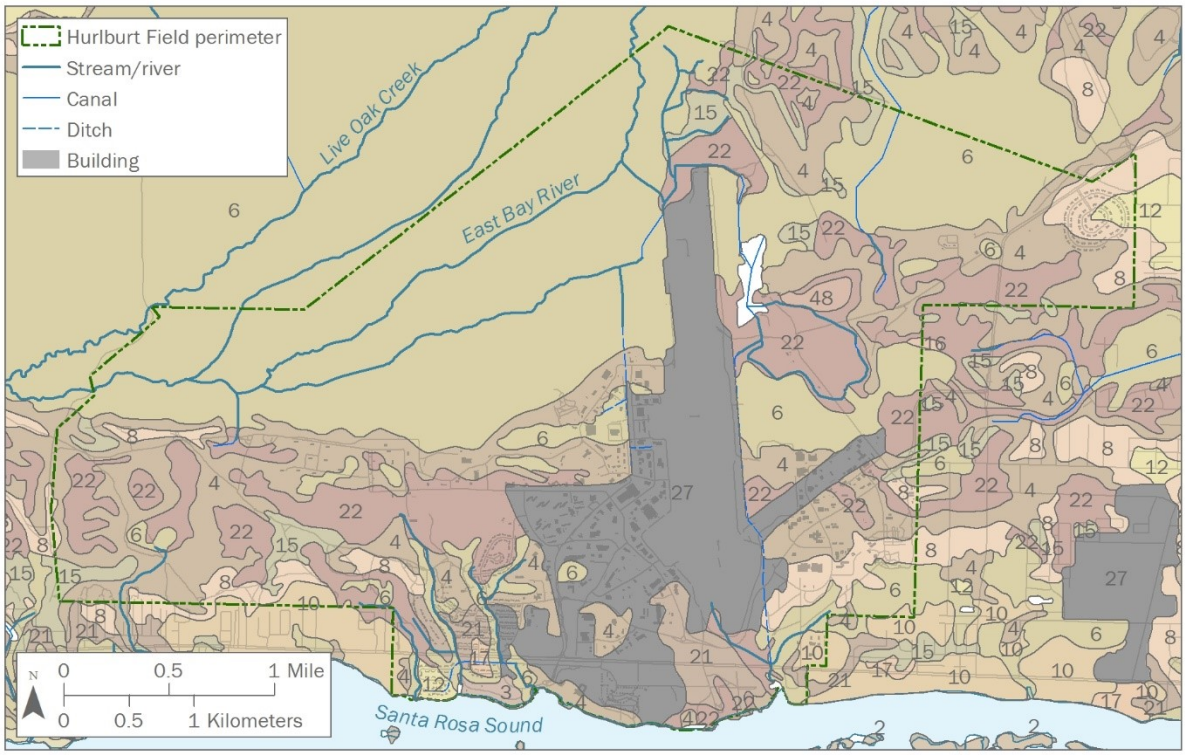
For all Hurlburt soil types the seasonal high water table is generally 2 to 3 feet (0.5 to 1 meter) below the surface from November to April. Consequently, there are moderate to severe development constraints due to wetness, as well as the caving of cut banks. Hurlburt's soils have severe limitations that reduce the choice of crop and pasture plants, require special conservation practices, or both.

- Chipley and Hurricane – This soil complex is somewhat poorly drained and occurs on slopes of 0 to 5 percent.
- Foxworth Sand – This soil type is moderately well drained and occurs on slopes of 0 to 5 percent.
- Kureb Sand – This soil type is well drained and occurs on slopes of 0 to 8 percent.
- Lakeland Sand – This soil type is also well drained and occurs on slopes of 0 to 5 percent.
- Mandarin Sand – This soil type is somewhat poorly drained and occurs on slopes of 0 to 3 percent.
- Resota Sand – This soil type is moderately well drained and occurs on slopes of 0 to 5 percent.
- Urban Land – This soil type does not have available descriptive or analytical information because it represents disturbed materials of various origins. It is located in developed areas beneath and surrounding buildings, roadways, and so on.

The remaining five soils are hydric (wetland) soil types. Hydric soils include Beaches, Dorovan Muck, Leon Sand, Rutledge Sand, and Pickney Loamy Sand. Dorovan Muck is the most widespread soil type on the installation, dominating wetland areas in the northern half. Rutledge Sand dominates the southwest quadrant and is also frequent in the northeast. The remaining hydric soils are scattered throughout the installation.

Hurlburt wetland soil types all have a high water table of 0 to 2 feet (0.6 meters) above the surface from November to April. Development constraints are consequently severe due to ponding, and cut banks may cave.

- Beaches – This soil occurs along a small portion of the installation bordering Santa Rosa Sound but does not have descriptive or analytical information. However, it is evident that this soil type is subject to fluctuating water tables (on a daily basis due to tidal effects) and storm surge erosion.
- Dorovan Muck – This soil is very poorly drained and occurs on nearly level terrain.
- Leon Sand – This soil is poorly drained and also occurs on nearly level terrain.
- Rutledge Sand – This soil is depressional and is very poorly drained.
- Pickney Loamy Sand – This soil is also depressional and is very poorly drained.



2, Arents, 2 to 8 percent slopes
3, Beaches
4, Chipley and Hurricane soils, 0 to 5 percent slopes
6, Dorovan muck, frequently flooded
7, Duckston sand, frequently flooded
8, Foxworth sand, 0 to 5 percent slopes
10, Kureb sand, 0 to 8 percent slopes
12, Lakeland sand, 0 to 5 percent slopes
15, Leon sand, 0 to 2 percent slopes
16, Lucy loamy sand, 0 to 5 percent slopes
17, Mandarin sand, 0 to 3 percent slopes
21, Resota sand, 0 to 5 percent slopes
22, Rutlege fine sand, depressional
27, Urban land
48, Pickney loamy sand, depressional

Figure 4. Soil Conditions of Hurlburt Field

2.2.4 Hydrology

Installation Supplement

Groundwater

Hurlburt Field is underlain by a surficial sand and gravel aquifer, which includes the Citronelle Formation, and the Floridan aquifer of interbedded limestone and dolomite which is approximately 500 to 600 feet (150 to 180 meters) below the surface. The main water supply source at Hurlburt Field is the upper Floridan aquifer, which averages more than 1,000 feet (300 meters) in thickness and produces well yields from several hundred to over 10,000 gallons per minute (38 cubic meters per minute). The water tends to be hard, but typically does not exceed drinking water standards for nitrate, fluoride, sodium, and chloride. Iron may occasionally exceed such standards. During the last several decades the Floridan aquifer has lowered 90 feet (27 meters; USGS 1980) as a result of extensive pumping in the region. Should this trend continue, increases in saltwater intrusions and decreases in water storage along the Santa Rosa Sound are possible.

The shallow sand and gravel aquifer ranges in thickness from about 150 feet (45 meters) in the east to some 200 feet (60 meters) near the center of the installation. Yields of more than 300 gallons per minute (1 cubic meter per minute) are possible in the main producing zone just southeast of Hurlburt Field. Water from the aquifer requires treatment prior to potable water use, due to relatively high iron and tannin levels, as well as a low pH (USAF, 2002).

Watersheds, Wetlands, and Drainage Patterns

Regions of 100-year floodplains are extensive on Hurlburt Field (Figures 5 and 8). Most of the northwest portion of the installation and much of the northeast occur within floodplains. Scattered, isolated floodplain pockets also occur east and west of the airfield, and a floodplain/storm surge fringe exists where the installation borders the Santa Rosa Sound.

Hurlburt Field is generally divided into two drainage basins or watershed regions. The northern two-thirds of the installation predominantly drain north and northwest into the East Bay Swamp, while the southern third drains surface waters southward into the Santa Rosa Sound. Surface waters in East Bay Swamp and East Bay River flow westward into East Bay. Additionally, a very small region of land adjacent to the golf course drains eastward into Cinco Bayou, and thereafter into Choctawhatchee Bay (USAF, 2002a).

Specific information on wetland resources can be found in Section 2.3.5 of this INRMP.

Coastal Zone and Barrier Island Issues

The landward boundaries of the State of Florida are defined by the State, in accordance with Section 306(d)(2)(A) of the Coastal Zone Management Act (CZMA), as the entire state of Florida. Federal agency activities that have the potential to impact the coastal zone are required to be consistent, to the maximum extent practicable, with approved state Coastal Zone Management Programs. Federal agencies make determinations as to whether their actions are consistent with approved State plans. Consistency determinations are submitted to the State for review and concurrence. All relevant state agencies must review the Proposed Action and issue a consistency determination. The Florida Coastal Management Program (FCMP) is composed of 23 Florida statutes administered by 11 state agencies and four of the five water management districts.

Additional information regarding coastal zone issues is presented in Section 7.2 of this INRMP.

Lakes and Ponds

All the water bodies within the limits of Hurlburt Field are depicted in Figure 5. The largest water body is 25-acre (10-hectare) Hurlburt Lake, which receives flow from a number of interconnected golf course ponds, overland flow, seepages, and springs. The vast majority of the other ponded areas also occur in or adjacent to the golf course and/or northeast of the flightline.

Wetlands and floodplains associated with Hurlburt Field are discussed in greater detail in Section 2.3.5 of this INRMP.

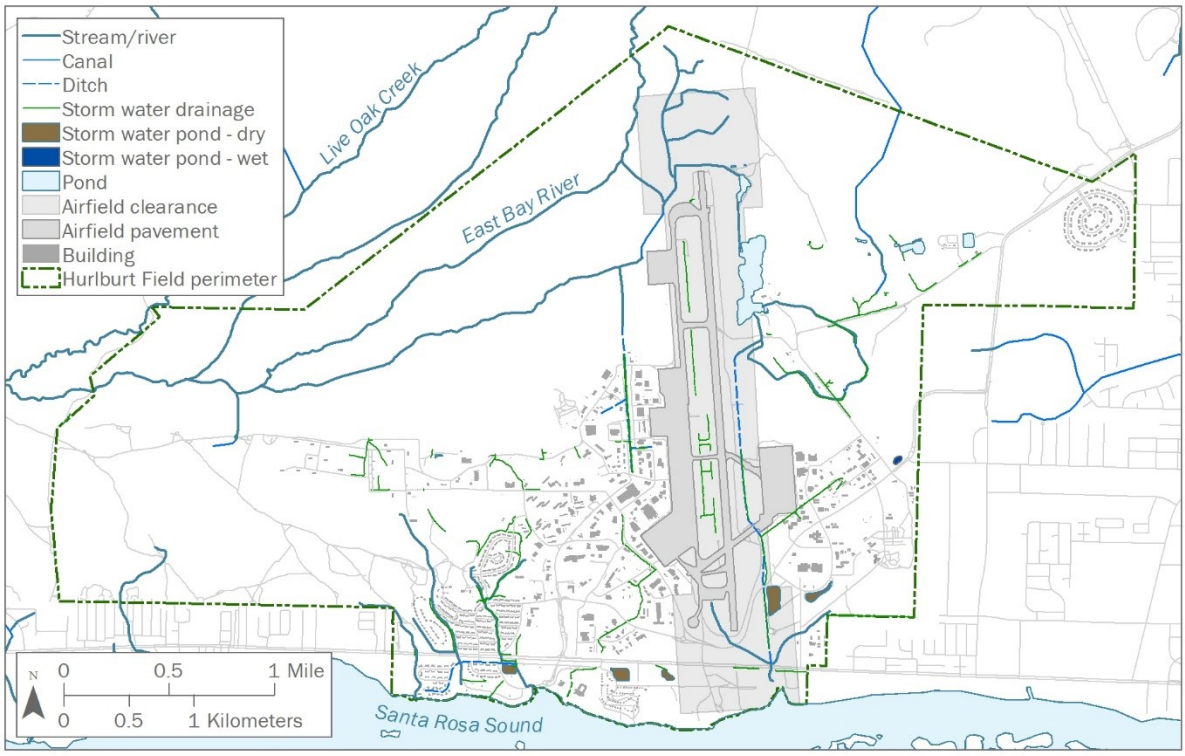


Figure 5. Surface Waters on and Adjacent to Hurlburt Field

2.3 Ecosystems and the Biotic Environment

2.3.1 Ecosystem Classification

Installation Supplement

A national hierarchy for ecosystem classification has been developed by Robert G. Bailey of the United States Department of Agriculture (USDA), Forest Service, Inventory and Monitoring Institute. This hierarchy is a regionalization classification and mapping system that links soils, physiography, and habitat types to stratify the landscape into progressively smaller areas (Bailey et al., 1994). Hurlburt Field is located within the Humid Temperate Domain, Subtropical Division, Coastal Plain Mixed Forest Province, and Section 232D Florida Coastal Lowlands (Western).

Fifty two percent of the installation is delineated as jurisdictional wetlands. Extensive swamps, marshes, ponds, and bayous exist in and around the installation. Hurlburt Field contains a mixture of ecological communities including swamps, flatwoods, maritime hammocks, cypress domes, and sandhill communities. Longleaf pine and wire-grass savannas/flatwoods harboring multiple ephemeral ponds dominate Hurlburt Field's western side and continue onto Eglin AFB.

2.3.2 Vegetation

Installation Supplement

The trees commonly found in the southeastern United States are pines (*Pinus* spp.), oaks (*Quercus* spp.), and members of the laurel and magnolia families. Southeastern forests usually have a well-developed lower stratum of vegetation that includes ferns, small palms, shrubs, and herbaceous plants. Forests of longleaf, loblolly (*P. taeda*), and slash pine (*P. elliottii*) dominate large areas of sandy upland xerophytic habitat as a subclimax forest, maintained by frequent fires. Vast areas of gum-bay swamps and scrub-shrub wetlands exist throughout the area. Bald cypress (*Taxodium distichum*) and pond cypress (*T. ascendens*) are dominant trees in swamps and cypress domes throughout the region.

The majority of the pine forests found in the southeastern United States represent second-growth forests established after a disturbance event, such as a catastrophic wildfire or deforestation activity (natural or anthropogenic). Historically, under natural conditions, lightning-caused late spring and summer fires were an important component in maintaining pine-dominated ecosystems in the coastal plain area. These fires not only burned through pine stands in upland and flatwoods areas, but would also burn wetlands and hammocks during periods of extreme drought. These periodic fires maintained the pine subclimax forest by controlling hardwood competition, encouraging the growth of herbaceous vegetation, and maintaining open water areas within the wetlands by removing layers of peat and sphagnum moss.

2.3.2.1 Historic Vegetation Cover
Installation Supplement

Florida Natural Areas Inventory (FNAI) provides a brief compilation of historical documents describing the historical landscape of Hurlburt Field and Eglin AFB in their Natural Community Survey Report (Kindell et al., 1997) and their Rare Plant Survey Report (Chafin and Schotz, 1995; Hipes and Norden, 2003; Surdic, 2009; FNAI 2020). Descriptions of vegetation prior to the formation of the installation can be found in several documents written in the 1900s.

The surrounding area has an extensive history of natural resource exploitation prior to its establishment as a military installation. The majority of the area's history relates to timber harvesting of longleaf pine in the late 1800s. The turpentine industry was prevalent on Hurlburt Field until the 1930s. A small percentage of the original old growth longleaf pine forests remain on Eglin AFB, but the majority of Hurlburt Field's forests are secondary.

In 1908, the Choctawhatchee National Forest was established and appears to have included the very northern portion of Hurlburt Field. Forestry management made widespread use of prescribed burning until 1927, when forest fire protection was fully implemented (USAF, 1993). Subsequent fire suppression within state and national forests, as well as on private lands, undoubtedly permitted successional changes that may be regarded as unnatural. Today, prescribed burns are again implemented.

2.3.2.2 Current Vegetation Cover
Installation Supplement

Beginning in 1997, the Florida Natural Areas Inventory (FNAI) has conducted occasional comprehensive surveys of Hurlburt Field's high quality natural vegetative communities. FNAI last updated this survey in 2020, and released the Surveys for Listed, Rare and Invasive Species on Air Force Base Installations in Florida, Hurlburt Field, Okaloosa County, Florida. Report to the U.S. Fish and Wildlife Service, Tallahassee, FL. A follow-up Natural Communities survey will be conducted in 2022. The previous FNAI report from 2009 included community types found on Hurlburt Field with descriptions of their vegetative composition (Surdick, 2009; Figure 6) that will be updated in the 2022 report.

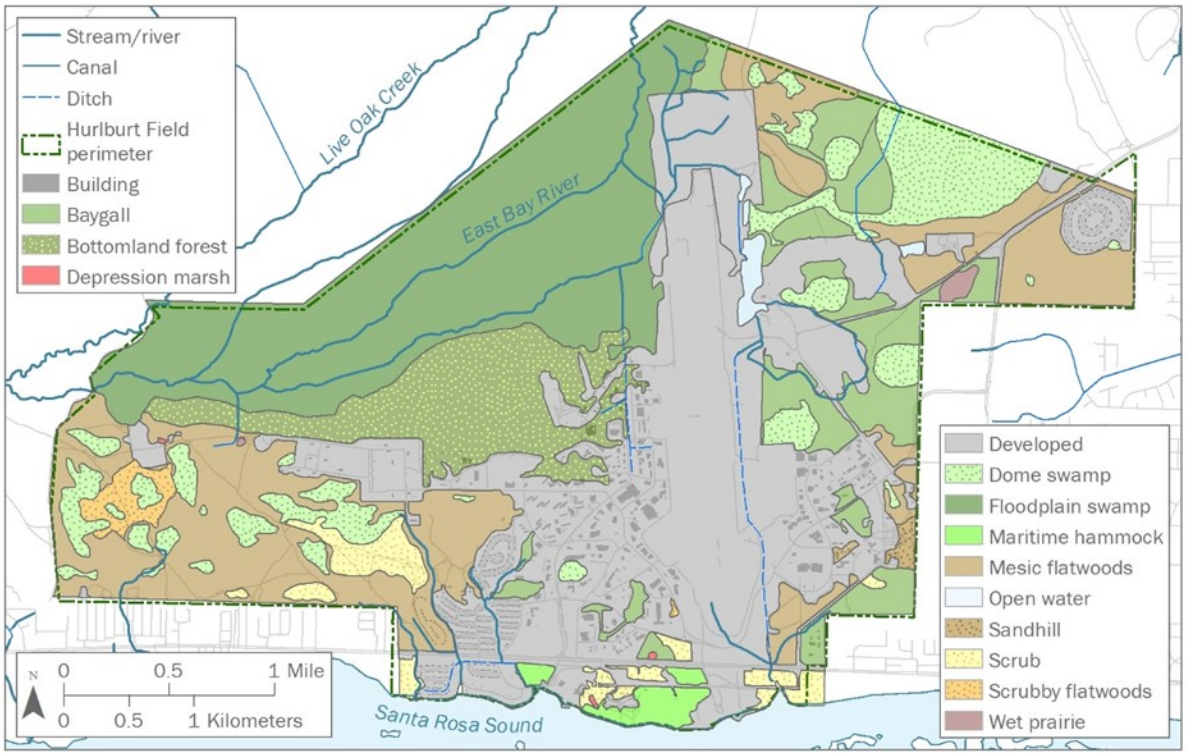


Figure 6. Vegetative Communities of Hurlburt Field

Within the installation, cypress-gum swamp habitat is most prevalent within the northern half of the installation, which borders East Bay Swamp (1 SOCES, 2007). Here the dominant species include swamp tupelo (*Nyssa biflora*) and bald cypress. Shrub-dominated wetlands often occur peripheral to cypress-gum swamps and include such species as black titi (*Cliftonia monophylla*), red titi (*Cyrilla racemiflora*), myrtle-leaf holly (*Ilex myrtifolia*), fetterbush (*Lyonia lucida*), and Carolina St. John's wort (*Hypericum nitidum*). Herbaceous wetlands are generally infrequent and small, and harbor sedges in such genera as *Carex*, *Cyperus*, *Rhynchospora*, and *Scirpus*, as well as species of Panicum grass, pitcherplants (*Sarracenia* spp.), and butterworts (*Pinguicula* spp.). Mesic hammock areas are restricted to the slopes bordering the Santa Rosa Sound and include southern magnolia (*Magnolia grandiflora*), live oak (*Quercus virginiana*), saw palmetto (*Serenoa repens*), and various herbaceous plants.

Pine flatwoods occur commonly throughout the installation. Dominant species include longleaf pine, slash pine, running oak (*Quercus pumila*), gallberry *(Ilex glabra*), saw palmetto, sawbrier (*Smilax glauca*), and wiregrass. Sandhill communities are scattered on slightly higher and drier ground than pine flatwoods. Sandhill regions are dominated by longleaf pine, saw palmetto, and wiregrass, but also include turkey oak (*Quercus laevis*), sand post oak (*Quercus margaretta*), sparkleberry (*Vaccinium arboreum*), and bracken fern (*Pteridium aquilinum*). Sand pine scrub areas are scattered on the installation and usually consist of sand pine (*Pinus clausa*), sand live oak (*Quercus geminata*), myrtle oak (*Quercus myrtiflolia*), saw palmetto, rosemary (*Ceratiola ericoides*), and rusty lyonia (*Lyonia ferruginea*).

Important habitat areas for T&E flora are widespread on Hurlburt Field. The greatest density of rare flora habitats occurs in the western portion of the installation where wet flatwoods, cypress domes, and other wetlands are common. Surveys for rare species in recent years include those documented in Flowers (1997), FNAI (1992; 1994b), Labat-Anderson (1994), USAF (1996), Printiss and Hipes (1997), Hipes and Norden (2003), FNAI (2020).

Sixteen rare plants have been documented during the FNAI surveys at Hurlburt Field (Table 4). Two rare Florida species, the state threatened many-flowered grass pink (*Calopogon multiflorus*) and the federally-endangered perforate reindeer lichen (*Cladonia perforata*), were not observed on Hurlburt. Rare plants found in previous surveys that are no longer considered rare were not included in this survey (FNAI 2020).

During the 2019-2020 FNAI Rare Plants Survey, rare animals were not included in the statement of work, and updated rare plants lists were used to direct the survey. An updated table of Rare Plants Documented at Hurlburt Field 2019-2020 is below.

Table 4. Rare Vascular Plants Documented at Hurlburt Field (1996–2020)						
Scientific name	**Common name**	**FNAI Global Rank**	**FNAI State Rank**	**Federal Status**	**State Status**	**Documented**
Baptisia calycosa var. *villosa*	hairy wild indigo	G3T3	S3	N	LT	2002-2003, 2008-2009
Calamovilfa curtissii	Curtiss' sandgrass	G3	S3	N	LT	1996-1997, 2002-2003, 2008-2009, 2019-2020
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	LT	2002-2003
**Cleistesiopsis oricamporum* (Potentially mis-id'd in previous surveys as *Cleistesiopsis divaricata* syn. *Cleistes divaricata*)	fragrant Pogonia	N	N	N	LE	1996-1997, 2002-2003
Drosera intermedia	spoon-leaf sundew	N	N	N	LT	1996-1997, 2002-2003, 2008-2009, 2019-2020
Lilium catesbaei	pine lily	N	N	N	LT	1996-1997, 2008-2009
Lilium iridollae	Panhandle lily	N	N	N	LE	2008-2009
Listera australis	Southern twayblade	N	N	N	LT	2008-2009, 2019-2020
Nuphar advena ssp. ulvacea	West Florida cow lily	G5T2	S2	N	N	1996-1997, 2002-2003, 2008-2009, 2019-2020
Pinguicula lutea	yellow flowered butterwort	N	N	N	LT	2008-2009, 2019-2020
Pinguicula planifolia	Chapman's butterwort	N	N	N	LT	1996-1997, 2002-2003, 2008-2009, 2019-2020
Platanthera blephariglottis var. *conspicua*	white fringed orchid	N	N	N	LT	1996-1997

Pogonia ophioglossoides	rose Pogonia	N	N	N	LT	1996-1997, 2002-2003
Sarracenia leucophylla	white-top pitcher plant	N	N	N	LE	1996-1997, 2002-2003, 2008-2009, 2019-2020
Sarracenia psittacina	parrot pitcher plant	N	N	N	LT	1996-1997, 2002-2003, 2008-2009, 2019-2020
Sarracenia rosea	Gulf purple pitcher plant	N	N	N	LT	1996-1997, 2002-2003, 2008-2009, 2019-2020

***Source*:** FNAI (personal communication, unpublished report)

FNAI- Element Tracking Summary: G1 = Critically Imperiled, G2 = Imperiled, G3 = Vulnerable, G4 = Apparently Secure, G5 = Secure, T = Subspecies' or Variety's Rank, S1 = Critically Imperiled, S2 = Imperiled, S3 = Rare, S4 = Apparently Secure.

Federal Legal Status: C= Candidate for listing, SAT = Similar in Appearance, SC = Species of concern to USFWS.

State Legal Status: C= Candidate for listing at the Federal level by the USFWS, ST = state population listed as Threatened by the FFWCC, SSC= Species of Special Concern by the FFWWCC, FE = Listed as Endangered Species at the federal level by the USFWS, FT = Listed as Threatened Species at the Federal level by the USFWS, LT = Listed Threatened, LE = Listed Endangered, LS = Listed Special Concern, N = not currently listed.

2.3.2.3 Future Vegetation Cover Installation Supplement

Regional climate change will likely increase the frequency and severity of wildfires (Mitchell, et al. 2014) and tropical storms, affecting the complexity and diversity of vegetation on Hurlburt Field. The current prescribed fire program conducted by the Eglin Wildland Fire Module to maintain healthy habitat and reduce fuel loading addresses current needs but will likely need to be adjusted with changes in temperature and precipitation trends. Proactive and flexible fire management is required to address a prediction for more variable precipitation (CSU 2018). Each year, the best window for prescribed burns will likely be variable based on early tropical storms, more severe inundation, or periodic drought, though burning will continue to be a necessary tool for vegetation management.

More frequent and severe storms may result in saltwater intrusion in areas that are typically freshwater wetlands, impacting several species of concern, primarily the reticulated flatwoods salamander which relies of freshwater aquatic emergent vegetation for breeding, and freshwater ponds for larval growth.

2.3.2.4 Turf and Landscaped Areas Installation Supplement

Turf and/or landscaped areas encompass *Improved and Semi-Improved* grounds on Hurlburt Field. These areas (Figure 7) are maintained by contracts under the responsibility of 1 SOCES.

Turf grasses on Hurlburt Field include centipede, common Bermuda, St. Augustine, and Argentine Bahia. Annual rye is over seeded in high-visibility areas and on soil-disturbed sites during the winter. Bermuda Tifway 419 is used on golf course tees and fairways with Bermuda Tifdwarf 328 used on greens. Pensacola Bahia is the most prevalent grass cover on the Hurlburt Field airfield.

The Hurlburt Field Landscape Development Plan (Appendix J of this INRMP) provides strategies for landscape improvements based on antiterrorism/force protection (AT/FP) standards, Leadership in Energy and Design (LEED), and sustainable design. Emphasis on landscape plant selection is on the use of native species or cultivars that are well-adapted to Hurlburt Field's climate and soil conditions.

An additional resource for selecting landscaping plants is provided by the University of Florida: http://fyn.ifas.ufl.edu/pdf/FYN_Plant_Selection_Guide_2015.pdf and should be compared to the USDA's Native Plant Database: http://plants.usda.gov to select locally native species.

There is also a long-term landscape naturalizing goal of xeriscaping or using native trees, shrubs, and ground covers that will require little or no irrigation (Table 5). This objective directly supports Unified Facilities Criteria (UFC) 3-201-02 on Landscape Architecture and EO 13514, *Federal Leadership in Environmental, Energy and Economic Performance* and the Hurlburt Field Energy Policy as it relates to water consumption.

Hurlburt Field has attained Tree City USA status since 1994 (1 SOCES, 2013) and most recently earned the distinction as a Sterling Tree City USA, a designation extended to those who have made substantial contributions to urban forestry programs as a Growth Award winner. Furthermore, an Urban Forestry Management Plan for the installation was completed in 1997 (Harland Bartholomew & Associates, Inc.) and a Land Management Plan was developed as a result of wetlands permitting/mitigation in the year 2000 (Section 2.3.5 of this INRMP).

Table 5. Dominant Woody Plants Located Within Developed Areas of Hurlburt Field

Location	Plants
Administration Areas	Palm species, eastern red cedar (*Juniperus virginiana*), oak species, pine species, and various ornamental shrubs
Airfield	No trees

Aircraft Operations and Maintenance	Pine species, red maple (*Acer rubrum*), crape myrtle (*Lagerstroemia indica*), and flowering dogwood (*Cornus florida*)
Community (Commercial and Services)	Live oak, laurel oak (*Q. laurifolia*), slash pine, longleaf pine, eastern red cedar, and sabal palm (*Sabal palmetto*)
Housing (Accompanied and Unaccompanied)	Slash pine, longleaf pine, southern red cedar, live oak, laurel oak, sabal palm, butia palm (*Butia capitata*), crape myrtle
Industrial	Red maple, southern red cedar, longleaf pine, slash pine, turkey oak, live oak, laurel oak, southern magnolia, and wax myrtle
Outdoor Recreation	Sabal palm, southern magnolia, live oak, laurel oak, longleaf pine, and southern red cedar
Open Space	Longleaf pine, slash pine, southern magnolia, southern red cedar, and live oak

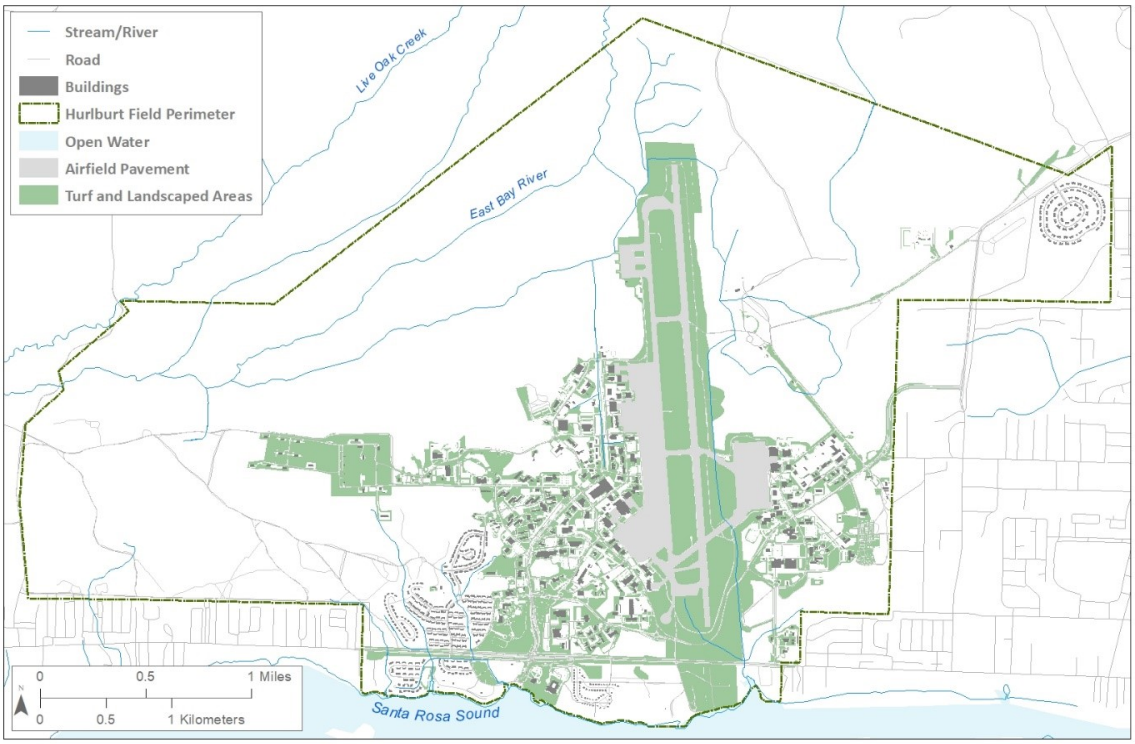


Figure 7. Turf and Landscaped Areas of Hurlburt Field

2.3.3 Fish and Wildlife
Installation Supplement

Due to the variety of habitats found on Hurlburt Field, the installation supports a rich diversity of wildlife. Table 6 provides a summary of common species typically found within the installation. The table should only serve as a reference list and not a comprehensive inventory.

For the current list of fish and wildlife species known or believed to occur in Okaloosa County, visit: https://ecos.fws.gov/ecp0/reports/species-by-current-range-county?fips=12091.

Table 6. Common Wildlife Species Found on Hurlburt Field.

Common Name	Scientific Name	Common Name	Scientific Name	Common Name	Scientific Name
Birds		Amphibians and Reptiles		Mammals	
Red-winged blackbird	*Agelaius phoenicius*	Cottonmouth	*Agkistrodon piscivorus*	American beaver	*Castor canadensis*
Wood duck*	*Aix sponsa*	Green anole	*Anolis carolinensis*	Virginia opossum	*Didelphis virginiana*
Great blue heron	*Ardea herodias*	Common snapping turtle*	*Chelydra serpentine*	Southeastern pocket gopher	*Geomys pinetus*
Great horned owl	*Bubo virginianus*	Six-lined racerunner	*Cnemidophorus sexlineatus*	White-tailed deer	*Odocoileus virginianus*
Red-shouldered hawk	*Buteo lineatus*	Black racer	*Coluber constrictor*	Cotton mouse*	*Peromyscus gossypinus*
Fish crow	*Corvus ossigragus*	Eastern diamondback rattlesnake	*Crotalus adamanteus*	Raccoon	*Procyon lotor*
Great egret	*Egretta alba*	Five-lined skink	*Eumeces fasciatus*	Eastern mole*	*Scalopus aquaticus*
Southeastern American kestrel	*Falco sparerius paulus*	Eastern coachwhip	*Masticophis flagellum*	Eastern gray squirrel	*Sciurus carolinensis*
Belted kingfisher	*Megaceryle alcyon*	Slender glass lizard	*Ophisaurus attenuates*	Hispid cotton rat*	*Sigmodon hispidus*
Northern mockingbird	*Mimus polyglottos*	Pygmy rattlesnake	*Sistrurus miliarius*	Eastern cottontail rabbit	*Sylvilagus floridanus*
Parula warbler	*Parula americana*	Eastern box turtle	*Terrapene carolina*	Gray fox	*Urocyon cinereoargenteus*
Flycatchers	*Tyrannidae* spp.	Garter snake	*Thamnophis sirtalis*	Red fox	*Vulpes vulpes*

** Species not surveyed for on Hurlburt Field, but commonly observed in Florida and the Southeastern United States.*

2.3.4 Threatened and Endangered Species and Species of Concern

Installation Supplement

The ESA of 1973 (Public Law 93-205) requires military installations to protect and conserve federally listed T&E plants and animals and their habitats. In addition, the ESA requires that installations having listed species develop specific plans for preservation of these species and their habitats. AFMAN 32-7003 further requires that all installations must prepare and maintain a current inventory of T&E species and their habitats as part of the installation habitat inventory.

If listed species or their habitats are present, formal consultation (Section 7 under the ESA) must be undertaken with the USFWS or NMFS as appropriate. Consultation procedures are defined in 50 CFR Part 402. In 1991, the Air Force signed a MOA to participate in the USFWS's Federal Neotropical Migratory Bird Conservation Program, which promotes and protects neotropical birds and their habitats. This two-year study (1994–1995) conducted by the then Air Armament Center, Environmental Management, and Natural Resources Division, Eglin AFB Florida, surveyed neotropical migrants every other week during April/May and September/October migration seasons. An observation station was placed at Hurlburt Field within the maritime hammock and former picnic area along the Santa Rosa Sound as part of this study.

Surveys for rare species in recent years include those documented in FNAI (1992; 1994b), Labat-Anderson (1994), USAF (1996), Flowers (1997), Printiss and Hipes (1997, 1999, 2000), and Hipes and Norden (2003), and Surdick (2009) as presented in Table 7. Species reported as occurring on Hurlburt Field include the reticulated flatwoods salamander (*Ambystoma bishopi*), red-cockaded woodpecker (*Picoides borealis*; RCW), white-top pitcher plant, Curtiss' sand grass (*Calamovilfa curtissii*), and gopher tortoise (*Gopherus polyphemus*). The primary habitats identified for these species are the wetlands and flatwoods in the western portion of the installation.

Table 7. Surveys for Rare Species Conducted at Hurlburt Field

Survey Type	Timeframe
Rare Plant Survey	1991, 1993, 2003, 2009, 2019/2020
Reticulated Flatwoods Salamander	1993-1994, 1999-00, 2003, 2018-2022 (USFWS)
Gopher Frog Survey	1993-1994
Invertebrate Survey	1996-1997
Comprehensive Rare Species Survey	1996-1997, 2003
Red-cockaded Woodpecker	2017-2022 (USFWS)
Reticulated Flatwoods Salamander Pond Vegetation Monitoring	2020-2022 (USFWS)
Gopher Tortoise Burrow Mapping	2009-2022

Table 8 lists rare wildlife observed by FNAI on Hurlburt Field. West Indian manatees (*Trichechus manatus*) and Gulf sturgeon (*Acipenser oxyrinchus desotoi*) have not been observed, but are known to occur in the Santa Rosa Sound.

Table 8. Rare Animals Documented at Hurlburt Field (1996–2020)

Scientific name	Common name	FNAI Global Rank	FNAI State Rank	Federal Status	State Status	Documented

Amphibians						
Ambystoma bishopi	reticulated flatwoods salamander	G2	S1S2	E	FE	2002-2003
Reptiles						
Alligator mississippiensis	American alligator	G5	S4	SAT	FT (S/A)	2008-2009, 2019-2020
Chelonia mydas	green sea turtle	G3	S2S3	T	FT	2019-2020
Gopherus polyphemus	gopher tortoise	G3	S3	C	ST	1996-1997, 2008-2009, 2019-2020
Plestiodon anthracinus syn. *Eumeces anthracinus*	coal skink	G5	S3	N	N	1996-1997, 2002-2003
Birds						
Picoides borealis	red-cockaded woodpecker (RCW)	G3	S2	E	FE	2008-2009, 2019-2020
Egretta rufescens	reddish egret	G4	S2	N	ST	1996-1997
Egretta tricolor	tricolored heron	G5	S4	N	ST	2008-2009
Haliaeetus leucocephalus	bald eagle	G5	S3	N	N	1996-1997, 2008-2009
Nyctanassa violacea	yellow-crowned night-heron	G5	S3	N	N	2008-2009
Nycticorax nycticorax	black-crowned night-heron	G5	S3	N	N	2008-2009

Pandion haliaetus	osprey	G5	S3S4	N	N	1996-1997, 2008-2009
Peucaea aestivalis syn. Aimophila aestivalis	Bachman's sparrow	G3	S3	N	N	1996-1997, 2002-2003, 2008-2009
Sternula antillarum	Least tern	G4	S3	N	ST	1996-1997, 2002-2003
Mammals						
Ursus americanus floridanus	Florida black bear	G5T4	S4	N	N	2002-2003, 2008-2009

***Source*:** FNAI personal communication, unpublished report

FNAI- Element Tracking Summary: G1 = Critically Imperiled, G2 = Imperiled, G3 = Vulnerable, G4 = Apparently Secure, G5 = Secure, T = Subspecies' or Variety's Rank, S1 = Critically Imperiled, S2 = Imperiled, S3 = Rare, S4 = Apparently Secure.

Federal Legal Status: C= Candidate for listing, SAT = Similar in Appearance, SC = Species of concern to USFWS.

State Legal Status: C= Candidate for listing at the Federal level by the USFWS, ST = state population listed as Threatened by the FFWCC, SSC= Species of Special Concern by the FFWWCC, FE = Listed as Endangered Species at the federal level by the USFWS, FT = Listed as Threatened Species at the Federal level by the USFWS, LT = Listed Threatened, LE = Listed Endangered, LS = Listed Special Concern, N = not currently listed.

Gum swamp, cypress domes, baygall and flatwoods dominate Hurlburt's natural communities lending ecological support to a diverse multitude of rare species identified in the aforementioned table. Hurlburt Field's Land Management Plan (see Appendices of this INRMP) characterizes each natural area into habitat units based on current vegetative type, land use, species and management activity. This plan was developed in 2000 and in conjunction with the MOA between the base and the USACE and FDEP to set aside 3,200 acres of wetlands and 125 acres of uplands for compensatory mitigation (USACE/FDEP permit #199900679). Together these guidelines provide overarching management strategies for the protection and preservation of rare species on Hurlburt.

In the past, Hurlburt Field monitored for the state-designated threatened least tern (*Sternula antillarum*) with the Audubon Society. Hurlburt Field had gravel rooftops which attracted the birds. The birds abandoned the rooftops in 2014/2015 and the rooftops were replaced with metal. Least terns are no longer present on Hurlburt Field and are not actively monitored.

In 2018, Hurlburt Field's Natural Resources Manager position became a USFWS/USAF Partnership position, and the USFWS staffed 2 Wildlife Biologists (GS-11, GS-9) at Hurlburt to conduct natural resources management activities, including T&E and rare faunal species surveys. USFWS performed reticulated flatwoods salamander, RCW, incidental gopher tortoise, and migratory bird surveys from 2018 to 2022. In 2021, USFWS began performing bog frog point count surveys. All USFWS surveys are planned to reoccur annually, as feasible.

Section 7.1 of this INRMP presents a summary of current management practices, surveys and status of T&E and rare species.

Installation Supplement

2.3.5.1 Wetlands

The USACE defines wetlands as "those areas that are inundated or saturated with ground or surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (33 CFR 328). Wetlands are an important natural system because of the diverse biological and hydrologic functions they perform. These functions include water quality improvement, groundwater recharge, pollution treatment, nutrient cycling, provision of wildlife habitat and niches for unique flora and fauna, storm water storage, and erosion protection. As a result, wetlands are protected as a subset of the "waters of the United States" under Section 404 of the CWA. The term "waters of the United States" has broad meaning under the CWA and incorporates deep water aquatic habitats and special aquatic habitats (including wetlands). "Jurisdictional" waters of the United States are areas regulated under the CWA and also include coastal and inland waters, lakes, rivers, ponds, streams, intermittent streams, vernal pools, and "other" waters that if degraded or destroyed could affect interstate commerce.

Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredged or fill materials into the waters of the United States, including wetlands. Therefore, even an inadvertent encroachment into wetlands or other waters of the United States resulting in displacement or movement of soil or fill materials has the potential to be viewed as a violation of the CWA if an appropriate permit has not been issued by the USACE. In addition, wetlands are protected under EO 11990 (43 Federal Register 6030) the purpose of which is to reduce adverse impacts associated with the destruction or modification of wetlands. Extensive swamps, marshes, ponds, and bayous occur in and around Hurlburt Field. Approximately 3,328 acres (1,347 hectares), or 52 percent of the installation, is comprised of state and federal jurisdictional wetlands (Figure 8).

Apart from their role in wildlife lifecycles, wetlands contribute a valuable ecosystem service by absorbing and removing pollution from runoff before it enters streams and other waterways. Additionally, wetlands contribute to the food web as they are typically characterized by dense vegetation that provides food and cover for wildlife. Amphibians are dependent on wetlands for breeding and foraging, and convert substantial nutrients (including carbon) back into the soils of these ecosystems through their roles as predators and prey. Small wetlands can be just as important as large ones by providing stepping stones for dispersal of amphibians and other wildlife across the landscape. Wetland vegetation communities (marsh, submerged vegetation, wet meadow, etc.) play an important role in amphibian life cycles; many amphibians use both the aquatic environment and the terrestrial environment, making them sensitive to water level variation and water quality. In some instances, water level fluctuations produce novel foraging opportunities (access to extended wetlands during high-water periods) and shelter against potential predators (flooded vegetation as cover). Low-water periods can also benefit amphibians that rely on wetlands; periodic drying usually prevents the establishment of fish, of which many species eat amphibian eggs.

The most dominant National Wetland Inventory type on Hurlburt Field is Palustrine Forested, with significant areas of Palustrine Scrub/shrub habitat, and some Palustrine Emergent Marsh. Small estuarine wetland areas are mapped bordering the Santa Rosa Sound. State and federal wetland boundaries throughout Hurlburt Field were most recently re-established during an extensive jurisdictional wetlands delineation survey conducted from 2010 to 2012. In the absence of a current Mean High Water Survey, the 4-foot (1.2-meter) contour was established by FDEP as the state's southernmost jurisdictional boundary on the base. All future projects constructed waterward of this line will require a survey to establish wetland characteristics. This boundary does not apply to federal jurisdiction.

Two very successful salt marsh areas were established along the Santa Rosa Sound shoreline near the old installation picnic area in 1995 (south of what is now Corvias Housing). The easternmost marsh is located on Hurlburt Field's southeast boundary in a cove at the mouth of a small drainage area. The other marsh is a few hundred yards west, directly in front of Hurlburt Field's old picnic area. Together the two marshes total 4.7 acres (1.9 hectares). Over time the marshes have evolved into systems that very closely mimic natural salt marsh communities with graduated vegetative zones governed by elevation and the whole suite of floral and faunal species normally found in these tidal environments. In the late 1990s, the FDEP requested and was granted permission to harvest seeds and seedlings from these two marshes to grow in their nurseries for use with other similar projects around the northwest region. Personnel from FDEP have also brought individuals who were entertaining possible marsh projects in lieu of retaining walls to see an example of a successful marsh project first hand in Hurlburt Field's marshes.

In 2002, a 4.3-acre (1.7 hectares) salt marsh was constructed along Santa Rosa Sound just east of Hurlburt Field's Soundside Club. This marsh was designed with more open water and deep water areas than the previous two marshes (referenced above). While it is a very different system from the previous two, it is equally successful. Submerged sea grasses have pioneered the site and have become established in this marsh due to the protective rock outcropping around the perimeter that reduces wave energy and provides a favorable environment for growth (1 SOCES, 2013).

These man-made salt marshes serve as partial mitigation credit for military construction projects permitted under USACE/FDEP Permit #199900679. In addition to serving as mitigation credit, these projects continue to help check shoreline erosion, provide valuable fish and wildlife habitat, and protect sensitive archaeological sites from degradation by erosion.

Wetlands are one of the most important environmental considerations at Hurlburt Field. Since most remaining uplands are already developed, Hurlburt Field's future construction projects have the potential to impact protected wetland areas. However, Hurlburt Field complies with all federal regulations, including the CWA, and implements BMPs to reduce wetland impacts. All proposed projects are reviewed during the EIAP process for impacts to wetlands and natural resources. If impacts cannot be completely eliminated, they are minimized by reconfiguring or relocating. If impacts cannot be completely minimized, Hurlburt Environmental engages regulators and initiates the permitting process. An example of a long-standing permit and mitigation plan that continues to benefit wetlands on Hurlburt is Permit #199900679, which led to the development of the Land Management Plan of 2000. In the mid-1990s, Hurlburt Field worked with FDEP and USACE to develop a 10 year/multi-project permit that included 7 projects that would impact wetlands. This was a precedent-setting move because it was the first permit of its kind ever issued in northwest Florida. The permit and associated modifications (5) included an extensive mitigation package for the impacts incurred to wetlands and ultimately allowed the mission much greater flexibility. Along with the 4.1 acre (1.7 hectare) saltmarsh restoration mentioned previously, another part of the mitigation package included the restoration of a 125-acre (51-hectare) forested site. The site had been clear-cut and planted in sand pine (*Pinus clausa*) in 1988 for pulpwood production, but was restored to longleaf and wiregrass. The restored area now contains many rare plants, including Curtiss' sand grass. Section 7.6 of this INRMP further discusses wetland protection.

2.3.5.2 Floodplains

Floodplains are defined by the United States Geological Survey (USGS) as, "the flat or nearly flat land along a river or stream or in a tidal area that is covered by water during a flood." These areas must be reserved to discharge the 100-year flood without cumulatively increasing the water surface elevation more than a designated height. When a floodplain is established, no additional obstruction (e.g., a building) should be placed in the floodplain that will increase the 100-year floodwater surface elevation. EO 11988 requires all Federal agencies to provide leadership and take action to reduce the risk of flood loss; to minimize the impacts of floods on human safety, health, and welfare; and to restore and preserve the natural and beneficial values served by floodplains, specifically the 100-year floodplain, in managing Federal lands and conducting Federal activities and programs affecting land use. Air Force installations have the responsibility to determine if proposed actions will occur in a floodplain, evaluate and document the potential effects, and consider alternatives to avoid these effects and incompatible development in the floodplain.

In 2020, Colorado State University and the Center for Environmental Management of Military Lands (CEMML) reviewed FEMA's floodplain data and generated updated maps using high-resolution elevation (1m LiDAR), precise land cover data (0.3 m), and sophisticated 2D hydraulic modeling (Colorado State University 2020; Figure 8). FEMA reviewed the maps and endorsed the models and methodology utilized. The report is available on Hurlburt Field's eDASH page.

Currently, FEMA does not have a 500-year floodplain analysis for Hurlburt Field and the new report fills that gap. The outdated FEMA flood map underestimated potential inundation from a 100-year storm by 11.3%. However, FEMA overestimated the number of buildings that lie within the 100-year floodplain by 45 buildings.

Based on the new assessment of the Air Force Geospatial Information Management System (AFGIMS) data (dated December 18th, 2018):

- The following assets located on Hurlburt Field are found to be within the CSU 500-year floodplain. FEMA does not have a 500-year flood map for Hurlburt Field.
    - 117 Real Property Buildings are exposed
    - 1 Hazardous Materials Site
    - 5 Storage Tanks
    - 0.6% of the Airfield

- The following assets located on Hurlburt Field are found to be within the CSU 100-year floodplain. Comparisons found to be within the FEMA 100-year floodplain provided in parenthesis below.
    - 38 Real Property Buildings (compared to 71 by FEMA) are exposed
    - 1 Hazardous Materials Sites (compared to 3 by FEMA)
    - 0 Hazardous Waste Sites (compared to 2 by FEMA)
    - 2 Storage Tanks (compared to 7 by FEMA)
    - 0.3% of the Airfield (compared to 4% by FEMA)

The 95th percentile maximum flood depth is projected to be 6.6 feet (2.0 meters) for the 500-year storm and 5.1 feet (1.6 meters) for the 100-year storm. The 95th percentile maximum flood velocity is projected to be 0.7 feet/second (0.2 meters/second) for the 500-year storm and 0.5 feet/second (0.2 meters/second) for the 100-year storm. The 95th percentile maximum shear stress on the local terrain due to flooding is projected to be 0.3 lb/ft^2 (1.5 kg/m^2) for the 500-year storm and 0.2 lb/ft^2 (1.0 kg/m^2) for the 100-year storm.

The enhanced processes established by CSU and the resulting new flood maps produced will greatly benefit planning and mission readiness at Hurlburt Field. Figure 8 shows the new CSU floodplain layers and impacted facilities.

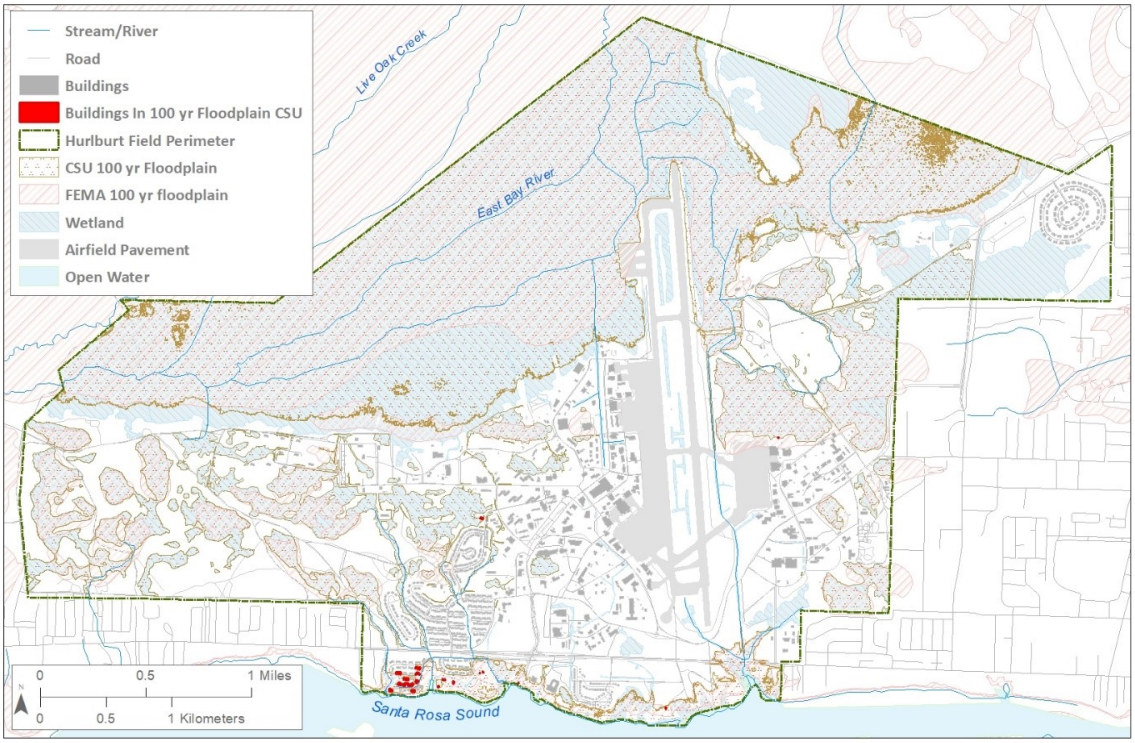


Figure 8. Wetlands and 100-Year Floodplain of Hurlburt Field

2.3.6 Other Natural Resource Information
Installation Supplement

Biological inventories and surveys conducted on the installation provide vital information to support various NR program management. The following studies have assisted Hurlburt Field's NRM and land use planners in forecasting potential impacts to wildlife.

- Colorado State University. 2020. U.S. Air Force Environmental GIS Data Floodplain Area Analysis, Hurlburt Field.
- Colorado State University. 2018. Climate Change Summary, Hurlburt Field.
- Florida Natural Areas Inventory. 2021. Surveys of Invasive Plant Species at Hurlburt Field, Okaloosa county. Report to the U.S. Fish and Wildlife Service.

- Florida Natural Areas Inventory. 2020. Surveys for Listed, Rare and Invasive Species on Air Force Base Installations in Florida. Hurlburt Field, Okaloosa County, Florida. Report to the U.S. Fish and Wildlife Service, Tallahassee, FL.
- Florida Natural Areas Inventory. 2009. Rare Plant and Animal Inventory of Air Force Special Operations Command, Hurlburt Field, Florida.
- U.S. Environmental Protection Agency. 2005. "A survey of Isolated Wetland Function and Condition on Hurlburt Field."
- Florida Natural Areas Inventory. 2003. "Rare Plant and Animal Inventory of Air Force Special Operations Command, Hurlburt Field, Florida."
- Florida Natural Areas Inventory. 2002. "Flatwoods Salamander Survey of Hurlburt Field, Florida.
- Florida Natural Areas Inventory. 2000. "Flatwoods Salamander Survey and Habitat Evaluation of Eglin Air Force Base, Hurlburt Field, and Tyndall Air Force Base."
- Florida Natural Areas Inventory. 1997. "Rare Plant, Rare Vertebrate, and Natural Community Survey of Air Force Special Operations Command, Hurlburt Field, Florida."
- Flowers, R. Wills. 1997. "An Invertebrate Survey of Hurlburt Field, Florida with Special Reference to Species of Special Concern."
- Formal Determination of the Landward Extent of Wetlands and Other Surface Waters, 2012. FDEP, USACE.

Mission-related Ecosystem Services

The USAF promotes mission-focused stewardship of the ecosystems it is entrusted with. As such, it is in the common interest to maintain the ecosystems in as natural a state as feasible. It is in the USAF interest to keep buffers around airfields, bombing ranges, test sites and other existing mission activities. These buffers are unmaintained natural areas. The "services" provided by these areas are: sound abatement by offering distance and absorbing materials; distance buffers for projectiles; safety zones under airport runway approaches; security buffers to highlight the approach of intruders; training grounds for anti-terrorism and infiltration. All of these activities require an unmaintained or minimally managed ecosystem to the benefit of the USAF mission and the natural ecosystems. For more information, visit http://www.fs.fed.us/ecosystemservices/.

2.4 Mission and Natural Resources

2.4.1 Natural Resource Constraints to Mission and Mission Planning

Installation Supplement

Constraints are considered to be anything that causes restrictions on the mission. In some cases, the presence of protected species, water resources, or sensitive habitats may limit the types or degree of activities in the area, but rarely are mission activities completely restricted due to natural resource issues. Early consideration of these issues in planning (i.e., EIAP) typically results in solutions where the mission can proceed unimpeded, either through modifications in location or timing or by obtaining permits through the appropriate regulatory agency that allow the potential for negative impact to resources (i.e., Section 7, Section 404, Section 401, etc.).

The presence of T&E species and sensitive or important habitats increasingly constrain military missions in the land and water areas. Sometimes the constraints are seasonal, as in a case where a mission must avoid the nesting seasons of a protected species. In this case, the mission may be scheduled to avoid nesting seasons of the species in question. In other circumstances, the constraints may involve comprehensive consultation periods before a mission can be conducted, or the added cost of observers to monitor the protected species (or its habitat) during the mission. Early consideration of these issues in planning typically results in solutions where the mission can proceed unimpeded, either through slight modifications in location or timing, by implementing requirements from an existing programmatic consultation, or by obtaining permits through the appropriate regulatory channels that allow the potential for negative impacts to the resource (i.e., ESA Section 7 consultation). On Hurlburt, all wetlands have been delineated through a formal process in order to save time and money on a project-by-project basis and to also minimize the risk for unauthorized impacts. All environmental layers are routinely updated and available on GeoBase and accessible to key decision-makers who understand that early planning is crucial in making natural resources a consideration rather than a constraint.

Even the loss of protected species or important habitats in the immediate vicinity of Hurlburt Field by non-military factors places constraints on the military mission by increasing the natural resource management responsibilities of the Air Force. As natural resources are depleted outside Hurlburt Field, the resources within the installation boundary become more valuable and must be managed more carefully.

Buffer zones have been established for sensitive species where off road driving, digging, cutting of vegetation and other ground disturbing activities are prohibited. These zones, primarily for the purpose of protecting target species, allow for 1500 feet (457 meters) from the center of known reticulated flatwoods salamander breeding ponds, 200 feet (61 meters) from RCW trees, and 25 feet (7.6 meters) from gopher tortoise burrows. These data layers can also be found on the GeoBase.

2.4.2 Land Use

Installation Supplement

Hurlburt Field has over 6,375 acres (2,580 hectares) of land within Okaloosa County (USAF, 2005). The land distribution of Hurlburt Field is divided into a western and eastern section by the 9,600-foot (2,926 feet) runway and the associated airfields (Figure 9).

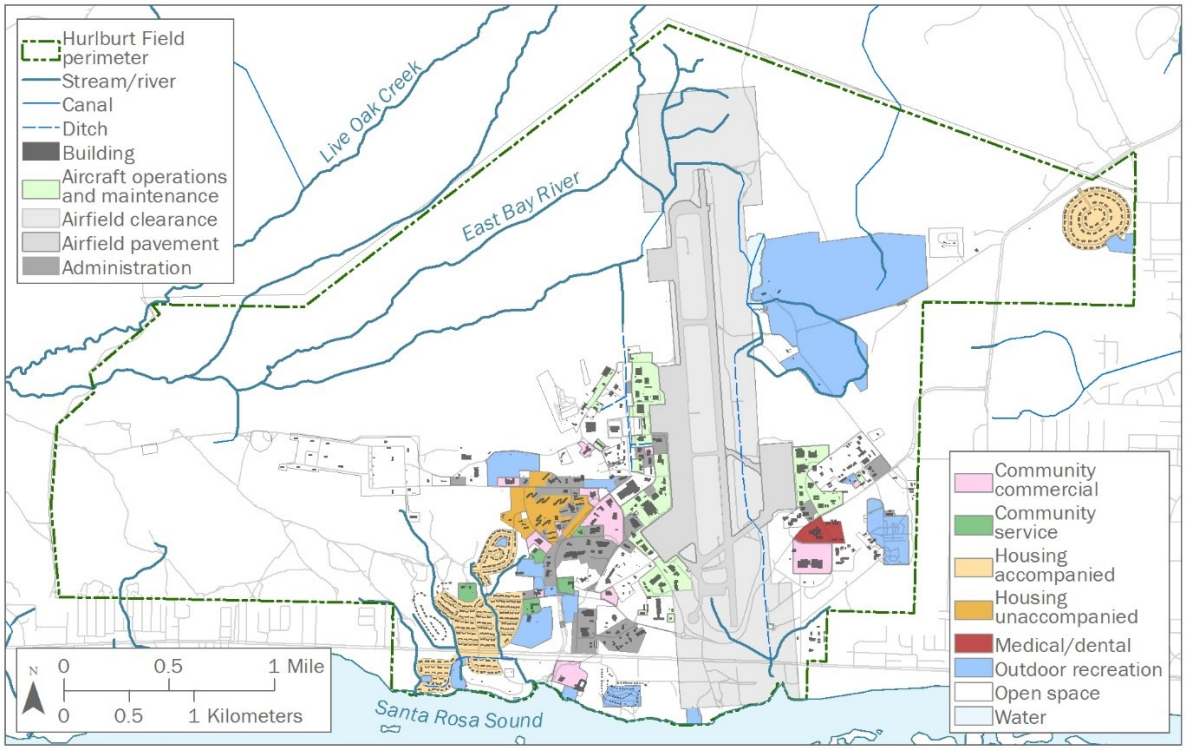


Figure 9. Land Use Distribution at Hurlburt Field

2.4.3 Current Major Mission Impacts on Natural Resources

Installation Supplement

The current mission at Hurlburt Field may create pollution concerns that have the potential to adversely affect natural resources on the installation if left unchecked.

Hurlburt Field operates a small arms range, an EOD area, a munitions storage area, a DIT (Dynamics of International Terrorism) range, skeet range, and services operated rifle and pistol range all bordering natural areas, some with jurisdictional wetland borders. The airfield and associated aircraft landing zones are intersected by and bordered by jurisdictional wetlands.

Hurlburt Field participates in the Operational Range Assessment Program (ORAP), a voluntary program established by the DoD in 2005. U.S. Air Force Headquarters officially established the ORAP in 2006, and the program is managed by AFCEC. The ORAP is part of a sustainability initiative to assess the potential impacts of military mutions use on operational ranges in order to:

1. Ensure the long-term viability of operational ranges while protecting human health and the environment.

2. Enhance the ability to prevent or respond to migration of munitions constituents (MC) from an operational range to off-range areas.

The ORAP is governed by the following policies and documents:

DoD Directive 4715.11, Environmental and Explosives Safety Management on Operational Ranges Within the United States, Certified Current as of 24 April 2007.

- DoD Instruction 4715.14, ORAs, 15 November 2018.
- U.S. Air Force, ORAP, ORA Plan, Version 3, 3 December 2011.

ORA is a two-phase process, with Phase I being an initial qualitative effort to evaluate whether or not a potential exists for release or substantial threat of release of MC to off-range areas. Phase II fills data gaps identified in Phase I, and evaluates suspected off-range release or threat of release to assess risk to human and ecological receptors. Phase II also determines if further evaluation is warranted. ORAs are conducted every 5 years.

At Hurlburt, the EOD, Small Arms Range, Dynamic of Internatonal Terrorism, and Rifle and Pistol Club Complex are evaluated by the ORA for Phase II. The most recent evaluation occurred in 2021, and a report will be ready in early 2022.

2.4.4 Potential Future Mission Impacts on Natural Resources

Installation Supplement

Natural resources face potential future impacts from new construction and conversion of habitat into new training areas. Habitat alteration is a major driver with the potential to reduce habitat used by protected and sensitive species.

The role of Hurlburt Field as a focus for Air Force special operations education, planning, and training is expected to continue to grow. Projected growth is detailed in the IDP. Outward expansion at Hurlburt is tightly constrained by jurisdictional wetlands (Section 2.3.5 of this INRMP) and associated T&E species habitat; therefore, long-range planning objectives will organize related activities into functional core areas or subareas utilizing multi-story construction housing multiple agencies in an effort to maximize operational efficiency and minimize footprint. Hurlburt Field can expect to see a consolidation and collocation of land uses to maximize land area and improve transportation. All projects will be thoroughly reviewed under the EIAP.

Water may become a growth-limiting factor in the Florida Panhandle over the next decade. Concerns over the availability of water from the Floridan aquifer will increase as the regional population continues to grow. Hurlburt Field's joint initiative with the State and the City of Fort Walton Beach in reusing treated wastewater from the Hurlburt Field wastewater treatment plant, and Hurlburt Field's efforts at expanding the use of the Sand and Gravel aquifer for both irrigation and potable water will contribute to reducing reliance on the Floridan aquifer.

3 ENVIRONMENTAL MANAGEMENT SYSTEM

The USAF environmental program adheres to the Environmental Management System (EMS) framework and its Plan, Do, Check, Act cycle for ensuring mission success. Executive Order (EO) 13834, *Efficient Federal Operations*; DoDI 4715.17, *Environmental Management Systems*; AFI 32-7001, *Environmental Management*; and International Organization for Standardization (ISO) 14001 standard, *Environmental Management Systems – Requirements with guidance for use*, provide guidance on how environmental programs should be established, implemented, and maintained to operate under the EMS framework.

The natural resources program employs EMS-based processes to achieve compliance with all legal obligations and current policy drivers, effectively manage associated risks, and instill a culture of continual improvement. The INRMP serves as an administrative operational control that defines compliance-related activities and processes.

4 GENERAL ROLES AND RESPONSIBILITIES

General roles and responsibilities that are necessary to implement and support the natural resources program are listed in the table below. Specific natural resources management-related roles and responsibilities are described in appropriate sections of this plan.

Installation Supplement

Office/Organization/Job Title (Listing is not in order of hierarchical responsibility)	**Installation Role/Responsibility Description**
Installation Commander	The Hurlburt Field Wing Commander, 1 SOW/CC is responsible for the following aspects of the Hurlburt Field INRMP: • Approves the INRMP • Certifies the annual review of the INRMP as valid and current; or delegates the certification of the annual INRMP review to the appropriate designee • Controls access to and use of installation natural resources • Assures that funding is requested from AFCEC to meet obligations under the INRMP
AFCEC Natural Resources Media Manager/Subject Matter Expert (SME)/ Subject Matter Specialist (SMS)	Provides technical assistance and guidance to AF on natural resources issues; Advocate for resources required to implement approved installation Integrated Natural Resources Management Plans
Installation Natural Resources Manager/POC	The Hurlburt Field Natural Resources Manager, 1 SOCES/CEIE, serves to implement terms of the INRMP and acts as a liaison between installation proponents, surrounding communities, and other appropriate agencies such as USFWS, FWC and privatized housing management.
Installation Security Forces	Controls perimeter access
Installation Unit Environmental Coordinators (UECs); see AFI 32-7001 for role description	Assigned to all squadrons and tenant units, they are responsible for unit-specific oversight of operations that may impact environmental resources.
Installation Wildland Fire Program Manager	AFCEC provides support through the Eglin Wildland Support Module located at Eglin/Jackson Guard.
Pest Manager	Personnel are part of the Civil Engineer Squadron and respond to all other nuisance wildlife calls including snakes and alligators. All wildlife are handled in accordance with FWC regulations. Pest Management regularly interacts with and supports base natural resources and BASH personnel on a case-by-case basis.
Range Operating Agency	
Conservation Law Enforcement Officer (CLEO)	
National Environmental Policy Act (NEPA)/Environmental Impact Analysis Process (EIAP) Manager	Works closely with Natural Resource Program Manager for review of construction activities, through the CZMA as part of the NEPA review process. Projects do not proceed until all clearances and approvals are in place.

US Forest Service	Partner agency provides SME support and coordinates special programs such as Tree City USA Certification.
US Fish and Wildlife Service	Coordinates on an annual basis; reviews annual updates to the INRMP; reviews/comments 5-year review of INRMP; if listed species or their habitat are present on the installation then there must be a formal consultation with USFWS; has jurisdiction over migratory birds, federally listed T&E species, certain marine mammals, and freshwater and anadromous fish.
ESOH Council	Installation leadership is connected to base level environmental management through the ESOH Council. All assigned squadrons and tenant units are represented on this Council by a Unit Environmental Coordinator who is responsible for unit-specific oversight of operations that may impact environmental resources. The Council reviews the overall environmental management system at scheduled intervals to ensure its continuing suitability, adequacy and effectiveness. • Guide policy for the natural resources program at Hurlburt Field. • Recommend opportunities for improvement and identifies changes to policies, environmental objectives and targets. • The EMS Cross-Functional Team chair works within 1 SOCES and is responsible for facilitating the review process at the base and leadership level.
Installation Management Flight	The Environmental Element is responsible for the revision, update and monitoring of the Hurlburt Field INRMP as follows: • Review AF Form 813, Request for Environmental Impact Analysis, to determine potential natural resource impacts resulting from proposed actions. • Act in accordance with 32 Code of Federal Regulations Part 989, Environmental Impact Analysis Process. Documented on AF Form 813, Request for Environmental Impact Analysis. • Attend the Facilities Review Board to ensure an AF Form 813, Request for Environmental Impact Analysis has been or will be submitted for proposed projects with the potential to impact the environment. • Collaborate with Natural Resources Manager to address any proposed activity with the potential to negatively impact natural resources. • Provide a status of the natural resources management program to the ESOH Council upon request. • Coordinate with the USFWS and the FWC. • Prepare an update to the Hurlburt Field INRMP as needed in coordination with AFCEC, the USFWS and the FWC. • Project 5 years of goals for the implementation of the Hurlburt Field INRMP. Identify objectives to support each goal. • Request appropriate funded projects from AFCEC to achieve each objective. • Manage funding for projects. • Manage available manpower to implement the Hurlburt Field INRMP. • Continuously update and adjust goals and objectives as conditions change on the e-Plan website, and annually coordinate.

5 TRAINING

USAF installation NRMs/POCs and other natural resources support personnel require specific education, training, and work experience to adequately perform their jobs. Section 107 of the Sikes Act requires that professionally trained personnel perform the tasks necessary to update and carry out certain actions required within this INRMP. Specific training and certification may be necessary to maintain a level of competence in relevant areas as installation needs change, or to fulfill a permitting requirement.

Installation Supplement

- Black Bear Response Training – Security Forces training program provided by FWC when requested by NRM.
- Wetlands Awareness – as provided within the EMS e-DASH site and available for all Common Access Card (CAC) holders.

6 RECORDKEEPING AND REPORTING

6.1 Recordkeeping

The installation maintains required records IAW Air Force Manual 33-363, *Management of Records*, and disposes of records IAW the Air Force Records Management System (AFRIMS) records disposition schedule (RDS). Numerous types of records must be maintained to support implementation of the natural resources program. Specific records are identified in applicable sections of this plan, in the Natural Resources Playbook, and in referenced documents.

Installation Supplement

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6.2 Reporting

The installation NRM is responsible for responding to natural resources-related data calls and reporting requirements. The NRM and supporting AFCEC Natural Resources Media Manager and SMS should refer to the Environmental Reporting Playbook for guidance on execution of data gathering, quality control/quality assurance, and report development.

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INRMP updates, which include the Land Management Plan discussed in Sections 1.4, 2.3.4, 2.3.5.1, 6.2, 7.6, 7.8, 7.9, 7.11, and Appendix J of this INRMP, will be submitted to the USACE regulatory office to fulfill the "in perpetuity" land management requirements of Permit # 199900679.

7 NATURAL RESOURCES PROGRAM MANAGEMENT

This section describes the current status of the installation's natural resources management program and program areas of interest. Current management practices, including common day-to-day management practices and ongoing special initiatives, are described for each applicable program area used to manage existing resources. Program elements in this outline that do not exist on the installation are identified as not applicable and include a justification, as necessary.

7.1 Fish and Wildlife Management

Installation Supplement

Applicability Statement

This section applies to AF installations that manage fish and wildlife on AF property. This section is applicable to Hurlburt Field.

Program Overview/Current Management Practices

The USFWS, FWC, and NMFS all provide valuable insight to natural resource conservation programs at Hurlburt Field. When agency officials sign a Final INRMP, it serves as a mutual agreement between these agencies and the U.S. Air Force. These agencies continue to interact with NRM at Hurlburt Field to discuss priorities, set goals, and coordinate the annual update of the INRMP.

Hurlburt Field staff employs various tested measures to respond to human-bear conflicts. Education on good housekeeping practices (such as locking residential trash receptacles) remains the most effective approach for preventing such encounters. Articles published in the installation newspaper and social media, brochures and strategically placed signs educate the public about local bear and alligator behavior and the laws that protect them and people. Hurlburt Field's NR personnel consult and coordinate with FWC to prevent human-alligator or human-bear conflicts. Hurlburt Field regularly holds the FWC Bear Response Training class to train bear response agents, including Security Forces troops.

Offsite relocation of native captured wildlife is highly discouraged. There are well documented negative impacts of relocation on resident wildlife populations and relocated individuals. Any relocation of native species outside of Hurlburt Field would occur with appropriate coordination and in accordance with USFWS and FWC regulations, and with the approval of the Hurlburt NRM. Live traps are used by Pest Management to remove animals such as opossums, raccoons or other small pests. These animals are released to an onsite location to prevent danger or damage to the animal, base personnel, and base assets.

State and Federal Jurisdiction of Fish and Wildlife

The State of Florida has jurisdiction over non-federally listed resident fish and wildlife throughout the state including Hurlburt Field. The USFWS has jurisdiction over migratory birds, federally listed T&E species, certain marine mammals, and freshwater and anadromous fish. The NMFS has jurisdiction over certain marine mammals, sea turtles in-water, and Gulf sturgeon in the Gulf of Mexico. Hurlburt Field is required to comply with federal fish and wildlife laws such as the ESA, which prohibits the unauthorized taking of a federally threatened or endangered species and requires federal agencies conserve those species and consult with the USFWS on actions that may affect them. The USFWS has been a strong conservation partner to Hurlburt Field and has worked closely with the NRM on the installation. The main role of USFWS on the installation has been to guide the NR staff in the conservation and management of the federally listed T&E species occurring on the installation in a manner which sustains and supports the diverse training military mission at Hurlburt Field.

Hunting and Fishing Program Organization and Management

Deliberate management of wildlife populations is necessary to sustain and enhance biological diversity and the viability of wildlife populations and to maximize the compatibility of wildlife and human activities. To achieve these goals, it is vital that habitat management activities be coordinated with other land management and mission-related activities.

Hunting and Fishing Policy, Regulations, and Fee Structure.

In accordance with AFMAN 32-7003, *Environmental Conservation*, the designated installation NRM is responsible for management and oversight of all hunting and fishing programs. Currently, Hurlburt Field does not have a hunting program in place because Hurlburt does not allow public access due to the sensitive nature of the base's missions. There is no hunting on Hurlburt Field. Fishing opportunities are allowed for military personnel and visitors with base access passes at Hurlburt Lake and along the Santa Rosa Sound, with appropriate state fishing licenses. Outdoor recreation is allowed along the numerous jogging trails, and along the Grace Brown Nature Trail (located on the Soundside, south of Corvias Housing and southeast of the Soundside Club). All persons fishing, or engaging in outdoor recreational activities on Hurlburt Field, must comply with all applicable federal and state laws, rules, and regulations.

The only pond open to fishing on Hurlburt Field is Hurlburt Lake (Figure 5). Specific regulations may be posted as needed at the Lake. Because base access is limited and all personnel have been vetted through the Visitor Control Center, Hurlburt Lake's new fishing pier is a "fee-free" fishing pier, and is not subject to Eglin AFB's permit policy (no Eglin fishing permit is required to fish at Hurlburt Lake). Hurlburt also constructed a new fishing pier that is located on the Soundside near the Force Support Squadron's Recreation Office, which provides additional fishing opportunities for shoreline saltwater fishing. Florida residents may obtain a free state fishing license that permits saltwater fishing from the shoreline or a structure attached to the shoreline. This license does not allow fishing from a boat or on an island that was accessed by boat. See https://myfwc.com/license/recreational/saltwater-fishing/shoreline-faqs/ for more information about the State's shoreline saltwater fishing license. Freshwater fishing, or saltwater fishing from boats, is allowable along the Santa Rosa Sound as long as boats are not beached on military property (see posted signs along the shoreline, restriction does not include the Hurlburt Marina though Marina rules apply); licenses are available at the Okaloosa Tax Collector's office on Hurlburt Field, as well as several locations off-base, and online (see www.myfwc.com for more information).

The management of the fishing program on Hurlburt Field is coordinated through Hurlburt Environmental NR and FWC. FWC's Fish and Wildlife Research Institute (FWRI) program maintains a partnership with Hurlburt NR to perform angler surveys at the fishing piers on Hurlburt.

7.2 Outdoor Recreation and Public Access to Natural Resources
Installation Supplement

Applicability Statement

This section applies to all AF installations that maintain an INRMP. Hurlburt Field is required to implement this element.

Program Overview/Current Management Practices

Non-consumptive outdoor recreation opportunities on Hurlburt Field include jogging, biking, hiking, and birding. The Grace Brown Nature Trail and the picnic area along the Santa Rosa Sound provide additional recreational opportunities for installation personnel, as well as members of the general public during special events (with military ID or base access passes). Softball fields, basketball courts, a paintball area, and a skeet range provide additional recreation opportunities. Both the paintball area and skeet range are located off-Hurlburt on Eglin AFB, and require an Eglin Outdoor Recreation Permit. See https://eglin.isportsman.net for more information about a permit and accessing the paintball area or skeet range.

The Grace Brown Nature Trail is a 1.5 mile loop trail that extends from the trail head located adjacent to the Soundside Club and runs alongside the Santa Rosa Sound behind Corvias Housing. The trail includes interpretive signs, benches, picnic tables and elevated boardwalks crossing wetland marshes and other forested wetland areas. Several interesting ecosystems can be viewed from the trail, including mesic hammocks that provide refuge and resources for seasonally migrating birds, and the salt marshes mentioned in the wetland section, where secretive marsh birds can be spotted by patient birders. The trail also provides put in/take out places for kayakers to access the Santa Rosa Sound from Corvias Housing, and several places for shoreline fishing. The trail was substantially constructed through a partnership between the installation and the local scouting community. To date, a total of 18 scouts have obtained the Eagle Scout badge through projects related to this trail. In addition, the trail hosts many environmentally-related activities for celebrating Earth Day, Arbor Day, and National Public Lands Day, such as guided nature walks, bird watching activities and geocaching. Hurlburt NR often hosts trail clean-up and maintenance volunteer efforts to improve the Nature Trail and support outdoor recreation.

The Hurlburt Field Community Park features batting cages, an interactive fountain, a skateboard park, and a soccer field. There are also numerous softball fields, a running track, tennis courts, a golf course and miles of jogging trails.

Public Access Areas

Hurlburt Field is a closed base with the exception of minimal publicized special events. In general, public access to Hurlburt Field natural resources, outdoor recreation areas, and facilities is restricted. This policy is a necessary requirement of base security to insure the successful completion of the base missions. Safety considerations must be made when developing dispersed outdoor recreation opportunities in natural resource management areas. Wildlife may be found just about anywhere on base and participation in dispersed outdoor recreation activity carries with it the inherent risk of an encounter.

Privately owned off road vehicles (e.g., four wheelers, ATVs, dirt bikes, go-carts, etc.) or any motorized privately owned vehicles (POV) are restricted to street use and are not allowed within the natural areas of Hurlburt Field. Off-road Vehicle (ORV) use in natural resource areas degrades habitat, creates air and soil erosion, and conflicts with natural resource management goals and objectives. For example, protection of wetland areas, restoration of native prairies, wildlife habitat enhancement and watchable wildlife programs, or the maintenance of grasslands to encourage and increase ground nesting neo-tropical migratory bird populations on the installation are disturbed by unauthorized ORV use.

7.3 Conservation Law Enforcement
Installation Supplement

Applicability Statement

This section applies to all AF installations that maintain an INRMP, as all installations are required to provide a method for enforcement of conservation laws. Hurlburt Field is required to implement this element.

Program Overview/Current Management Practices

State and Federal Jurisdiction of Fish and Wildlife

Florida owns and retains jurisdiction over resident fish and wildlife throughout the state, including Hurlburt Field. The FWC established by Article IV, Section 9 of the Florida State Constitution is the governmental body responsible for the conservation of resident fish and wildlife. As such, the FWC establishes rules, regulations and season dates governing the taking of resident fish and wildlife species.

The USFWS has jurisdiction over migratory birds, federally listed T&E species, certain marine mammals, and freshwater and anadromous fish. Hurlburt Field is required to comply with federal fish and wildlife laws such as the ESA, which prohibits the unauthorized taking of a federally listed T&E species. ESA requires that federal agencies conserve these species and consult with the USFWS on actions that may affect them.

The 1st Special Operations Wing (SOW) Commander (CC) has Installation Command Authority over Hurlburt Field. Federal jurisdiction over Hurlburt Field, however, is proprietary. As such, the 1 SOW/CC does not have authority to enforce state laws. Additionally, the 96 TW Commander, the Installation Commander at Eglin AFB, still exercises control over the real estate Eglin AFB reserve, which includes Hurlburt Field.

Both the 1 SOW/CC and Corvias, the local privatized housing manager, will utilize the influence and authorities available to them to ensure compliance with conservation law. The 1 SOW/CC, as Installation Commander, has the inherent authority under Department of Defense Instruction 5200.08, paragraph 3.2, to protect installation resources and control base access. This includes the authority to suspend or revoke access to Hurlburt Field. This is referred to as barment. The Installation Commander can also utilize the 1 SOSS to respond to incidences involving wildlife and conservation law to inform those involved regarding the requirements of the INRMP and to contact state fish and wildlife enforcement officers where further action or law enforcement measures are needed. Additionally, if military members are engaging in behaviors inconsistent with conservation law, the matter can be referred to the individual's military chain of command, where direct orders may be issued, or administrative action can be taken, if appropriate. In order to promote compliance with state wildlife laws among base housing residents, the privatized housing manager, Corvias, after coordination with the 1 SOSS/SFS and 1 SOCES/CEIE/Natural Resources, can issue written letters notifying residents of behaviors that can lead to wildlife conflict and recommended corrective actions. After the initial notice, Corvias will send a second and a third warning notice. If the behaviors of concern are not corrected after the third notice, the matter will be referred through 1 SOCES/CEIE to the military commander, for military personnel. If the individuals are not military or the military chain of command is not successful, the matter can be referred to the installation commander, who under the authority of AFI 32-6007, para 1.20, can bar residents from the installation.

In the event further enforcement actions are needed, the matter will be referred through 1 SOCES/CEIE to FWC Officers on Eglin AFB, or elsewhere. Such officers would have jurisdiction to enter Hurlburt Field and would be provided appropriate access to Hurlburt Field to fulfill their responsibilities. Eglin AFB is designated as a State of Florida Wildlife Management Area (WMA), and because Eglin holds the land rights under Hurlburt Field, Hurlburt is included in the Eglin WMA. The FY18 AFCEC agreement with the FWC to provide conservation law enforcement support to AF installations within the state, including Eglin AFB, therefore applies to Hurlburt Field. The Enhanced Patrol program initiated at Eglin AFB (and Hurlburt Field through Eglin land ownership) allows the AF to employ off-duty FWC Officers to enforce fish and wildlife related laws, while acting in official capacity and utilizing state issued vehicles and equipment. Current Conservation Law Enforcement Program funding level provides Eglin AFB 60 hours of enforcement effort per week. This program has proven hugely successful at Eglin.

In FY19, AFCEC supported an effort to obtain two LE FTEs from the USFWS for Eglin AFB. A comprehensive Conservation Law Enforcement Program (CLEP) was created and funded for several Air Force Bases. USFWS designated the individuals as Fish and Wildlife Officers (FWOs). The Eglin Test Wing Commander approved and signed a CLEP and coordinated with 96 SFS, FWC, and local LE to stand up the program at Eglin AFB. If the need for engagement by law enforcement officers increases, Hurlburt Field will request assistance from AFCEC to modify Eglin's agreement with the USFWS to include Hurlburt Field, or to establish its own agreement. Hurlburt Field has never required federal law enforcement, but situations may arise in the future that necessitate a response (e.g. wildlife conflicts that involve ESA listed species such as poaching Gulf sturgeon or migratory birds).

7.4 Management of Threatened and Endangered Species, Species of Concern, and Habitats

Installation Supplement

Applicability Statement

This section applies to AF installations that have T&E species on AF property. This section is applicable to Hurlburt Field.

Program Overview/Current Management Practices

Legal Requirement to Manage and Conserve T&E Species

The ESA of 1973 is the primary legal driver for the protection and management of federally listed T&E species. The purposes of the Act are: "…to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions set forth in subsection (a) of this section."

The consultation clause, Section 7(a)(1) of the Act further reads: "All Federal agencies shall, in consultation with and with the assistance of the Secretary (Interior and/or Commerce), utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species listed pursuant to section 4 of this Act."

The Act defines the terms "conserve," "conserving," and "conservation" as meaning: "use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include the regulated taking."

To further stress and clarify the importance of conserving T&E species, the DoD along with the Departments of Agriculture, Commerce, Interior, Transportation, and the United States Environmental Protection Agency (USEPA) signed a Memorandum of Understanding (MOU) in 1994. This MOU reads as follows: "Each individual agency that is a party of this MOU will: Use its authority to further the purposes of the ESA by carrying out programs for the conservation of Federally listed species, including implementing appropriate recovery actions that are identified in recovery plans."

Direct Mission Support

Section 7(a)(2) of the ESA requires that each federal agency consult with the NMFS, USFWS and/or the FWC (as appropriate) on proposed actions that the Air Force has determined may affect listed T&E species. This initial determination is made as part of the EIAP under NEPA, the National Environmental Policy Act of 1970. This process assesses potential impacts of proposed mission activities on natural resources with special emphasis on T&E species and wetlands. Clear project proposals are required with details of the proposed mission activity and recommended conditions help to facilitate the review process. The NRM acts as the liaison between the proponent and regulatory agencies (USFWS and NMFS) managing the ESA Section 7 and Marine Mammal Protection Act (MMPA) consultation process. Before beginning any consultations, the NRM works with the proponent and other decision-makers including the community planner to determine if the mission fits under a pre-existing or programmatic consultation or to identify if other ways to adjust location, timing or types of activities will avoid or minimize impacts to T&E species and their protected habitats. Often, agreement to follow mission avoidance and minimization criteria has allowed the mission to eliminate the need for consultation or consult on an informal basis to minimize the length of time required for regulatory coordination.

On the surface, many proposed actions have the potential to impact T&E species. Often times, however, it is the support activities associated with the mission, rather than the mission itself, that have the greatest potential to impact T&E species. The role of the NRM is to understand the parameters in which the mission must occur and find solutions to avoid impacts to T&E species. If all impacts can be avoided, a formal Section 7 consultation (with NMFS and/or USFWS) is not required. If it is not possible to avoid impacts to T&E species or sensitive habitat, then the NRM or NEPA staff initiates consultation on behalf of the proponent through the submission of a Biological Assessment (BA) to the USFWS or NMFS. Table 9 identifies consultations related to proposed actions with the potential to affect T&E species or their habitat.

Table 9. Mission Activities and Related T&E Consultations

Project	Date	Agency
Eglin Road and Stream Crossing Elimination and Replacement BA	2006	USFWS
Boat Storage Facility	2007/2009	USFWS/NMFS
Planned Growth Environmental Assessment (EA)	2009	USFWS

EOD/Close Quarters Addition	2010	USFWS
Northeast Area Development	2011	USFWS
Military Housing Privatization Initiative	2011	USFWS
West Gate EA Study	2013	USFWS
Timber Harvest BA (Eglin)	2014	USFWS
Range Road Maintenance	2014	USFWS
Hardwood Control in Flatwoods Salamander Ponds BA	2014	USFWS
Hardwood Control in Flatwoods Salamander Ponds BA	2018	USFWS

Management of Federally Listed Threatened and Endangered Species

Specific management and monitoring activities for many of the species listed below are addressed in the Hurlburt Field Land Management Plan. This Plan provides a basis for the various actions the Hurlburt NRM is undertaking to effectively manage and monitor T&E species and associated habitats.

7.4.1 Federal Special Status Species

Reticulated Flatwoods Salamander

The Frosted Flatwoods salamander (*Ambystoma cingulatum*) was federally listed as a threatened species in 1999. This salamander is slender and small-headed rarely exceeding 13 centimeters in length when fully mature. Adult dorsal color ranges from black to chocolate-black with highly variable, fine, light gray lines forming a netlike or cross-banded pattern across the back. The historical range of the flatwoods salamander included the lower Coastal Plain of Alabama, Florida, Georgia, and South Carolina. In 2008, the species was split into two distinct species, with the populations located east of the Apalachicola River retaining the *A. cingulatum* designation and threatened species status. The newly reclassified populations west of the Apalachicola River were identified as the reticulated flatwoods salamander (*Ambystoma bishopi*), with federal and state listing status elevated to endangered in 2009. The reticulated flatwoods salamander *A. bishopi* is found on Hurlburt Field.

Optimum habitat for reticulated flatwoods salamanders is an open, mesic (moderately wet) woodland of longleaf or slash pine flatwoods maintained by frequent fires that also contain shallow, ephemeral wetland ponds. Males and females generally migrate to these ephemeral ponds during the cool, rainy months from October to December. The females lay eggs in vegetation, often at the pond edges. Timing and frequency of rainfall are critical to the successful reproduction and recruitment of flatwoods salamanders. If ponds do not fill, or if they go dry too early, larvae are unable to navigate to other ponds to complete life cycle metamorphosis and they perish.

Breeding ponds on Hurlburt are ecologically connected to similar habitat on Eglin AFB, for the most part located just west of the Munitions Storage Area at the southwest boundary of Hurlburt (Figure 10). Together, Hurlburt, Eglin, Whiting Field (Navy property), and nearby state lands, constitute nearly all of the remaining habitat for this species. T&E species surveys conducted in 2002-2003 on Hurlburt noted the species in 11 ponds scattered across the approximate 1,000 acres of pine flatwoods on the installation's west side. As a result of a wetland mitigation agreement in 2000, part of Permit #199900679's requirement, a MOA and Land Management Plan were established between Hurlburt and FDEP/USACE to outline future land uses appropriate for this portion of the base, ongoing protection for jurisdictional wetlands, restoration for 125 acres, and preservation for over 350 acres of uplands. Recommended best management practices for these sensitive areas and the salamander habitat are identical and this agreement ensures the continuation of protection and management activities such as prescribed fire and invasive species control. Mission critical objectives may at times threaten this ecological area, however, the NRM will work consistently with decision-makers to avoid and minimize any impacts to the species.

Habitat improvement for this species is a priority within T&E program management due to the dire condition of the population. In 2020, nearly all historical and potential breeding ponds were surveyed by USFWS using a new trapping protocol, and larvae were detected in four ponds. Before 2020, the last confirmation of presence, capture of three aquatic larvae, occurred in 2014. Infrequent monitoring occurred between 2014 and 2017, but in 2018, USFWS began dip-netting and collecting water samples for environmental DNA (eDNA) analyses. Through 2018 and 2019, USFWS did not capture any larval salamanders, but eDNA results were positive for *Ambystoma bishopi* in all four sampled ponds over both years. Positive eDNA results led the USFWS to redesign their capture protocol and implement trapping to confirm species presence. Captures in 2020 support continuing aggressive management actions to restore habitat that will improve conditions in additional breeding ponds, and increase the potential for natural immigration of individuals from the nearby Eglin population (reducing inbreeding impacts). In 2021, the new trapping protocol was expanded to nearly all potential breeding ponds. Though pond water levels fluctuated greatly, and several ponds dried prematurely, larvae were captured in two breeding ponds. eDNA sampling continued in 2022 through a new Cooperative Agreement with the University of West Florida to obtain a M.S. Graduate Student to conduct the project as part of her thesis. Kaylee Marshall will submit the 2021 and 2022 reports by the end of CY 2022. Trapping was unsuccessful in 2022 due to premature pond drying and infrequent rain events in the winter and early spring; 2022 is designated as a reproductive failure year.

During the summer of 2017, restoration work to remove midstory hardwood vegetation was accomplished in pond H6 (approximately 12 acres) under a contract supervised by FWC's Aquatic Habitat Restoration Enhancement Section (AHRES). Virginia Polytechnic Institute and State University (Virginia Tech), the USFWS, and FWC coordinated the planning and oversight of contracted mechanical removal (by hand with chainsaws) and herbicide application (cut stump). For summer 2018, the restoration work continued in pond H2 (approximately 8 acres). Ponds H1, H7, and H13 (approximately 2 acres total) were restored in 2020 under a new FWC Request for Proposal (RFP). Restoration work in H4 (4.6 acres) began in 2020 and was completed in spring 2021. Two acres in H5 were completed in 2021, though the rest of the pond remains unrestored and will be planned for a new contract in the future. In 2021, a new partnership with FWC/AHRES and the USAF/USFWS began funding restoration work in H8 using Air Force/Service dollars and FWC/AHRES matched funding to complete 8.7 total acres. Also in 2021, EOY funding from the USAF was obtained to restore H12. Because the total acreage in H12 surpasses what can logistically be implemented in an 18-month period (the typical spending time), a partnership with the Florida Fish and Wildlife Foundation and FWC/AHRES was created to allocate funds to the Foundation for contracting and spending, while maintaining project leadership and oversight through FWC's RFP and Hurlburt Natural Resources. The contract was awarded and work began in 2022 with a 4 year spending limit.

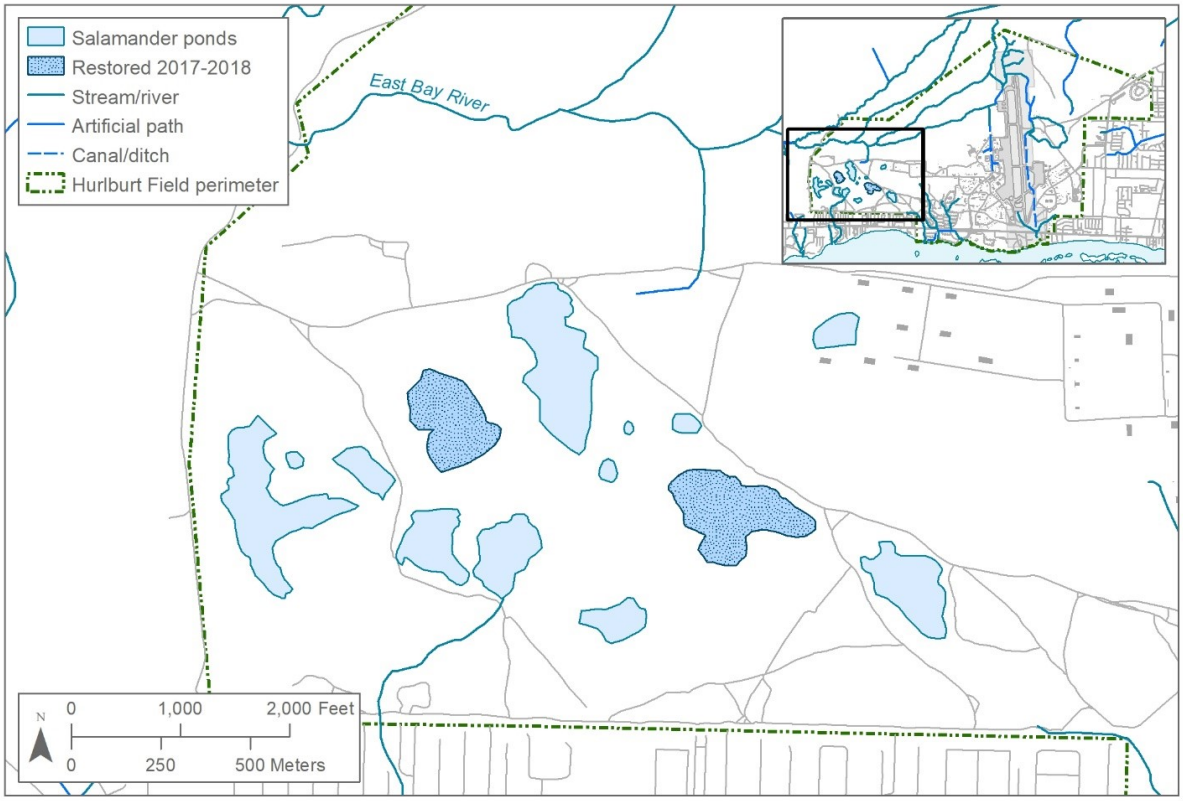

Figure 10. Reticulated Flatwoods Salamander Breeding Ponds on Hurlburt Field

Prescribed fire is a critical component of habitat management and is conducted routinely through efforts of the Eglin Wildland Support Module stationed at Eglin AFB/NR. Prescribed fire actions on Hurlburt Field are primarily aimed at controlling midstory hardwood vegetation and stimulating the health of native plant communities. Fire activities scheduled to avoid periods of salamander migration generally produce long term overall benefits to the salamander breeding ponds, such as reduction of midstory woody plants, reduction of shading, and improvement of herbaceous vegetation. More aggressive management includes mechanical (by hand with chainsaws) midstory hardwood removal and cut-stump herbicide application, conducted by contractors overseen by FWC AHRES and Hurlburt NR. Mechanical and chemical treatments within the breeding ponds are more effective when followed up by focused growing season prescribed fires in individual ponds (conducted by the Eglin Wildland Fire Module). These methods are currently being utilized to restore healthy breeding site conditions to a state where they can be perpetually fire-maintained, although they may require follow-up herbicide spot treatments.

In 2021, the east side of the Range, outside of the Munitions Storage Area was burned for the first time in over 10 years. This burn included H10 and several newly mapped potential salamander breeding ponds that have historically been so overgrown they could not be assessed for salamander occupancy. A summer burn was conducted in July 2021, on the far west side of the Range around H12, so that restoration work can take place in that pond in 2022. A summer burn is planned for 2022, targeting restored pond basins from H10 to H12, across the central and western part of the Range.

Eastern Indigo Snake

The eastern indigo snake (*Drymarchon corais couperi*) is a federally-threatened species. It is one of eight subspecies of primarily tropical snakes. Six of the eight subspecies are distributed in South or Central America, only the eastern indigo and the Texas indigo (*Drymarchon melanurus erebennus*) occur within the United States. The eastern indigo is a very large, conspicuous, slow-moving, and docile snake that can attain a body length of 8.5 feet. These characteristics make it an easy target for those who indiscriminately kill snakes on sight. It is also a species that is highly sought after by collectors in the commercial pet industry. The eastern indigo often uses gopher tortoise burrows, which establishes an important linkage between the two species. While this species has been sighted on the Eglin reservation (last confirmed presence dates to 1996), there have been no documented sightings at Hurlburt Field.

In 2017, Eglin AFB became a gopher tortoise translocation receiving site of incidental take permitted tortoises from South Florida. These tortoises bolster the Eglin gopher tortoise population and in the future may provide sufficient burrows across the landscape for a sustainable population of eastern indigo snakes. Conecuh National Forest and Apalachicola Bluffs and Ravines (TNC Property) began receiving indigo snakes in 2017 in a repatriation effort to establish sustainable populations, and successful recruitment has been documented at Conecuh NF. These nearby population sources are likely to expand to Eglin, and eventually to Hurlburt, in the future.

Hurlburt NR maintains a passive management approach for this species, maintaining forested habitat with prescribed fire, restricting of use of forest roads, and using perimeter access controls where the species is most likely to be present. All construction personnel are briefed on this species, and educational signage is provided. The management and recovery of the eastern indigo snake is closely related to the gopher tortoise. Management of one species benefits the other. T&E species surveys are ongoing; in 2022 USFWS technicians deployed trail cameras at gopher tortoise burrows to monitor for eastern indigo snakes and other gopher tortoise commensal species.

Gopher Tortoise

The gopher tortoise (*Gopherus polyphemus*) is a state-designated threatened species and candidate for Federal listing in the eastern portion of its range. In December 2008, all DoD entities, including the Air Force, as well as state agencies and other non-governmental organizations (NGO), signed a Candidate Conservation Agreement with the USFWS. This agreement defines what each agency will voluntarily do to conserve the gopher tortoise and its habitat. The Federal Register Vol. 76, No. 144 / Wednesday, July 27, 2011 documented the 12-month finding on a petition to list the gopher tortoise as threatened in the eastern portion of its range. The review found that the listing of the gopher tortoise as warranted; however, listing was precluded by higher priority actions. The Federal Register notice also stated that it would be added to the federal candidate list and a proposed rule to list the gopher tortoise would be developed as priorities allow. In 2019, a Species Status Assessment (SSA) was initiated, which will serve as the biological underpinning of the Service's forthcoming decision on whether the species warrants protection under the ESA. In March of 2020, Eglin AFB signed a base-specific programmatic Conference Opinion (CO) with the USFWS, granting Eglin AFB similar protections to a Biological Opinion (BO) regarding impacts to this species. Hurlburt is not included in the Eglin CO, however, the precedence has been set for other DOD installations to conduct similar consultations.

The gopher tortoise is found primarily within the sandhills and open grassland ecological associations in longleaf pine forests, where it excavates a tunnel-like burrow for shelter from climatic extremes, and which also provide refuge from predators. The primary features of good tortoise habitat are sandy soils, an open canopy with plenty of sunlight, and abundant food plants (forbs and grasses).

Prescribed fire is often employed to maintain these conditions. Nesting typically occurs during May and June, and hatching usually occurs from August through September. Gopher tortoises are considered a keystone species (i.e., a species upon which other species in an ecosystem largely depend, such that if it were removed, the ecosystem would change drastically). Their burrows serve as important refuges for many species, known as commensals, including the aforementioned federally listed eastern indigo snake. About 360 species are known to be gopher tortoise commensals, many of which are also considered at-risk or have been petitioned for federal or state listing. Conserving gopher tortoises conserves their commensals.

Gopher tortoises and their burrows are protected by state law, and a gopher tortoise relocation permit must be obtained from FWC before disturbing burrows and conducting construction activities (Chapter 68A - 27.003, FL Administrative Code). A disturbance includes any type of work within 25 feet of a gopher tortoise burrow. For information on gopher tortoise relocation permits, refer to the FWC gopher tortoise permitting guidelines webpage.

T&E species surveys have documented a small remnant population of gopher tortoises on Hurlburt Field. Management activities to support gopher tortoises include prescribed fire and sand pine removal. Though these activities are being conducted, and may improve gopher tortoise habitat, sufficient dry sandy soils for burrows are a limited resource on Hurlburt Field where the majority of natural areas are dominated by flatwoods and wetlands. Surveys are routinely conducted for specific military projects and construction personnel are educated regarding the species. In 2022 the use of trail cameras at gopher tortoise burrows confirmed occupancy of at least 7 burrows (survey is ongoing as of May 2022). Technicians will be performing line transect distance surveys to detect additional burrows across the Range in May and June 2022.

Gulf Sturgeon

The Gulf sturgeon (*Acipenser oxyrinchus desotoi*) was designated a threatened subspecies in September 1991. The sturgeon is a member of the family Acipenseridae that inhabits the Atlantic, Gulf, Pacific, and certain freshwaters of the United States. The Gulf sturgeon is one of two geographically disjunct subspecies of the Atlantic sturgeon, (*Acipenser oxyrinchus oxyrinchus*). Gulf sturgeon are characterized by a sub-cylindrical body embedded with bony plates, or scutes. These fish are anadromous (i.e., they rear in fresh water, mature in salt water, and then migrate back to fresh water to spawn and reproduce). The Gulf sturgeon occurs in most major river systems from the Mississippi River to the Suwannee River and in marine waters from the central and eastern Gulf of Mexico to Florida Bay. Comparison of historic information and current data indicate that Gulf sturgeon populations are reduced from historic levels. At present, Gulf sturgeon population estimates are unknown throughout its range.

Through the EIAP, Hurlburt Field analyzes potential impacts to Gulf sturgeon from proposed mission activity and recommends conservation measures to avoid these impacts. Currently, Hurlburt Field does not conduct any active management for Gulf sturgeon.

Red-cockaded Woodpecker

The RCW is a federally-endangered species endemic to open, mature old growth longleaf pine ecosystems in the southeastern United States. RCWs are the only woodpecker species in North America to excavate cavities in live pine trees. They require old growth pines (i.e., generally trees >80 years old), for cavities due to the greater occurrence of red heartwood fungus in old trees, which renders the trees easier to excavate. Though RCWs are generally considered to prefer longleaf pines, they have been found to excavate cavities in other pine species, especially in areas where old-growth longleaf forest has been converted to slash or loblolly.

In 2009, a wild RCW cavity was discovered on Hurlburt Field, and the tree was painted with white paint to mark it as an RCW cavity tree. This tree was named 0506-005 and received a tree tag. In spring 2017, eggs were confirmed in the cavity. Approximately 10 days post-hatching, two chicks were banded, each with an individually numbered silver USFWS band and color bands to facilitate individual identification and cluster. The cluster was named HF-001, though it remains part of the Eglin RCW population. To stabilize the cluster, and provide safe roosting sites for juvenile birds and the breeder female, Eglin's T&E Biologist drilled 4 artificial cavities in nearby trees. These trees were monitored and cleaned throughout the 2017-2018 winter and were available for use in the 2018 breeding season. From 2018-present, one of the banded birds (zebra/light blue/zebra, orange/USFWS) has been observed occupying the cluster (roosting in the wild cavity tree). The original breeding pair and sibling have not been observed since the 2017 breeding season. One additional wild cavity and one start have been identified on the western portion of the Range, and at least two unbanded RCWs have been observed coming over to Hurlburt from Eglin to forage and maintain the cavity tree. During the 2019 breeding season, eastern bluebirds nested in the western side wild cavity tree, and 2 of the 3 drilled cavity trees in HF-001. No breeding was documented in 2020.

In 2021, the original wild cavity tree burned during the prescribed burn, making it unusable for future RCW breeding. However, the banded bird in cluster HF-001 nested with an unbanded bird in one of the drilled cavities, and produced one chick that was banded (zebra/light blue/zebra, green/USFWS). Both banded birds appear to be using the drilled cavities. On the far west side of Hurlburt, in the wild cavity tree, two unbanded birds bred and two chicks were banded (red/red/dark green, USFWS/yellow; red/red/dark green, dark blue/USFWS). Post-fledging surveys indicate that both banded birds have started roosting in cavities on the Eglin side, and one of the unbanded adults remains in the Hurlburt cavity tree. In 2022, both the east side and west side breeding pairs nested again on Hurlburt. Again, the drilled cavity tree on the east side was used as the nest, in the tree with two cavities (top cavity), chicks were banded with: ze/lb/ze and orange/USFWS; ze/lb/ze and yellow/USFWS. On the west side, chicks were banded with: rd/rd/dg and black/USFWS; rd/rd/dg and lb/USFWS. Technicians will be conducting line transect distance surveys to search for additional wild RCW cavity trees in May and June of 2022.

Management practices such as enforcing 200 foot buffer zones are implemented to protect cavity trees during prescribed fire or any other forest restoration activities. RCW starts do not merit buffering, but the Eglin Wildland Support Module and Hurlburt NR staff have implemented the practice of raking around the trees to minimize prescribed fire impacts to potential future cavity trees.

Passive management for the species includes prescribed fire and removal of invasive species, including sand pine, which is the greatest threat to RCW habitat. Sand pine eradication in over 100 acres on the western portion of the base was accomplished in FY14-15 with additional removal accomplished in 2017, part of the restoration work described in the Land Management Plan and required mitigation for USACE/FDEP Permit #199900679. Hurlburt works consistently with the Eglin Wildland Support Module to manage natural areas under an effective burn prioritization process. For RCWs, the frequency recommended for restorative emphasis is a three year average return interval. Between 2017 and 2021, the Eglin Wildland Fire Module has conducted four prescribed burns on the western portion of Hurlburt Field. As breeding has again been documented at Hurlburt (after >30 years), Hurlburt NR reports annual breeding efforts and cluster management to the RCW species coordinator.

American Alligator

The American alligator (*Alligator mississippiensis*) is federally protected by the Endangered Species Act as a threatened species, due to their similarity of appearance to the American crocodile, and as a federally-designated threatened species by Florida's Endangered and Threatened Species Rule. Alligator management is delegated to the state of Florida. Crocodiles are not present in Hurlburt Field's region of Florida, however alligators are common and ubiquitous across the Hurlburt landscape. They are not actively managed, though they benefit from wetland management. Human-alligator conflicts are mitigated by posting educational signage to prohibit feeding and inhibit interaction. Alligators are a potential threat to human safety, but there have been no incidents on Hurlburt due to enforced no-feeding rules and education. Alligators that are not habituated to being fed are not a risk to human safety. Alligators that are in the way of mission activities are moved IAW state regulations that require a FWC-licensed alligator trapper to remove the animal, or if the animal can be encouraged to leave but does not have to be removed, NR can work with facilities to encourage the alligator to leave. The USDA/WS BASH personnel on the airfield are permitted by FWC to capture and relocate alligators on the airfield.

Monarch Butterfly

The Federal Register Vol. 85, No. 243 / Thursday, December 17, 2020 documented the 12-month finding on a petition to list the monarch butterfly (*Danaus plexippus plexippus*) as threatened. The review found that listing was warranted; however listing was precluded by higher priority actions. A Species Status Assessment (SSA) was completed in 2020. Hurlburt Field will continue to manage monarch butterflies and all native pollinators IAW the USAF Pollinator Conservation Reference Guide (2017). See Section 7.4.3.

Eastern Black Rail

This species (*Laterallus jamaicensis ssp. jamaicensis*), is a small, blackish marsh bird that is found along the Atlantic and Gulf Coasts from Connecticut to Texas. A 2018 Species Status Assessment (SSA) confirmed the species would continue to decline without conservation and restoration measures and USFWS proposed to list the eastern black rail as threatened. The listing decision was published in 2020 and supporting documents can be found in ECOS. Although the species range does not include Hurlburt and Eglin, Hurlburt has a small portion of salt marsh which could be used by marsh birds, possibly including black rails at some point in the future. Hurlburt NR may consider initiating the Secretive Marsh Bird Survey Protocol to monitor for rare marsh birds. Habitat protections for Hurlburt's salt marsh are currently standard practice: erosion control measures are implemented for all soil-disturbance projects, boating and recreational access are carefully managed. In 2022 erosion along the Nature Trail was reported to Cultural Resources, resulting in a survey and confirmation that the erosion poses a risk to cultural artifacts. Natural Resources and Cultural Resources will partner on a project to restore the shoreline where erosion is occurring, including installing new living shoreline to protect the area. This would benefit all marsh birds. NR plans to purchase acoustic detectors to conduct passive monitoring of marsh birds.

Alligator Snapping Turtle

This species (*Macrochelys temminckii*), is a prehistoric-looking, long-lived, large freshwater turtle found only in deep rivers, swamps, canals and lakes of the southeastern US. The species has declined dramatically, and is now restricted to remote and protected locations. The most likely locations to sustain alligator snapping turtles on Hurlburt are currently protected wetlands along the East Bay River. Hurlburt has no documented sightings of alligator snapping turtles, but they are present on Eglin AFB. Management actions to maintain wetlands will benefit species management for alligator snapping turtles. The species was proposed as Threatened with a 4(d) rule in late 2021, and a final rule is expected soon. Supporting documentation can be found in ECOS. It remains protected as a State Species of Special Concern in Florida. DoD PARC recently published BMPs for alligator snapping turtles.

Species Proposed for Federal Listing

In recent years, several species have been proposed for listing which have not been confirmed on Hurlburt Field, but may be found on the installation. In 2022 USFWS technicians were tasked with developing an Inventory and Monitoring Plan (IMP) intended to supplement the INRMP by recommending additional species surveys that could be implemented for monitoring petitioned species. The IMP is in draft form and will be completed as time allows in 2022, to be added as an appendix to the INRMP in 2023.

Several gopher tortoise commensal species have been petitioned for federal listing: gopher frog (*Lithobates captio*), eastern diamondback rattlesnake (*Crotalus adamanteus*), Florida pine snake (*Pituophis melanoleucus mugitus*), and southern hognose (*Heterodon simus*). As gopher tortoise commensals, management for gopher tortoises generally benefits these species as well. Most actions described in Best Management Practices (BMPs) are currently implemented on Hurlburt Field: protect, manage, and restore habitat in general and specific features that are important to each species; create and share outreach materials; conduct prescribed burning; restrict off-road driving.

- Gopher frogs' historical range extended from North Carolina to Alabama and Tennessee. Currently their distribution is limited to areas with healthy gopher tortoise populations. In Florida, this species is a part of the Imperiled Species Management Plan as of 2017. In 2018, DoD PARC published BMPs for gopher frogs (Recommended best management practices for the gopher frog on department of defense installations).
- Though once commonly found across the southeastern US, eastern diamondback rattlesnakes are declining, largely due to human persecution, and the petition for its listing is under review. DoD PARC recently published BMPs for the eastern diamondback rattlesnake (BMP for Eastern DB Rattlesnake).
- Florida pine snakes, a state-threatened species, are often associated with southeastern pocket gophers (*Geomys pinetis*), and often utilize gopher tortoise burrows. DoD PARC recently published BMPs for the Florida pine snake (BMP for Florida pinesnake).
- Southern hognose snakes are fairly small, fossorial snakes that feed largely on frogs and toads. They are found almost exclusively in sandhills, pine flatwoods, and coastal dunes. In October of 2019, the USFWS deemed the southern hognose snake listing as unwarranted, however the State of Florida continues to consider the species as a species of greatest conservation need. Hurlburt has a small population of gopher tortoises, but manages habitat to benefit multiple species, including associated commensals.

The tricolored bat (*Perimyotis subflavus*), formerly known as the eastern pipistrelle, was historically one of the most common species found throughout the forests of eastern North and Central America. This species has declined precipitously due in large part to White-nose Syndrome (*Pseudogymnoascus destructans*; WNS), the fungus affecting many bat species in the Northeastern US. This species typically relies on forests for foraging and summer roosting, but can be found winter roosting in human structures such as bridges and culverts when cave systems are scarce or unavailable on the landscape. DoD has a MOU with Bat Conservation International (BCI; signed Oct. 2006, renewed Dec. 2011) that "establishes a policy of cooperation and coordination between DoD and BCI to identify, document and maintain bat populations and their habitats on DoD installations." Additionally, the MOU expresses DoD interest in improving management of bat populations and habitats, particularly to keep once-common bat species from being Federally listed and to recover presently listed species and prevent extinctions. To determine potential installation impacts to tricolored bats, Hurlburt initiated two monitoring efforts:

- Hurlburt NR initiated winter-roosting occupancy surveys for tri-colored bats in 2019 using a mix of acoustic detectors to record calls for identification, and infrared video imagery to assess populations occupying bridges and culverts on base. After three field seasons, zero winter hibernacula for tricolored bats were identified in structures on Hurlburt Field, though bats were observed and acoustically detected actively flying in the forest around the monitored structures. Tricolored bats are likely opportunistically using structures as daytime roosts, but are not likely entering torpor for long periods of time, and are likely roost switching frequently between structures and trees throughout the winter. A final report for this monitoring effort was submitted in 2022 and the survey will be discontinued as we believe we have determined that structures on Hurlburt Field are not being used as winter hibernacula for tricolored bats, and that any missions requiring modifications to structures are not likely to effect the range-wide population. Acoustic surveys conducted 1-2 days prior to planned structural repairs could be conducted to determine short term bat occupancy, and could be used to recommend alternative dates or methods for structural modifications.
- Hurlburt and Eglin NROs implemented the North American Bat Monitoring Program (NABat) across both installations to monitor long-term bat population trends, contributing to the national trend analyses that contributed to the tricolored bat Species Status Assessment, and to the species listing determination (determination expected in November of 2022). Tricolored bats have been detected widely across both Hurlburt and Eglin installations during quarterly acoustic surveys following the NABat and Florida Long Term Monitoring Project protocols. The NABat and Florida protocols are written to align so that they are conducted similarly, but more frequently for the State as tricolored bats are presumably active for longer periods of the year in Florida. Reports of all species detected during monitoring, including tricolored bats, can be exported from the NABat Partner Portal.

The Gulf Coast solitary bee (*Hesperapis oraria*) has been found on Eglin Air Force Base property on Santa Rosa Island located across the sound from Hurlburt. The bee's current known range is Jackson County, Mississippi; Mobile and Baldwin counties, Alabama; and Escambia, Okaloosa, Walton, Santa Rosa and Bay counties, Florida. The Gulf Coast solitary bee is a monolectic of the Coastal Plain honeycomb head (*Balduina angustifolia*). Preferred habitat consists of dense patches of the honeycomb head as well as the appropriate nesting substrate of deep, soft sandy soils within flight range of the plants. This habitat is typically found on dunes behind fore dunes on barrier islands and coastal shores in close proximity to the shoreline. Hurlburt NR will initiate occupancy surveys for Gulf Coast solitary bees in 2020 surveying in September-October when the Coastal Plain honeycomb is in bloom. This species was petitioned to be listed March 2019 and is under review for federal listing.

7.4.2 State Special Status Species

AFMAN 32-7003 encourages biodiversity management to include the conservation of state-listed and other rare species. However, biodiversity management is not an Air Force mandate and as such is not considered a "must fund" area in the Air Force budgetary system. The Air Force is currently not providing funding to installations for conservation of state-listed and rare species unless those species are also federally listed. Nonetheless, the conservation of state-listed species and other rare but unlisted species, is encouraged and in some cases is critical to ensuring continued mission flexibility. Any potential impacts to state-listed species shall be addressed through consultation with FWC. The flora and fauna species documented during field surveys at Hurlburt Field are discussed in Section 2.3 of this INRMP.

In 2021, Hurlburt NR began surveying for Florida bog frogs (*Lithobates okaloosae*), a state-threatened species that is found in the Florida panhandle. Point count listening surveys are conducted for this species in June and July, which allows NR to monitor and note any other calling amphibians: gopher frog, bronze frog (*Lithobates clamitans*), and pine barrens treefrogs (*Hyla andersonii)*; species with declining populations. Bog frogs were not detected during these surveys in 2021. Surveys will continue in 2020. Hurlburt NR is considering implementing acoustic detectors to conduct this survey to facilitate access in areas with high mission use.

Although eastern box turtles (*Terrapene carolina*) are not state listed, populations are declining. In 2020, a Call to Action to Protect North America's Native Turtles from Illegal Collection was published to share information about the declines in turtles across the United States. All wildlife on Hurlburt Field, including box turtles and other turtle species, are protected. Collection is prohibited. As of 1 March 2022, collection and possession of diamondback terrapins (*Malaclemys terrapin*) is prohibited in the State of Florida without a scientific collection permit. By 1 March 2023, all recreational blue crab traps must have rigid funnel openings no larger than 2"x6" at the narrowest point or 2"x6" bycatch reduction devices installed.

Hurlburt Field manages for the Florida black bear (*Ursus americanus floridanus*), a subspecies of the American black bear (*Ursus americanus*), as a part of the BearWise Plan (Appendix J of this INRMP). Hurlburt Field is a BearWise Community and the goal of the Hurlburt Field BearWise Plan is to reduce conflicts and promote coexistence between people and bears through installation-wide efforts. Although Florida black bears are not a federally or state listed species, they are a managed species due to their potential conflicts with humans. Florida black bears are present throughout Okaloosa County, including both the natural and built areas of Hurlburt Field. Human-bear conflicts can range from minor annoyances to an immediate threat to human safety. For information on the state's management strategies, refer to Florida's Black Bear Management plan.

7.4.3 Pollinator Conservation

DoD has emphasized the importance of pollinator conservation to the military services by developing partnerships to support their conservation. Pollinators include many insect species, several birds, bats, and other wildlife. The MOU states that this framework is important to "ensure that pollinator management activities are incorporated where practicable, into installation INRMPs and practices." DoD has also developed the USAF Pollinator Conservation Reference Guide (2017) in partnership with the USFWS.

The March 2017 USAF Pollinator Conservation Reference Guide is available AFCEC's eDASH Natural Resources website, and provides specific pollinator conservation measures and strategies which can be implemented by the USAF. It supplements existing policy and instructions to guide USAF actions to contribute to pollinator conservation under Presidential Memo and Federal Pollinator Health Strategy. It further provides Technical Guides as reference materials for pollinators of conservation concern (listed species, birds of conservation concern, bees and monarch butterflies), and native plant recommendations specific to ecoregions. Conservation of pollinators by USAF alone or in collaboration with groups such as BCI and USFWS supports these DoD initiatives.

Some areas of Hurlburt Field are more suitable for pollinator habitat conservation due to current use and/or habitat condition. For example, conservation on unimproved (natural) areas, buffers, recreation areas, rights-of-way, golf courses, and landscaped areas may be more compatible with mission requirements than other areas. These areas are a priority for implementing pollinator habitat improvements and using land management practices in ways beneficial to pollinators. Prescribed burning, mechanical and chemical treatments for midstory hardwoods, and invasive species treatments all benefit pollinator conservation by promoting native vegetation. In other areas, Hurlburt NR has worked with the Child Development Centers (CDC) and Youth Center (YC), and with Corvias Housing, to promote pollinator conservation on base. The CDCs and YC have pollinator gardens and incorporate pollinator outreach in their classes, with guest presentations provided by the NR biologists to integrate new lessons and skills into the classes. Corvias supports pollinator conservation in base housing by using native plants for residential landscaping and partnering with Hurlburt NR for Arbor Day celebrations to plant native pollinator-friendly trees and plants in base housing areas. Around facilities, dorms, and offices on main base, projects that impact landscaping coordinate with NR to convert non-native plants to native pollinator-friendly plants on a project-by-project basis.

7.4.4 Shorebird Conservation, Birds of Conservation Concern, Important Bird Areas, Mission-Sensitive Species

Hurlburt Field and Eglin AFB are an Audubon Society-recognized Important Bird Area primarily because the installations protect large contiguous pine forest, a long stretch of shoreline on Santa Rosa Island, and several other habitat features important to birds.

Due to staggering declines in bird species across North America, they are becoming more of a focus for conservation. Several reports were published in 2021 to list species of conservation concern, make recommendations for management so that early proactive conservation can preclude them from ESA listing, and to draw attention to how particular species may impact military missions if they are ESA listed.

The USFWS's report on Birds of Conservation Concern lists several bird species that are found on Hurlburt Field. Hurlburt NR will review the report and consider actions that can be taken or are already being taken, to conserve these species. The USFWS's Best Practices for Tower Design, Siting, Construction, Operation, Maintenance, and Decomissioning is a good document to review in consideration for making changes for migratory bird conservation.

The 2021 Partners in Flight report regarding Mission-Sensitive Species also lists several species that are found on Hurlburt Field. Hurlburt NR will review the report and consider actions that can be taken or that are already being taken, to conserve these species.

In 2021, Manomet published a Shorebird Manual with several recommendations for managing shoreline habitats for birds. Hurlburt NR will review and implement recommendations as appropriate. Many recommendations are already implemented: dogs must be leashed, erosion is minimized and beach restoration is implemented, unmanned aircraft (recreational UAVs) and beach driving are prohibited.

7.4.5 Priority Amphibian and Reptile Conservation Areas

Partners in Amphibian and Reptile Conservation (PARC) has been developing Priority Amphibian and Reptile Conservation Areas (PARCAs) similar to Important Bird Areas (IBAs). DoD PARC submitted a Final Report in 2021, reviewing how the national PARCAs overlapped military sites, including Eglin AFB and Hurlburt Field. The Report demonstrates the importance of DoD installations to herpetofaunal conservation and the PARCA effort.

7.5 Water Resource Protection
Installation Supplement

Applicability Statement

This section applies to AF installations that have water resources. This section is applicable to Hurlburt Field.

Program Overview/Current Management Practices

Water resources include groundwater, streams, lakes, bayous, sounds, and wetlands. Multiple water bodies are located on or adjacent to Hurlburt Field, including the Santa Rosa Sound and the East Bay River. Additionally, numerous wetlands are present across Hurlburt Field. Primary threats to these water resources are habitat loss or modification, bacterial contamination, and high water demand.

Non-Point Source Pollution

Elevated bacteria levels can be problematic in this area, mainly due to stormwater runoff. Multiple water bodies adjacent to Hurlburt have been documented to have elevated bacteria levels after storm events; the source of these increased levels has not been identified. Considering the extent of urban areas around Hurlburt, a high likelihood exists that the source occurs off Air Force property.

Water Supply

The Floridan and superficial aquifers supply most of the water needs in Santa Rosa, Okaloosa, and Walton counties. In the coastal areas of these counties, there has been an extensive decline in the potentiometric surface elevation of the Floridan aquifer due to heavy groundwater pumping. This decline causes an increased risk of saltwater intrusion and may potentially impact water levels in area water bodies.

Water Quality Monitoring

Regionally, FDEP and the Choctawhatchee Basin Alliance (CBA) sample water quality. CBA water quality monitoring sites are located in multiple water bodies adjacent to Hurlburt, including the Santa Rosa Sound. Parameters measured include temperature, salinity, pH, dissolved oxygen, water clarity, nutrient concentrations (total nitrogen and phosphorus), and algae content (chlorophyll). For more information about the CBA water quality testing and to view reports, please visit: http://basinalliance.org/what-we-do/in-our-waterways/water-quality/.

Hurlburt Storm Water Management

The 1 SOCES/CEIE processes all applications for stormwater permits. Stormwater permits consider issues associated with the increased volume and velocity of stormwater runoff and identify methods to reduce the potential for negative impacts to water resources from these activities. The SWPPP outlines in depth how installation personnel prevent discharges to storm water of potential pollution from industrial operations and contains procedures intended to minimize the risk of industrial storm water pollution in drainage areas within installation boundaries. Every proposed project on Hurlburt is reviewed using the EIAP to assess stormwater impacts.

7.6 Wetland Protection
Installation Supplement

Applicability Statement

This section applies to AF installations that have existing wetlands on AF property. This section is applicable to Hurlburt Field.

Program Overview/Current Management Practices

Predominant regulations regarding wetlands conservation are provided below:

- Clean Water Act
- Rivers and Harbors Act 1899
- EO 11990, Protection of Wetlands
- EO 11988, Floodplain Management
- Safe Drinking Water Act
- Watershed Protection and Flood Protection Act
- North American Wetlands Conservation Act
- Coastal Wetlands Protection Act

Since the year 2000, the conditions of a comprehensive 10-year USDA/FDEP permit (Permit #199900679) authorizing the construction of 7 projects in 29 acres of jurisdictional wetlands have strongly influenced the base's decision-making process for management of wetlands and sensitive areas (see Section 2.3.5 of this INRMP). To mitigate for wetland impacts, Hurlburt Field set aside approximately 3,200 acres of uplands and wetlands as a preservation area in addition to restoring 125 acres of uplands, and creating 4.5 acres of salt marsh. The Hurlburt Field Land Management Plan, required by the permit and further described in the FDEP MOA, established land management units with specific recommendations for each unit describing how prescribed fire and invasive species control will be implemented to support natural vegetative communities and overall maintenance of the preservation area. At this time, Hurlburt entered into a MOA with the FDEP and USACE confirming that all preservation areas would be protected from future development and/or activities which would degrade their ecological value. Future mission critical activities that would require impact to these areas would require additional mitigation to be determined.

While creation of wetlands has historically been a successful mitigation strategy for Hurlburt Field, few additional resources for creation or restoration remain on the installation or within our service area in this portion of the watershed. Between 2010 and 2012, Hurlburt Field purchased 14.1 forested credits from a wetlands mitigation bank in the Pensacola Bay Watershed service area to secure compensatory options for future unavoidable mission critical projects. These credits will be subject to regulatory review when they are used in the future for any Environmental Resource Permits sought by Hurlburt for authorization to construct in a wetland. Hurlburt Field's delineated wetlands and state jurisdictional boundaries are discussed in Section 2.3.5.2 of this INRMP and are considered during EIAP for all proposed projects. All activities occurring in wetlands are reviewed during EIAP and are implemented in coordination with outside regulatory agencies to ensure that BMPs are included in construction proposals. Permits and approvals are obtained prior to taking any action in wetland areas.

Hurlburt Field maintains a binding jurisdictional determination of wetlands on the installation. This aids planning efforts, the effectiveness of protection measures and minimizes project costs. Additionally, signs are posted at various intervals along the wetland line to raise awareness to sensitive areas. State law requires the establishment of waterward extent and in the absence of a Mean High Water survey, the 4-foot contour was established by the FDEP as the southernmost jurisdictional boundary on the base. All future projects constructed waterward of this line would require a survey to establish wetland characteristics. This boundary does not apply for federal jurisdiction.

In accordance with AFI 32-7020, Environmental Restoration Program, Hurlburt Field established an Environmental Restoration Program Management Action Plan (USAF, 2013, AR# 10-70.020, https://ar.afcec-cloud.af.mil/). There are several Installation Restoration Program (IRP) sites located in or near wetlands throughout the installation (Figure 11). Contamination on these sites is limited to groundwater, with minimal soil contamination. There is no known direct impact on the wetlands. However, remediation or site closure activities have the potential to impact wetlands by destroying or filling existing wetland areas. The IRP Manager for Hurlburt Field remains in contact with base planners to ensure that the wetland areas adjacent to IRP sites are not disturbed.

Figure 11. Installation Restoration Program Sites at Hurlburt Field

7.7 Grounds Maintenance
Installation Supplement

Applicability Statement

This section applies to AF installations that perform ground maintenance activities that could impact natural resources. This section is applicable to Hurlburt Field.

Program Overview/Current Management Practices

Routine land management and grounds maintenance activities conducted on Hurlburt Field by the grounds contractor include mowing, fertilization, urban landscape management, weed control, and related activities. The NR staff works with Grounds Maintenance and Contracting personnel to ensure that best management practices for work in wetlands and other forested areas are performed. Hurlburt is a Tree City USA, and works with Grounds Maintenance and Contracting personnel to ensure Arbor Day Urban Forestry guidelines are followed. Grounds Maintenance and Contracting personnel adhere to Hurlburt's pollinator and native plant guidelines as well (see Section 2.3.2.4 and 7.4.3 of this INRMP). Projects that require plant replacement (i.e. when plants naturally die, if plants are damaged during storm events, or if other accidental damage occurs) require coordination between Grounds and NR, so that appropriate native plants can be selected to replace the removed plants. General grounds maintenance is the responsibility of the Civil Engineer, Operations Engineering Flight. Pest Management is not performed by Grounds, and discussed in more detail in Section 7.11 of this INRMP.

7.8 Forest Management
Installation Supplement

Applicability Statement

This section applies to AF installations that maintain forested land on AF property. This section is applicable to Hurlburt Field.

Program Overview/Current Management Practices

AFMAN 32-7003, *Environmental Conservation*, states, "the principal objective of forest management on Air Force installations is to maintain and enhance the ecological integrity of forested landscapes while supporting the military mission." The previously referenced 10-year permit (Permit #199900679) required by FDEP/USACE and mitigation plan resulting from it (the Land Management Plan of 2000) provides land management guidance for the preservation of natural vegetative communities and associated wildlife habitat within the preservation area established by the MOA. Not all forested areas on Hurlburt are encompassed by the MOA, but Hurlburt manages all non-MOA forests in conjunction with the MOA and according to Land Management Plan recommendations. Hurlburt coordinates with Eglin NRO's Forestry Section and the Eglin Wildland Fire Module to implement appropriate management actions for the conservation of wildlife and native plants. Prescribed fire is applied where appropriate and invasive vegetation treatments are implemented base-wide where infestations are detected. Currently, all forested areas on Hurlburt are closed to public outdoor recreation due to mission requirements on the installation, however the Grace Brown Nature Trail on the Soundside of the installation, and other forested areas located adjacent to facilities, are open to recreationists with appropriate base access passes. Any possible changes to this program would be reflected in future revisions of this document.

Hurlburt has been a designated Tree City USA for over 25 years and maintains a progressive urban forestry program that includes components on landscape development, education, community service, habitat enhancement and prescribed fire.

Commercial Forest Management

Harvesting of forest products on Hurlburt Field consists primarily of salvage wood operations at new construction sites. All timber on the base remains property of Eglin AFB; therefore, Eglin NR Forestry division evaluates felled trees for potential commercial use before traditional disposal methods are employed. Harvesting of merchantable timber in order to thin forested perimeters is considered as an ongoing wildfire mitigation method.

7.9 Wildland Fire Management
Installation Supplement

Applicability Statement

This section applies to AF installations with unimproved lands that present a wildfire hazard and/or installations that utilize prescribed burns as a land management tool. This section is applicable to Hurlburt Field.

Program Overview/Current Management Practices

Hurlburt Field Wildland Fire Management is discussed in great detail in the Hurlburt Field Wildland Fire Management Plan (WFMP, Appendix B of this INRMP). The WFMP is updated annually following the same schedule as the INRMP (final signed in September each year). As discussed in the WFMP mission support, ecosystem management and protection of life and property all depend on a professionally managed wildland fire program. Hurlburt NR coordinates with the Eglin Wildland Support Module (WSM) to follow the recommendations described in the WFMP regarding wildfire prevention and suppression strategies, and prescribed fire planning and implementation. AFMAN 32-7003, Section 3P states clearly that "…Air Force personnel that participate in prescribed fires and wildfire suppression will comply with the certification standards indicated in the National Wildfire Coordinating Group (NWCG) Publication Management System (PMS) 310-1, "*National Incident Management System: Wildland Fire Qualification System Guide"* and "The National Fire Protection Association (NFPA) provides FES personnel with basic wildland fire training as part of structure protection groups within the wildland urban interface." The WFMP supports the AFMAN and all Eglin Wildland Support Module firefighters are NWCG certified.

The WFMP and the Land Management Plan of 2000 (implemented to meet USACE/FDEP Permit # 199900679 mitigation requirements) complement each other and this INRMP by supporting the overarching landscape management goal of maintaining and enhancing the fire-dependent ecosystems on Hurlburt Field. Effective 2014, Hurlburt Field receives support from the AFCEC Eglin Wildland Support Module regionally based at Eglin AFB for all wildland fire management activities on the installation. The Hurlburt Field Fire and Emergency Services (FES) supports the installation during wildfires and prescribed burns in the urban interface only. FES is neither funded nor trained (not NWCG certified) to solely respond to wildfires so they request the Eglin WSM for wildfire response as needed. Prescribed burns are conducted by the Eglin Wildland Support Module after coordinating with Hurlburt NR, on a 2-3 year cycle in accordance with sophisticated technical models which predict optimum fire frequency for T&E species (further discussed in the WFMP, Appendix B of this INRMP). Currently, prescribed fire is restricted to the approximate 1,000 acre pine flatwoods preserve on the west side of the installation, of which the portion south of Red Horse Road contains sensitive reticulated flatwoods salamander habitat. The northeast portion of Hurlburt Field, east of the main runway and north of the golf course, in Eglin Tactical Training Area H-18, is also included in prescribed fire planning, to complement habitat management in Eglin's Oglesby area.

In May 2012, a wildfire in East Bay swamp north of Hurlburt Field required multiple emergency response services to contain the fire which ultimately encompassed over 2,700 acres. This wildfire, now known as the Runway Fire, raised concern about the mounting availability of underlying fuels throughout much of the wildland-urban interface on Hurlburt, which has been predominantly fire-suppressed. The WFMP describes wildfire prevention strategies and recommends actions that Hurlburt NR is in the process of implementing (becoming a Fire Adapted Community, implementing mechanical thinning in some areas on main base).

The first prescribed fire on Hurlburt Field in the modern era was in 1997 in the western conservation area. Between 1997 and 2017, twelve more burns were conducted for fuel reduction and ecosystem management objectives. In 2017, the Eglin Wildland Support Module coordinated the development of a more defined sub compartment system of the larger Hurlburt Tactical Training Area (TTA) to facilitate prescribed burn planning in non-mission sensitive areas. The modified TTAs are specific to wildland fire activities and are used solely when coordinating with Hurlburt Field's 1 SOW for prescribed fire planning and notifications. Since 2017, Hurlburt Field NR has submitted annual installation-specific AFF 813s for prescribed burning, which notifies base personnel of the areas proposed for burning each year, and describes any actions that require installation modification (such as new fire breaks, which were created in 2019). Creating annual installation-specific AFF 813s for Hurlburt and describing mission goals in this format also allows installation leadership to understand and approve the conservation efforts being accomplished on the base.

In 2017, a prescribed burn was successfully completed on the western portion of the EOD range, following the AFF 813. The western portion was again burned in 2019, this time including one of the modified TTAs located north of Red Horse Road which had not seen prescribed fire in >15 years, IAW the AFF 813 process, WFMP and Land Management Plan recommendations. An additional section of the eastern portion of the EOD range (around salamander breeding pond H1) was also burned in 2019 to support T&E management recommendations and species recovery goals. Multiple pond basin prescribed burns were attempted during the summer of 2019, however recent rains prior to ignition inhibited spread of the fire, and the burns were unsuccessful. In January 2021, the east side of the EOD Range, around the Munitions Storage Area and including salamander pond H10, was burned for the first time in >10 years. Over the summer of 2021, the area on the north side of Hurlburt, across from Eglin's Oglesby area, was burned in conjunction with Oglesby, for the first time since 1988. An additional summer burn occurred in July 2021 on the far west side of the EOD Range, including salamander pond H12. Future burns on the west side of the EOD can now be conducted during the summer, to align with the historical burn cycle, facilitating future pond basin burns. A summer burn is planned for 2022, to include the middle and western sections of the EOD Range, and possibly the eastern side around the MSA, if possible. Current rainfall (May 2022) prohibits basin burning, and is contrary to the goal of summer burning for salamander habitat management.

Two major priorities for prescribed burning include fuel load reduction to prevent dangerous wildfires, and pond basin burns to promote salamander breeding habitat for recovery of the species. A streamlined approach to creating and communicating burn scheduling between Eglin and Hurlburt was created and approved by 1 SOCES/CEIE in 2017 and has been successfully used since. Minor modifications to the coordination process are implemented based on recommendations made during annual Prescribed Fire Coordination Meetings, held every October at Hurlburt CE, and attended by the Eglin Wildland Support Module and internal base partners (NR/FES/SFS/EOD/Airfield etc.).

Prescribed fires are part of the management recommended for the preservation areas as discussed in the FDEP/USACE MOA and Land Management Plan of 2000 (required by Permit # 199900679). Fire management is recommended for the following habitat units as a part of wetland mitigation: baygall, sand pine, wet flatwoods, mesic flatwoods, and cypress dome swamp. See Appendix B of this INRMP for more details.

7.10 Agricultural Outleasing
Installation Supplement

Applicability Statement

This section applies to AF installations that lease eligible AF land for agricultural purposes. This section is not applicable to Hurlburt Field.

Program Overview/Current Management Practices

Currently, there are no such activities on the installation nor are any under consideration. Hurlburt has no suitable open ground, soil fertility, or market opportunity to take advantage of this program at this time. Any future changes to this program would be reflected in future revisions of this document.

7.11 Integrated Pest Management Program
Installation Supplement

Applicability Statement

This section applies to AF installations that perform pest management activities in support of natural resources management (e.g., invasive species, forest pests, etc.). This section is applicable to Hurlburt Field.

Program Overview/Current Management Practices

Hurlburt Field has an active pest management program to control rodents, insects, weeds, and fungi on the installation property. The installation is committed to reducing pesticide and fertilizer use through the development and implementation of an integrated pest management program in accordance with AFI 32-1053, *Pest Management Program*. The specifics of the program are outlined in the Hurlburt Field Pest Management Plan (Appendix F of this INRMP).

Hurlburt Field's Pest Management Shop is part of the Civil Engineer Squadron and administers the program for the military portion of the installation. Civilian personnel with the Services Squadron oversee the pest management activities at the Hurlburt golf course. Both the on-site contractor and the Services Squadron have state-certified pesticide applicators (as required by AFI 32-1053, *Integrated Pest Management Program*). The chemicals used for pesticide applications are stored and mixed at the pest management facility and at the golf course pesticide storage facility in accordance with DoD policy.

Invasive Non-native Species Management Program

An invasive species can be defined as a species that is non-native to an ecosystem and from which intentional or accidental introduction causes or is likely to cause environmental degradation, economic damage, or harm to human health.

Once established, these species reduce biological diversity and disrupt the natural integrity and function of native ecosystems by altering habitat and out-competing native species. Invasive animal species may significantly impact native species populations by predating native species or competing with them for resources (preying on native species or reducing the available food, shelter, or space that native species require to persist in an ecosystem). The introduction and spread of non-native invasive species may also create significant, negative issues for military training or for other anthropogenic land uses. For example, invasive plants often increase the negative impacts of wildfire, putting personnel and facilities at risk, and invasive animals can spread zoonotic diseases that make personnel sick and unable to perform their duties.

Hurlburt Field is committed to the identification, control, and eradication of invasive species. IAW the Land Management Plan of 2000, as required by the USACE/FDEP Permit # and described in the FDEP MOA, Hurlburt contracts with state herbicide applicator licensed partners to identify and treat invasive plant infestations within the preservation easement areas. Indeed, Hurlburt NR oversees the contract and directs the contractors using the Exotic Plant Pest Council list of Florida's Most Invasive Species to prioritize invasive plant species for treatment and control. In addition to the areas specified within the Land Management Plan, natural communities with T&E species, and urban interface areas with high risk for introductions, receive first priority for treatments as funding is made available. Treatments are usually initiated by target-specific herbicides (such as Tryclopyr for broad-leaved plants) followed up with maintenance spot-treatments on an annual basis until the infestation shows no resurgence, and annual monitoring.

NR staff participate with the Six Rivers Cooperative Invasive Species Management Area (CISMA) team whose objective is to develop regional strategies for education, identification, data collection, eradication, and control of invasive species. The CISMA consists of multiple private and public agencies in this geographic region. Annual data call reporting requests include sharing the number of acres and species treated and the treatment method.

Hurlburt manages two invasive animal species: feral hogs (*Sus scrofa*) and apple snails (*Pomacea* sp.). Feral hogs are omnivorous, consuming both plants and animals. They have a highly developed sense of smell, and can detect food items that may be buried beneath the soil surface. Feral hogs have been documented preying on several different species of native animals, including fawns and turkey eggs. Adult hogs have few predators, though alligators and perhaps coyotes or bobcats may capture some. Apart from direct consumption of native species, feral hogs are also known to root through sensitive wetland soils in search of food items, which impacts imperiled species by uprooting rare plants, restricting migration (creating barriers), and reducing vegetative cover used as refuge from other predators. Soil disturbance also encourages invasive vegetation growth because many non-native plants are able to rapidly colonize bare soil and out-compete native plants that would otherwise recolonize the areas. Feral hogs are a significant threat to human health because they may transmit zoonotic diseases such as brucellosis and leptospirosis, among others (Brown et al., 2008). Hurlburt maintains a partnership with the USDA-Wildlife Services who assist NR by removing feral hogs. From 2018 to 2020, 8 hogs were removed from Hurlburt Field, typically with 1-4 removed each year. No hogs were removed in 2021. In 2022, 12 hogs were removed, 11 in one day. The consequences for the 2021 lapse in hog control is apparent.

Some uncertainty exists about the species of apple snail found on Hurlburt - whether it is the channeled apple snail (*Pomacea canaliculata*) or giant apple snail (*P. maculata*). There are no native apple snails in the western panhandle of Florida, so all apple snails, regardless of species, are considered invasive on Hurlburt Field. Invasive apple snails are primarily aquatic and adults are active during the warm season, usually at night. During the day adults rest below the water surface and are difficult to detect. In the winter, adult snails aestivate (i.e. rest with reduced metabolisms similar to hibernation) below the mucky soils in wetlands. Adults are often hermaphroditic (i.e. do not require a partner to breed), and begin laying their eggs generally in April, depending on air and water temperatures. Eggs are deposited on emergent vegetation in a mass that resembles "pink bubblegum." Apple snails are known to consume vast quantities of aquatic vegetation, compromising wetland health and impacting native species by removing cover, forage, and breeding habitat. Additionally, apple snails will eat the eggs of frogs and toads and are likely to negatively affect amphibian populations if allowed to spread to other areas of the installation (Carter et al. 2018). Invasive snails often have few predators, though large snails have been documented as prey items for raccoons, alligators, and coyotes. Recently hatched young that drop from the egg masses into the water are sometimes consumed by fish. *P. maculata* have been documented on the Gulf Coast as carriers for rat lungworm (*Angiostrongylus cantonensis*), a nematode that can cause eosinophilic meningitis in humans (Teem et al., 2013). Research grants are being applied to confirm apple snail species identification (or hybridization) and to investigate the effects of these snails on native species. NR is partnering with multiple partners including Universities and the USGS to investigate appropriate and effective control measures to implement, and will modify ongoing control efforts as new methods are recommended. Apple snails are viewed as a threat to T&E species management, and the State of Florida has listed *P. maculata* as a prohibited species (restricting interstate transport).

Research and control measures began in 2018, consisting of an initial treatment (30 acres) and a secondary follow-up treatment the same year (90 acres, including re-treating the initial 30 acres). Treatment consisted of collection of all detected egg masses by crews walking Global Positioning System (GPS)-tracked transects through the dome swamp located along the northeastern Hurlburt/Eglin boundary. Egg masses were scraped from emergent vegetation, placed in containers, and weighed. A total of 1,557 egg masses were collected, weighing 9,515 grams. Initial analysis indicates that crews removed an average of 13 egg masses per acre. No adult snails were encountered. The process was repeated in 2019, with 1,953 egg masses weighing 8,152 grams collected. Dry conditions in 2020 resulted in poor success: 99 egg masses weighing 515 grams were collected. In 2021, the weather was more favorable: 590 egg masses weighing 6,873 grams were collected. The invasives funding line for 2022 fell below the cut-off line and although EOY funds were requested, they may not be secured in time for summer 2022.

In 2019, NR investigated the efficacy of using the molluscicide Ferroxx (iron phosphate), however initial trials of the effects of Ferroxx on captured snails suggest that the iron-based bait may not be a viable method for apple snail control. Hurlburt NR is planning follow up studies in the future. Multiple snail trap designs were tested at three locations: in the ditch along Downs Road, at Hurlburt Lake, and at the low water crossing on Eglin's RR 655. Adult snails congregating within the buckets were collected for DNA processing. Collection habitats with open tops modelled on the design created by Aquatic Research Monitoring Equipment and Deployment, LLC. appeared to be more successful than 3 other designs. Additional designs are planned for testing, and a partnership with the Choctawhatchee Basin Alliance will allow Hurlburt to borrow AmeriCorps volunteers to monitor the traps and collect snails for additional DNA testing as well as lab placement for continuing Ferroxx treatment efficacy testing. Eglin NR has stated that they may consider treatment of their side of the dome swamp once Hurlburt has completed initial treatment efficacy assessments and can make informed recommendations.

Hurlburt Field has confirmed occupancy of green swordtail (*Xiphophorus hellerii*). Green swordtail are a common aquarium pet fish, but are native to Mexico and Central America. They were probably released on Hurlburt by residents or personnel prior to 2007. They have established breeding populations in freshwater drainages on Hurlburt, and off-base nearby at Liza Jackson Park. The University of West Alabama has determined that the Hurlburt and Liza Jackson Park populations are closely related, and proposes that green swordtail may be able to travel through the Santa Rosa Sound to colonize freshwater streams that empty into the Sound. Green swordtail in Florida also appear to be freeze-resistant, persisting in waters that are cooler than their native tropical environments. Their impact to native species is unknown, though the University West Alabama is currently conducting research on this, with support from Hurlburt NR. Preliminary results indicate that green swordtail appear to be consuming food resources with little to no overlap with native fish in the same niche. Several collecting trips have been made to Hurlburt for students to collect fish and Hurlburt will continue supporting the University in their research. Swordtail control measures may be considered as time and funds allow in the future.

In 2021, the State of Florida implemented new rules for invasive nonnative reptiles. Nonnative reptile pets are prohibited on Hurlburt and escaped or released individuals will be treated as invasive species to be removed and controlled.

Also in 2021, the Department of Interior published an Invasive Species Strategic Plan, which Hurlburt NR will review and implement guidance as applicable.

Control of exotic species is a long-term goal of Hurlburt Field and an integral part of management for the preservation area mitigated for under USDA/FDEP Permit #199900679. The Land Management Plan outlines specific invasive species treatment recommendations regarding each land management unit described in the Land Management Plan (Appendix J of this INRMP).

7.12 Bird/Wildlife Aircraft Strike Hazard (BASH)
Installation Supplement

Applicability Statement

This section applies to AF installations that maintain a BASH program to prevent and reduce wildlife-related hazards to aircraft operations. This section is applicable to Hurlburt Field.

Program Overview/Current Management Practices

Bird and wildlife collisions with aircraft cause millions of dollars in damage and the loss of human life. The participation of Hurlburt Field NR in the BASH program is directed by AFMAN 32-7003, *Environmental Conservation*, and AFI 91-212, *Bird/Wildlife Aircraft Strike Hazard (BASH) Management Program*. In support of this program, the Bird Hazard Working Group (BHWG) offers oversight and implementation of the BASH Program at Hurlburt Field. Hurlburt NR is a member of the BHWG. An integrated pest management strategy is utilized to manage airfields for wildlife control (See Appendix C of this INRMP).

Hurlburt Field is located between two major flyways: the Mississippi Flyway and the Atlantic Flyway. Fall migration into Northwest Florida is dispersed over several months and usually peaks in September and October as cold fronts pass through. A second, smaller peak usually occurs in March and April during spring migration. Land birds, shore birds, geese, and raptors all migrate through this area at different altitudes. Bird strikes during these peak periods are inevitable.

The BASH Program has many cooperators, but the Flight Safety Office takes the lead for BASH Program management. This program is responsible for minimizing risks to personnel and aircraft from birds and other wildlife species on the airfield and surrounding operating areas. The BASH Plan (see Appendix C) was developed by the Safety Office with inputs from other installation organizations, and is regularly updated and revised. This fully-integrated plan utilizes habitat modification with BASH dispersal techniques to minimize the presence of wildlife species on the airfield.

Passive control measures such as landscape design, elimination of food and roost sources, turf/water management and forest management are the most effective ways of reducing the attractiveness of airfields for bird and wildlife utilization. Active control measures may incorporate pyrotechnics, bioacoustics, and depredation (lethal control) activities. Depredation activity is only implemented as a last resort when other scare tactics are proven unsuccessful.

Specific types of management strategies and actions incorporated into the BASH program at Hurlburt include:

- Bird harassment techniques (using USDA/WS wildlife biologists)
- Removal of dead animals (carrion) from airfields
- Auditory bird dispersal unit
- Propane cannons
- Sirens/horns/lights
- Pyrotechnics (shell crackers)
- Maintain drainage ditches in areas that have potential to hold water
- Grass heights are maintained at 7-14 inches
- Insect outbreaks may be sprayed with pesticides
- Tree and scrub vegetation management
- Maintain sanitary conditions around main installation dumpsters
- Lethal control measures, as necessary

Hurlburt NR maintains the Airport Depredation Permit (MB819019-0) and Eagle Depredation Permit (MB72881B-1). Both permits require annual reports be sent to the USFWS Migratory Bird Permit Office, describing take and hazing or harassment actions. The Airport Depredation Permit must be renewed annually, but the Eagle Depredation Permit is renewed on a 3-year cycle with the next renewal required in 2024. Current permits are available on Hurlburt's eDASH page.

In accordance with state regulations, Hurlburt Field Natural Resources supports the BASH program in coordinating the removal of alligators, turtles, and other quadrupeds from the airfield. In 2021, the USDA/Wildlife Services BASH personnel became permitted by FWC (SPGS-21-14, expires in 2026) to relocate alligators on the airfield. Hurlburt Natural Resources was listed as sub-permitee. All other alligator removals may only be performed by FWC-licensed alligator trappers (see FWC's SNAP website for more information: https://myfwc.com/wildlifehabitats/wildlife/alligator/snap/).

7.13 Coastal Zone and Marine Resources Management
Installation Supplement

Applicability Statement

This section applies to AF installations that are located along coasts and/or within coastal management zones. This section is applicable to Hurlburt Field.

Program Overview/Current Management Practices

In response to the federal CZMA, Florida enacted the Florida Coastal Management Act (Florida Statutes Title 26) to manage, protect, and maintain the coastal zone and its resources. The coastal zone has been defined as all land and water within the state's 35 coastal counties. Okaloosa County, where Hurlburt Field is located, is one of the counties within the designated coastal zone.

Under provisions of the federal CZMA of 1972, any federal activity that has the potential to impact Florida's coastal resources is reviewed for consistency with the 23 Florida statutes that comprise the Florida Coastal Management Plan (FCMP, http://www.dep.state.fl.us/cmp/). The consistency process allows state agencies to review Proposed Actions. If a reviewing agency believes a project is not consistent with Florida's statutes, the FCMP requires the applicant (Hurlburt) to revise its plans. The Federal Consistency Unit coordinates with reviewing agencies and works with applicants to produce projects that are consistent with Florida's statutes and that protect critical coastal resources.

Hurlburt NR coordinates planned construction activities through the use of the CZMA as part of the EIAP/NEPA review process (par 7.3). Projects do not proceed until all clearances and approvals are in place.

7.14 Cultural Resources Protection
Installation Supplement

Applicability Statement

This section applies to AF installations that have cultural resources that may be impacted by natural resource management activities. This section is applicable to Hurlburt Field.

Program Overview/Current Management Practices

Cultural resources consist of prehistoric and historic districts, sites, structures, artifacts, and any other physical evidence of human activity considered important to a culture or community for scientific, traditional, religious, or other reasons. Generally, any item 50 years old or older may be considered a historic cultural resource. To qualify as Prehistoric, an item or location must predate the European discovery of America (1500ce).

As a Federal agency, Hurlburt Field is required by law to consider the effects of its actions on historic properties. Mandating regulations include:

- Antiquities Act of 1906.
- Historic Sites Act of 1935.
- National Environmental Policy Act of 1969 (NEPA).
- National Historic Preservation Act (NHPA) of 1966 (as amended 36 CFR Part 800).
- Archaeological and Historic Preservation Act of 1974.
- Archaeological Resources Protection Act of 1979.
- Native American Graves and Repatriation Act of 1990.
- American Indian Religious Freedom Act of 1978.

NHPA section 106 requires that federal agencies analyze the impacts of their activities on historic properties, or cultural resources included in, or eligible for inclusion in, the National Register of Historic Places. Sections 106 and 110 of the NHPA require that federal agencies inventory any cultural resources that are located on their property or within their control and to nominate those found to be significant for inclusion into the National Register. Federal agencies are also required under Section 106 to consult with any Indian Tribe or Native Hawaiian organization that attaches religious and cultural significance to historic properties. Consulting parties also include the Florida State Historic Preservation Officer (SHPO), Advisory Council on Historic Preservation (ACHP), the public, and any other interested parties.

The USAF requires each installation to maintain an up to date ICRMP. The Hurlburt ICRMP (Appendix E) identifies the areas and structures on Hurlburt that are of historic interest. It also outlines the plan to survey Hurlburt's aging buildings, those 50 years old and older, to add culturally or historically significant ones as they warrant.

The majority of Hurlburt Field's land area has been surveyed and designated as either high probability or low probability for the likelihood of cultural resources. About 2,000 acres remain to be surveyed. These probability areas have been reviewed by and agreed upon by the SHPO. Archaeological collections are preserved under a MOU between Hurlburt and Eglin that establishes a process for all cultural items to be curated at Eglin.

There are recurring surveys conducted on Hurlburt Field for historic structures as buildings and other structures meet the minimum age requirement for listing. To date, no structures on Hurlburt Field are eligible or listed on the National Register.

7.15 Public Outreach
Installation Supplement

Applicability Statement

This section applies to all AF installations that maintain an INRMP. Hurlburt Field is required to implement this element.

Program Overview/Current Management Practices

Communication and cooperation with the public is a critical component of any natural resource management effort. Without the support of partner organizations and local citizens, it becomes very difficult to run effective management programs.

Authority

The authority to establish Volunteer and Partnership Cost-Share programs is provided by the National Defense Authorization Act, P.L. 101-189. Passed in November 1989, this legislation amended two acts and established volunteer and partnership programs for natural resource management on DoD lands.

The DoD Authorization Act of 1984 (10 USC 1588 a-c) was amended to expand existing authority to use volunteers to include acceptance of volunteer services for natural and cultural resources programs at military installations.

The Sikes Act (16 USC 670c-1) was amended to add the use of cooperative agreements with organizations and individuals for the maintenance and improvement of natural resources on, or to the benefit of natural and historic research at, DoD installations. The primary purpose of this legislation is to provide a vehicle through which DoD natural and cultural resources management programs can accept and utilize voluntary services in such a way that it is mutually beneficial to the program and the volunteer.

The goal of public outreach efforts is to encourage understanding of, support for, and involvement in the many management and monitoring programs at Hurlburt Field. Successful outreach programs have been accomplished through various means, such as those provided in the following subsections. The Public Affairs office provides ongoing support to Hurlburt Environmental by disseminating information to the news media, military and outlying communities.

Research Partnerships, Education, and Internships

- Scouting - Hurlburt Field works with the local scouting community to provide projects for merit and other badges. Since 1997 NR has provided scouts with Eagle projects toward earning the rank of Eagle with various projects on base. Several area Girl Scout troops have also contributed to projects and events like Arbor Day and National Public Lands Day. NR staff have given guided Nature Trail hikes, trained scouts in aquatic insect identification, and given special talks to scout groups regarding natural resources conservation.
- Military Partners - Hurlburt Field partners with the Eglin Wildland Support Module at Eglin AFB to accomplish prescribed burning and respond to wildfires. Hurlburt NR and the Eglin Wildland Fire Module support Hurlburt Fire and Emergency Services during Fire Prevention Week to disseminate educational information about wildfire and prescribed fire. Hurlburt NR works with CE/Environmental to disseminate information to UECs quarterly and shares information with the ESOHC for dissemination of information for base leadership.
- Research and Development
    - Hurlburt Field has worked closely with Three Rivers Resource Conservation & Development to conduct biological monitoring and habitat improvement projects on Hurlburt Field since 2002.
    - The base also worked with the University of Florida to conduct a 2-year study of the efficacy of a non-seed producing grass for deterring mourning dove on the airfield.
    - Since 1996, Hurlburt Field has worked with Florida's state heritage organization, the FNAI, to ensure up-to-date and accurate inventory data are available regarding rare species and their habitats of concern on the installation.
    - In 2011-2012, Hurlburt Field NR staff and the Hurlburt Field Youth Center partnered with the Audubon Society to restore a degraded wetland stream for the purposes of creating an outdoor environmental education classroom for children of military families. This project continues to benefit native pollinators.
    - In 2016, Hurlburt Field NR staff began collaborating with the University of West Alabama on a National Science Foundation grant to study invasive swordtail fish and apple snails.
    - In 2017, Hurlburt Field became another USAF duty station for USFWS Fish and Wildlife Biologists in the USAF/USFWS Partnership Program. USFWS now staff the NR office to support natural resources management on the installation. USFWS staff perform T&E species surveys and recommend habitat management strategies for the recovery of listed species, as well as reviewing all projects for EIAP/NEPA and ESA compliance.
    - In 2018, Hurlburt NR and USFWS began working with the University of West Florida to investigate occupancy of the reticulated flatwoods salamander using environmental DNA analysis.
    - In 2019, Hurlburt NR and USFWS began working with Rollins College to provide apple snails for graduate research studies and control efficacy recommendations.

    - In 2021, Kaylee Marshall was accepted as a graduate student at UWF to take up the salamander eDNA project as her Master's thesis. She began fieldwork in 2022 and will complete her second year of fieldwork in 2023.
    - Hurlburt Field partners with the Six Rivers CISMA, a group of local, state and federal agencies to address eradication and control of invasive species within a 9-county area.
- Student Internships – The University of West Florida, the University of West Alabama, and the University of Florida at Milton, refer student interns to Hurlburt Environmental to fulfill educational requirements.
- Education - Hurlburt Field NR staff offer educational presentations, activities, and field outings to children at the Hurlburt Field Youth Center, to local Scout troops, to University students, and to Corvias Housing residents, among others, related to T&E species biology, natural resources management, and careers in wildlife biology and natural resources management.

Hurlburt NR is open to forming partnerships with interested groups and is interested in outreach opportunities.

Volunteer Involvement

Currently, Hurlburt NR coordinates through various distribution sources such as the Hurlburt Field Volunteer Coordinator at the Airman and Family Readiness program to provide natural resource volunteer opportunities. Requests for volunteer participation are advertised in the Volunteer Newsletter and on the Hurlburt EMS Facebook page, as well as by being distributed by 1st sergeants and tenant organizations such as the 823D Red Horse Squadron.

In the fall of 2017, volunteers assisted NR with building and installing eastern bluebird birdhouses in Corvias Housing to celebrate National Public Lands Day (NPLD). Birdhouses for prothonotary warblers were also installed in the reticulated flatwoods salamander breeding ponds. For NPLD 2018, additional birdhouses were built and installed for great-crested flycatchers and northern flickers. All of these birdhouses are monitored by installation volunteers who participate in the Cornell Lab of Ornithology's NestWatch Project, which is a citizen science project to supply national nesting success data for nation-wide species population trend monitoring. The information shared with NestWatch contributes to the State of the Birds publication, (see https://www.stateofthebirds.org/ for more information).

In 2018, volunteers assisted NR and Eglin's Erosion Control Project to clean up the Okaloosa Gas Right-of-Way between Family Camping and Commando Village. Volunteers removed several old couches, >100 lbs. of wood and >100 lbs. of metal (that were recycled), plus 56 tires that were also recycled, and many bags of trash.

Hurlburt NR began an intensive trail clean-up project in fall 2018 for the Grace Brown Nature Trail, which was repeated in in fall 2019 (for NPLD 2019). Volunteers trimmed vegetation, cleaned educational signs, picked up garbage, and replaced rotten boards on boardwalks. In 2021, due to damage caused by Hurricane Sally in 2020, volunteers from the 567 Red Horse Squadron from Seymour Johnson volunteered several days to repair some of the damage, pick up garbage that had washed into the forest during the high water event, and removed damaged interpretive signage. NR partnered with Corrosion Control to refurbish the old signs and printed all-new interpretive signs. Volunteers replaced all signs for NPLD 2021. Hurlburt NR relies on volunteer groups to assist with all trail maintenance and will continue coordinating with volunteers to maintaining it in the future. NR assists the volunteer groups by providing tools and equipment. In 2021 and 2022, additional nature trail volunteer days were sponsored by CE and provided tools and guidance by NR.

Based on Eglin AFB's successful volunteer work day in Pond 15 (Eglin East Bay), Hurlburt Field Technicians sponsored a volunteer work day in H5 to assist in habitat restoration work of that pond. Future volunteer efforts in H5 should target removing old tires that are along the pond's edge.

7.16 Climate Change Vulnerabilities
Installation Supplement

Applicability Statement

This section applies to USAF installations that have identified climate change risks, vulnerabilities, and adaptation strategies using authoritative region-specific climate science, climate projections, and existing tools. This section **IS** applicable to this installation.

Program Overview/Current Management Practices

The Climate Change Summary, conducted by Colorado State University's Center for the Environmental Management of Military Lands in 2018 for Hurlburt Field provides information for installation stakeholder consideration as they evaluate management action options to address natural resource issues.

Climate simulations were conducted to develop site-specific projections for the two potential emission scenarios over different timeframes: moderate (Representative Concentration Pathway [RCP] 4.5) and high (RCP 8.5) emission scenarios for the decadal averages of 2030 and 2050. Projected climate data were then used to assess potential impacts to the installation's mission and natural resources.

The Climate Change Summary and associated appendices to the summary can be found on Hurlburt Field's eDASH, Natural Resources Program Page, Resources Folder.

In 2020, the National Wildlife Federation published the Commanders Guide to Climate Change Adaptation for DoD Natural Resources Managers and the Adaptation Guide to assist installations with understanding and planning for climate change. Where appropriate, Hurlburt NR will implement recommendations.

An important issue to consider with climate change is: biosecurity and disease prevention. In regards to disease prevention, Hurlburt NR works with Pest Management to monitor and address wildlife diseases that are caused or exasperated by climate change, including: snake fungal disease, frog chitridiomycosis (Chitrids), and salamander chitridiomycosis (Bsal). Hurlburt Field participated in the DoD PARC snake fungal disease survey in 2018 and 2021. The report for 2018 is here, with a positive detection at Hurlburt Field. When herpetofauna are noted with potential diseases, NR or PM will notify the Herpetofaunal Disease Alert System.

Due the mild climate and abundant resources, several nonnative reptile species have become established in Florida. Many of these species are detrimental to native wildlife, and effective 29 April 2021, the State of Florida implemented new rules for invasive nonnative reptiles. Nonnative reptile pets are prohibited on Hurlburt Field. Populations discovered on Hurlburt will be treated as invasive species and control and removal methods will be implemented.

7.17 Geographic Information Systems (GIS)
Installation Supplement

Applicability Statement

This section applies to all AF installations that maintain an INRMP, since all geospatial information must be maintained within the AF GeoBase system. Hurlburt Field is required to implement this element.

Program Overview/Current Management Practices

Historically, information from all natural resources surveys has been converted into digital format and incorporated into the installation Geographic Information System (GIS). The natural resources data layers (provided below) are maintained by personnel in the Environmental Element, and are updated as new information becomes available. Hurlburt Field's GIS is the central location for various natural resources data layers; however, not all of the data layers are available to the entire installation public because of the requirement to protect certain vulnerable natural resources assets.

Hurlburt Field utilizes the data collected in GIS to ensure military readiness while protecting natural resources and effectively manage growth on the installation. Currently, Hurlburt Field's Environmental Element manages and updates the following data layers:

- Asbestos Management Location Points
- Lead-Based Paint Location Points
- Hazardous Material Storage Location Points
- Air Emissions Source Points
- Installation Chemical Sectors (used by Readiness)
- Aboveground Storage Tank Points
- Environmental Restoration Areas
- Environmental Well Points
- Wetlands
- Land Management Units (Preservation/Restoration lands from the Land Management Plan)
- Rare, Threatened, and Endangered Animal and Plant Species
- Invasive Plant Locations and Treatment Sites
- Installation Tree Species Points

- Archeological Sites

8 MANAGEMENT GOALS AND OBJECTIVES

The installation establishes long term, expansive goals and supporting objectives to manage and protect natural resources while supporting the military mission. Goals express a vision for a desired condition for the installation's natural resources and are the primary focal points for INRMP implementation. Objectives indicate a management initiative or strategy for specific long or medium range outcomes and are supported by projects. Projects are specific actions that can be accomplished within a single year. Also, in cases where off-installation land uses may jeopardize USAF missions, this section may list specific goals and objectives aimed at eliminating, reducing, or mitigating the effects of encroachment on military missions. These natural resources management goals for the future have been formulated by the preparers of the INRMP from an assessment of the natural resources, current condition of those resources, mission requirements, and management issues previously identified. Below are the integrated goals for the entire natural resources program.

The installation goals and objectives are displayed in the 'Installation Supplement' section below in a format that facilitates an integrated approach to natural resource management. By using this approach, measurable objectives can be used to assess the attainment of goals. Individual work tasks support INRMP objectives. The projects are key elements of the annual work plans and are programmed into the conservation budget, as applicable.

Installation Supplement

GOAL 1: MISSION FIRST – PRESERVE, ENHANCE, OR EXPAND CURRENT AND FUTURE MILITARY AIR, GROUND, AND WATER OPERATIONS CAPACITY THROUGH SOUND STEWARDSHIP PRACTICES.

- OBJECTIVE 1.1: Responsive Planning: Support military mission objectives through a responsive natural resources' analysis and consultation process (NEPA/EIAP).
    - PROJECT 1.1.1: Utilize the NEPA/EIAP AFF 813 review as an opportunity to avoid Endangered Species Act or Marine Mammal Protection Act consultations. This is to be accomplished by rescheduling, relocation, or other avoidance strategy wherever practicable. Consultations should be accomplished rarely (target: fewer than 5 annually or 2% of AFF 813s submitted). Maintain up-to-date and accurate NR data, including site surveys as necessary to maintain data such that AF can take planning actions to avoid adverse impacts to listed species. Inspect and document construction, test, and exercise areas (including but not limited to firing ranges, beaches used for missions, EOD area, recreational beaches) for potential impacts or other contributors that may degrade listed species' habitats.
    - PROJECT 1.1.2: Utilize the NEPA/EIAP for 100% of all CZMA actions. Goal: 0 missed CZMA filings.
    - PROJECT 1.1.3: Complete required Section 7 consultations per ESA/NEPA requirements. Utilize and refer to previous BOs when making recommendations for projects.
    - PROJECT 1.1.4: Review and utilize the Land Management Plan of 2000 and MOA with FDEP/USACE as required by permit # 199900679 (IP-DH) to prevent impacts to preservation wetlands and uplands. Utilize INRMP 5-year review and summary of changes to support compliance with USACE permit # 199900679 requirements.
    - PROJECT 1.1.5: Monitor regional land use and development for critical habitat loss. Comment informally or on public record when practicable to convey the DoD desire to minimize habitat loss. Habitat loss near DoD facilities INCREASES the importance of DoD lands and DECREASES operations capacity. Participate in discussion/planning groups when appropriate and comment on potential Readiness and Environmental Protection Integration (REPI) or Sentinel Landscape opportunities to protect military lands and missions.

- OBJECTIVE 1.2: Internal Communication: Consult internally with planners, commanders, and other actors to guide proposals, plans and actions before they have the opportunity to create an impact on natural resources. Attend key meetings.
    - PROJECT 1.2.1: NR personnel will attend and actively contribute to all scheduled meetings in support of compliance and mission planning (i.e., Airfield Operations Board meeting, BASH Working Group, project planning meetings).
    - ROJECT 1.2.2: Establish and maintain regular communications with installation groups, community planner, range and training managers to identify early solutions to natural resources problems.
    - PROJECT 1.2.3: Conduct an annual review of NR program using Environmental Management System (EMS) tools to identify and correct deficiencies in a timely manner. Collect data and report for all data calls (MICT, Semi-annual EQ Data Calls, training numbers, etc.).

- PROJECT 1.2.4: Coordinate on contract conditions and Performance Work Statement development to ensure BMPs are added.

- OBJECTIVE 1.3 Management Tools: Provide up-to-date and accurate natural resources information to support informed decision-making and integration with other programs in the analysis and consultation process.

    - PROJECT 1.3.1: Annually review, update, maintain, and facilitate access to environmental and species data layers to AFCEC's GeoBase system to provide the most up to date natural resources information.
    - PROJECT 1.3.2: Record GIS field data for species' inventories, invasive species' controls, or other field data points when discovered.
    - PROJECT 1.3.3: Coordinate with CEIE Stormwater Program Manager to maintain up to date binding jurisdictional wetland survey in accordance with state and federal wetland delineation regulations. Conduct site surveys as necessary and maintain data on significant changes which have occurred due to infrastructure, wetlands, or regulation such that AF can take planning actions and avoid adverse wetland impacts, maximize design efficiencies, and minimize project costs. Inspect and document construction, test, and exercise areas (including but not limited to firing ranges, beaches used for missions, EOD area, recreational beaches) for potential erosion sites or other contributions that may degrade wetlands water quality. Review annually for the need to program resources.

- OBJECTIVE 1.4: Wildfire and Prescribed Fire: Provide sufficient wildland fire management support to Hurlburt's military mission through coordination with the Eglin Wildland Support Module, thereby reducing threats to life, property and natural resources.

    - PROJECT 1.4.1: Annually update installation Wildland Fire Management Plan in cooperation with the Eglin Wildland Support Module to capture any new mission changes, land use changes, management objectives, coordination processes, and/or notification procedures.
    - PROJECT 1.4.2: Reduce wildfire risk by implementing strategies outlined in the Wildland Fire Management Plan, including planning/coordinating projects to mechanically thin woodlots that pose a wildfire risk but cannot be managed with prescribed fire due to safety and smoke impacts (review the Land Management Plan regarding woodlots that are also preservation wetlands/uplands).
    - PROJECT 1.4.3: Utilize prescribed fire to maintain sensitive habitat for species of concern following the methods outlined in the Wildland Fire Management Plan.
    - PROJECT 1.4.4: Conduct prescribed burns safely with zero smoke impacts to Hurlburt Field training flight operations.

- OBJECTIVE 1.5: Flight Safety and BASH: Provide natural resources expertise and field support to Flight Safety and BASH program.

    - PROJECT 1.5.1: Maintain all permits required for lethal control of migratory birds and coordinate removal of nuisance wildlife as needed to promote airfield safety. Verify permits are applied for and received IAW AFCEC timelines, and are shared on Hurlburt's eDASH.
    - PROJECT 1.5.2: Work with BASH Working Group to identify effective, long-term solutions for the management of airfield wetlands that will minimize adverse effects to natural resources while reducing BASH. Monitor BASH statistics for negative trends.

- OBJECTIVE 1.6: Bear Management in coordination with FWC and base partners: Provide natural resources expertise and maintain Hurlburt Field as a BearWise Community.

    - PROJECT 1.6.1: Maintain status as a BearWise Community to reduce human-bear conflicts through base community education, securing attractants, and annual Bear Response Training for Security Forces and Natural Resources staff as described in the BearWise Component Plan (Appendix J of this INRMP). Review and update the BearWise Component Plan annually.
    - PROJECT 1.6.2: As described in the BearWise Component Plan, annually (or more frequently upon request) provide the FWC with report data from NR and Security Forces. Immediately report human-bear safety risks to FWC as identified in FWC Human-Bear Conflict Response Policies and Guidelines. Utilize report data and FWC recommendations to address and remedy conflicts, guide project recommendations, and support Florida black bear conservation.

GOAL 2: SIKES ACT & 32CFR CH1 PART 190 NATURAL RESOURCES MANAGEMENT PROGRAM – PROMOTE OPPORTUNITIES FOR SUSTAINABLE USE BY THE PUBLIC WHILE ENHANCING COLLABORATION AND STEWARDSHIP CONSISTENT WITH THE MILITARY MISSION.

- OBJECTIVE 2.1: An Informed Public – Maintain current partnerships and create new partnerships with the base community and outside agencies to enhance conservation effectiveness and provide outreach opportunities.
    - PROJECT 2.1.1: Work with Hurlburt Field's Public Affairs Office and Force Support Squadron to help communicate future events and education information to the installation population. Publish stories promoting recreation/stewardship/conservation/volunteer support.
    - PROJECT 2.1.2: Participate in local events to increase awareness to natural resources and outdoor recreational areas. Attend appropriate event and promote conservation programs. Event examples include Arbor Day, Earth Day, National Public Lands Day, America Recycles Day, Fire Prevention Week, Choctawhatchee Estuary Festival, or other public event on base or in the local community.
    - PROJECT 2.1.3: Cooperate and coordinate with the Force Support Squadron to maintain compliance with the Hurlburt Field Clean Marina Designation.
    - PROJECT 2.1.4: Maintain continuity of conservation efforts, public education, ecosystem management and wildlife control with housing 50 year lease holder. Attend coordination meetings when appropriate. Coordinate with the Chief, Installation Management Flight, and Housing Manager to raise awareness of natural resources and reduce human/wildlife conflicts within housing.

- OBJECTIVE 2.2: Volunteers: Utilize volunteers to enhance conservation effectiveness.
    - PROJECT 2.2.1: Tap into community volunteer organizations to accomplish natural resources objectives and to raise awareness and encourage participation in recreational activities.
    - PROJECT 2.2.2: Collaborate with and support organizations such as the Hurlburt Field Youth Center, Library, and local scout troops for the purpose of environmental education and outreach for at least one project annually.
    - PROJECT 2.2.3: Record and report volunteer hours to give credit to volunteers needing service hours (school honors). Track volunteer hours annually and report annually to Hurlburt Main Base Volunteer Coordinator.

GOAL 3: ESA - CONSERVE AND PROTECT NATURAL BIODIVERSITY BY RESTORING AND MAINTAINING HURLBURT'S ECOSYSTEMS IN SUPPORT OF THE MILITARY MISSION.

- OBJECTIVE 3.1: Protect, restore and maintain endangered, threatened, rare, and sensitive species and their habitats in accordance with all state and federal laws.
    - PROJECT 3.1.1: In accordance with the Wildland Fire Management Plan, re-establish and maintain a three-year average fire return interval, to include a variety of seasons, in all current and potential reticulated flatwoods salamander breeding and foraging habitat. Coordinate and cooperate with AFCEC Eglin Wildland Support Module. This objective is critically tied to achieving salamander habitat improvement in Objective 3.1.4.
    - PROJECT 3.1.2: Survey for gopher tortoises, indigo snakes, and other sensitive commensals at 100% of proposed project areas identified by the AFF 813 review process where ground will be significantly disturbed. Recommend strategies to prevent impacts to tortoises/burrows and eggs as required by state and federal law. When impacts to tortoises/burrows or eggs cannot be prevented due to mission requirements, relocate impacted gopher tortoises to suitable habitat.
    - PROJECT 3.1.3: Identify and coordinate with CEIE to repair erosion sites impacting wetlands/natural resources as identified during wetlands monitoring, and as programmed and funded by the AF. Develop projects to monitor and restore erosion sites in or adjacent to wetland riparian areas. Monitor and document AF activities impacting or with potential to impact wetlands to ensure wetland protective BMPs are implemented. Install signs or provide other awareness information to installation personnel and public as needed to protect wetlands. Complete annual inspections and reports as required.
    - PROJECT 3.1.4: Evaluate habitat conditions within current, historical and potential reticulated flatwoods salamander breeding ponds. Prioritize ponds for restoration and maintenance via map product indicating treatment priority. Restore and enhance ponds and surrounding habitat using mechanical vegetation thinning, herbicide, and growing season prescribed fire.

- OBJECTIVE 3.2: Monitoring – Maintain an integrated adaptive management and long-term trends monitoring program to evaluate potential impacts and to provide scientific information to decision makers for future projects and missions.

    - PROJECT 3.2.1: Annually conduct established survey and monitoring protocols for rare species and habitat to verify occupancy and/or population status. When practicable, establish inventories that can be accomplished by volunteers, non-biologist staff, and NR staff. Review annually for the need to program resources.
    - PROJECT 3.2.2: Conduct annual sampling for occupancy/population status of known or suspected reticulated flatwoods salamander breeding ponds by surveying during breeding season, using a variety of survey methods (i.e., dip-net, trapping, spotlight, eDNA, drift-fence, etc. as appropriate).
    - PROJECT 3.2.3: Conduct annual surveys for occupancy/population status of known RCW clusters on EOD range. Monitor breeding activity and coordinate with Eglin's RCW biologist to band new fledglings to facilitate breeding success surveys. Install additional artificially drilled cavities as needed and recommended by USFWS and Eglin NRO.
    - PROJECT 3.2.4: Continue long term monitoring efforts for known gopher tortoise populations and check for presence of indigo snake and other commensals of conservation importance. Track/report incidental sightings of gopher tortoises: volunteer reports, staff, or formal contract survey.
    - PROJECT 3.2.5: A complete inventory of rare plants and their habitat associations will be completed by NR personnel or through cooperative agreement every 5-10 years as appropriate.
    - PROJECT 3.2.6: Support national Air Force Civil Engineering Center (AFCEC) priority of long term monitoring efforts for the petitioned tricolored bat by conducting acoustic monitoring following the North American Bat (NABat) Monitoring Protocol and the Florida Long-term Monitoring Plan in selected GRTS cells across Hurlburt Field at least quarterly during the year. Analyze the data collected using an auto-classifier and manually vet tricolored bat calls; upload metadata into the NABat Partner Portal to contribute to the national population trend analyses and share the NABat-produced species and monitoring reports with installation and agency partners; continue working with DOD, USFWS, USGS, and NABat partners to improve NABat functionality for mission support.
    - PROJECT 3.2.7: Develop and implement annual monitoring for occupancy/population status of bog frogs at known or suspected locations along the East Bay River drainage.

- OBJECTIVE 3.3: Invasives – Reduce and control the spread of invasive, exotic plant and animal species.

    - PROJECT 3.3.1: Conduct annual invasive non-native plant and animal surveys at all known occupied reticulated flatwoods salamander ponds and other high threat/density sites in high priority natural resources areas. Include areas specified in the Land Management Plan of 2000. Annually treat exotic plant species in high threat/density sites located during the previous year's survey. Opportunistically treat single plants and clusters. Record all treatments by GIS track and/or area plot to geographically define species treated.
    - PROJECT 3.3.2: Identify natural areas degraded by feral hogs to direct eradication through removal by contracted SME. Continue annual eradication efforts to minimize feral hog population growth.
    - PROJECT 3.3.3: Annually survey for and treat infestations of invasive apple snails using the best available science and approved control measures. Work with partners to minimize new infestations and eradicate known infestations.
    - PROJECT 3.3.4: Actively participate with the Six Rivers Comprehensive Invasive Species Management Area (CSMA) working group to develop standardized tracking and monitoring methods, and improve best management practices for the control and eradication of invasives in the Florida panhandle.
    - PROJECT 3.3.5: Annually survey a minimum of 20 percent of high quality natural areas in close proximity to the urban interface for invasive, exotic plant and animal species. Survey area recorded by GIS track or polygon.
    - PROJECT 3.3.6: Cooperatively work with Housing Contractor to educate base community about the negative impacts of invasive species on native species through activities, community events, or social media.

9 INRMP IMPLEMENTATION, UPDATE, AND REVISION PROCESS

9.1 Natural Resources Management Staffing and Implementation

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The INRMP provides the basis for developing multi-year program budget proposals to execute the Goals and Objectives outlined in the section titled Management Goals and Objectives. Adequate funding is a critical component to ensure full implementation of these Goals that are beyond the ability of the assigned staff to complete such as effective invasive species control and prescribed fire on all 5000 acres. These requirements are carried to AFCEC for inclusion in the 5 year budget.

The staffing requirements (internal and external) that are necessary for oversight of the NR management program and implementation of the INRMP are provided in Table 10 (as of June 2020). Table 10 identifies the current staff by job series, labor categories, and program functions.

Table 10. Current Staff of the 1 SOCES/CEIE at Hurlburt Field (as of June 2020)		
Flight Directory/Major Programs		
GS-13/0401	Supervisory, Biological Scientist	Chief, Environmental Flight
Environmental Compliance		
GS-12 /0028	Environmental Protection Specialist	Hazardous Waste
GS-11/0028	Environmental Protection Specialist	Air Quality POL/Tanks Integrated Contingency Plan Wastewater
GS-12/0028	Environmental Protection Specialist	Environmental Management System Coordinator
GS-12/1301	Physical Scientist	Stormwater
Pollution Prevention (P2) Program		
GS-12/1301	Physical Scientist (effective 23 Jul 2007)	Toxics ESOHCAMP Coordinator Solid Waste Pollution Prevention (P2) Program Green Procurement Hazardous Materials
Contract Support (non-UMD)		
NA		
Funded positions on Unit Manning Document (UMD): 6		

The 1st Special Operations Civil Engineer Squadron/Environmental Management Element (1 SOCES/CEIE) is responsible for the planning and implementation of the INRMP. Other evaluation mechanisms exist through ESOH or other protocols.

9.2 Monitoring INRMP Implementation

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The INRMP Annual Review Cycle will also be maintained as a tabular check sheet for tracking purposes. Manual updates will also be reflected in the web-based INRMP. Additionally, completion and status of the objectives identified in the section titled Management Goals and Objectives will be tracked. Hurlburt's NRM will review these documents at each INRMP Review Cycle and the Chief of Environmental will enforce compliance with the INRMP.

9.3 Annual INRMP Review and Update Requirements

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The INRMP requires annual review, IAW DoDI 4715.03 and AFMAN 32-7003, to ensure the achievement of mission goals, verify the implementation of projects, and establish any necessary new management requirements. This process involves installation natural resources personnel and external agencies working in coordination to review the INRMP. If the installation mission or any of its natural resources management issues change significantly after the creation of the original INRMP, a major revision to the INRMP is required. The need to accomplish a major revision is normally determined during the annual review with USFWS, the appropriate state, and NOAA (if required). The NRM/POC documents the findings of the annual review in an Annual INRMP Review Summary and obtains signatures from the coordinating agencies on review findings. By signing the Annual INRMP Review Summary, the collaborating agency representatives assert concurrence with the findings. If any agency declines to participate in an on-site annual review, the NRM submits the INRMP for review along with the Annual INRMP Review Summary document to the agency via official correspondence and request return correspondence with comments/concurrence.

The USFWS, the FWC, and the NRM/Section conduct an Annual INRMP Review Meeting. This meeting takes place in person with respective representatives for each agency. Individuals may telephone or video call if they cannot attend in person. During this meeting the NRM/Section updates the external stakeholders/parties with the end of the year execution report and coordinates future work plans and any necessary changes to management methods, etc. All parties review the INRMP and begin preliminary collaborative work on updating the INRMP (new policies, procedures, impacts, mitigations, etc.) as applicable.

At this annual meeting the need for updates or revisions will be discussed. If updates are needed, the NRM will initiate the updates and after agreement of all parties they will be added to the INRMP. If it is determined that major changes are needed, all parties will provide input and an INRMP revision will be initiated with NRM acting as the lead coordinating agency. The annual meeting will be used to expedite the more formal review for operation and effect and if all parties agree and document their mutual agreement, it can fulfill the requirement to review the INRMP for operation and effect.

If not already determined in previous annual meetings, by the fourth year annual review a determination will be made jointly to continue implementation of the existing INRMP with updates or to proceed with a revision. If the parties feel that the annual reviews have not been sufficient to evaluate operation and effect and they cannot determine if the INRMP implementation should continue or be revised, a formal review for operation and effect will be initiated. The determination on how to proceed with INRMP implementation or revision will be made after the parties have had time to complete this review.

As part of the annual review, the Hurlburt Field NRM will specifically:

- Invite feedback from USFWS and FWC on the effectiveness of the INRMP
- Inform USFWS and FWC which INRMP projects and activities are required to meet current natural resources compliance needs
- Document specific INRMP action accomplishments from the previous year.

Information for the annual reviews comes from the Hurlburt Field environmental staff, the NRM, cooperating agencies, and project files as applicable. Natural resources data, and program and project information are available to cooperating agencies.

10 ANNUAL WORK PLANS

The INRMP Annual Work Plans are included in this section. These projects are listed by fiscal year, including the current year and four succeeding years. For each project and activity, a specific timeframe for implementation is provided (as applicable), as well as the appropriate funding source and priority for implementation. The work plans provide all the necessary information for building a budget within the USAF framework. Priorities are defined as follows:

- High: The INRMP signatories assert that if the project is not funded the INRMP is not being implemented and the USAF is non-compliant with the Sikes Act; or that it is specifically tied to an INRMP goal and objective and is part of a "Benefit of

the Species" determination necessary for Endangered Species Act (ESA) Sec 4(a)(3)(B)(i) critical habitat exemption.

- Medium: Project supports a specific INRMP goal and objective and is deemed by INRMP signatories to be important for preventing non-compliance with a specific requirement within a natural resources law or by EO 13112, *Exotic and Invasive Species*. However, the INRMP signatories would not contend that the INRMP is not being implemented if not accomplished within the programmed year due to other priorities.
- Low: Project supports a specific INRMP goal and objective, enhances conservation resources or the integrity of the installation mission, and/or supports long-term compliance with specific requirements within natural resources law; but is not directly tied to specific compliance within the proposed year of execution.

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In this INRMP, Section 8.0.'s listed goals and objectives are primarily carried out as duties and responsibilities of the Environmental Element Chief, as relayed to the NR staff. Where possible, other organizations, contractors, and volunteers are utilized to supplement the Natural Resources staff efforts. Efforts beyond the capabilities of the installation are carried forward as projects to AFCEC for inclusion in the 5 year budget review.

To fully implement the Goals and Objectives of this INRMP, as outlined in section 8.0 of this INRMP, resources are needed as outlined in Table 11. The availability of these resources and the precise time of availability depend on authorization and appropriation of funds by Congress. Availability of funds is further determined by Air Force installations.

Table 11. Hurlburt Field Annual Work Plan				
INRMP Reference	**Project Title**	**Justification standard for AFCEC Funding**	**Hurlburt Application**	**AFCEC Funding Requested**
Projects 1, 3, 3.1, 3.1.1,3.1.4, 3.2, 3.2.2, 3.3	MGT, HABITAT, FLATWOODS SALAMANDER	Flatwoods Salamander habitat restoration. Removal of debris, restoration of hydrology, removal of vehicle rutting, grassland restoration, clearing of brush and invasives. Planting trees/grasses of desired species. Includes necessary supplies, plants, seeds, expendables to complete one summer of work.		FY21 FY22 FY23 FY24 FY25

Projects 1.1, 1.2, 1.2.4, 1.3, 1.3.1, 1.3.3, 3, 3.1, 3.1.3, 3.1.4, 3.2	MONITOR, WETLANDS	Monitor Hurlburt Field wetlands per approved INRMP for condition, enhancement, and boundaries. Deliverables include; Up-to-date and accurate data of jurisdictional wetland boundaries including conducting site surveys as necessary to maintain data such that AF can take planning actions and avoid adverse wetland impacts; Inspect and document construction, test, and exercise areas, for potential erosion sites or other contributors that may degrade wetlands water quality; Develop project requirements for erosion control or other protective wetlands actions; Inspect and document compliance for Hurlburt Field 3200 acre (1,300 hectare) preserve area, which includes wetlands specifically protected per MOA with FDEP, and Hurlburt Field Land Management Plan; Document opportunities for ecological improvement, or recommended management changes; Monitor and document AF activities impacting or with potential to impact wetlands to ensure wetland protective BMPs are implemented and required permits are obtained. Install signs or provide other awareness information to installation personnel and public as needed to protect wetlands. Deliverables include inspection reports, wetlands delineation reports and paperwork required for submittal to USACE, and wetlands management plan/work plan.	FY19	FY19 FY20 FY21 FY22 FY23
Projects 1, 2, 3	SUPPLIES, CN	Biologists field tools and equipment to support conservation program actions.	FY20	FY20 FY21 FY22 FY23

Projects 1, 1.1, 1.2, 1.3, 1.5, 1.6, 2, 2.1, 2.2, 3, 3.1, 3.2, 3.3	MGT, SPECIES, T&E	Protect, restore and maintain endangered, threatened, rare, and sensitive species in accordance with all state and federal laws. Specific deliverables include: Provide long-term habitat inventory and monitoring for T&E and candidate species. Relocate gopher tortoise as needed; Survey, update, and maintain current base-wide natural resources T&E and candidate species data; Survey salamander population; monitor RCW; monitor tricolored bats; monitor gulf sturgeon and manatee; Check established gopher tortoise burrows annually for indigo snakes; Track/report gopher tortoises; Install information signs, markers, fencing, or barriers as needed to protect species. Deliverables include draft and final monitoring reports, relocation and tracking data, GIS files.		FY20 FY21 FY22 FY23 FY24 FY25
		Provide USFWS support for implementing the Sikes Act and ESA by developing BAs, developing implementation plans for required terms and conditions of BOs, developing and coordinating BOs within Hurlburt Field AFB and USFWS, producing final BAs and Opinions, assisting in NEPA document preparation and review with respect to T&E species, providing USFWS coordination and input for Sikes Act INRMP development, review and implementation, developing INRMP text and		FY21 FY22 FY23 FY24 FY25

Projects 1, 1.1, 1.2, 1.2.3, 1.3, 1.3.3, 3, 3.1, 3.1.3, 3.1.4, 3.2, 3.3	MGT, WETLANDS/FLOODPLAIN	Management, restoration, or enhancement of wetland habitats IAW with the goals and objectives of an INRMP approved in accordance with the Sikes Act. Extensive swamps, marshes, ponds, and bayous occur in and around Hurlburt Field. Approximately 3,328 acres (1,347 hectares), or 52 percent of the installation, is comprised of state and federal jurisdictional wetlands. Works best in conjunction with an aggressive Rx fire program.	FY22	FY20 FY21 FY22 FY23 FY24 FY25

Projects 1, 2, 3	EQUIPMENT PURCHASE / MAINTAIN, CN	Maintenance, repair and calibration of equipment for owned/lease/short term rental or borrowed ATV/Utility Task Vehicle (UTV), chainsaws, tractor, other powered equipment, repair and calibrate radio/GPS/other field equipment to support Rx fire and conservation, invasive species and wildlife management.		FY20 FY21 FY22 FY23

Projects 1, 1.2, 1.3, 1.4, 1.6, 2, 2.1, 3, 3.1, 3.2, 3.3	MGT, NUISANCE WILDLIFE	Manage wildlife to assure T&E, state listed and others pose no threat to Hurlburt flightline operations (relocation/depredation), Reduce or eliminate bear activity in industrial, dormitory and housing area, control or relocate alligators. Post signs, erect and maintain fencing, barriers, and other devices as to discourage wildlife encroachment. Depredation of hogs, feral animals, and nuisance animals.		FY20 FY21 FY22 FY23 FY24 FY25

Projects 1, 2, 3	INTERAGENCY/INTRA AGENCY, GOVERNMENT, SIKES ACT, USFWS	Funds Sikes Act-driven, interagency/intra-agency agreement, cooperative agreement, or other similar support required to assist the base's normal day-to-day management of inherently governmental functions & operations of the Conservation Program. Provide USFWS support for implementing the Sikes Act and ESA by developing BAs, developing implementation plans for required terms and conditions of BOs, developing and coordinating BOs within Hurlburt Field AFB and USFWS, producing final BAs and Opinions, assisting in NEPA document preparation and review with respect to T&E species, providing USFWS coordination and input for Sikes Act INRMP development, review and implementation, developing INRMP text and work plans, and assisting in development of INRMP implementation; Conduct QA/QC or Contracting Officer's Representative (COR) duties for other contract natural and cultural resources work; Plan NR and CR projects and assist with execution of funds and oversight of execution; Negotiating with regulators on behalf of the USAF or representing the USAF in official meetings for both Natural and Cultural program. USFWS expertise to accomplish BAs and BOs will avoid delays during the consultation process as well as ensure the Air Force properly and adequately meets the Sikes Act and ESA requirements.		FY20 FY21

		Provide USFWS support for implementing the Sikes Act and ESA by developing BAs, developing implementation plans for required terms and conditions of BOs, developing and coordinating BOs within Hurlburt Field AFB and USFWS, producing final BAs and Opinions, assisting in NEPA document preparation and review with respect to T&E species, providing USFWS coordination and input for Sikes Act INRMP development, review and implementation, developing INRMP text and work plans, and assisting in development of INRMP implementation; Conduct QA/QC or Contracting Officer's Representative (COR) duties for other contract natural and cultural resources work; Plan NR and CR projects and assist with execution of funds and oversight of execution; Negotiating with regulators on behalf of the USAF or representing the USAF in official meetings for both Natural and Cultural program. USFWS expertise to accomplish BAs and BOs will avoid delays during the consultation process as well as ensure the Air Force properly and adequately meets the Sikes Act and ESA requirements.		FY21

11 REFERENCES

Standard References *(Applicable to all USAF installations)*

- AFMAN 32-7003, *Environmental Conservation*
- Sikes Act
- eDASH Natural Resources Program Page
- Natural Resources Playbook
- DoDI 4715.03, *Natural Resources Conservation Program*
- AFI 32-1015, *Integrated Installation Planning*
- AFI 32-10112, *Installation Geospatial Information and Services (IGI&S)*

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Air Force Instruction 36-2226, Combat Arms Programs.

Air Force Instruction 32-7064, Integrated Natural Resources Management.

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12 ACRONYMS

Standard Acronyms *(Applicable to all USAF installations)*

- eDASH Acronym Library
- Natural Resources Playbook – Acronym Section
- U.S. EPA Terms & Acronyms

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1 ACG		1st Air Commando Group
ACW		Air Commando Wing
1 SOCES/CEIE		1st Special Operations Civil Engineer Squadron/ Environmental Management Element
1 SOMDG		1st Special Operations Medical Group
1 SOW		1st Special Operations Wing
1 SOW/CC		1st Special Operations Wing/Command and Control
505 CCW		505th Command and Control Wing
834 TCW		834th Tactical Composite Wing
ACHP		Advisory Council on Historic Preservation
AF		Air Force
AFB		Air Force Base
AFCEC		Air Force Civil Engineer Center
AFF		Air Force Form
AFI		Air Force Instructions
AFMAN		Air Force Manual
AFPD		Air Force Policy Directive
AFRIMS		Air Force Records Management System
AFSOC		Air Force Special Operations Command
AHRES		Aquatic Habitat Restoration Enhancement Section
AT/FP		Antiterrorism/Force Protection

ATV		All-terrain vehicle
BA		Biological Assessment
BASH		Bird/Wildlife Strike Hazard
BCI		Bat Conservation International
BHWG		Bird Hazard Working Group
BMP		Best Management Practice
BO		Biological Opinion
BOMARC		Boeing and University of Michigan Aeronautical Research Center
BR		Business Rule
BX		Base Exchange
C2		Command and Control
CAC		Common Access Card
CBA		Choctawhatchee Basin Alliance
CDC		Child Development Center
CFR		Code of Federal Regulations
CISMA		Cooperative Invasive Species Management Area
CLEO		Conservation Law Enforcement Officer
CLEP		Conservation Law Enforcement Program
C-NAF		Component Numbered Air Force
CO		Conference Opinion
COR		Contracting Officer's Representative
CSMA		Comprehensive Invasive Species Management Area
CWA		Clean Water Act
CZ		Environmental Doctorate
CZMA		Coastal Zone Management Act
DIT		Dynamics of International Terrorism
DoD		Department of Defense
DoDD		Department of Defense Directive
DoDI		Department of Defense Instructions
DOI		Department of Interior

eDNA		environmental DNA
EIAP		Environmental Impact Analysis Process
EMP		Environmental Management Plan
EMS		Environmental Management System
EO		Executive Order
EOD		Explosive Ordnance Disposal
ESA		Endangered Species Act
ESOH		Environmental, Safety, and Occupational Health
ESOHCAMP		Environment, Safety, and Occupational Health Compliance Assessment and Management Program
FCMP		Florida Coastal Management Program
FDEP		Florida Department of Environmental Protection
FGS		Final Governing Standards
FNAI		Florida Natural Areas Inventory
FWC		Florida Fish and Wildlife Conservation Commission
FWO		Fish and Wildlife Officer
FWRI		Fish and Wildlife Research Institute
FY		Fiscal Year
GEM		Gator Lakes Golf Course Environmental Management
GIS		Geographic Information System
GPS		Global Positioning System
HQ		Headquarters
IAW		In accordance with
ICRMP		Integrated Cultural Resources Management Plan
IDP		Installation Development Plan
INRMP		Integrated Natural Resource Management Plan
IPMP		Integrated Pest Management Plan
IRP		Installation Restoration Program
ISO		International Organization for Standardization
ISR		Intelligence, Surveillance, and Reconnaissance
ISS		Installation Support Section

ISWM		Integrated Solid Waste Management
LEED		Leadership in Energy and Environmental Design
MAC		Military Airlift Command
MBTA		Migratory Bird Treaty Act
MMPA		Marine Mammal Protection Act
MOA		Memorandum of Agreement
MOU		Memorandum of Understanding
Mph		miles per hour
NABat		North American Bat Monitoring Survey
NEPA		National Environmental Policy Act
NFPA		National Fire Protection Association
NGO		Non-Governmental Organizations
NHPA		National Historic Preservation Act
NMFS		National Marine Fisheries Service
NOAA		National Oceanic and Atmospheric Administration
NPLD		National Public Lands Day
NR		Natural Resources
NRM		Natural Resource Manager
NRO		Natural Resource Office
NWCG		National Wildfire Coordinating Group
ORV		Off-road Vehicle
P2		Pollution Prevention
PARC		Partners in Amphibian and Reptile Conservation
PMS		Publication Management System
POC		Point of Contact
POL		Petroleum, Oil, and Lubricant
POV		Privately Owned Vehicle
RCP		Representative Concentration Pathway
RCW		Red-cockaded woodpecker
RDS		Records Disposition Schedule

RFP		Request For Proposal
SA		Sikes Act
SAIA		Sikes Act Improvement Act
SAWC		Special Air Warfare Center
SHPO		State Historic Preservation Officer
SLERP		Submerged Lands and Environmental Resource Program
SME		Subject Matter Expert
SMS		Subject Matter Specialist
SOF		Special Operations Forces
SOS		Special Operations Squadron
SOW		Special Operations Wing
SSA		Species Status Assessment
SWPPP		Stormwater Pollution Prevention Plan
T&E		Threatened and Endangered
TFI		Total Force Integration
TTA		Tactical Training Area
U.S.		United States
UEC		Unit Environmental Coordinators
UFC		Unified Facilities Criteria
UMD		Unit Manning Document
USACE		United States Army Corps of Engineers
USAF		United States Air Force
USC		United States Code
USDA		United States Department of Agriculture
USEPA		United States Environmental Protection Agency
USFWS		United States Fish and Wildlife Service
USGS		United States Geological Survey
USSOC		U.S. Special Operations Command
UTV		Utility Task Vehicle
WFMP		Wildland Fire Management Plan

WNS		White-nose Syndrome
WSM		Wildland Support Module
YC		Youth Center

13 DEFINITIONS

Standard Definitions *(Applicable to all USAF installations)*

- Natural Resources Playbook – Definitions Section

Installation Supplement

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A ANNOTATED SUMMARY OF KEY LEGISLATION RELATED TO DESIGN AND IMPLEMENTATION OF THE INRMP

Federal Public Laws and Executive Orders	
National Defense Authorization Act of 1989, Public Law (P.L.) 101-189; Volunteer Partnership Cost-Share Program	Amends two Acts and establishes volunteer and partnership programs for natural and cultural resources management on DoD lands.
Defense Appropriations Act of 1991, P.L. 101-511; Legacy Resource Management Program	Establishes the "Legacy Resource Management Program" for natural and cultural resources. Program emphasis is on inventory and stewardship responsibilities of biological, geophysical, cultural, and historic resources on DoD lands, including restoration of degraded or altered habitats.
EO 11514, *Protection and Enhancement of Environmental Quality*	Federal agencies shall initiate measures needed to direct their policies, plans, and programs to meet national environmental goals. They shall monitor, evaluate, and control agency activities to protect and enhance the quality of the environment.
EO 11593, *Protection and Enhancement of the Cultural Environment*	All Federal agencies are required to locate, identify, and record all cultural resources. Cultural resources include sites of archaeological, historical, or architectural significance.
EO 11987, *Exotic Organisms*	Agencies shall restrict the introduction of exotic species into the natural ecosystems on lands and waters which they administer.

	construction within a 100-year floodplain and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities for acquiring, managing and disposing of Federal lands and facilities.
EO 11989, *Off-Road vehicles on Public Lands*	Installations permitting off-road vehicles to designate and mark specific areas/trails to minimize damage and conflicts, publish information including maps, and monitor the effects of their use. Installations may close areas if adverse effects on natural, cultural, or historic resources are observed.
EO 11990, *Protection of Wetlands*	Requires Federal agencies to avoid undertaking or providing assistance for new construction in wetlands unless there is no practicable alternative, and all practicable measures to minimize harm to wetlands have been implemented 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 but not limited to water and related land resources planning, regulating, and licensing activities.
EO 12088, *Federal Compliance with Pollution Control Standards*	This EO delegates responsibility to the head of each executive agency for ensuring all necessary actions are taken for the prevention, control, and abatement of environmental pollution. This order gives the U.S. Environmental Protection Agency (US EPA) authority to conduct reviews and inspections to monitor federal facility compliance with pollution control standards.
EO 12898, *Environmental Justice*	This EO requires certain federal agencies, including the DoD, to the greatest extent practicable permitted by law, to make environmental justice part of their missions by identifying and addressing disproportionately high and adverse health or environmental effects on minority and low-income populations.
EO 13112, *Invasive Species*	To prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species

	cause.
EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*	The USFWS has the responsibility to administer, oversee, and enforce the conservation provisions of the Migratory Bird Treaty Act, which includes responsibility for population management (e.g., monitoring), habitat protection (e.g., acquisition, enhancement, and modification), international coordination, and regulations development and enforcement.
United States Code	
Animal Damage Control Act (7 U.S.C. § 426-426b, 47 Stat. 1468)	Provides authority to the Secretary of Agriculture for investigation and control of mammalian predators, rodents, and birds. DoD installations may enter into cooperative agreements to conduct animal control projects.
Bald and Golden Eagle Protection Act of 1940, as amended; 16 U.S.C. 668-668c	This law provides for the protection of the bald eagle (the national emblem) and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession and commerce of such birds. The 1972 amendments increased penalties for violating provisions of the Act or regulations issued pursuant thereto and strengthened other enforcement measures. Rewards are provided for information leading to arrest and conviction for violation of the Act.
Clean Air Act, (42 U.S.C. § 7401– 7671q, July 14, 1955, as amended)	This Act, as amended, is known as the Clean Air Act of 1970. The amendments made in 1970 established the core of the clean air program. The primary objective is to establish Federal standards for air pollutants. It is designed to improve air quality in areas of the country which do not meet federal standards and to prevent significant deterioration in areas where air quality exceeds those standards.
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (Superfund) (26 U.S.C. § 4611–4682, P.L. 96-510, 94 Stat. 2797), as amended	Authorizes and administers a program to assess damage, respond to releases of hazardous substances, fund cleanup, establish clean-up standards, assign liability, and other efforts to address environmental contaminants. Installation Restoration Program guides cleanups at DoD installations.
Endangered Species Act (ESA) of 1973, as amended; P.L. 93-205, 16 U.S.C. § 1531 et seq.	Protects threatened, endangered, and candidate species of fish, wildlife, and plants and their designated critical

	habitats. Under this law, no federal action is allowed to jeopardize the continued existence of an endangered or threatened species. The ESA requires consultation with the USFWS and the NOAA Fisheries (National Marine Fisheries Service) and the preparation of a biological evaluation or a biological assessment may be required when such species are present in an area affected by government activities.
Federal Aid in Wildlife Restoration Act of 1937 (16 U.S.C. § 669–669i; 50 Stat. 917) (Pittman-Robertson Act)	Provides federal aid to states and territories for management and restoration of wildlife. Fund derives from sports tax on arms and ammunition. Projects include acquisition of wildlife habitat, wildlife research surveys, development of access facilities, and hunter education.
Federal Environmental Pesticide Act of 1972	Requires installations to ensure pesticides are used only in accordance with their label registrations and restricted-use pesticides are applied only by certified applicators.
Federal Land Use Policy and Management Act, 43 U.S.C. § 1701–1782	Requires management of public lands to protect the quality of scientific, scenic, historical, ecological, environmental, and archaeological resources and values; as well as to preserve and protect certain lands in their natural condition for fish and wildlife habitat. This Act also requires consideration of commodity production such as timbering.
Federal Noxious Weed Act of 1974, 7 U.S.C. § 2801–2814	The Act provides for the control and management of non-indigenous weeds that injure or have the potential to injure the interests of agriculture and commerce, wildlife resources, or the public health.
Federal Water Pollution Control Act (Clean Water Act [CWA]), 33 U.S.C. §1251–1387	The CWA is a comprehensive statute aimed at restoring and maintaining the chemical, physical, and biological integrity of the nation's waters. Primary authority for the implementation and enforcement rests with the US EPA.
Fish and Wildlife Conservation Act (16 U.S.C. § 2901–2911; 94 Stat. 1322, PL 96-366)	Installations encouraged to use their authority to conserve and promote conservation of nongame fish and wildlife in their habitats.
Fish and Wildlife Coordination Act (16 U.S.C. § 661 et seq.)	Directs installations to consult with the USFWS, or state or territorial agencies to ascertain means to protect fish and wildlife resources related to actions resulting in the control or structural modification of any

	natural stream or body of water. Includes provisions for mitigation and reporting.
Lacey Act of 1900 (16 U.S.C. § 701, 702, 32 Stat. 187, 32 Stat. 285)	Prohibits the importation of wild animals or birds or parts thereof, taken, possessed, or exported in violation of the laws of the country or territory of origin. Provides enforcement and penalties for violation of wildlife related Acts or regulations.
Leases: Non-excess Property of Military Departments, 10 U.S.C. § 2667, as amended	Authorizes DoD to lease to commercial enterprises Federal land not currently needed for public use. Covers agricultural outleasing program.
Migratory Bird Treaty Act 16 U.S.C. § 703–712	The Act implements various treaties for the protection of migratory birds. Under the Act, taking, killing, or possessing migratory birds is unlawful without a valid permit.
National Environmental Policy Act of 1969 (NEPA), as amended; P.L. 91-190, 42 U.S.C. § 4321 et seq.	Requires federal agencies to utilize a systematic approach when assessing environmental impacts of government activities. Establishes the use of environmental impact statements. NEPA proposes an interdisciplinary approach in a decision-making process designed to identify unacceptable or unnecessary impacts on the environment. The Council of Environmental Quality (CEQ) created Regulations for Implementing the National Environmental Policy Act [40 Code of Federal Regulations (CFR) Parts 1500–1508], which provide regulations applicable to and binding on all Federal agencies for implementing the procedural provisions of NEPA, as amended.
National Historic Preservation Act, 16 U.S.C. § 470 et seq.	Requires federal agencies to take account of the effect of any federally assisted undertaking or licensing on any district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places (NRHP). Provides for the nomination, identification (through listing on the NRHP), and protection of historical and cultural properties of significance.
National Trails Systems Act (16 U.S.C. § 1241–1249)	Provides for the establishment of recreation and scenic trails.
National Wildlife Refuge Acts	Provides for establishment of National Wildlife Refuges through purchase, land transfer, donation, cooperative agreements, and other means.
National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. § 668dd–	

668ee)	Provides guidelines and instructions for the administration of Wildlife Refuges and other conservation areas.
Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. § 3001–13; 104 Stat. 3042), as amended	Established requirements for the treatment of Native American human remains and sacred or cultural objects found on Federal lands. Includes requirements on inventory, and notification.
Rivers and Harbors Act of 1899 (33 U.S.C. § 401 et seq.)	Makes it unlawful for the USAF to conduct any work or activity in navigable waters of the United States without a federal permit. Installations should coordinate with the U.S. Army Corps of Engineers (USACE) to obtain permits for the discharge of refuse affecting navigable waters under National Pollutant Discharge Elimination System (NPDES) and should coordinate with the USFWS to review effects on fish and wildlife of work and activities to be undertaken as permitted by the USACE.
Sale of certain interests in land, 10 U.S.C. § 2665	Authorizes sale of forest products and reimbursement of the costs of management of forest resources.
Soil and Water Conservation Act (16 U.S.C. § 2001, P.L. 95-193)	Installations shall coordinate with the Secretary of Agriculture to appraise, on a continual basis, soil/water-related resources. Installations will develop and update a program for furthering the conservation, protection, and enhancement of these resources consistent with other federal and local programs.

	implementation and enforcement of INRMPs. Activities that require the exercise of discretion in making decisions regarding the management and disposition of government owned natural resources are inherently governmental. When it is not practicable to utilize DoD personnel to perform inherently governmental natural resources management duties, obtain these services from federal agencies having responsibilities for the conservation and management of natural resources.
DoD Policy, Directives, and Instructions	
DoD Instruction 4150.07 *DoD Pest Management Program* dated 29 May 2008	Implements policy, assigns responsibilities, and prescribes procedures for the DoD Integrated Pest Management Program.
DoD Instruction 4715.1, *Environmental Security*	Establishes policy for protecting, preserving, and (when required) restoring and enhancing the quality of the environment. This instruction also ensures environmental factors are integrated into DoD decision-making processes that could impact the environment, and are given appropriate consideration along with other relevant factors.
DoD Instruction (DoDI) 4715.03, *Natural Resources Conservation Program*	Implements policy, assigns responsibility, and prescribes procedures under DoDI 4715.1 for the integrated management of natural and cultural resources on property under DoD control.

OSD Policy Memorandum – 17 May 2005 – *Implementation of Sikes Act Improvement Amendments: Supplemental Guidance Concerning Leased Lands*	Provides supplemental guidance for implementing the requirements of the Sikes Act in a consistent manner throughout DoD. The guidance covers lands occupied by tenants or lessees or being used by others pursuant to a permit, license, right of way, or any other form of permission. INRMPs must address the resource management on all lands for which the subject installation has real property accountability, including leased lands. Installation commanders may require tenants to accept responsibility for performing appropriate natural resource management actions as a condition of their occupancy or use, but this does not preclude the requirement to address the natural resource management needs of these lands in the installation INRMP.
OSD Policy Memorandum – 1 November 2004 – *Implementation of Sikes Act Improvement Act Amendments: Supplemental Guidance Concerning INRMP Reviews*	Emphasizes implementing and improving the overall INRMP coordination process. Provides policy on scope of INRMP review, and public comment on INRMP review.
OSD Policy Memorandum – 10 October 2002 – *Implementation of Sikes Act Improvement Act: Updated Guidance*	Provides guidance for implementing the requirements of the Sikes Act in a consistent manner throughout DoD and replaces the 21 September 1998 guidance Implementation of the Sikes Act Improvement Amendments. Emphasizes implementing and improving the overall INRMP coordination process and focuses on coordinating with stakeholders, reporting requirements and metrics, budgeting for INRMP projects, using the INRMP as a substitute for critical habitat designation, supporting military training and testing needs, and facilitating the INRMP review process.
USAF Instructions and Directives	
32 CFR Part 989, as amended, and AFI 32-7061, Environmental Impact Analysis Process (EIAP)	Provides guidance and responsibilities in the EIAP for implementing INRMPs. Implementation of an INRMP constitutes a major federal action and therefore is subject to evaluation through an Environmental Assessment or an Environmental Impact Statement.
AFI 32-1015, *Integrated Installation Planning*	This publication establishes a comprehensive and integrated planning framework for development/redevelopment of Air Force installations..

	USAF property in compliance with Federal, state, territorial, and local standards.
AFMAN 32-7003, *Environmental Conservation*	This Manual implements AFPD 32-70 and DoDI 4710.1, *Archaeological and Historic Resources Management.* It explains how to manage cultural resources on USAF property in compliance with Federal, state, territorial, and local standards.
AFI 32-10112 *Installation Geospatial Information and Services (IGI&S)*	This instruction implements Department of Defense Instruction (DoDI) 8130.01, Installation Geospatial Information and Services (IGI&S) by identifying the requirements to implement and maintain an Air Force Installation Geospatial Information and Services program and Air Force Policy Directive (AFPD) 32-10 Installations and Facilities.
AFPD 32-70, *Environmental Quality*	Outlines the USAF mission to achieve and maintain environmental quality on all USAF lands by cleaning up environmental damage resulting from past activities, meeting all environmental standards applicable to present operations, planning its future activities to minimize environmental impacts, managing responsibly the irreplaceable natural and cultural resources it holds in public trust and eliminating pollution from its activities wherever possible. AFPD 32-70 also establishes policies to carry out these objectives.
Policy Memo for Implementation of Sikes Act Improvement Amendments, HQ USAF Environmental Office (USAF/ILEV) on January 29, 1999	Outlines the USAF interpretation and explanation of the Sikes Act and Improvement Act of 1997.

B WILDLAND FIRE MANAGEMENT PLAN
Installation Supplement

Hurlburt Wildland Fire Management Plan: Hurlburt Final WFMP FY20 Update_27Aug2020_Final Signed_compressed.pdf

C BIRD/WILDLIFE AIRCRAFT STRIKE HAZARD (BASH) PLAN
Installation Supplement

Hurlburt Bird/Wildlife-Aircraft Strike Hazard Plan: HF_91-212_BASH_Plan_2020.pdf

D GOLF ENVIRONMENTAL MANAGEMENT (GEM) PLAN
Installation Supplement

Hurlburt Golf Course Environmental Management (GEM) Plan: 2011 Hurlburt GEM Plan.pdf

E INTEGRATED CULTURAL RESOURCES MANAGEMENT PLAN (ICRMP)

Installation Supplement

Hurlburt Integrated Cultural Resources Managemetn Plan (ICRMP): 2020Hurlburt_ICRMP.pdf

F INTEGRATED PEST MANAGEMENT PLAN (IPMP)

Installation Supplement

Hurlburt Integrated Pest Management Plan (IPMP): 2018 Pest Management Plan.pdf

G PETITIONED, CANDIDATE, THREATENED OR ENDANGERED FAUNA POTENTIALLY OCCURRING ON HURLBURT FIELD

Species petitioned for or currently federally listed that occur or potentially occur on Hurlburt are:

- Bald eagle (*Haliaeetus leucocephalus*) - Bald and Golden Eagle Protection Act
- Red-cockaded woodpecker (*Picoides borealis*) – Endangered
- Reticulated flatwoods salamander (*Ambystoma bishopi*) – Endangered
- Black rail (*Laterallus jamaicensis* ssp. *jamaicensis*) - Threatened, Eastern Population Only
- Eastern indigo snake (*Drymarchon corais couperi*) - Threatened
- Gopher tortoise (*Gopherus polyphemus*) – Regionally Threatened (West), Candidate (East); State-designated Threatened
- Gulf sturgeon (*Acipenser oxyrinchus desotoi*) - Threatened
- Rufa red knot (*Calidris canutus rufa*) - Threatened
- West Indian manatee (*Trichechus manatus*) – Threatened
- Wood stork (*Mycteria americana*) – Threatened
- Alligator snapping turtle (*Macroclemys temmincki*) - Proposed Threatened; State-designated Threatened
- Monarch butterfly (*Danaus plexippus plexippus*) - Proposed Threatened/Candidate
- Eastern diamondback rattlesnake (*Crotalus adamanteus*) - Under Review
- Florida pine snake (*Pituophis melanoleucus mugitus*) – Under Review; State-designated Threatened
- Gulf Coast solitary bee (*Hesperapis oraria*) – Under Review
- Tri-colored bat (*Perimyotis subflavus*) – Under Review

Species currently state listed that occur or potentially occur on Hurlburt are:

- Gopher frog (*Lithobates capito*) – No longer listed in Florida as of 2017, part of Florida Imperiled Species Management Plan.
- Florida bog frog (*Lithobates okaloosae*) – State-designated Threatened, not Federally listed
- Least tern (*Sternula antillarum*) – State-designated Threatened, Federally listed as endangered in Midwest and Great Plains states
- Southern hognose (*Heterodon simus*) – Petitioned. Announced in October 2019 that the species is not warranted for listing as endangered or threatened. In Florida, ranked as a species of greatest conservation need.
- Little blue heron (*Egretta caerulea*) – State-designated Threatened, not Federally listed
- Tricolored heron (*Egretta tricolor*) – State-designated Threatened, not Federally listed

More information about Florida's T&E species can be found at: https://myfwc.com/media/1945/threatend-endangered-species.pdf.

H FEDERAL LAWS, REGULATIONS, POLICIES, AND EXECUTIVE ORDERS

Federal Laws

American Indian Religious Freedom Act of 1978 (Public Law 95-341; 42 USC §1196) – requires the U.S., where appropriate, to protect and preserve religious rights of the American Indian, Eskimo, Aleut, and Native Hawaiians, including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites.

Animal Damage Control Act of 1931 (7 USC §426 et seq.) – provides broad authority for investigation, demonstrations and control of mammalian predators, rodents and birds.

Anti-Deficiency Act of 1982 (31 USC §1341 et seq.) - provides that no federal official or employee may obligate the government for the expenditure of funds before funds have been authorized and appropriated by Congress for that purpose.

American Antiquities Act of 1906 (Public Law 59-209; 16 USC §431-433) – authorizes the President to designate historic and natural resources of national significance, located on federal lands, as National Monuments for the purpose of protecting items of archeological significance.

Archeological and Historical Preservation Act of 1974 (Public Law 95-96; 16 USC §469 et seq.) – provides for the preservation of historical and archeological data, including relics and specimens, threatened by federally funded or assisted construction projects.

Archeological Resources Protection Act of 1979 (16 USC §470 et seq.) – prohibits the excavation or removal from federal or Indian lands any archeological resources without a permit.

Bald Eagle Protection Act of 1940 (Public Law 87-884; 16 USC §668a-d) – prohibits the taking or harming (i.e. harassment, sale, or transportation) of bald eagles or golden eagles, including their eggs, nests, or young, without appropriate permit.

Clean Air Act of 1970 (42 USC §7401 et seq.) – regulates air emissions from stationary, area, and mobile sources. This law authorizes the USEPA to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment.

Clean Water Act of 1972 (Public Law 92-500; 33 USC §1251 et seq.) – aims to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Under Section 401, states have authority to review federal permits that may result in a discharge to wetlands or water bodies under state jurisdiction. Under section 404, a program is established to regulate the discharge of dredged or fill material into the Nation's waters, including wetlands.

Coastal Zone Management Act of 1972 (Public Law 92-583; 16 USC §1451 et seq.) – provides incentives for coastal states to develop coastal zone management programs. Federal actions that impact the coastal zone must be consistent to the maximum extent practicable with the state program.

Conservation and Rehabilitation Program on Military and Public Lands (Public Law 93-452; 16 USC §670 et seq.) – provides for fish and wildlife habitat improvements, range rehabilitation, and control of off-road vehicles on federal lands.

Conservation Programs on Military Reservations (Public Law 90-465; 16 USC §670 et seq.) – Requires each military department to manage natural resources and to ensure that services are provided which are necessary for management of fish and wildlife resources on each installation; to provide their personnel with professional training in fish and wildlife management; and to give priority to contracting work with federal and state agencies that have responsibility for conservation or management of fish and wildlife. In addition it authorizes cooperative agreements (with states, local governments, non-governmental organizations, and individuals) which call for each party to provide matching funds or services to carry out natural resources projects or initiatives.

Endangered Species Act of 1973, as amended (16 USC §1531 et seq.) – provides for the identification and protection of threatened and endangered plants and animals, including their critical habitats. Requires federal agencies to conserve threatened and endangered species and cooperate with state and local authorities to resolve water resources issues in concert with the conservation of threatened and endangered species. This law establishes a consultation process involving federal agencies to facilitate avoidance of agency action that would adversely affect species or habitat. Further, it prohibits all persons subject to U.S. jurisdiction from taking, including any harm or harassment, endangered species.

Federal Energy Regulatory Commission, Wetland and Waterbody Construction and Mitigation Procedures – provides guidance to project sponsors by identifying baseline mitigation measures for minimizing the extent and duration of project-related disturbance on wetlands and waterbodies,

Federal Insecticide, Fungicide, and Rodenticide Act of 1947 (Public Law 92-516; 7 USC §136 et seq.) – governs the use and application of pesticides in natural resource management programs. This law provides the principal means for preventing environmental pollution from pesticides through product registration and applicator certification.

Federal Land Policy and Management Act of 1976 (43 USC §1701) – establishes public land policy and guidelines for its administration and provides for the management, protection, development, and enhancement of the public lands.

Federal Noxious Weed Act of 1974 (Public Law 93-629; 7 USC §2801) – provides for the control and eradication of noxious weeds and their regulation in interstate and foreign commerce.

Fish and Wildlife Conservation Act of 1980 (Public Law 96-366; 16 USC §2901 et seq.) – encourages management of non-game species and provides for conservation, protection, restoration, and propagation of certain species, including migratory birds threatened with extinction.

Fish and Wildlife Coordination Act of 1934 (16 USC §661 et seq.) – provides a mechanism for wildlife conservation to receive equal consideration and coordinate with water-resource development programs.

Land and Water Conservation Act of 1965 (16 USC §4601 et seq.) – assists in preserving, developing, and assuring accessibility to outdoor recreation resources.

Migratory Bird Conservation Act of 1929 (16 USC §715 et seq.) – establishes a Migratory Bird Conservation Commission to approve areas recommended by the Secretary of the Interior for acquisition with Migratory Bird Conservation Funds.

Migratory Bird Treaty Act of 1918 (Public Law 65-186; 16 USC §703 et seq.) – provides for regulations to control taking of migratory birds, their nests, eggs, parts, or products without the appropriate permit and provides enforcement authority and penalties for violations.

National Environmental Policy Act of 1969 (Public Law 91-190; 42 USC §4321 et seq.) – mandates federal agencies to consider and document environmental impacts of proposed actions and legislation. In addition it mandates preparation of comprehensive environmental impact statements where proposed action is "major" and significantly affects the quality of the human environment.

Native American Graves Protection and Repatriation Act of 1990 (Public Law 101-601; 25 USC §§3001-3013) – addresses the recovery, treatment, and repatriation of Native American and Native Hawaiian cultural items by federal agencies and museums. It includes provisions for data gathering, reporting, consultation, and issuance of permits.

Resource Conservation and Recovery Act of 1976 (42 USC §6901 et seq.) – establishes a comprehensive program which manages solid and hazardous waste. Subtitle C, Hazardous Waste Management, sets up a framework for managing hazardous waste from its initial generation to its final disposal. Waste pesticides and equipment/containers contaminated by pesticides are included under hazardous waste management requirements.

Sikes Act Improvement Act of 1997 (Public Law 105-85; 16 USC §670a et seq.) – amends the Sikes Act of 1960 to mandate the development of an integrated natural resources management plan through cooperation with the Department of the Interior (through the USFWS), Department of Defense, and each state fish and wildlife agency for each military installation supporting natural resources.

Soil Conservation Act of 1935 (16 USC §590a et seq.) – provides for soil conservation practices on federal lands.

Federal Regulations

40 CFR 1500-1508 – Council on Environmental Quality (CEQ) Regulations on Implementing NEPA Procedures

40 CFR 6 – USEPA Regulations on Implementation of NEPA Procedures

40 CFR 162 – USEPA Regulations on Insecticide, Fungicide, and Rodenticide Use

15 CFR 930 – Federal Consistency with Approved Coastal Management Programs

50 CFR 17 – USFWS list of Endangered and Threatened Wildlife

50 CFR 10.13 – List of Migratory Birds

32 CFR 190 – Natural Resources Management Program

Federal Executive Orders

Environmental Safeguard for Activities for Animal Damage Control on Federal Lands (EO 11870) - restricts the use of chemical toxicants for mammal and bird control.

Exotic Organisms (EO 11987) – restricts federal agencies in the use of exotic plant species in any landscape and erosion control measures.

Energy Efficiencies and Water Conservation at Federal Facilities (EO 12902) – federal agency use of energy and water resources is directed towards the goals of increased conservation and efficiency.

Floodplain Management (EO 11988) – specifies that agencies shall encourage and provide appropriate guidance to applicant to evaluate the effects of their proposals in floodplains prior to submitting applications. This includes wetlands that are within the 100-year floodplain and especially discourages filling.

Greening the Government through Leadership in Environmental Management (EO 13148) – requires the head of each federal agency to be responsible for ensuring that all necessary actions are taken to integrate environmental accountability into agency day-to-day decision making and long-term planning processes across all agency missions, activities, and functions.

Indian Sacred Sites (EO 13007) – provides for the protection of and access to Indian sacred sites.

Invasive Species (EO 13112) – directs federal agencies to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause.

Off-Road Vehicles on Public Lands (EO 11989) – ensures the use of off-road vehicles on public lands will be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands

Protection and Enhancement of Environmental Quality (EO 11514) – provides for environmental protection of federal lands and enforces requirements of NEPA.

Protection of Wetlands (EO 11990) – directs all federal agencies to take action to minimize the destruction loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. This applies to the acquisition, management, and disposal of federal lands and facilities; to construction or improvements undertaken, financed, or assisted by the federal government; and to the conduct of federal activities and programs which affect land use.

Responsibilities of Federal Entities to Protect Migratory Birds (EO 13186) – directs all federal agencies taking actions that have a potential to negatively affect migratory bird populations to develop and implement a Memorandum of Understanding with the USFWS by January 2003 that shall promote the conservation of migratory bird populations.

DoDI, AFI, & Air Force Pamphlets (PAM)

DoDI 4150.07 – Pest Management Program

DoDI 4165.57 – Air Installations Compatible Use Zones

DoDI 4715.03 – Natural Resources Conservation Program

DoDI 6055.06 – Fire and Emergency Services Program

AFI 32-1015 – Integrated Installation Planning

AFI 32-1053 – Integrated Pest Management Program

AFI 32-6007 – Privatized Housing Management

AFI 32-7001 – Environmental Management

AFI 32-7020 – The Environmental Restoration Program

AFI 32-7061 – Environmental Impact Analysis Process

AFMAN 32-7003 – Environmental Conservation

AFPAM 91-212 – BASH Techniques

Department of Defense Memoranda

Memorandum, Assistant Deputy Under Secretary of Defense (Environment, Safety and Occupational Health), 20 Sept 11, Subject: Interim Policy on Management of White Nose Syndrome in Bats.

Memorandum, Assistant Deputy Under Secretary of Defense (Environment, Safety and Occupational Health), 3 Apr 07, Subject: Guidance to Implement the Memorandum of Understanding to Promote the Conservation of Migratory Birds.

Memorandum, Assistant Deputy Under Secretary of Defense (Environment, Safety and Occupational Health), 14 Aug 06, Subject: Integrated Natural Resource Management Plan (INRMP) Template

Memorandum, Assistant Deputy Under Secretary of Defense (Environment, Safety and Occupational Health), 17 May 05, Subject: Implementation of Sikes Act Improvement Amendments: Supplemental Guidance concerning Leased Lands

Memorandum, Assistant Deputy Under Secretary of Defense (Environment, Safety and Occupational Health), 1 Nov 04, Subject: Implementation of Sikes Act Improvement Amendments: Supplemental Guidance concerning INRMP Reviews

Memorandum, Deputy Under Secretary of Defense (Installations and Environment), 10 Oct 02, Subject: Implementation of Sikes Act Improvement Act: Updated Guidance

Memorandum, Assistant Deputy Under Secretary of Defense (Environment), 5 Aug 02, Subject: Access to Outdoor Recreation Programs on Military Installations for Persons with Disabilities.

Memorandum, Assistant Secretary of Army (Environment, Safety and Occupational Health), Deputy Assistant Secretary of the Navy (Environment), Deputy Assistant Secretary of the Air Force (Environment, Safety and Occupational Health), 20 Sep 11, Subject: Interim Policy on Management of White Nose Syndrome in Bats.

I STATE LAWS, REGULATIONS, AND POLICIES

State Laws

F.A.C. 68A-4.001:

1. No wildlife or freshwater fish or their nests, eggs, young, homes or dens shall be taken, transported, stored, served, bought, sold, or possessed in any manner or quantity at any time except as specifically permitted by these rules nor shall anyone take, poison, store, buy, sell, possess or wantonly or willfully waste the same except as specifically permitted by these rules.
2. The use of gasoline or any other chemical or gaseous substances to drive wildlife from their retreats is prohibited.
3. Intentionally placing food or garbage, allowing the placement of food or garbage, or offering food or garbage in such a manner that it attracts coyotes, foxes or raccoons and in a manner that is likely to create or creates a public nuisance is prohibited.
4. Intentionally feeding bears is prohibited except as provided for in this Title.
    - Placing food or garbage, allowing the placement of food or garbage, or offering food or garbage that attracts bears and is likely to create or creates a nuisance is prohibited after receiving prior written notification from the Commission.
5. The intentional feeding or the placement of food that attracts pelicans and modifies the natural behavior of the pelican so as to be detrimental to the survival or health of a local population is prohibited.
6. The intentional feeding of sandhill cranes is prohibited.
7. The feeding of non-human primates is prohibited. Feeding includes the placement of food or garbage, allowing the placement of food or garbage, or offering food or garbage in a manner that attracts non-human primates.
8. No person shall take or assist in taking wildlife using a method that involves remote control aiming and discharging of a gun when that person is not physically present at the location of that gun.
9. Unless otherwise specifically provided in this Title, non-protected mammals and non-protected birds may be taken throughout the year, without restrictions.

F.A.C. 68A-4.004: Whenever the taking or possession of wildlife or freshwater fish is prohibited, the possession of any carcass or portion of the carcass of such wildlife or freshwater fish is prohibited.

F.A.C. 68A-9.010: Wildlife that may not be taken as nuisance wildlife:

- Species listed in Chapter 68A-27, F.A.C.

- The following mammals:

    1. Black bear.
    2. Deer.
    3. Bats – Except that bats may be taken either when:
        - The take is incidental to the use of an exclusion device, a device which allows escape from and blocks re-entry into a roost site located within a structure, or incidental to the use of a registered chemical repellant, at any time from August 15 to April 15 or
        - The take is incidental to permanent repairs which prohibit the egress of bats from a roost site located within a structure provided an exclusion device as described in sub-subparagraph a. above is used for a minimum of four consecutive days/nights for which the low temperature is forecasted by the U.S. National Weather Service to remain above 50° F prior to repairs and during the time-period specified.
    4. Bobcat – Except that a bobcat may be taken, as provided by subsections (2), (3) and (4) below, when it causes or is about to cause property damage, or presents a threat to public safety. Euthanasia of any live captured bobcat is prohibited and any live captured bobcat shall be released as provided by subsection (3).

F.A.C. 68A-12.004 (12): The sale or purchase of any bear carcass or part thereof is prohibited. The sale or purchase of black bear taxidermy mounts is prohibited, however taxidermy mounts of other bear species are allowed as long as they were legally acquired and have associated paperwork.

F.A.C. 68A-4.009 "Bear Conservation Rule": Provides prohibitions, permitting, and agency activities concerning the Florida black bear (*Ursus americanus floridanus*) subsequent to its removal from the State-designated Threatened species list in August 2012.

1. No person shall take, possess, injure, shoot, collect, or sell black bears or their parts or to attempt to engage in such conduct except as authorized by Commission rule or by permit from the Commission.
2. The Commission will issue permits authorizing intentional take of bears when it determines such authorization furthers scientific or conservation purposes which will benefit the survival potential of the species or to reduce property damage caused by bears. For purposes of this rule, activities that are eligible for a permit include:
    - Collection of scientific data needed for conservation or management of the species;
    - Taking bears that are causing property damage when no non-lethal options can provide practical resolution to the damage, and the Commission is unable to capture the bear.
3. The Commission authorizes members of the public to take a bear in an attempt to scare a bear away from people using methods considered non-lethal. Staff shall authorize specific methods and situations that qualify for this authorization at http://MyFWC.com/bear/.
4. The Commission will provide technical assistance to land owners and comments to permitting agencies in order to minimize and avoid potential negative human-bear interactions or impacts of land modifications on the conservation and management of black bears. The Commission will base its comments and recommendations on the goals and objectives of the approved Florida Black Bear Management Plan. The plan can be obtained at http://MyFWC.com/bear/.

F.A.C. 68A-27.003: The gopher tortoise (*Gopherus polyphemus*) is hereby declared to be threatened, and shall be afforded the protective provisions specified in this paragraph. No person shall take, attempt to take, pursue, hunt, harass, capture, possess, sell or transport any gopher tortoise or parts thereof or their eggs, or molest, damage, or destroy gopher tortoise burrows, except as authorized by Commission permit or when complying with Commission approved guidelines for specific actions which may impact gopher tortoises and their burrows. A gopher tortoise burrow is a tunnel with a cross-section that closely approximates the shape of a gopher tortoise. Permits will be issued based upon whether issuance would further management plan goals and objectives.

F.S. 379.3762 Personal possession of wildlife: Black bears are considered Class I animals and therefore cannot be kept as personal pets.

F.S. 776.012 Use or threatened use of force in defense of person:

1. A person is justified in using or threatening to use force, except deadly force, against another when and to the extent that the person reasonably believes that such conduct is necessary to defend himself or herself or another against the other's imminent use of unlawful force. A person who uses or threatens to use force in accordance with this subsection does not have a duty to retreat before using or threatening to use such force.
2. A person is justified in using or threatening to use deadly force if he or she reasonably believes that using or threatening to use such force is necessary to prevent imminent death or great bodily harm to himself or herself or another or to prevent the imminent commission of a forcible felony. A person who uses or threatens to use deadly force in accordance

with this subsection does not have a duty to retreat and has the right to stand his or her ground if the person using or threatening to use the deadly force is not engaged in a criminal activity and is in a place where he or she has a right to be.

J 15.0 ASSOCIATED PLANS

Climate Change Report: 2019 March Climate Change Appendix A_Methods.pdf 2019 March Climate Change Appendix B_Climate.pdf Appendix C_Hydrology.pdf Appendix D_Ecosystem.pdf Appendix E_TandE.pdf

BearWise Community Plan: 2020_BearWise_Plan.pdf

Hazardous Waste Management Plan: 2020 Aug Haz Waste Management Plan.pdf

Integrated Solid Waste Management Plan (ISWM): 2020 Aug Hurlburt Field Final ISWMP.pdf

Rare Plants Report: 2020 AUG Hurlburt_Field_FINAL FNAI_Rare_Plants_Report_2020.pdf

Integrated Natural Resources Management Plan (INRMP) (pdf format): 2020 FINAL Hurlburt Field INRMP_with signatures.pdf

Integrated Cultural Resources Management Plan (ICRMP): 2020Hurlburt_ICRMP.pdf

Storm Water Pollution Prevention Plan (SWPPP): 20210223 SIGNED HURLBURT FIELD SWMP SWPPP.pdf

Bash/Wildlife Aircraft Strike Hazard (BASH) Plan: HF_91-212_BASH_Plan_2020.pdf

Wildland Fire Management Plan (WFMP): Hurlburt Final WFMP FY20 Update_27Aug2020_Final Signed_compressed.pdf

Installation Development Plan (IDP): Hurlburt_Field_IDP_100_Final Optimized.pdf

Land Management Plan: LandManagementPlan_2000.pdf

Memorandum of Agreement on Wetland Preservation: MOA_on_Wetland_Preservation.pdf