Integrated Natural Resources Management Plan (INRMP) Gulfport Combat Readiness Training Center

2019

Prepared for:

Air National Guard
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Mississippi Air National Guard
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Under Cooperative Agreement With:
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Cooperative Agreement: W9128F-16-2-0021-0008

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SIGNATURE PAGE

The Gulfport Combat Readiness Training Center (Gulfport CRTC) Integrated Natural Resources Management Plan (INRMP) has been prepared for the 255th Air Control Squadron (255 ACS) and the 209th Special Operations Civil Engineer Squadron (209 SOCES) to manage significant natural resources in support of the military mission. The Gulfport CRTC INRMP meets the intent of the Sikes Act (16 US Code [USC] § 670a–670l, 74 Stat. 1052).

To the extent that resources permit, the US Fish and Wildlife Service (USFWS), the Mississippi Department of Wildlife, Fisheries, and Parks (MDWFP), and the Mississippi Air National Guard (MS ANG) by signature of their agency representative, do hereby enter into a cooperative agreement for the conservation, protection, and management of natural resources present on Gulfport CRTC. The agreement may be modified and amended by mutual agreement of the authorized representatives of the 3 agencies. This agreement will become effective upon the date of the last signatory and shall continue in full force for a period of 5 years or until terminated by written notice to the other parties, in whole or in part, by any of the parties signing the agreement.

By their signatures below, or an enclosed letter of concurrence, all parties grant their concurrence with and acceptance of the following document.

Approving Officials:

MCCORMICK.BERRY.L.1113505598 Digitally signed by MCCORMICK.BERRY.L.1113505598 Date: 2019.10.17 07:01:28 -05'00'

17 Oct 2019

Colonel Berry McCormick
Mississippi Air National Guard
Gulfport CRTC Installation Commander

Date

STEPHEN RICKS Digitally signed by STEPHEN RICKS Date: 2019.11.07 09:41:11 -06'00'

Stephen Ricks
US Fish and Wildlife Service
Field Supervisor, Mississippi Field Office

Date

10/9/2019

Sam Polles, PhD
Mississippi Department of Wildlife, Fisheries, and Parks
Executive Director

Date

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Sam Polles, PhD Mississippi Department of Wildlife, Fisheries, and Parks Executive Director	Date

ANNUAL REVIEW DOCUMENTS

This page is used to certify the annual review and coordination of the Gulfport CRTC INRMP.

With the signature below, this document acknowledges that the annual review and coordination of the INRMP has occurred for the specified year.

Year: 2020

[ ]	Date
Gulfport CRTC Commander	
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[ ]	Date
Mississippi Department of Wildlife, Fisheries, and Parks	

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Year: 2021

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Year: 2022

[ ]	Date
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Year: 2024

[ ]	Date
Gulfport CRTC Commander	
[ ]	Date
US Fish and Wildlife Service	
[ ]	Date
Mississippi Department of Wildlife, Fisheries, and Parks	

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ACRONYMS

°F	degrees Fahrenheit
209 SOCES	209th Special Operations Civil Engineer Squadron
255 ACS	255th Air Control Squadron
A/G	Site Air to Ground
ADR	Airfield Damage Repair
AFCEC	Air Force Civil Engineer Center
AFI	Air Force Instruction
AFSI	Atlantic Flyway Shorebird Initiative
AGE	aerospace ground equipment
AGL	above ground level
ANG	Air National Guard
ANGRC	ANG Readiness Center
BA	Biological Assessment
BASH	Bird/Wildlife Aircraft Strike Hazard
BCI	Bat Conservation International
BGEPA	Bald and Golden Eagle Protection Act
BHWG	Bird Hazard Working Group
BMP	Best Management Practice
CATEX	Categorical Exclusion
CE	Civil Engineer
CECOS	Civil Engineer Corps Officers School
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CRTC	Combat Readiness Training Center
CWA	Clean Water Act
CWCS	Comprehensive Wildlife Conservation Strategies
DEPARC	Defense Environmental Programs Annual Report to Congress
DoD	Department of Defense
DoDI	Department of Defense Instruction
DoDM	Department of Defense Manual
DUSD	Deputy Under Secretary of Defense
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EM	Environmental Manager
EO	Executive Order
EPC	Environmental Protection Committee
ESA	Endangered Species Act
ESOH	Environment, Safety, and Occupational Health
FAA	Federal Aviation Administration
FBO	Fixed based operator
FEMA	Federal Emergency Management Agency
FIRM	National Flood Insurance Rate Map
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
FONPA	Finding of No Practicable Alternative
FY	Fiscal Year
GIS	Geographic Information Systems

GRI	GeoResources Institute
ICRMP	Integrated Cultural Resources Management Plan
IFAW	International Fund for Animal Welfare
IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
INRMP	Integrated Natural Resources Management Plan
IPM	Integrated Pest Management
IPMC	Installation Pest Management Coordinator
MAJCOM	Major Command
MBTA	Migratory Bird Treaty Act
MDAH	Mississippi Department of Archives and History
MDEQ	Mississippi Department of Environmental Quality
MDWFP	Mississippi Department of Wildlife, Fisheries, and Parks
MOA	Memorandums of Agreement
MOU	Memorandums of Understanding
MS ANG	Mississippi Air National Guard
MSL	mean sea level
NAAQS	National Ambient Air Quality Standards
NCASI	National Council for Air and Stream Improvement
NEPA	National Environmental Policy Act
NGB	National Guard Bureau
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NR Program Manager	NGB/A4AM Natural Resources Program Manager
NRCS	Natural Resources Conservation Service
OPR	Office of Primary Responsibility
PARC	Partners in Amphibian and Reptile Conservation Program
P2	Pollinator Partnership
PIF	Partners in Flight
POL	Petroleum, Oil and Lubricant
SAF/MI	Assistant Secretary of the Air Force for Manpower, Reserve Affairs, Installations and Environment
SAFO	Secretary of the Air Force Order
SHPO	State Historic Preservation Officer
SWAP	State Wildlife Action Plan
SWPPP	Storm Water Pollution Prevention Plan
RPW	Relatively Permanent Water
TASMG	1108th Theater Aviation Sustainment Maintenance Group
US	United States
US EPA	US Environmental Protection Agency
USACE	US Army Corps of Engineers
USAF	US Air Force
USC	US Code
USDA	US Department of Agriculture
USDA-WS	US Department of Agriculture – Wildlife Services
USFS	US Department of Agriculture Forest Service

USFWS	US Fish and Wildlife Service
WHMP	Wildlife Hazard Management Plan
WOUS	Waters of the U.S.
WW	Watchable Wildlife Program

1.0 EXECUTIVE SUMMARY

The Sikes Act Improvement Act of 1997, 16 USC § 670a et seq., as amended, (herein referred to as the Sikes Act) requires federal military installations with significant natural resources to develop a long-range INRMP and implement cooperative agreements with other agencies. The Sikes Act is implemented through Department of Defense (DoD) and US Air Force (USAF) Instructions and Manuals. The conservation measures discussed in the INRMP help manage water resources, reduce bird/wildlife aircraft strike hazard (BASH) risk, manage federal and state-listed species, and sustain natural resources. The Gulfport CRTC INRMP is intended to be in support of and consistent with the intent of the Sikes Act.

The Gulfport CRTC INRMP is the primary guidance document and tool for managing natural resources on the installation. Gulfport CRTC is composed of approximately 220 acres. The natural resources management on Gulfport CRTC must be conducted in a way that provides for sustainable land use, complies with applicable environmental laws and regulations, real estate leases and licenses, and provides for no net loss in the capability to support the military mission. This INRMP provides a structure and plan to manage natural resources more effectively and ensure that Gulfport CRTC remains available to support the MS ANG military mission into the future.

Specific goals in the Gulfport CRTC 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**, and projects are summarized in **Section 9**. The Gulfport CRTC INRMP provides a description of the installation, the military mission, the environment on the installation, and specific plans and strategies for natural resource management designed for sustainable military operations. The implementation of the Gulfport CRTC 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.

2.0 GENERAL INFORMATION

2.1 Purpose and Scope

This INRMP is the primary guidance document and tool for natural resource management at Gulfport CRTC that provides for sustainable, healthy ecosystems, complies with applicable environmental laws and regulations, real estate leases and licenses, and provides for “no net loss” in the capability of installation lands to support the military mission. The Installation Commander can use this INRMP to manage natural resources more effectively to ensure that installation lands remain available and in good condition to support the installation’s military mission over the long term.

The Gulfport CRTC INRMP is consistent with the Sikes Act as required by the DoD, USAF, and the National Guard Bureau (NGB). A multiple-use approach is implemented to allow for the presence of mission-oriented activities, as well as protecting environmental quality through the efficient management of natural resources.

2.2 Management Philosophy

2.2.1 Ecosystem Management

Natural resources at Gulfport CRTC are managed with an ecosystem management approach as directed by AFI 32-7064 and DoDI 4715.03. Ecosystem management is defined as 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. The ecosystem management program for Gulfport CRTC incorporates these elements as described in **Table 1**.

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. Specific management practices identified in the Gulfport CRTC INRMP have been developed to enhance and maintain biological diversity within the installation's ecosystems. Ecosystem management includes biodiversity conservation and invasive species control as integral parts of ecosystem management. Air National Guard (ANG) installations maintain or reestablish viable populations of all native species when practical and consistent with the military mission. ANG installations also identify the presence of exotic and invasive species, and implement programs to control and/or eradicate those species. Finally, when feasible, ANG installations 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**.

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 such as climate change
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
AFI 32-7064 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
5	Provide for outdoor recreation, agricultural production, harvesting of forest products, and other practical utilization of the land and its resources, provided that such use does not inflict long-term ecosystem damage or negatively impact the ANG mission

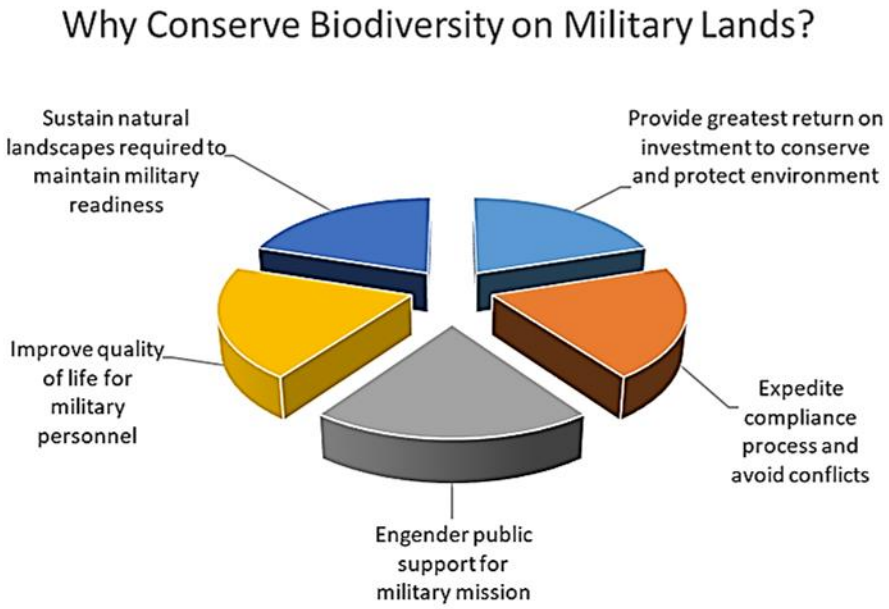


Figure 1. Why conserve biodiversity on Military Lands
**Adapted from Keystone Center, 1996.*

2.3 Authority

2.3.1 Natural Resources Law, Regulations & Policy

The ANG, USFWS, and MDWFP determined an INRMP was required for Gulfport CRTC due to the presence of significant natural resources thereby necessitating conservation and management.

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, the state fish and wildlife agency, and the ANG installation 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 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.

2.3.2 National Environmental Policy Act Compliance

The Environmental Impact Analysis Process (EIAP) is the process by which federal agencies facilitate compliance with environmental regulations. The primary legislation affecting these agencies' decision-making process is the National Environmental Policy Act of 1969 (NEPA; 42 USC § 4321 *et seq*.). NEPA requires that any organization using federal monies, proposing work on federal lands, or requiring a federal permit consider potential environmental consequences of proposed actions. The law's intent is to protect, restore, or enhance the environment through well-informed decisions.

The Council on Environmental Quality (CEQ) was established under NEPA for the purpose of implementing and overseeing federal policies as they relate to this process. The adoption of an INRMP can be considered a major federal action as defined by Section 1508.18 of the CEQ regulations. This requires an analysis of potential environmental impacts for the implementation of an INRMP, although a complete Environmental Assessment (EA) is not necessarily required as individual actions and projects undergo their own NEPA analysis.

CEQ regulations require intergovernmental notifications prior to making any detailed statement of environmental impacts. Through the Interagency and Intergovernmental Coordination for Environmental Planning (IICEP) process, Gulfport CRTC notifies relevant federal, state, and local agencies and allows them sufficient time to make known their environmental concerns specific to a Proposed Action. Comments and concerns submitted by these agencies during the IICEP process are subsequently incorporated into the analysis of potential environmental impacts. This coordination fulfills requirements under Executive Order (EO) 12372, *Intergovernmental Review of Federal Programs*, and AFI 32-7061, *Environmental Impact Analysis Process*. Furthermore, public participation in decision making on new proposals is required. Consideration of the views and information of all interested persons promotes open communication and enables better decision-making. Agencies, organizations, and members of the public with a potential

interest in the Proposed Action, including minority, low-income, disadvantaged, and Native American groups, are urged to participate.

The EIAP for the implementation of Gulfport CRTC's 2014 INRMP was conducted in accordance with NEPA, CEQ *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (40 Code of Federal Regulations [CFR] § 1500-1508), and 32 CFR Part 989. The EIAP and decision-making process for the Proposed Action (implementation of the 2014 Gulfport CRTC INRMP) involved an examination of all environmental issues pertinent to the action proposed. Impact evaluations of the 2014 Gulfport CRTC INRMP (ANG 2014) determined that no significant environmental impacts would result from implementation of the Proposed Action or any identified alternative. This determination was based on thorough review and analysis of existing resource information, and coordination with knowledgeable, responsible personnel from the Gulfport CRTC and other relevant local, state, and federal agencies. The EIAP for the implementation of the 2014 Gulfport CRTC INRMP does not include an analysis of effects for individual actions or projects. Individual actions or projects that have the potential to impact the environment will be analyzed separately in accordance with the NEPA process. A new EIAP is not required for this INRMP update.

If a future action or project has the potential to impact the environment, federal agencies facilitate compliance with environmental regulations through the EIAP. The EIAP identifies a proposed action's potential environmental impacts along with how those impacts can be mitigated. The primary legislation affecting these agencies' decision-making process is NEPA. NEPA requires that any organization using federal monies, proposing work on federal lands or requiring a federal permit consider potential environmental consequences of proposed actions. The law's intent is to protect, restore, or enhance the environment through well informed decisions. Air National Guard (ANG) installations initiate EIAP by completing AF Form 813 through ANG Readiness Center's (ANGRC's) online NEPA Tool. The ANGRC reviews the Form 813 and associated information to determine if the proposed action requires a categorical exclusion (CATEX), EA, or environmental impact statement (EIS).

2.3.3 Responsibilities

The updated Gulfport CRTC INRMP has been organized to ensure the implementation of year-round, cost-effective management projects that meet the requirements of the installation. Various personnel and organizations within the ANG are responsible for the implementation of this INRMP and are described in the following subsections.

2.3.3.1 Installation Commander

The Installation Commander oversees the installation and is responsible for ensuring the goals and objectives of the INRMP are implemented to the fullest extent practicable based on funding and manpower availability. The Installation Commander is the official signatory for the Gulfport CRTC INRMP.

2.3.3.2 Base Civil Engineer

The Base Civil Engineer (CE) plans, budgets, approves, and oversees all maintenance and construction activities performed on the installation. All maintenance and construction-related projects or management activities proposed in this INRMP should be approved by the Base CE to

ensure that funding is available and these projects are complementary to the installation's comprehensive planning processes.

2.3.3.3 ANG NGB/A4AM Natural Resources Program Manager

The ANG NGB/A4AM Natural Resources Program Manager (ANG NR Program Manager) is the technical point of contact on all natural resource related activities for the ANG. The ANG NR Program Manager tracks DoD and USAF policies and approves funding for projects identified as a priority in the Gulfport CRTC INRMP. The development of projects included in the INRMP and any deviations from those projects will be submitted to the ANG NR Program Manager for review. Decisions resulting from those reviews will be a cooperative effort between the ANG NR Program Manager and the EM and/or the installation's Natural Resources Manager, when applicable.

2.3.3.4 Environmental Manager

The EM plans, budgets, approves, and oversees all environmental activities performed on the installation and is responsible for ensuring that activities associated with the implementation of this INRMP adhere to applicable federal, state, local, and USAF environmental regulations and guidelines. Projects proposed in the Gulfport CRTC INRMP are reviewed by the EM and the ANG NR Program Manager. The EM should independently review deviation from the projects proposed in this INRMP. Persons responsible for implementation of the INRMP are required to attend the Civil Engineer Corps Officers School (CECOS) DoD Natural Resources Compliance course (http://www.netc.navy.mil/centers/csfe/cecos/CourseDetail2.htm#tab25).

2.3.3.5 Pest Management Coordinator

The Installation Pest Management Coordinator (IPMC) is responsible for the protection of real estate, control of potential disease vectors or animals of other medical importance, control of undesirable or nuisance plants and animals (including insects), and prevention of damage to natural resources. Pest management personnel utilize Integrated Pest Management (IPM) approaches and are responsible for the implementation of the IPM Plan. The IPMC is also responsible for coordinating with the US Department of Agriculture – Wildlife Services (USDA-WS) for all depredation activities, regarding required permitting, and for permit clarification, when required, while keeping the Environment, Safety, and Occupational Health (ESOH) Management Team appraised of proposed modifications or changes to permits as they occur or are proposed.

2.3.3.6 Flight Safety Office

The Gulfport CRTC Flight Safety Office is responsible for development, implementation, and management of the Gulfport CRTC BASH Program. The Flight Safety Office also ensures that bird/wildlife strikes resulting from aircraft assigned to transient units at Gulfport CRTC are accurately documented and reported to the EM and the USAF BASH Team. In addition, the Flight Safety Office participates in the Gulfport CRTC Bird Hazard Working Group (BHWG), which conducts meetings to evaluate and refine strategies for the reduction of BASH risk on Gulfport CRTC. The Flight Safety Office is responsible for coordinating with and providing required information on BASH activities with the EM.

2.3.3.7 Wing Safety Office

The Wing Safety Office is responsible for implementing all activities presented in this INRMP that pertain to the BASH Reduction Program. The Wing Safety Office also ensures that bird/wildlife strikes that occur with aircraft assigned to units at Gulfport CRTC are accurately documented and reported to the USAF BASH Team. In addition, the Wing Safety Office ensures that the BHWG conducts meetings on the reduction of the BASH threat on the installation.

2.3.3.8 Airfield Management

Airfield Management is responsible for ensuring that the airfield is acceptable and appropriated for flight activity.

2.3.3.9 US Department of Agriculture – Wildlife Services

The USDA-WS is responsible for monitoring hazardous wildlife that have the potential to create an aircraft strike hazard. USDA-WS personnel support activities that pertain to the BASH Program and are responsible for wildlife depredation requirements within the airfield, as well as dispersal/harassment, capture and translocation, trapping and removal, surveillance and monitoring, and depredation permit acquisition.

2.3.3.10 Operations and Maintenance

Operations and Maintenance personnel are responsible for all grounds maintenance activities on the installation. In addition, this office will coordinate with the EM to ensure successful implementation of habitat management protocols established in this INRMP taking into account mission requirements, natural resource management goals, and regulatory compliance requirements. Operations and Maintenance personnel will also periodically review grounds maintenance equipment to determine if new or additional equipment is needed for the proper maintenance of the installation's landscapes.

2.3.3.11 Legal Office

The Legal Office is responsible for ensuring that implementation of the management objectives contained within the Gulfport CRTC INRMP meet all regulatory and statutory requirements that pertain to natural resources management. The Legal Office will review any future natural resources management proposals and alert the Installation Commander and EM should there be any regulatory conflicts or shortfalls. In addition, the Legal Office will keep participating INRMP parties informed of any new statutes or regulations that might affect natural resources management.

2.3.3.12 Public Affairs Office

The Public Affairs Office is responsible for the coordination of public access for events at Gulfport CRTC. The Public Affairs Office serves as the point of contact to interface between the Installation Commander and civilian groups interested in the installations for environmental, educational, or other purposes.

2.3.3.13 US Fish and Wildlife Service

The USFWS is a signatory of the INRMP and provides input regarding natural resource projects and operational component plans. The EM will check annually with the USFWS whether new

species have been added to the federal threatened and endangered species lists, and if they have the potential for inhabiting Gulfport CRTC. In addition, the USFWS, when feasible, will support ANG wildlife and vegetation surveys conducted at the Gulfport CRTC.

2.3.3.14 Mississippi Department of Wildlife, Fisheries, and Parks

The MDWFP is a signatory of the INRMP and provides input regarding natural resource projects and operational component plans. The EM will check annually with the MDWFP whether new species have been added to the state threatened and endangered species lists, and if they have the potential for inhabiting Gulfport CRTC. In addition, the MDWFP, when feasible, will support ANG wildlife and vegetation surveys conducted at the Gulfport CRTC.

2.4 Integration with Other Plans

By its nature, an INRMP is multidisciplinary and provides the summary of natural resources at a specific installation. As a result, information from an INRMP is incorporated into other plans and other plans are written to support the INRMP. Other plans which support the INRMP include the following:

- BASH Management Plan – provides summary of the BASH program on Gulfport CRTC, including techniques, processes, responsibilities, and management recommendations (MS ANG 2019).
- Integrated Pest Management Plan (IPM Plan) – plan for management of pest species, including nuisance wildlife and invasive species, to minimize impact to mission, natural resources, and the environment (MS ANG 2014).
- Stormwater Pollution Prevention Plan (SWPPP) – plan for management of stormwater and water-borne pollution (MS ANG 2018).
- Installation Developmental Plan – outlines the logical and sequential process by which a future development plan will be selected, from data collection, to identifying findings and program needs, to visioning and goal setting, and finally analysis and selection of a plan (ANG 2015).
- Integrated Cultural Resources Management Plan (ICRMP) Waiver – A 2013 cultural resources survey was evaluated by the State Historic Preservation Officer (SHPO), who concurred with the findings that no archaeological sites or structures are eligible for listing in the National Register of Historical Places at Gulfport CRTC (Mississippi Department of Archives and History [MDAH] 2014). The installation was granted a waiver and is exempt from having to implement an ICRMP (NGB 2014).

In addition, this INRMP is also integrated with the following plans from other agencies.

- Mississippi State Wildlife Action Plan (SWAP). The SWAP is also known as the Comprehensive Wildlife Conservation Strategy (CWCS) assesses the health of each state's wildlife and habitats, identifies the threats they face, and outlines the actions that are needed to conserve them. The MDWFP is responsible for the development and implementation of the SWAP. The overarching goal of the Mississippi SWAP is to provide a guide of effective and efficient long-term conservation of Mississippi's biological diversity. The purpose of the SWAP is also to meet the eight required elements of the State Wildlife Grant program which is outlined by the USFWS. The Mississippi SWAP provides information on the abundance and distribution of wildlife throughout the state, descriptions of key habitats for select species, descriptions of

activities which may adversely affect species, descriptions of conservation actions, and descriptions of proposed monitoring plans (MDWFP 2015). The Mississippi SWAP was acknowledged during the development of this INRMP and efforts were taken to be consistent with management strategies described therein.

3.0 INSTALLATION OVERVIEW

3.1 Location and Area

Gulfport CRTC is located within the city limits of Gulfport, Mississippi in the south-central portion of Harrison County at the Gulfport-Biloxi Regional Airport. The training center is located approximately 75 miles east of New Orleans, Louisiana; 70 miles west of Mobile, Alabama; 4 miles northeast of downtown Gulfport, Mississippi; and 2 miles from the Mississippi Gulf Coast (**Figure 2**).

The Gulfport CRTC is located on the eastern portion of Gulfport-Biloxi Regional Airport on approximately 220 acres. The CRTC is bordered by the airport to the west, northwest, and southwest and Hewes Avenue and residential development to the east, with some nearby light industrial areas.

Gulfport CRTC is comprised of several individual parcels leased by the ANG from the City of Gulfport and Gulfport-Biloxi Regional Airport Authority. The cantonment area is one of the primary functional areas on the installation. One portion of the cantonment area is approximately 99 acres and is located east of the runway and the second portion of the cantonment area is approximately 72 acres and is located west of the runway complex. The Gulfport CRTC maintains a munitions storage complex east of the runway, a small-arms firing range on the south-central portion of the airport, and a bulk fuel storage facility located just north of the north-central airport boundary. The Gulfport CRTC also manages a parcel of land for the 255 ACS, which is located off airport property to the east of the East Gulfport CRTC Parcel. Gulfport CRTC maintains approximately 31 acres of aircraft parking apron, which was reconstructed in 1995. This aircraft apron is capable of supporting a range of aircraft from small fighters to large cargo haulers and tankers.

Gulfport CRTC no longer maintains the 180 acre assault landing strip training site at the United States (US) Army installation Camp Shelby, in Hattiesburg, MS, nor the nearby 14 acre Site Air to Ground (A/G) range. All responsibility for the assault strip was transferred from the Gulfport CRTC to the 172nd Airlift Wing in Jackson MS on September 8, 2015 (ANG 2015).

A decommissioned fuel delivery dock facility is located north of the airport along Bernard Bayou and Gulfport CRTC is in the process of no longer leasing this parcel of land.

Figure 2. Gulfport CRTC Regional Map

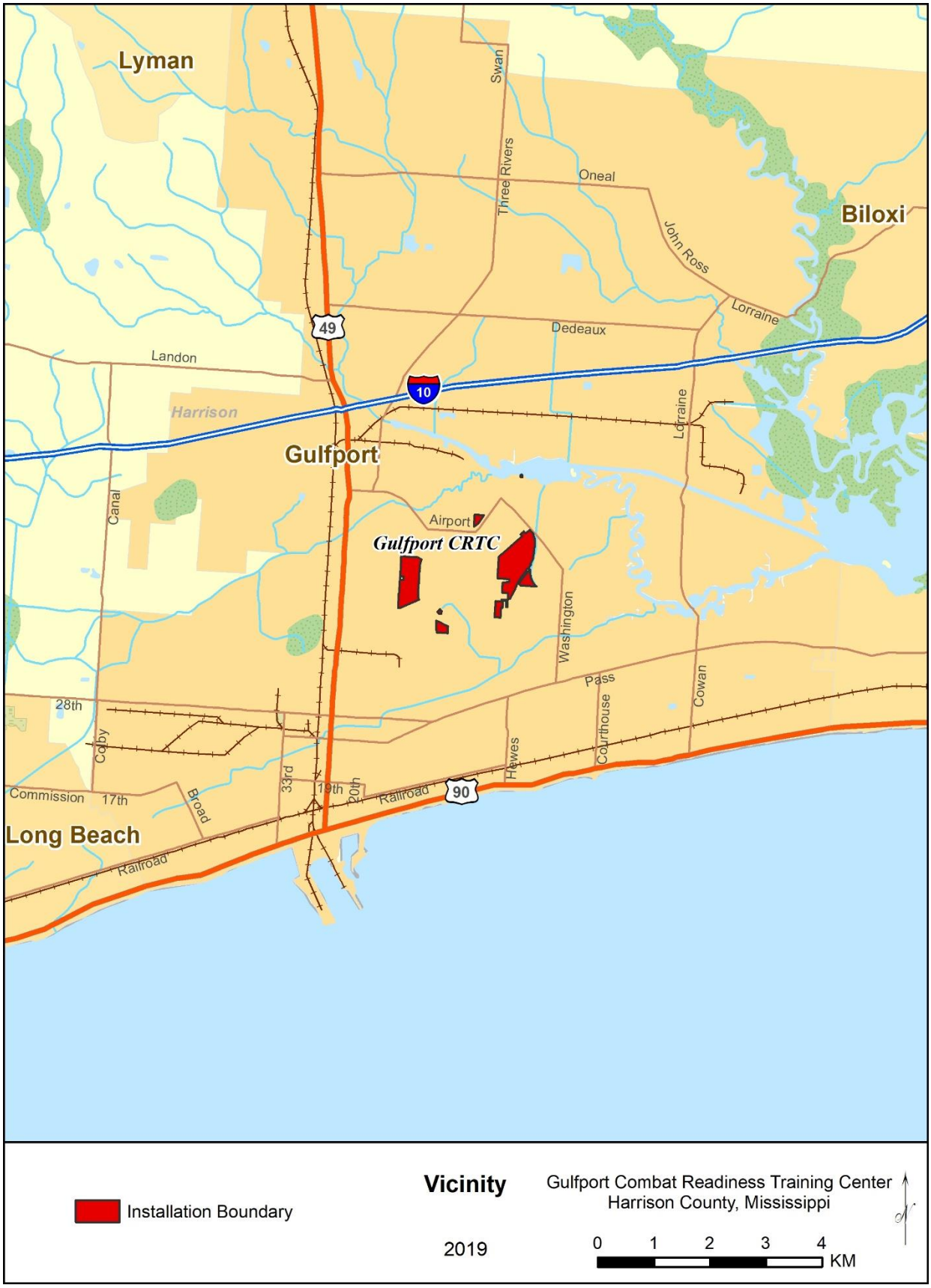


Figure 3. Gulfport CRTC Vicinity Map

Figure 4. Gulfport CRTC Facilities Map

3.2 Installation History

Gulfport CRTC was established in 1941 as an Army Airfield Pilot Training Center. In 1954, the ANG established a Permanent Field Training Site on approximately 207 acres of land leased from the City of Gulfport. By June 12, 1954 when the first unit arrived for training, an 8,000 foot lighted runway, 50 barracks, 10 latrines, a two-wing mess hall, a medical building, an administrative complex, communication facilities, and a supply warehouse had all been constructed in addition to renovation of a large World War II hangar. The first ANG flying unit was deployed to Gulfport CRTC and trained at the facility. In June 1990, the Permanent Field Training Site was re-designated as a CRTC and assigned a mission of providing an integrated, year-round, realistic, joint training environment for the enhancement of the flying units' technical capabilities and combat readiness.

Two MS ANG units are tenants at Gulfport CRTC, the 255 ACS and 209 SOCES. The 255 ACS was activated in 1971 as a Combat Communications Squadron. In 1987, this unit was converted to a Control and Reporting Center, which was the first ANG unit to receive datalink capabilities for all joint forces. In 1998, the unit was converted to their current role of providing state-of-the-art Ground Control Intercept capability to the total force, as well as other vital activities. The 209 SOCES was formed as the 173rd Civil Engineering Flight in 1969, was later converted to the 209 CES, and then in 2015 became the 209 SOCES. This unit trains and maintains a state of readiness to allow short notice deployment capability. While not considered a tenant of the Gulfport CRTC, the 1108th Theater Aviation Sustainment Maintenance Group (TASMG) Mississippi Army National Guard, is co-located at the Gulfport-Biloxi Regional Airport. They are a full Army aviation maintenance depot facility. In addition, the Army National Guard 890th Engineering Battalion is located south of Gulfport CRTC.

3.3 Military Missions

The ANG mission is two-fold with federal and state components. The federal mission is to maintain well-trained, well-equipped units available for prompt mobilization during war and to provide assistance during national emergencies (e.g. natural disasters or civil disturbances). During peacetime, combat-ready units and support units are assigned to USAF major commands to carry out missions compatible with training, mobilization readiness, humanitarian, and contingency operations. When units are not mobilized, they report to the Governor of their respective state. The state mission is to provide protection of life, property, and preserve peace, order, and public safety.

The current mission of the Gulfport CRTC is to provide an integrated, year-round, realistic training environment to include airspace, ranges, systems, facilities, and equipment for units to enhance their capability and combat readiness. To accomplish the mission, Gulfport CRTC operates as a service-based, customer-oriented organization that manages airspace and provides and maintains facilities and equipment for visiting units. Gulfport CRTC serves as a joint training facility for Army, Navy, Marine, and USAF active units as well as ANG and Air Force Reserve units. At Gulfport CRTC, aircrews can fly over the Gulf of Mexico, maneuver in dog flights, and attack targets using sophisticated electronics simulation.

In addition to its federal mission, Gulfport CRTC also maintains a state and local mission. For the state, Gulfport CRTC supports the Governor of Mississippi in response to state emergencies; in

particular, Gulfport CRTC has been designated as a command post for the state in conjunction with the Mississippi Emergency Management Association in the event of a gulf coast hurricane or other major hazard requiring emergency response. For the local community, Gulfport CRTC supports civic activities and employs civilians in their civil engineering, security, and service departments at the installation.

The primary mission of the 255 ACS is to provide an operationally ready Control and Reporting Center in support of theatre air operations worldwide. This includes radar surveillance and tracking on a priority basis, direction of sector air defense, providing radar service to tactical aircraft, supervision of subordinate deployed air control units, and data link of a combined air picture to higher headquarters.

The mission of the 209 SOCES is to provide engineering support of aircraft operations at main operating bases, co-located operating bases, forward operating bases, or bare base locations through rapid runway repair, beddown, operation, and maintenance support as well as providing chemical, biological, radiological and nuclear capabilities to Air Special Operations Command.

3.4 Surrounding Communities

The Gulfport CRTC is located in Gulfport, Mississippi within Harrison County. Land use within Gulfport is typical of coastal cities along the Gulf of Mexico. There are pockets of industrial, commercial, residential, agricultural, and open-space areas throughout the city. A small industrial area, parks and recreation area, and residential area are located east of the airport boundary. The parks and recreation area extends north to the Bernard Bayou. The residential area extends into the Gulfport city limits. South of the airport boundary, land use is a mixture of commercial and residential areas. The residential developments extend south to Highway 90 and the public beaches. A small public driving range is also located north of Gulfport CRTC. Small pockets of industrial and commercial land use and areas of large open space and residential development are located to the west of the airport. The area north of the airport is dominated by commercial and industrial areas with small pockets of residential, open space, and public areas. Bayou Vista Golf Course is located almost immediately north of the northeastern portion of the airport property, on the northern side of Airport Road.

Gulfport-Biloxi International Airport includes a passenger terminal and parking area (located in the north section of the airport property), one air cargo facility (located at the southwest end of the West Ramp), Gulfport CRTC military facilities, and Million Air, a solitary fixed base operator (FBO; ANG 2007). A solitary fixed base operator is an organization granted the right by an airport to operate at the airport and provide aeronautical services such as fueling, hangaring, tie-down and parking, aircraft rental, aircraft maintenance, flight instruction, and similar services. Support facilities include airport maintenance facilities to the northwest of the terminal, the Gulfport CRTC aircraft rescue and firefighting services located to the east of Runway 18-36, and two fuel farms, one owned and operated by Million Air and one owned and operated by the MS ANG.

3.5 Local and Regional Natural Areas

Turkey Creek Park is located approximately 2,000 feet north of the airport property, between Turkey Creek and Bernard Bayou. Mississippi Sandhill Crane National Wildlife Refuge is approximately 20 miles east of the installation in Gautier, MS. Ten miles north of Gulfport, MS

lies the southern edge of the De Soto National Forest. This National Forest offers year-round opportunities for outdoor activities including camping, canoeing, bird-watching, photography, hunting, fishing, and hiking.

4.0 PHYSICAL ENVIRONMENT

4.1 Climate

Similar to the entire state of Mississippi, climate of the Gulfport area is subtropical, which is characterized by warm summers and alternately warm and cold winters. Weather conditions are dominated by maritime, tropical air in summer and continental, polar air in winter. Summer is generally the wettest season. Average annual precipitation for the area is approximately 62 inches (MS ANG 2014). Most of the rain results from heavy showers and thunderstorms. Almost half of the total precipitation falls during the summer months. Summer temperatures average a high of 91 and a low of 66 degrees Fahrenheit (°F; MS ANG 2014). Winter temperatures rarely fall below freezing. Frost appears infrequently and the occurrence of snow or sleet is a rare event. The monthly mean relative humidity is in the 73 to 80% range throughout the year (MS ANG 2014).

The summer is characterized by high humidity and frequent air mass type thunderstorms. In winter, the weather is dominated by prevailing westerly winds with fairly frequent frontal passages or periods under the influence of semi-stationary frontal zones. The fall and spring seasons are short and barely noticeable. The late summer months are the most likely for tropical storms to move through the area, with September being the month of highest frequency. Although the chance of any particular tropical storm or hurricane hitting the area is small, the erratic paths of these storms, in general, make any one of them a potential threat.

4.2 Landforms

Harrison County can be split into two topographic regions. One is a low, essentially level strip of coastal lowlands called the Gulf Coast Flatwoods. The other comprises the rolling upland area of the interior portion of Harrison County. In most places the boundary between these two areas is marked by an abrupt rise; however, in the vicinity of Gulfport CRTC, the change is gradual and rather poorly defined. Elevations throughout the county range from 200 feet above mean sea level (MSL) on the ridges in its extreme northwest portion, to approximately 90 feet above MSL at Lyman in the central portion, to 0–25 feet above MSL around Gulfport. The topography of Gulfport CRTC is relatively flat with elevations ranging from 10 to 25 feet above MSL. The northern edge of the installation slopes down toward Bernard Bayou, which is within one mile of the airport property. The southern edge of the installation slopes down toward Brickyard Bayou and continues down toward Mississippi Sound (ANG 2007).

4.3 Geology and Soils

Gulfport and Harrison County is located within the Atlantic Division physiographic province. Materials from four geologic groups are exposed in the region including the Graham Ferry, Citronelle, and Pamlico Sand formations and Low terrace deposits. The Graham Ferry Formation is exposed in the northern portion of Harrison County at intermediate and lower elevations and

consists primarily of undifferentiated clays, and clayey and silty sands. The Citronelle Formation is exposed on the highest uplands in the county and consists of coarser sands and gravels. The Pamlico Sand Formation, which is approximately 75 feet thick is exposed throughout much of the coastal plain in the southern portion of the county and generally comprises gray and tan sand with some clay and silt resulting from periods of lagoonal deposits. Both the Citronelle and Graham Ferry formations were deposited at the end of the Pliocene and the beginning of the Pleistocene. The Citronelle Formation ranges in thickness from 0 to 160 feet and the Graham Ferry Formation ranges from 113 to 975 feet (ANG 2007). The Low terrace deposits are predominantly tan, gray, and yellow sands and are exposed in a broken belt that extends across the county from east to west (ANG 2007). The geology of the Gulfport CRTC includes the Graham Ferry, Citronelle, and Pamlico Sand formations (ANG 2007).

The USDA Natural Resource Conservation Service (NRCS), mapped and classified the installation's soils in vicinity of Gulfport CRTC (NRCS 2011). The major soil type present at Gulfport CRTC consists of Sulfaquepts. Minor soil types at the installation have been identified as Saucier, Harleston, Ocilla, Plummer, Poarch, and Smithton (**Table 2**, **Figure 6**).

Table 2. Soils on Gulfport CRTC

Soil Classification	Characteristics	Slope	Location
Sulfaquepts	-hydric, deep, loose, poorly drained -80 inches or more thick -low available water capacity (about 2.0 inches)	0 to 5%	main cantonment area, airfield damage repair (ADR) site, and bulk fuels area
Saucier	-moderately well drained, slowly permeable -moderate amount of plinthite in the subsoil -marine sediment that is loamy in the upper part and clayey in the lower part - nearly level to strongly sloping soils on upland ridges and hillsides of the Southern Coastal Plain and Eastern Gulf Coast Flatwoods	0 to 12%	fuel dock station
Harleston	-deep, moderately well-drained -80 inches or more thick -moderate available water capacity (about 8.7 inches)	0 to 5%	small arms range and bulk fuels area
Ocilla	-hydric, deep, somewhat poorly drained -80 inches or more thick -low available water capacity (about 5.5 inches)	0 to 2% slopes	main cantonment area, ADR site, and the small arms range
Plummer	-hydric, deep, poorly drained -80 inches or more thick - low available water capacity (about 4.6 inches)	0 to 2% slopes	main cantonment area and the ADR site
Poarch	-hydric, deep, well drained -80 inches or more thick -moderate available water capacity (about 8.8 inches)	0 to 2%	main cantonment area and the ADR site
Smithton	-hydric, deep, poorly drained -80 inches or more thick -high available water capacity (about 9.5 inches)	0 to 2%	main cantonment area and the ADR site

Source: NRCS 2011

4.4 Hydrology

The Gulf Coast area of Mississippi around Gulfport is drained principally by the Biloxi River, which drains southeast through central Harrison County. The major drainage basin in the region is Big Lake, which drains east into Biloxi Bay and eventually into the Gulf of Mexico. Major tributaries to Big Lake include Bernard Bayou and the Biloxi, Fritz Creek , and Tchoutacabouffa rivers (ANG 2007).

Bernard Bayou, the primary drainage basin in the vicinity of Gulfport CRTC, flows eastward and passes within one mile of the northern boundary of the installation. A small tributary of Bernard Bayou, Turkey Creek, enters just north of the airfield and east of Gulfport CRTC facilities. Except for the fuel dock, a small portion of the western boundary, and a small portion of the southern boundary, the majority of Gulfport CRTC facilities are located outside of the 100-year floodplain associated with Bernard Bayou and Turkey Creek (**Figure 7**). An unnamed tributary

drainage passes along the eastern boundary of the installation directly adjacent to the main Cantonment area. The 100-year floodplain associated with the unnamed tributary is located immediately east of Gulfport CRTC facilities. No structures are currently located within the 100-year floodplain south of Washington Avenue. Approximately 1 mile south of the main Cantonment area is Brickyard Bayou, a stream and levee system that passes south of the airfield and joins Bernard Bayou about 1 mile east of the installation (ANG 2007).

Three aquifers underlie Gulfport CRTC; these include the Pamlico, Graham Ferry, and Pascagoula aquifers. The uppermost aquifer underlying Gulfport CRTC is the Pamlico aquifer. This aquifer is not considered a regional aquifer as it is used locally for irrigation and water supply. The Pamlico aquifer ranges in thickness from 0 to 75 feet and groundwater flow within the aquifer is generally towards the major regional surface water bodies where the groundwater discharges (e.g., Turkey Creek, and Brickyard and Bernard bayous). Flow rates within the aquifer are estimated to be approximately 10 to 40 feet per year. The water table, at the top of the Pamlico Aquifer, occurs from 1 to 5 feet below the surface (ANG 2007).

Graham Ferry is a regional aquifer used for domestic, industrial, and public water supply. The City of Gulfport operates a well field that withdraws water from the Graham Ferry Aquifer, which supplies water for the airport and Gulfport CRTC. The aquifer consists of several beds of silty sand, sand, gravely sand, and gravel with individual bed thickness ranging from 10 to 270 feet, and averaging 65 feet. Groundwater flow within the aquifer is generally south as a result of recharge in outcrop areas to the north. Flow direction beneath Gulfport CRTC is modified by groundwater withdrawals in Gulfport and by local recharge (ANG 2007).

The Pascagoula Aquifer is also a regional aquifer used by the City of Gulfport for domestic, industrial, and public water supply. The aquifer consists of several beds of sand and sandy gravel containing numerous grains and pebbles of polished chert. Within the aquifer, the individual bed thickness ranges from 10 to 270 feet, with an average thickness of approximately 65 feet. Groundwater flow within the aquifer is generally south as a result of recharge in outcrop areas to the north. Flow direction beneath Gulfport CRTC is modified by groundwater withdrawals in Gulfport and by local recharge (ANG 2007).

Groundwater depth is relatively shallow (less than 5 feet in some areas) and commonly follows the surface topography. The depth of the water table increases slightly in areas of higher terrain. The shallow depth of the groundwater makes the aquifer potentially vulnerable to surface discharges of liquids. The Pamlico aquifer sits approximately one to five feet below the surface, while the Graham Ferry and Pascagoula aquifers are deeper, and generally provide the wells for the property and surrounding areas (ANG 2009).

Stormwater at Gulfport CRTC flows east, away from the flightline to a ditch that runs along the east side of the installation. There are no flooding issues at Gulfport CRTC (ANG 2015). Gulfport CRTC property is outside of the 100 year floodplain with only the ditch itself being within the 1% annual chance flood (100 year flood). FIRMs (Flood Insurance Rate Map) depicting this data are located on the MS Department of Environmental Quality website: http://geology.deq.ms.gov/floodmaps/Projects/MapMOD/?county=Harrison. The ditch is located along the installation border and outside of the perimeter fence line.

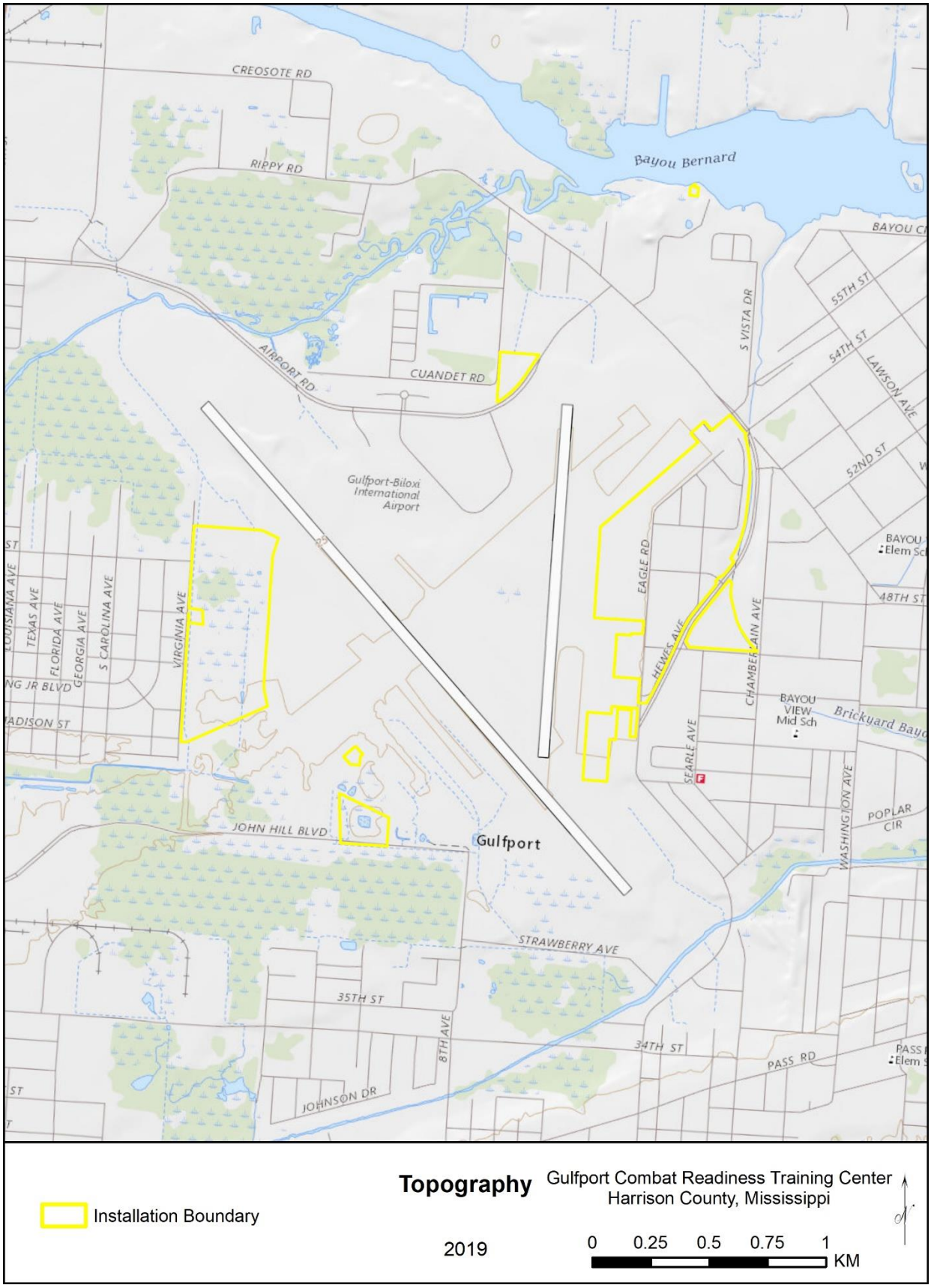


Figure 5. Gulfport CRTC Topography Map

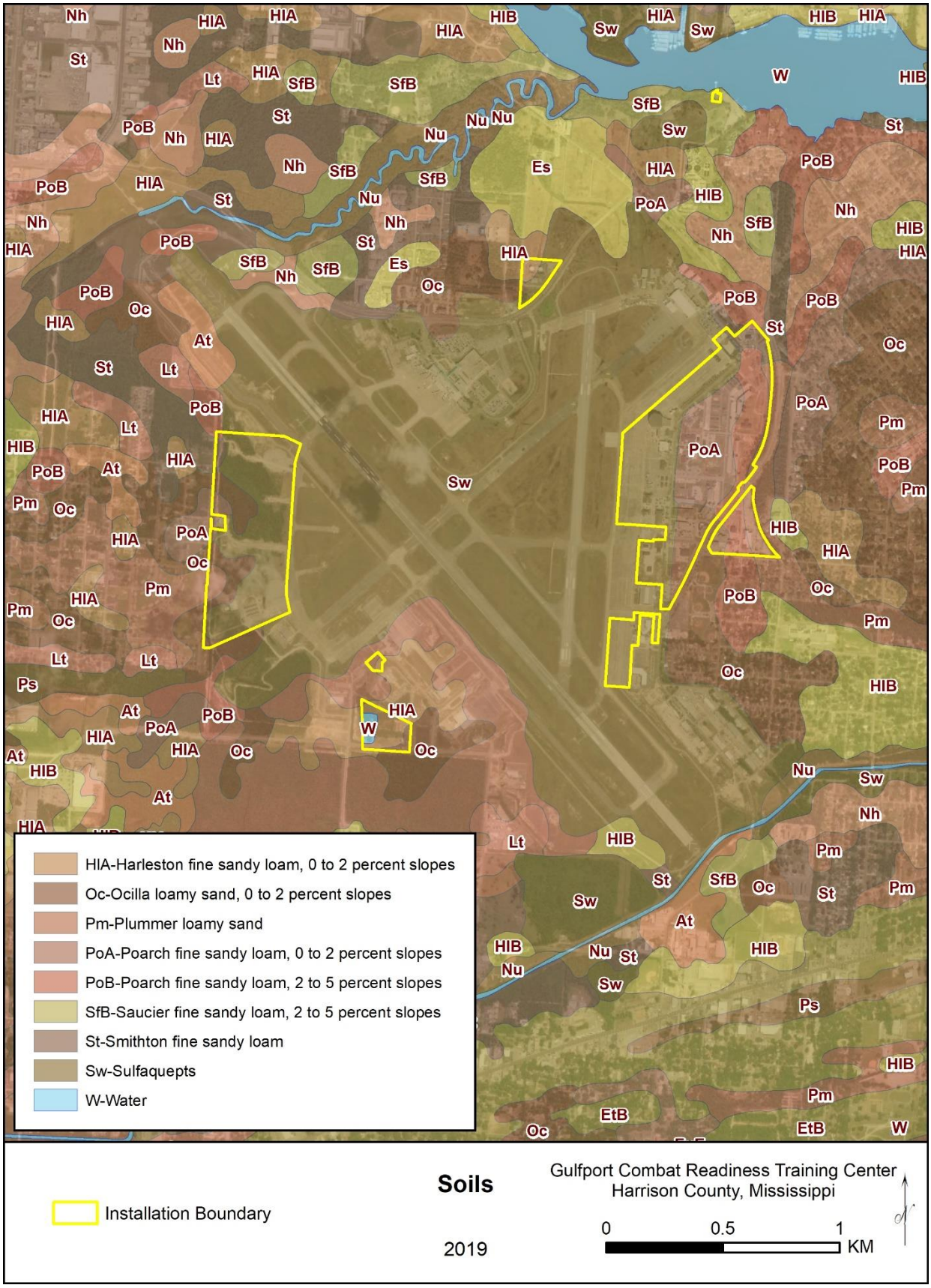


Figure 6. Gulfport CRTC Soils Map

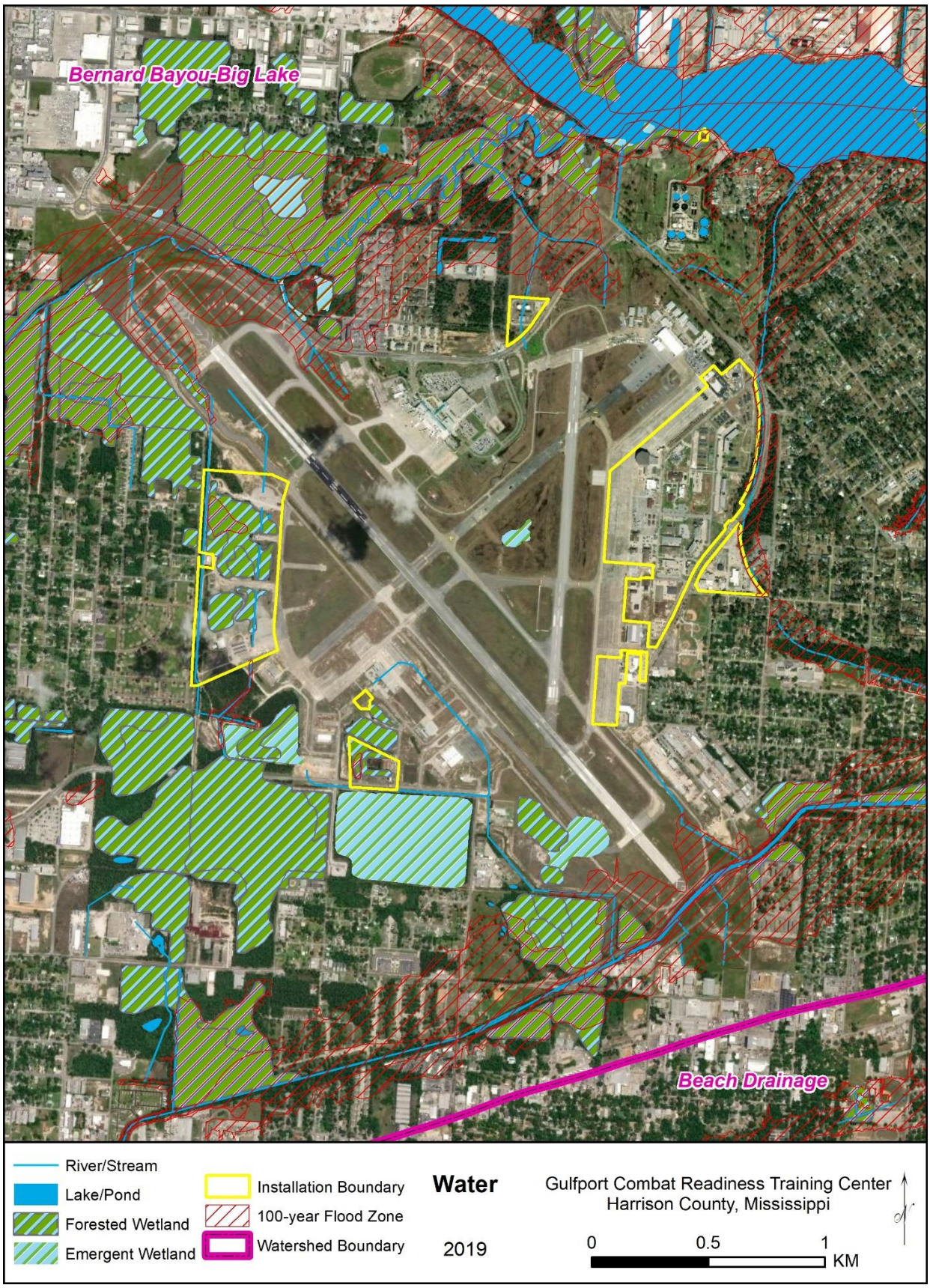


Figure 7. Gulfport CRTC Water Resources Map

5.0 ECOSYSTEMS AND THE BIOTIC ENVIRONMENT

5.1 Ecosystem Classification

Gulfport CRTC is in the East Gulf Coastal Plain Ecoregion, which includes portions of five states (Georgia, Florida, Alabama, Mississippi and Louisiana) and over 42 million acres. This ecoregion has a diversity of ecological systems, ranging from sandhills and rolling longleaf pine (*Pinus palustris*)-dominated uplands to pine flatwoods and savannahs, seepage bogs, and bottomland hardwood forests.

5.2 Vegetation

5.2.1 Historic Vegetative Cover

Gulfport CRTC lies within the East Gulf Coastal Plain Ecoregion described in the CWCS (MDWFP 2015). This ecoregion has a diversity of ecological systems, ranging from sandhills and rolling longleaf pine-dominated uplands to pine flatwoods and savannahs, seepage bogs, and bottomland hardwood forests. The upland forest in the Gulfport CRTC area consists of longleaf pine and moist pineland associations composed primarily of slash pine (*Pinus elliottii*). Longleaf pine is usually found on xeric sandy sites above the ten foot contours. The moist pineland association has a higher water table and can mostly be found between swamps and the upland pine-oak forest (ANG 2007). Gulfport CRTC is predominately surrounded by residential, industrial, and commercial areas; consequently, most of the natural vegetation has been lost to facilitate urban development.

5.2.2 Current Vegetative Cover

Most of the historic natural vegetation was removed from the Gulfport CRTC in support of the military mission. Approximately 80% of Gulfport CRTC is improved or highly disturbed; the remaining 20% is classified as open space and unimproved areas. The pine buffer area in the ADR site contains natural vegetation; dominant tree species include red maple (*Acer rubrum*), sweetbay magnolia (*Magnolia virginiana*), and longleaf pine. Biological resources are limited at the Gulfport CRTC because of previous development for airport and military operations.

Behind the small arms range in the southern portion of Gulfport CRTC there are two depressions that include an open water pond and an emergent wetland dominated by herbaceous wetland plants including soft rush (*Juncus effusus*), common reed (*Phragmites australis*), and broom sedge (*Carex scoparia*). There is a mixed forest west of the existing airfield that is undeveloped, the majority of which is classified as a forest wetland (ANG 2017b). Dominant species within the forested wetland included red maple, black gum (*Nyssa sylvatica*), longleaf pine, saw greenbrier (*Smilax bona-nox*), and southern dewberry (*Rubus trivialis*). While the upland area is dominated by longleaf pine, black oak (*Quercus nigra*), and sweet gum (*Liquidambar styraciflua*).

In the eastern portion of the installation there is 11.28 acres of predominantly undeveloped mixed forest. This area is bisected by Hewes Avenue and contains a large drainage feature along the existing road. The majority of the forested areas associated with this habitat unit were identified as forested wetlands, contain stream channels within the large drainage feature, and multiple tributaries originating from nearby outfalls (ANG 2017b). Dominant species within the wetland areas included black willow (*Salix nigra*), red maple, black gum, longleaf pine, smartweed

(*polygonum* sp.), roundleaf greenbriar (*Smilax rotundifolia*), and sweetbay magnolia. Upland areas are dominated by longleaf pine, sweet gum, and Japanese honeysuckle (*Lonicera japonica*). Plant species found at Gulfport CRTC are listed in **Table 3**.

Table 3. Plant Species Identified at Gulfport CRTC

Scientific Name	Common Name	Scientific Name	Common Name
Acer rubrum	red maple	*Galium* sp.	bedstraw species
Aeschynomene sp.	jointvetch	*Gamochaeta* sp.	everlasting
Agrostis perennans	upland perennans	*Glechoma hederacea*	ground ivy
Albizia julibrissin	silktree	*Helenium amarum*	sneezeweed
Ambrosia artemisiifolia	annual ragweed	*Helenium autumnale*	common sneezeweed
Ambrosia sp.	ragweed	*Hieracium* sp.	hawkweed
Anagallis arvensis	scarlet pimpernel	*Hydrocotyle* sp.	hydrocotyle
Anethum graveolens	dill	*Ipomoea* sp.	morning-glory
Asparagus sp.	asparagus	*Juncus canadensis*	Canadian rush
Baccharis halimifolia	eastern baccharis	*Juncus effusus*	common rush
Bidens sp.	beggarticks species	*Juncus tenuis*	poverty rush
Campsis radicans	trumpet creeper	*Juniperus virginiana*	eastern redcedar
Carex sp.	sedge species	*Lactuca serriola*	prickly lettuce
Carex tribuloides	blunt broom sedge	*Laportea canadensis*	Canadian woodnettle
Cenchrus sp.	sandbur species	*Lepidium virginicum*	Virginia pepperweed
Centaurea stoebe	spotted knapweed	*Leucanthemum vulgare*	oxeye daisy
Cephalanthus occidentalis	common buttonbush	*Ligustrum* sp.	privet
Cirsium vulgare	bull thistle	*Ligustrum vulgare*	European privet
Commelina virginica	Virginia dayflower	*Liquidambar styraciflua*	sweetgum
Conyza sp.	horseweed	*Liriodendron tulipifera*	tuliptree
Cynodon dactylon	Bermudagrass	*Lonicera japonica*	Japanese honeysuckle
Cyperus sp.	flatsedge species	*Magnolia grandiflora*	southern magnolia
Dianthus sp.	pink species	*Magnolia* sp.	magnolia
Diervilla sp.	bush honeysuckle	*Magnolia virginiana*	sweetbay magnolia
Digitaria ciliaris	southern crabgrass	*Medicago lupulina*	black medick
Digitaria ischaemum	smooth crabgrass	*Melilotus officinalis*	sweetclover
Digitaria sp.	crabgrass	*Myosotis* sp.	forget-me-not
Diodia sp.	buttonweed	*Myosotis verna*	spring forget-me-not
Diodia virginiana	Virginia buttonweed	*Nyssa sylvatica*	blackgum
Doellingeria umbellata	parasol whitetop	*Oenothera* sp.	evening primrose
Duchesnea indica	Indian strawberry	*Onoclea sensibilis*	sensitive fern
Eleocharis tenuis	slender spikerush	*Osmunda regalis*	royal fern
Eleusine sp.	goosegrass	*Oxalis* sp.	woodsorrel
Equisetum sp.	horsetail	*Panicum dichotomiflorum*	fall panicgrass
Eremochloa ophiuroides	centipede grass	*Panicum virgatum*	switchgrass
Festuca sp.	fescue	*Parthenocissus quinquefolia*	Virginia creeper
Fraxinus americana	white ash	*Phalaris arundinacea*	reed canarygrass
Galium aparine	stickywilly	*Phragmites australis*	common reed

Table 3. Plant Species Identified at Gulfport CRTC			
Scientific Name	**Common Name**	**Scientific Name**	**Common Name**
Pinus palustris	longleaf pine	*Scirpus atrovirens*	green bulrush
Pinus strobus	eastern white pine	*Scirpus* sp.	bulrush
Plantago lanceolata	narrowleaf plantain	*Sisyrinchium* sp.	blue-eyed grass
Plantago major	common plantain	*Smilax bona-nox*	saw greenbrier
Plantago sp.	plantain species	*Smilax rotundifolia*	roundleaf greenbrier
Platanus occidentalis	American sycamore	*Solanum sp.*	nightshade species
Poa pratensis	Kentucky bluegrass	*Solidago erecta*	showy goldenrod
Polygala sp.	milkwort species	*Solidago gigantea*	giant goldenrod
Polygonum pensylvanicum	Pennsylvania smartweed	*Solidago radula*	western rough goldenrod
Polygonum sp.	smartweed species	*Solidago sp.*	goldenrod
Polypogon sp.	rabbitsfoot grass	*Sonchus asper*	spiny sowthistle
Pontederia cordata	pickerelweed	*Sonchus sp.*	sowthistle
Potentilla simplex	common cinquefoil	*Spiranthes lacera*	northern slender lady's tresses
Prunella vulgaris	common selfheal	*Stellaria media*	common chickweed
Prunus serotina	black cherry	*Symphyotrichum novae-angliae*	New England aster
Pueraria montana	kudzu	*Taraxacum officinale*	common dandelion
Quercus alba	white oak	*Taraxacum sp.*	dandelion
Quercus bicolor	swamp white oak	*Taxodium distichum*	bald cypress
Quercus margaretta	sand post oak	*Thlaspi arvense*	field pennycress
Quercus nigra	water oak	*Toxicodendron radicans*	eastern poison ivy
Quercus phellos	willow oak	*Triadica sebifera*	Chinese tallow
Quercus virginiana	live oak	*Trifolium pratense*	red clover
Rhus copallinum	winged sumac	*Trifolium repens*	white clover
Rhynchospora colorata	starrush whitetop	*Typha sp.*	cattail
Rosa multiflora	multiflora rose	*Ulmus sp.*	elm
Rubus sp.	blackberry	*Vigna caracalla*	snailflower
Rubus trivialis	southern dewberry	*Viola sororia*	common blue violet
Rumex crispus	curly dock	*Vitis riparia*	riverbank grape
Rumex sp.	dock species	*Woodwardia areolata*	netted chainfern
Salix nigra	black willow	*Woodwardia sp.*	chainfern
Schedonorus arundinaceus	tall fescue		
Source: ANG 2017a			

5.3 Fish and Wildlife

Wildlife movements, patterns, and population numbers are dynamic and risk associated with species in the area will fluctuate. A formal 2016 flora and fauna survey observed a total of 14 bird, 5 insect, 1 fish, 13 amphibian/reptile, and 1 mammal species (ANG 2017a). Personal observations, BASH plan (MS ANG 2019), and previous INRMPs also influence the list of bird observations. Bird species occurring or potentially occurring at Gulfport CRTC are shown in

Table 4, amphibian and reptile species (herpetofauna) in **Table 5**, and invertebrates are shown in **Table 6**.

Table 4. Bird Species Occurring at or in the Vicinity of Gulfport CRTC			
Scientific Name	**Common Name**	**Scientific Name**	**Common Name**
Accipiter cooperii	Cooper's hawk*	*Calidris melanotos*	pectoral sandpiper
Accipiter striatus	sharp-shinned hawk	*Calidris minutilla*	least sandpiper
Actitis macularia	spotted sandpiper	*Calidris pusilla*	semipalmated sandpiper
Agelaius phoeniceus	red-winged blackbird*[B]	*Caprimulgus carolinensis*	chuck-will's-widow
Aimophila aestivalis	Bachman's sparrow	*Cardinalis cardinalis*	northern cardinal*
Aix sponsa	wood duck	*Carduelis pinus*	pine siskin
Ammodramus henslowii	Henslow's sparrow	*Carduelis tristis*	American goldfinch
Ammodramus leconteii	Leconte's sparrow	*Carpodacus purpureus*	purple finch
Ammodramus maritimus	seaside sparrow	*Cathartes aura*	turkey vulture*[B]
Anas acuta	northern pintail[B]	*Catharus fuscescens*	veery
Anas americana	American wigeon[B]	*Catharus guttatus*	hermit thrush
Anas clypeata	northern shoveler[B]	*Catharus minimus*	grey-cheeked thrush
Anas crecca	green-winged teal	*Catharus ustulatus*	Swainson's thrush
Anas discors	blue-winged teal	*Ceryle alcyon*	belted kingfisher
Anas fulvigula	mottled duck	*Chaetura pelagica*	chimney swift
Anas platyrhynchos	mallard*[B]	*Charadrius semipalmatus*	semipalmated plover
Anas strepera	gadwall[b]	*Charadrius vociferous*	killdeer*[B]
Anhinga anhinga	American anhinga	*Chlidonias niger*	black tern
Anthus spinoletta	American pipit	*Chordeiles minor*	common nighthawk
Archilochus colubris	ruby-throated hummingbird	*Chroicocephalus philadelphia*	Bonaparte's gull
Ardea alba	great egret	*Circus cyaneus*	northern harrier*
Ardea herodias	great blue heron*[B]	*Cistothorus palustris*	marsh wren
Aythya affinis	lesser scaup	*Cistothorus platensis*	sedge wren
Aythya collaris	ring-necked duck	*Coccyzus americanus*	yellow-billed cuckoo
Bombycilla cedrorum	cedar waxwing	*Coccyzus erythropthalmus*	black-billed cuckoo
Botaurus lentiginosus	American bittern	*Colaptes auratus*	common flicker
Branta canadensis	Canada goose[B]	*Colinus virginianus*	northern bobwhite
Bubo virginianus	great horned owl	*Columba livia*	rock pigeon*[B]
Bubulcus ibis	cattle egret[B]	*Contopus virens*	eastern wood pewee
Bucephala albeola	bufflehead	*Coragyps atratus*	black vulture[B]
Buteo jamaicensis	red-tailed hawk*[B]	*Corvus brachyrhynchos*	American crow*[B]
Buteo lineatus	red-shouldered hawk*[B]	*Corvus ossifragus*	fish crow
Buteo platypterus	broad-winged hawk	*Cyanocitta cristata*	blue jay*
Butorides striatus	green-backed heron	*Dendroica castenea*	bay-breasted warbler
Butorides virescens	green heron*	*Dendroica coronata*	yellow-rumped warbler
Calidris alpina	dunlin	*Dendroica discolor*	prairie warbler
Calidris fuscicollis	white-rumped sandpiper	*Dendroica dominica*	yellow-throated warbler
Calidris himantopus	stilt sandpiper	*Dendroica fusca*	blackburnian warbler
Calidris mauri	western sandpiper	*Dendroica magnolia*	magnolia warbler
		Dendroica palmarum	palm warbler

Table 4. Bird Species Occurring at or in the Vicinity of Gulfport CRTC			
Scientific Name	**Common Name**	**Scientific Name**	**Common Name**
Dendroica pensylvanica	chestnut-sided warbler	*Lophodytes cucullatus*	hooded merganser
Dendroica petechia	yellow warbler	*Melanerpes carolinus*	red-bellied woodpecker
Dendroica pinus	pine warbler	*Melanerpes erythrocephalus*	red-headed woodpecker
Dendroica virens	black-throated green warbler	*Meleagris gallopavo*	wild turkey
Dryocopus pileatus	pileated woodpecker	*Melospiza georgiana*	swamp sparrow
Dumatella carolinensis	gray catbird*	*Melospiza melodia*	song sparrow
Egretta caerulea	little blue heron	*Mergus serrator*	red-breasted merganser
Egretta thula	snowy egret	*Mimus ployglottos*	northern mockingbird
Egretta tricolor	tricolored heron	*Mniotilta varia*	black-and-white warbler
Empidonax minimus	least flycatcher	*Molothrus ater*	brown-headed cowbird[B]
Empidonax virescens	Acadian flycatcher	*Myiarchus crinitus*	great crested flycatcher
Eremophila alpestris	horned lark	*Nyctanassa violacea*	yellow-crowned night heron
Eudocimus albus	white ibis	*Nycticorax nycticorax*	black-crowned night heron
Falco peregrinus	peregrine falcon	*Oporornis formosus*	Kentucky warbler
Falco sparverius	American kestrel*[B]	*Otus asio*	eastern screech owl
Fulica Americana	American coot	*Oxyura jamaicensis*	ruddy duck
Gallinago gallinago	common snipe	*Pandion haliaetus*	osprey
Gallinula chloropus	common moorhen	*Parula americana*	northern parula
Gavia immer	common loon	*Parus bicolor*	tufted titmouse
Geothlypis trichas	common yellowthroat	*Parus carolinensis*	Carolina chickadee
Grus canadensis	sandhill crane	*Passer domesticus*	house sparrow
Haliaeetus leucocephalus	bald eagle	*Passerculus sandwichensis*	savannah sparrow
Helmitheros vermivorus	worm-eating warbler	*Passerella iliaca*	fox sparrow
Himantopus mexicanus	black-necked stilt	*Passerina caerulea*	blue grosbeak
Hirundo rustica	barn swallow	*Passerina ciris*	painted bunting
Hylocichla mustelina	wood thrush	*Passerina cyanea*	indigo bunting
Icteria virens	yellow-breasted chat	*Pelecanus erythrorhynchos*	American white pelican
Icterus galbula	northern oriole	*Pelecanus occidentalis*	brown pelican
Icterus spurius	orchard oriole	*Petrochelidon pyrrhonota*	cliff swallow
Ictinia mississippiensis	Mississippi kite*	*Phalacrocorax auritus*	double-crested cormorant
Ixobrychus exilis	least bittern	*Pheucticus ludovicianus*	rose-breasted grosbeak
Junco hyemalis	dark-eyed junco	*Picoides pubescens*	downy woodpecker
Lanius ludovicianus	loggerhead shrike	*Picoides villosus*	hairy woodpecker
Larus argentatus	herring gull*[b]	*Pipilo erythrophthalamus*	eastern towhee
Larus delawarensis	ring-billed gull*[B]	*Piranga olivacea*	scarlet tanager
Leucophaeus atricilla	laughing gull*[B]	*Piranga rubra*	summer tanager
Limnodromus griseus	short-billed dowitcher	*Plegadis chihi*	white-faced ibis
Limnodromus scolopaceus	long-billed dowitcher	*Plegadis falcinellus*	glossy ibis

Table 4. Bird Species Occurring at or in the Vicinity of Gulfport CRTC

Scientific Name	Common Name	Scientific Name	Common Name
Pluvialis squatarola	black-bellied plover	*Sterna forsteri*	Forster's tern
Podiceps auritus	horned grebe	*Sterna maxima*	royal tern
Podilymbus podiceps	pied-billed grebe	*Strix varia*	barred owl
Polioptila caerulea	blue-gray gnatcatcher	*Sturnella magna*	eastern meadowlark*
Pooecetes gramineus	vesper sparrow	*Sturnus vulgaris*	European starling*[B]
Porphyrula martinica	purple gallinule	*Tachycineta bicolor*	tree swallow
Porzana carolina	sora	*Thryothorus ludovicianus*	Carolina wren
Progne subis	purple martin	*Toxostoma rufum*	brown thrasher
Protonotaria citrea	prothonotary warbler	*Tringa flavipes*	lesser yellowlegs
Quiscalus major	boat-tailed grackle	*Tringa melanoleuca*	greater yellowlegs
Quiscalus quiscula	common grackle[B]	*Tringa solitaria*	solitary sandpiper
Rallus elegans	king rail	*Troglodytes aedon*	house wren
Rallus limicola	Virginia rail	*Troglodytes troglodytes*	winter wren
Rallus longirostris	clapper rail	*Turdus migratorius*	American robin*[B]
Regulus calendula	ruby-crowned kinglet	*Tyrannus tyrannus*	eastern kingbird
Regulus satrapa	golden-crowned kinglet	*Tyto alba*	barn owl
Riparia riparia	bank swallow	*Vermivora celata*	orange-crowned warbler
Rynchops niger	black skimmer	*Vermivora chrysoptera*	golden-winged warbler
Sayornis phoebe	eastern phoebe	*Vermivora peregrina*	Tennessee warbler
Scolopax minor	American woodcock	*Vermivora pinus*	blue-winged warbler
Seiurus aurocapillus	ovenbird	*Vireo flavifrons*	yellow-throated vireo
Seiurus noveboracensis	northern waterthrush	*Vireo griseus*	white-eyed vireo
Setophaga ruticilla	American redstart	*Vireo olivaceus*	red-eyed vireo
Sialia sialis	eastern bluebird	*Vireo philadelphicus*	Philadelphia vireo
Sitta pusilla	brown-headed nuthatch	*Vireo solitarius*	blue-headed vireo
Sphyrapicus varius	yellow-bellied sapsucker	*Wilsonia canadensis*	Canada warbler
Spizella passerina	chipping sparrow	*Wilsonia citrina*	hooded warbler
Spizella pusilla	field sparrow	*Wilsonia pusilla*	Wilson's warbler
Stelgidopteryx serripennis	northern rough-winged swallow	*Zenaida macroura*	mourning dove[B]
Sterna antillarum	least tern	*Zenaida macroura*	mourning dove*
Sterna caspia	caspian tern	*Zonotrichia albicollis*	white-throated sparrow

Source: MS ANG 2019, ANG 2017a, MS ANG 2013
* = Observed on base
B = Potentially hazardous to ANG operations, high BASH risk

Table 5. Reptiles and Amphibians Occurring at Gulfport CRTC	
Scientific Name	**Common Name**
Agkistrodon piscivorus	cottonmouth
Alligator mississippiensis	American alligator
Anolis carolinensis	green anole
Chelydra serpentine	common snapping turtle
Chrysemys picta	painted turtle
Nerodia fasciata	banded water snake
Pantherophis obsoletus	black rat snake
Terrepene Carolina	common box turtle
Hyla chrysoscelis	grey tree frog
Hyla cinerea	green tree frog
Lithobates palustris	pickerel frog
Lithobates sphenocephalus	southern leopard frog
Lithobates sylvaticus	wood frog
Source: ANG 2017a	

Table 6. Invertebrates Occurring at Gulfport CRTC	
Scientific Name	**Common Name**
Bombus sp.	bumble bee
Culicidae sp.	mosquito
Gryllus sp.	field cricket
Lepidopteran sp.	grey moth
Solenopsis invicta	fire ant*
Source: ANG 2017a *= Invasive Species	

Although fences are in place for both security reasons and to prevent wildlife access to runway areas, several mammal species have been able to enter the installation. In the past, carnivores such as coyotes (*Canis latrans*), red foxes (*Vulpes vulpes*), and even feral dogs (*Canis domesticus*) have been observed in the airfield areas, and coyotes have been involved in wildlife aircraft incidents at the Gulfport-Biloxi Airport (Federal Aviation Administration [FAA] 2011). Larger mammals including white-tailed deer (*Odocoileus virginianus*), and smaller common mammal species, including striped skunks (*Mephitis mephitis*) and raccoons (*Procyon lotor*) have also been observed on the installation (ANG 2007, MS ANG 2019). The only mammal documented in the formal flora and fauna survey was cottontail (*Sylvilagus* sp.; ANG 2017a). Other small mammal species that are regionally common and could be found at the Gulfport CRTC include the Virginia opossum (*Didelphis virginiana*), armadillo (*Dasypus novemcinctus*), muskrat (*Ondatra zibethicus*), nutria (*Myocastro coypus*), swamp rabbit (*Sylvilagus aquaticus*), and fox squirrel (*Sciurus niger*), as well as several shrew species (ANG 2007). Two bat species, the southeastern myotis (*Myotis austroriparius*) and the evening bat (*Nycticelus humeralis*), are common in the region and bats have been recorded in wildlife aircraft strike data at the adjoining Gulfport-Biloxi Airport (FAA 2011). Many of these mammal species enter the Gulfport CRTC in search of suitable habitat and food. A bluegill (*Lepomis macrochirus*) was the only fish observed on base (ANG 2017a).

5.4 Threatened and Endangered Species and Species of Concern

No federally or state endangered or threatened species are known to occur within the vicinity of Gulfport CRTC. Federally listed species with the potential to occur on Gulfport CRTC include:

- Protected bald eagle (*Haliaeetus leucocephalus*)
- Threatened red knot (*Calidris canutus rufa*)
- Threatened wood stork (*Mycteria Americana*)
- Threatened black pine snake (*Pituophis melanoleucus lodingi*)
- Threatened gopher tortoise (*Gopherus polyphemus*)
- Endangered piping plover (*Charadrius melodus*)
- Endangered Mississippi sandhill crane (*Grus canadensis pulla*)
- Endangered red-cockaded woodpecker (*Picoides borealis*)
- Endangered Louisiana quillwort (*Isoetes louisianensis*)
- Endangered Alabama red-belly turtle (*Pseudemys alabamensis*)
- Endangered dusky gopher frog (*Rana sevosa*)

State listed species with the potential to occur on Gulfport CRTC include:

- Endangered Mississippi sandhill crane
- Endangered brown pelican (*Pelecanus occidentalis*)
- Endangered Bewick's wren (*Thryomanes bewickii*)
- Endangered southern hognose snake (*Heterodon simus*)
- Endangered eastern indigo snake (*Drymarchon corais couperi*)

5.5 Waters of the US, Wetlands, and Floodplains

A total of 11 jurisdictional wetlands and 8 jurisdictional stream channels identified as Waters of the US (WOUS) exist on Gulfport CRTC. A total of 33.25 acres of wetlands and 2,567 linear feet of stream were delineated in 2016 and the jurisdictional determination was signed in October 2017 (ANG 2017b; **Table 7**). Wetland delineations were conducted using the routine onsite determination method described in the US Army Corps of Engineers (USACE) *Wetlands Delineation Manual* (USACE 1987) and in accordance with methods identified in the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region* (USACE 2010). The wetland delineation method requires the investigation of three wetland parameters: hydrophytic vegetation, hydric soils, and hydrological characteristics. For an area to be classified as a wetland, positive indicators of each of the three parameters must be present, with the exception of problem areas.

Wetlands in the vicinity of the airport are primarily associated with surface water features, surrounding Turkey Creek and Bernard Bayou, south of the airport along Brickyard Bayou, and east of the Cantonment area in the pine buffer zone. Wetland areas in the vicinity are also located southwest and northwest of the runway area, and between Airport Road and Turkey Creek, north of the installation. Three small areas were defined as wetlands in the 1997 survey totaling 0.49 acres. These wetlands have been converted to uplands for the Hewes Avenue Road realignment project, in accordance with permit conditions. The Gulfport CRTC constructed a permanent stormwater detention facility that replaces the wetland functions lost (ANG Environmental Division 2007).

Table 7. Delineated Features at Gulfport CRTC			
Delineated Feature	**Resource**	**Significant Nexus Determination**	**Dimensions**
Bernard Bayou Drainage – Wetlands and Waterways			
Wetland 9	Scrub-shrub wetland	Abutting	0.70 acres
Wetland 10	Forested wetland	Abutting	0.02 acres
Wetland 11	Forested wetland	Abutting	0.41 acres
Waters of the US #1	Perennial stream	Year-round RPW	1,459 linear feet
Waters of the US #2	Intermittent stream	Seasonal RPW	79 linear feet
Waters of the US #3	Intermittent stream	Seasonal RPW	90 linear feet
Waters of the US #4	Intermittent stream	Seasonal RPW	82 linear feet
Waters of the US #5	Intermittent stream	Seasonal RPW	80 linear feet
Brickyard Bayou Drainage – Wetlands and Waterways (Areas 1 and 4)			
Wetland 1	Emergent wetland	Adjacent	0.29 acres
Wetland 2	Open water pond	Adjacent	0.18 acres
Wetland 12	Forested wetland	Abutting	4.39 acres
Waters of the US #7	Perennial stream	Year-round RPW	650 linear feet
Waters of the US #8	Intermittent stream	Seasonal RPW	103 linear feet
Turkey Creek Drainage – Wetlands and Waterways (Areas 2 and 3)			
Wetland 3	Open water pond	Adjacent	0.12 acres
Wetland 4	Forested wetland Emergent wetland	Adjacent	8.35 acres 0.16 acres
Wetland 5	Forested wetland	Adjacent	17.84 acres
Wetland 6	Emergent wetland	Abutting	0.67 acres
Wetland 7	Emergent wetland	Adjacent	0.12 acres
Waters of the US #6	Perennial stream	Year-round RPW	24 linear feet

Source: ANG 2017b
RPW = Relatively Permanent Water

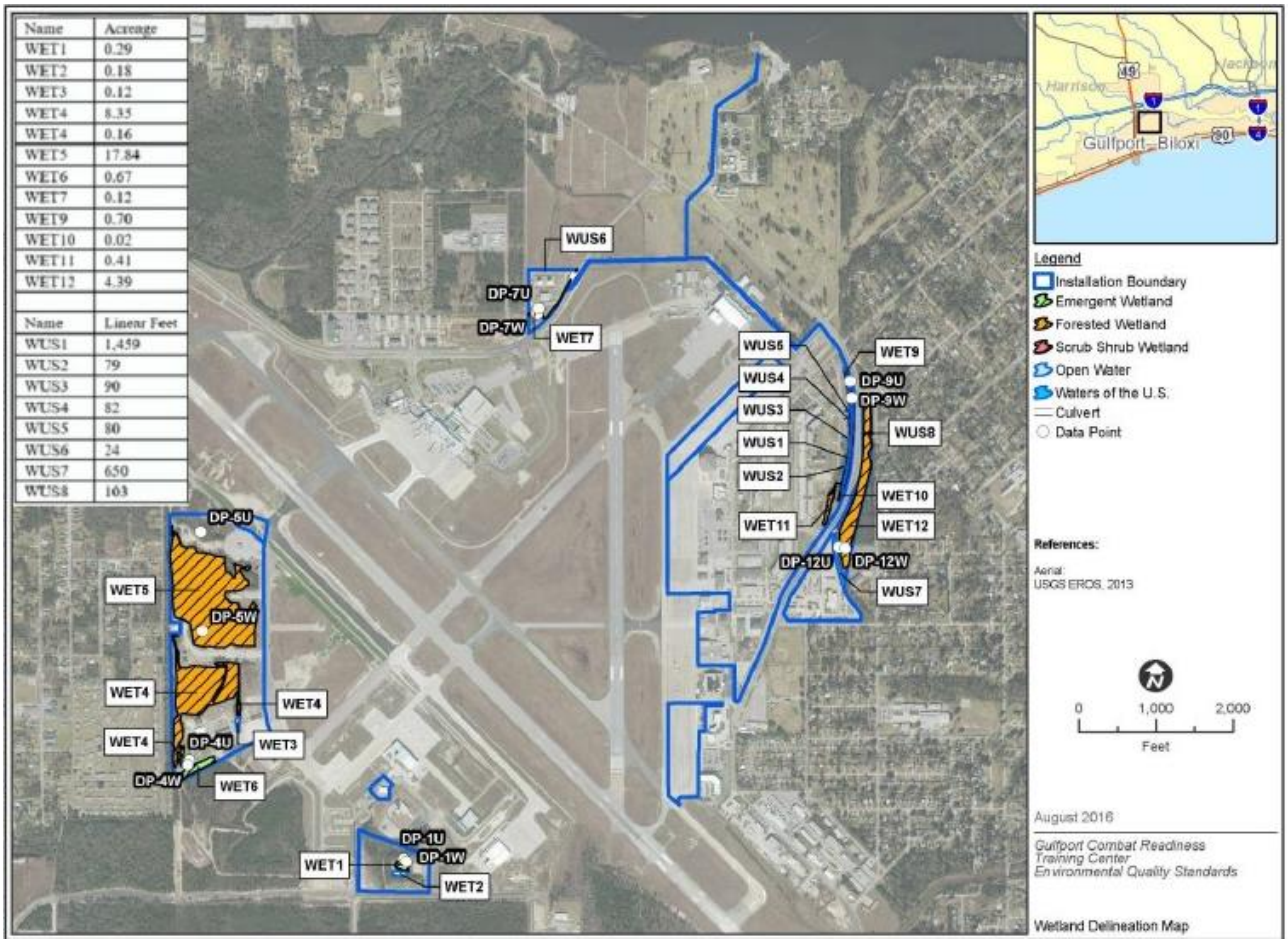


Figure 8. Gulfport CRTC Wetland Delineation Overview Map

6.0 MISSION IMPACTS ON NATURAL RESOURCES

6.1 Natural Resources Needed to Support the Military Mission

Gulfport CRTC requires operational areas that support flying operations, facilities, and other support functions, with the surrounding areas serving as a buffer to reduce BASH risk and provide support facilities and functions. Degradation of natural resources can result in unintended impacts to the military mission, impaired readiness, and funds spent on natural resources crisis management and interventions rather than the military mission. Gulfport CRTC needs the land and its natural resources to function together in a healthy ecosystem to support the military mission. Management activities in this INRMP are designed to support desired habitats and ecosystem functions.

6.2 Natural Resources Constraints to Mission and Mission Planning

Natural resources constraints to mission and mission planning on Gulfport CRTC are primarily associated with water resources such as wetlands and surface water bodies and woodlands. The presence of woodlands and wetlands, dictate where and when certain types of activities can occur

to ensure regulatory compliance and long-term sustainability of natural resources on the installation. Gulfport CRTC will manage natural resource constraints during training activities. Activities in and around streams, ponds, shorelines, or wetlands are limited because impacts such as filling, modifying, draining, or construction, could result in violations of the Clean Water Act (CWA). Any new training within these areas should be coordinated with the installation's environmental staff to ensure the actions are in compliance with all applicable laws. Activities in the vicinity of woodland areas should be limited to minimize soil compaction and damage to tree roots, and to encourage the growth of native understory.

Land use on the installation is generally grouped into compatible uses. Command and Support functions are located toward the center of Gulfport CRTC, and aircraft-related functions are located toward the flight line. Industrial uses are located toward the southern end of Gulfport CRTC. A separate parcel for the 255 ACS is located across Hewes Ave. and includes additional industrial facilities. The CRTC is not currently experiencing any major encroachment, but it could occur in the future (ANG 2015).

Impacts associated with daily operations and activities that could potentially impact the local environment include hazardous materials and wastes, noise, and air pollution. Activities such as training activities and procedures, equipment maintenance activities, and explosive materials storage could result in the accumulation of hazardous materials and wastes, which if not managed properly could result in contamination of water if spills were to occur. Hazardous materials are used at Gulfport CRTC for activities associated with aircraft maintenance, aerospace ground equipment (AGE), maintenance, ground vehicle maintenance, and petroleum, oil and lubricant (POL) management and distribution. The installation receives and stores quantities of hazardous materials, including flammable and combustible materials such as vehicle fuels. Hazardous materials used at the installation include used oils, fuels, paints, cleaners, filters, and batteries. Vehicle and aerospace equipment maintenance represents the primary activity for generating hazardous wastes such as antifreeze, paints, and solvents.

Best management practices (BMP) should be used by installation personnel to prevent or mitigate environmental degradation as a result of mission activities and to ensure completion of the mission action. Gulfport CRTC provides education during annual environmental training to help prevent environmental degradation. Implementing environmentally sound practices, and considering alternatives to these practices as they are developed results in an effective, long-term approach to natural resource protection and conservation that limits the potential for serious alterations to natural resources.

Activities associated with the Gulfport CRTC mission contribute to noise levels within the immediate vicinity of Gulfport CRTC. Noise sources include the aircraft training practices, combat training practices, use of vehicles, construction equipment, lawn mowers, and generators. Noise is also generated during vehicle maintenance and aerospace ground equipment maintenance. Noises associated with these activities can include the use of machinery and other maintenance equipment. An increase in noise levels could impact wildlife using the habitat available at the installation. Wildlife species may be disrupted during foraging or resting and may vacate the habitat available at the installation. It is expected that wildlife may return after noise levels have returned to normal.

Due to closings of military facilities and realignments of personnel and equipment through the Base Realignment and Closure process, there may be an alteration of the mission at Gulfport CRTC during the life cycle of this INRMP. Construction of new buildings and facilities may continue at Gulfport CRTC in support of its current mission and as needed to modernize current installation facilities. In addition, since Gulfport CRTC is a training facility, the installation receives many visiting units performing various training activities. The discrete and cumulative impacts on the local environment must continually be evaluated.

7.0 NATURAL RESOURCES PROGRAM MANAGEMENT

7.1 Natural Resources Program Management

The guiding philosophy of the Gulfport CRTC INRMP is to take an ecosystems approach to managing natural resources. Ecosystem management is based on clearly stated goals and objectives, and associated projects. The Gulfport CRTC INRMP identifies goals and objectives, and presents the means to accomplish them as well as the methodologies to monitor results.

7.2 Fish and Wildlife Management

Wildlife management involves manipulating various aspects of an ecosystem to benefit chosen wildlife species. Management of habitats generally is focused to benefit native species, particularly listed species and game species. Wildlife population and habitat management on Gulfport CRTC will attempt to deter animals from foraging or roosting near or adjacent to areas where they would interfere in ANG missions and actions, or where they present a risk to personnel safety or mission oriented practices. Management actions include attracting wildlife away from these areas to more suitable locations, and protecting and conserving threatened and endangered species through habitat conservation at selected locations at the installation. This approach has been chosen due to the relative abundance and variety of wildlife species present on Gulfport CRTC, and the low likelihood of excluding all wildlife species from the installation that pose a significant threat to the safety of the flying mission.

Migratory bird species use the wetland and marshy areas of the installation for foraging and resting during migration. Habitat improvements and land management should be undertaken in a manner that supports migratory bird conservation and identifies issues and restoration needs associated with the breeding, foraging, and nesting of migratory bird species, while still supporting the military mission of the installation. Management of migratory species should be performed in a manner that enhances biodiversity through the reestablishment of native habitats preferred by migratory bird species. One issue of concern is accomplishing these habitat restoration objectives without compromising the ANG mission. Several migratory bird species present a high BASH threat, and in areas with flight programs like Gulfport CRTC, the creation of suitable habitat for migratory species must be done in a manner that does not increase the threat of a bird aircraft strikes. Because no migratory bird species are known to nest at the installation, improvements to habitat would be focused on habitat used by migratory species for foraging and resting during migration away from areas that present a high BASH risk. Areas that present a high BASH risk should be maintained in a manner that discourages use by migratory

birds and other wildlife species. Techniques utilized to accomplish this include scare tactics, making habitat unsuitable in the area, and other means.

7.2.1 Federal Wildlife Policies and Regulations

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits, unless permitted by regulations, the pursuit, hunting, take, capture, killing or attempting to take, capture, kill, or possess any migratory bird included in the MBTA, including any part, nest, or egg of any such bird (16 USC § 703). The DoD has a Memorandum of Understanding (MOU) with the USFWS pursuant to EO 13186 Responsibilities of Federal Agencies to Protect Migratory Birds, which outlines a collaborative approach to promote the conservation of migratory bird populations. This MOU specifically pertains to natural resource management activities, including, but not limited to, habitat management, erosion control, forestry activities, invasive weed management, and prescribed burning. It also pertains to installation support functions, operation of industrial activities, construction and demolition activities, and hazardous waste cleanup. In February 2007, the USFWS finalized regulations for issuing incidental take permits to the DoD. If any of the Armed Forces determine that a proposed or an ongoing military readiness activity may result in a significant adverse effect on a population of migratory bird species, then they must confer and cooperate with the USFWS to develop appropriate and reasonable conservation measures to minimize or mitigate identified significant adverse effects (50 CFR Part 21).

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA; 16 USC §668a-d), enacted in 1940 and amended several times since then, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles, including their parts, nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof."

In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death, or nest abandonment.

Partners in Flight

The DoD Partners in Flight (PIF) program consists of natural resources personnel from military installations across the United States working collaboratively with partners throughout the Americas to conserve migratory and resident birds and their habitats on DoD lands. PIF sustains and enhances the military mission through proactive, habitat-based conservation and management strategies that maintain healthy landscapes and training lands. Additionally, PIF works beyond installation boundaries to facilitate cooperative partnerships, determine the current status of bird populations, and prevent the listing of additional birds as threatened or endangered. DoD PIF provides a scientific basis for maximizing the effectiveness of resource management, enhancing the biological integrity of DoD lands, and ensuring continued use of these lands to fulfill military training requirements.

Pollinator Conservation

DoD has emphasized the importance of pollinator conservation to the military services by developing partnerships to support their conservation. DoD has MOUs with Bat Conservation International (BCI) and Pollinator Partnership (P2) and has developed the USAF Pollinator Conservation Reference Guide (USAF 2017). The MOU with BCI "establishes a policy of cooperation and coordination between DoD and BCI to identify, document and maintain bat populations and their habitats on DoD installations" (signed Oct 2006, renewed Dec. 2011). The MOU with P2 is "to establish a framework for cooperative programs that promote the conservation and management of pollinators, their habitats and associated ecosystems" (signed February 9, 2015).The MOU states that this framework is important to "ensure that pollinator management activities are incorporated where practicable, into INRMPs and practices." Conservation of pollinators by USAF alone or in collaboration with groups such as BCI and P2 supports these DoD initiatives.

The USAF Pollinator Conservation Reference Guide provides specific pollinator conservation measures which can be implemented by the USAF and ANG. It was finalized March 2018, and is available on USFWS and Air Force Civil Engineer Center (AFCEC) eDASH Natural Resources website, an online tool serving as a one-stop source for environmental policy, procedures and guidance. This guide, developed by the USFWS, establishes guidance as a National Pollinator Conservation Strategy on lands owned 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. Further, it 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.

Some areas of ANG installations 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 should be a priority for implementing pollinator habitat improvements and using land management practices in ways beneficial to pollinators.

7.2.2 Nuisance Wildlife and Wildlife Diseases

Other than those that present a BASH risk, there are few nuisance wildlife species at Gulfport CRTC. Future hazardous wildlife problems will be evaluated in conjunction with USDA-WS personnel, if appropriate. Any solutions to hazardous wildlife problems will follow the IPM Plan and BASH Plan.

Diseases affecting fish and wildlife may occur on the installation. Any large-scale fish and wildlife deaths and unnatural behavior occurring on the installation will be reported, recorded, and investigated, in conjunction with USFWS, USDA-WS, US Environmental Protection Agency (US EPA), MDWPF, and Mississippi Department of Environmental Quality (MDEQ) personnel, as appropriate.

7.2.3 Management of Threatened and Endangered Species and Habitats

This section presents information about the management of special status species located within or with the potential to occur at Gulfport CRTC, along with requirements and strategies for their

management. As additional surveys and natural resources management activities are conducted, it is possible other species may be added in the future. If threatened or endangered species are discovered on the Gulfport CRTC during a biotic inventory, an endangered species management plan should be developed. No federally listed species are known to occur or have suitable habitat at Gulfport CRTC (ANG 2017a). There is no USFWS-designated critical habitat on or adjacent to the installation. Currently, there are 15 federally or state-threatened and endangered species with the potential to occur on Gulfport CRTC.

7.2.3.1 Federally Special Status Wildlife Species

The Gulfport CRTC is required to manage for federally-listed species. Failure to protect federally-listed species could lead to an ESA violation, which could negatively impact training land availability. Eleven federally listed special status species have been identified to potentially occur on Gulfport CRTC.

Bald eagle: Bald eagles are delisted federally and by the state but remain protected under the BGEPA. Bald eagles are vulnerable to habitat loss, decreasing food supply, human disturbance at nest sites, environmental contamination, diminished water quality, and human-caused deaths and injuries (MDWFP 2014). The Bald Eagle breeds from Alaska and northern and western Canada south to the northern and central United States, Florida, the Gulf Coast, and Arizona. During the non-nesting season Bald Eagles occur along large lakes and rivers throughout the United States. During the 2009 nesting season at least 77 pairs of Bald Eagles were believed to nest in Mississippi (MDWFP 2014). Pairs nest throughout the state. The Bald Eagle generally occurs in the vicinity of lakes, rivers, marshes, and along sea coasts. Nesting usually occurs in areas with mature trees near large bodies of water. Areas with nests should be monitored and protected from development or human disturbance.

Bald Eagle
Photo by USFWS

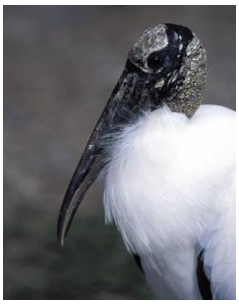
Red knot: the red knot is a large sandpiper that is distinguished by a russet color of the breast and belly during breeding season, in other times both sexes are gray and off white. The bird winters in South America, the Caribbean and the US Gulf and Atlantic coasts. It then breeds in tundra climates such as the central Canadian Arctic (Atlantic Flyway Shorebird Initiative [AFSI] 2015). If observed on Gulfport CRTC, the following management strategies are recommended:

- Restore, enhance, create, manage, and protect shorebird breeding, stopover, and foraging habitat as feasible

Red knot
Photo by: USFWS

Wood stork: the wood stork is a long-legged wading bird with white and black plumage, a short black tail, a dark gray head and neck and a thick black bill which curves slightly. Nesting is restricted to Florida, Georgia and South Carolina. After breeding, birds will migrate northward to the Atlantic and Gulf coasts. Its habitat includes freshwater and estuarine wetlands and it nests in cypress or mangrove swamps (USFWS 2006). If observed on Gulfport CRTC, the following management strategies are recommended:

- Protect foraging, nesting, and roosting habitat
- Develop baseline contaminant information
- Develop an understanding of how man-made wetland systems affect wood stork health and develop management strategies for these wetlands to benefit the recovery of the wood stork



Wood stork
Photo by USFWS

Black pine snake: the black pine snake is a large and stocky, uniform black and brown snake with faint blotches sometimes visible near the tail. Its range includes Alabama, Louisiana, and Mississippi with optimal habitat being sandy, well-drained soils that are in an open-canopied overstory of longleaf pine (USFWS 2018). If observed on Gulfport CRTC, the following management strategies are recommended:

- Identify and preserve any critical habitat found on base
- Limit removal of rotting pine stumps for use by snakes

Black pine snake
Photo by USFWS

Gopher tortoise: the gopher tortoise is a keystone species found in upland habitat throughout the southwestern U.S. Their burrowing provides refuge for approximately 360 other species. The gopher tortoise can live up to 80 years in the wild and are primarily herbivorous, eating grasses, mushrooms, berries and flowers (USFWS 2017). They enjoy the same type of habitat as the red-cockaded woodpecker. If observed on Gulfport CRTC, the following management strategies are recommended:

- Survey for burrows to assess and minimize impacts to the tortoise population and habitat before beginning significant ground disturbing activities
- Monitor population demography, activity, and movement patterns
- Maintain site specific distribution and demographic information on tortoises within the installation Geographic Information System (GIS) database

Gopher Tortoise
Photo by USFWS

Piping plover: the piping plover is a small shorebird with light brown and white coloring and is characterized by a single black band on its neck along with orange legs and bill. There are 2 subspecies that breed around spring in the Northern Great Plains, Great Lakes watershed and the Atlantic Coast. They winter in the coastlines extending along the US Atlantic and Gulf Coast. Their habitat includes shorelines and islands of salty lakes as well as river systems (USFWS 2015c). If observed on Gulfport CRTC, the following management strategies are recommended:

Piping plover
Photo by: USFWS

- Protect wintering and migrating piping plovers and their habitat from human disturbance
- Monitor non-breeding plovers and their habitat
- Protect non-breeding plovers and their habitats from contamination and degradation from oil and other chemical contaminants
- Develop mechanisms to provide long-term protection of non-breeding plovers and their habitat

Mississippi sandhill crane: the Mississippi sandhill crane is federally and state endangered. It is large, relatively slender, gray to brownish-gray bird with a long neck and legs and resembles great blue herons (*Ardea herodias*). A major distinguishing characteristic is that sandhill cranes are a solid grey and adults have a bald red forehead. When standing erect, sandhill cranes are about 4 feet tall. The Mississippi Sandhill Crane is a non-migratory subspecies that was once a year-round inhabitant of the Gulf Coastal Plain of Louisiana, Mississippi, and Alabama. At present, it is found only in a small area west of the Pascagoula River in Jackson County, Mississippi (MDWFP 2014). Sandhill cranes are unique in that they require separate nesting, foraging, and roosting habitats. If observed on Gulfport CRTC, the following management strategies are recommended:

Mississippi sandhill crane
Photo by: USFWS

- Protect known habitat and monitor species presence

Red-cockaded woodpecker: the red-cockaded woodpecker is a foraging bird usually found in mature pine forests, preferring longleaf pine. It is the only woodpecker to excavate cavities in living pine trees. Usually found in pine forests throughout the southwestern U.S, it plays the role of keystone species in its ecological niche (USFWS 2003). If observed on Gulfport CRTC, the following management strategies are recommended:

Red-cockaded Woodpecker
Photo by USFWS

- Frequent prescribed burning of foraging habitat during the growing season as feasible
- Landscaping using existing natural vegetation, not utilizing extensive hardwood tree plantings as feasible
- Monitor the number of active clusters on base and report information annually to the Red-cockaded Woodpecker Recovery Coordinator

Louisiana quillwort: Louisiana quillwort is a semi-aquatic evergreen plant with spirally arranged leaves. Native to Louisiana and Mississippi, this plant is considered endangered wherever found. Colonies can be found in shallowly entrenched, intermittent streams where swamp black gum and laurel leaf oak (*Quercus laurifolia*) is present. Coastal colonies occur in perennial stream habitat along with bald cypress and macrophytes (USFWS 1996). If observed on Gulfport CRTC, the following management strategies are recommended:

- Work with Federal and State entities, non-governmental organizations, and private individuals to permanently protect and manage existing habitats and populations

Louisiana quillwort
Photo by USFWS

Alabama red-belly turtle: the Alabama red-belly turtle is a large freshwater turtle that displays an orange to red plastron and has a distinguishable notch on the upper jaw. Its current range includes several counties in southern Alabama and Mississippi. This species can be found in shallow vegetated backwaters of freshwater streams, rivers, bays, and bayous with beds of aquatic macrophytes (USFWS 2015a). The turtles nest from April to early August with peak nesting activity in July. If observed on Gulfport CRTC, the following management strategies are recommended:

- Identify natural nesting habitats
- Survey natural riparian Maritime oak woodlands to determine if these are used by nesting Alabama red-bellied turtles

Alabama red-belly turtle
Photo by USFWS

Dusky gopher frog: the dusky gopher frog is a small frog with a warty appearance characterized by varying colorations of its back of uniform black to reddish brown or dark brown spots on a dark gray or brown body. More spots and marks cover its belly. Its optimal habitat is uplands dominated by fire-maintained longleaf pine and grassy understory (USFWS 2015b). Larval habitat is grassy, acidic, ephemeral, isolated depressional wetlands with no predaceous fish. Its range includes southern Mississippi, where critical habitat has been designated. If observed on Gulfport CRTC, the following management strategies are recommended:

- Connect protection efforts with initiatives that protect and reestablish other species endemic to the longleaf pine ecosystem
- Monitor known populations and the habitats that support them

Dusky gopher
Photo by USFWS

7.2.3.2 State Special Status Species

Mississippi state law provides for the protection of native threatened and endangered species. There are 5 state listed special status species that have been identified to potentially occur on Gulfport CRTC. If base personnel discover the presence of state listed threatened, endangered, and/or species of concern, they will notify the MDWFP which will provide possible management actions to be undertaken if feasible.

Brown pelican: The brown pelican is a large, relatively stocky bird. This species occurs from North Carolina south to Venezuela on the Atlantic coast and from British Columbia to Chile on the Pacific coast. Brown pelicans do not nest in Mississippi but are seen fairly regularly along the Gulf Coast and near the barrier islands (MDWFP 2014). Brown pelicans nest most commonly on offshore islands, but have also nested on islands in estuaries. This species feeds in small inlets, in tidal rivers, and along open beaches. They may also congregate near wharves and pilings where they scavenge food from tourists and fishermen. Brown Pelicans may be seen as much as 20 to 40 miles offshore and may roost on coastal sandbars and mudflats (MDWFP 2014).

Brown pelican
Photo by USFWS

Bewick's wren: the Bewick's wren is a small, reddish brown bird and is state endangered. Bewick's wrens breed from southern British Columbia, southwestern Wyoming, southern Ontario, and southwestern Pennsylvania south to the northern parts of the Gulf States and into Mexico. It is a year-round resident in the western parts of its range but migratory in much of the eastern United States, wintering from the lower Ohio River valley south to the Gulf Coast and central Florida (MDWFP 2014). Bewick's wrens are found throughout the state year-around, but are found only in central and northern Mississippi during the breeding season (MDWFP 2014). They occur in and around brush piles, in open woodlands, and in scrubby areas in the eastern United States. They are often found in the vicinity of buildings, especially out-buildings in a state of disrepair.

Bewick's wren
Photo by Leonard Hantz

Southern hognose snake: the southern hognose snake is a relatively short, stout species. The ground color is light brown, yellowish, or gray, sometimes with a reddish tinge. There is a row of dark blotches down the back that alternate with a row of smaller dark blotches on each side. The belly is mottled and the underside of the tail is about the same color as the belly. This species occurs from southeastern North Carolina south to central Florida and west to Mississippi. Within Mississippi, the southern hognose snake has been recorded from Forrest, Stone, Hancock, Harrison, and Pearl River counties (MDWFP 2014). Like the gopher tortoise and the black pine snake, the southern hognose snake inhabits open or sparsely wooded dry areas with deep sandy or sandy-loam soils. Periodic growing season fire is necessary to maintain open habitat.

Southern hognose snake
Photo by USFWS

Eastern indigo snake: the longest native snake in North America, the indigo snake may grow to a maximum length of approximately 2.6 m (8.5 ft), although adults usually average about 2 m (6.5 ft) in length. The indigo snake is heavy-bodied and almost uniformly glossy blue-black in color except for the throat, chin, and sides of the head, which may be cream, orange, or red. This snake is found associated with dry sand ridges and pine uplands, at least in the northern parts of its range outside of Florida. These areas are dominated by a mixture of pines (primarily longleaf) and oaks. Recent studies have indicated that indigo snakes move from the upland sites during the summer and utilize bottomlands along streams as well as agriculture areas (MDWFP 2014).

Eastern indigo snake
Photo by USFWS

7.3 Water and Wetland Resource Protection

Watershed protection is important to natural resources management because it directly affects surface water quality and the value of aquatic habitats. Gulfport CRTC currently complies with a number of federal, state, local, and USAF environmental regulations that require the installation to have detailed spill control and response procedures and to implement stormwater pollution prevention BMPs. The objective of these regulations is to prevent pollutants from entering the watershed, thus protecting surface water quality. Gulfport CRTC strives to minimize the impact that the missions have on wetlands. The ANG strives to enhance healthy, functional wetlands that can sustain minor operational influences outside indirect infringement of wetlands. When possible, the goal is to enhance wetland functions and to create wetlands that maximize the values that wetlands have within the ecosystem and to society.

7.3.1 Regulatory and Permitting

The USACE regulates the discharge of dredged or fill material into WOUS, including wetlands, under Section 404 of the CWA. Even an inadvertent encroachment into WOUS including wetlands resulting in a displacement or movement of soil or fill material has the potential to be viewed as a violation of the CWA if an appropriate permit has not been issued by the USACE. WOUS including wetlands are defined under 33 CFR Part 328.3(a) and referred to as Jurisdictional Waters. Jurisdictional Waters may include coastal and inland waters, lakes, rivers, ponds, streams, intermittent streams, vernal pools, wetlands, and other waters, that if degraded or destroyed could affect interstate commerce.

A jurisdictional determination is made based on multiple criteria, but the relationship of the wetland to other WOUS is important. Management of wetlands on federal lands and military installations is further governed by EO 11990 and DoDI 4715.03, respectively. Under those instructions, wetlands are required to be managed for no net loss on federal lands, including military installations. In support of these policies, long and short-term adverse impacts associated with the destruction or modification of wetlands and support of new construction in wetlands must be avoided to the maximum extent possible.

According to the US EPA regulations issued under Section 404(b)(1) of the CWA, permitting of fill activities will not be approved unless the following conditions are met: no practicable, less environmentally damaging alternative to the action exists; the activity does not cause or contribute to violations of state water quality standards (or compliance under Section 401 of the CWA); the activity does not jeopardize listed species or sensitive cultural resources (33 CFR Part

320.3 [e] and [g]); the activity does not contribute to significant degradation of WOUS; and all practicable and appropriate steps have been taken to minimize potential adverse impacts to the aquatic ecosystem (40 CFR Part 230.10).

Any actions that require a federal permit, license, or approval that result in a discharge into WOUS, including Section 404 individual dredge and fill permits and nationwide permits, require a state water quality certification. The state has adopted procedures and criteria for water quality certification for Department of Army permits and National Pollutant Discharge Elimination System (NPDES) permits (Mississippi Code Ann. §49-17-28) (MDEQ 2010).

Section 401 of the CWA gives the State of Mississippi the authority to regulate, through the state water quality certification program, proposed federally-permitted activities resulting in a discharge to water bodies, including wetlands. The state may issue certification, with or without conditions, or deny certification for activities that may result in a discharge to water bodies. In Mississippi, the MDEQ is responsible for issuing Section 401 Water Quality Certification. The purpose of these certification reviews is to determine whether a proposed discharge will comply with state water quality standards. The MDEQ has joint jurisdiction over proposed wetland alteration in the coastal zone. The Coastal Wetlands Protection Act MS Code Ann. Title 49 Chapter 27 requires the MDEQ to review permits for all regulated activities that affect coastal wetlands.

EO 11988 – Floodplains Management requires all federal agencies to provide leadership and take action to reduce the risk of flood loss; minimize the impacts of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial values of floodplains when acquiring, managing, or disposing of federal lands. Secretary of the Air Force Order (SAFO) 791.1 re-delegates authority for the management of floodplains to the Assistant Secretary of the Air Force for Manpower, Reserve Affairs, Installations and Environment (SAF/MI), and indicates that authority may be further re-delegated. In December 2000, the authority was re-delegated to the Major Command (MAJCOM) vice-commanders as chair of the MAJCOM Environmental Protection Committee/Environmental, Safety, Occupational Health Committee (EPC/ESOHC). The MAJCOM vice-commanders, as chair of the EPC/ESOHC, must sign a finding of no practicable alternative (FONPA) prior to any action within a federal wetland.

Additionally, if action is taken that permits an encroachment within the floodplain that alters the flood hazards on a National Flood Insurance Rate Map (FIRM), an analysis reflecting those changes must be submitted to the Federal Emergency Management Agency (FEMA).

7.3.2 Vegetation Buffers

Vegetated buffers are also referred to as riparian management zones, riparian buffers, wetland buffers, lake buffers, buffer strips, filter strips, or streamside management areas. Buffers can take many forms and may vary in size and function depending on the upland land use and the type of water resource being protected. They can either be grassland or forest and may or may not be mowed and maintained occasionally. One of the primary purposes of a vegetated buffer is for water quality protection by providing vegetation to interrupt water flow and to trap and filter out suspended sediments, nutrients, chemicals, and other polluting agents before they reach the body of water. Vegetated buffers should be maintained along all perennial and intermittent streams, wetlands, lakes, or ponds where nearby management activities result in surface/soil disturbance,

earth changes, and where erosion and sediment transport occurs during rain events. Maintaining the forest cover around small water resources is also important for preventing sedimentation and impacts to water quality.

7.4 Grounds Maintenance

Grounds maintenance help to maintain and improve the aesthetic appearance of lands controlled by the ANG and can contribute to overall biodiversity and ecosystem health. Installation grounds maintenance personnel perform most grounds maintenance activities at the Gulfport CRTC. Grounds maintenance activities performed consist of road maintenance, vegetation maintenance, and target repair and replacement.

EO 13148, *Greening the Government through Leadership in Environmental Management*, contains overarching direction regarding management of vegetation in developed areas (National Archives and Records Administration 2019). The order directs federal agencies to strive to promote sustainable management of federal facility lands through the implementation of cost-effective, environmentally sound landscaping practices, and through programs to reduce adverse environmental impacts. Other federal regulations that guide undeveloped vegetation management include the federal Noxious Weed Act of 1974, EO 13112, FIFRA, the federal Plant Pest Act, and the Organic Act.

USAF policies and guidelines regarding grounds maintenance and urban forest management are included in Chapter 11 of AFI 32-7064. This document encourages the use of native plants in landscaped designs, minimizing landscape maintenance, minimizing the need for irrigation, and naturalizing landscaped areas as much as possible. The use of integrated pest management practices is encouraged in both AFI 32-7064 and AFI 32-1053 (Secretary of the Air Force 2009a, 2009b).

7.5 Soil Conservation and Sediment Management

Due to the relatively flat topography at CRTC Gulfport, naturally occurring areas of erosion are very limited. Any areas prone to erosion should implement BMP’s specifically designed to minimize sediment transport to local watercourses. Some soils on Gulfport CRTC are susceptible to water erosion if not protected with vegetation or other cover. Maintenance of key ecosystem functions such as erosion control and sediment retention require a healthy, uniform ground cover be established as quickly as possible following land use conversion or disturbance, and that interim soil stabilization measures be implemented.

Soil erosion is managed under the SWPPP and additional BMPs are generated and implemented as needed when new actions such as construction may impact erosion and sedimentation (MS ANG 2018).

7.6 Outdoor Recreation, Public Access, and Public Outreach

There is outdoor recreation at Gulfport CRTC in the form of a running track, tennis court, basketball court, and a picnic area with grill and various outdoor pavilions. These recreation areas are for the use of base personnel and/or visiting units. Lands used primarily for military activities, such as the airfield, are excluded from outdoor recreation uses for safety, public health, and security reasons.

Gulfport CRTC is generally not open to the public however, requests for access to the installation can sometimes occur. The security of Gulfport CRTC personnel, visitors, facilities, and natural resources should be considered when granting access to the installation.

Part of the local mission of Gulfport CRTC is to actively support the community. Gulfport CRTC participates in local activities such as cleanup days, city beautification efforts, and volunteering at local schools.

7.7 Geographic Information Systems

GIS is used to manage and catalog information acquired in natural resources research. GIS assists in planning by charting areas of environmental concern and providing a baseline for analyzing the potential impacts of any proposed natural resources management action. Managers can implement the capabilities of GIS to watershed, wetlands, wildlife, and various other natural resource management applications. GIS needs and requirements will be addressed through the ANG GeoBase Program.

7.8 Other Plans

7.8.1 Integrated Pest Management Plan

IPM objectives at Gulfport CRTC include the protection of real estate, control of potential disease vectors or animals of other medical importance, control of undesirable or nuisance plants and animals (including insects), and prevention of damage to natural resources. The IPM plan ensures that DoD pest management programs achieve, maintain, and monitor compliance with all applicable Executive Orders and applicable federal, state, and local statutory and regulatory requirements. Base personnel and all hired contractors and firms who apply pesticides, herbicides, insecticides and rodenticides will comply with Federal law 40 CFR 171 and with all provisions of the Mississippi Pesticide Law of 1975 (69-23-1 thru 69-23-29 of MS Code of 1972 as amended), the Mississippi Pesticide Application Law of 1975 (69-23-101 thru 69-23-135 of MS Code of 1972 as amended) and 2 Miss. Admin. Code Subpart 3, Chapter 9, Rule 200.

DODI 4150.07 states that it is DOD policy to establish and maintain safe, effective, and environmentally sound integrated pest management programs to prevent or control pests and disease vectors that could adversely impact readiness or military operations by affecting the health of personnel or damaging structures, material, or property. AFI 32-1053, *Pest Management Program*, is a policy to conduct effective pest management programs and established responsibilities and procedures for pest management at USAF installations (Secretary of the Air Force 2009a). IPM should use mechanical, physical, cultural, biological, and educational methods to maintain pests at populations low enough to prevent undesirable damage or annoyance. Application of the least toxic chemical should be used as a last resort to control nuisance species.

Prevention of damage to natural resources is an important objective of pest management. Natural resources damage can result from infestations of damaging insects or insect larvae, from overpopulation of primary consumers such as white-tailed deer, from overgrowths of vegetation where natural resources management objectives demand their removal, and from invasions of noxious or exotic plant species that displace natural and native vegetation. On Gulfport CRTC, pest management activities are coordinated by the IPMC. The installation reports annual pesticide

application to the NGB/A4AM Pest Management Consultant until such time that a web-based reporting system is back online.

7.8.2 Invasive Species

EO 13112 *Invasive Species,* requires all 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. There are a number of federal statutes and directives addressing specific requirements pertaining to vegetation and wildlife. Base personnel will comply with all provisions of the following federal and state laws and state regulations regarding noxious plants and nonnative species *Federal Noxious Weed List* - 7 CFR 360; *State Noxious Weed List* - 2 Miss. Admin. Code Part 1, Subpart 3, Chapter 9, Rule 136; *Releasing aquatic species or animals not indigenous to Mississippi* - MS Code of 1972 as amended Title 49, Chapter 7, Section 80; *Possession of prohibited aquatic species* - 40 MS Admin Code, Part 3, Rule 1.1.

State programs that support the management of invasive plants include (National Council for Air and Stream Improvement [NCASI] 2007):

- Mississippi Forestry Commission – a public service agency created by the Mississippi Legislature to address forest health problems, including invasive species
- Mississippi Department of Agriculture and Commerce, Bureau of Plant Industry – Plant Pest Programs designed to prevent the spread of destructive insects, diseases, and other pests. Programs include inspection, certification, quarantine, and survey activities. All personnel and contractors who apply herbicides and pesticides should be certified by the Bureau of Plant Industry to do so and maintain/renew those certifications as required by law and regulation
- Mississippi State University GeoResources Institute (GRI) – Currently developing a program of research and outreach for invasive species

A total of 34 invasive species may potentially occur on Gulfport CRTC. To date, five invasive plant species, one invasive bird, the European starling (*Sturnus vulgaris*), and one invasive insect, the fire ant (*Solenopsis* sp.) have been identified on the installation (**Table 8**; ANG 2017a).

Table 8. Invasive Species Occurring or with the Potential to Occur at Gulfport CRTC

Scientific Name	Common Name
Solenopsis sp.	fire ant
Alternanthera philoxeroides	alligator weed
Centaurea stoebe	spotted knapweed
Imperata cylindrica	cogon grass
Ligustrum sinense	Chinese privet
Lonicera sp.	exotic bush honeysuckle
Panicum repens	torpedo grass
Phalaris arundinacea	reed canarygrass
Phragmites australis	common reed
Rosa laevigata	Cherokee rose
Rosa multiflora	multiflora rose
Sturnus vulgaris	European starling
Triadica sebifera	Chinese tallow tree

Source: ANG 2017a

7.8.3 Stormwater Management

Gulfport CRTC currently complies with a number of federal, state, local, and USAF environmental regulations that require the installation to have detailed spill control and response procedures and to implement stormwater pollution prevention best management practices.

MDEQ regulations regarding small and large stormwater construction permit requirements to control sediment from construction/land clearing activities can be accessed online utilizing the links below:

- https://www.mdeq.ms.gov/wp-content/uploads/2017/06/Baseline_Forms_Package.pdf
- https://www.mdeq.ms.gov/wp-content/uploads/2017/01/LARGE_CONST_FORMS_PACKAGE.pdf
- https://www.mdeq.ms.gov/wp-content/uploads/2017/10/AnnualSWPPPEvaluationForm.pdf
- https://www.mdeq.ms.gov/wp-content/uploads/2017/10/SWPPPCertificationFormforReissuance.pdf

The objective of these regulations is to prevent pollutants from entering the watershed, thus protecting water quality of surface waters. Gulfport CRTC maintains and implements a SWPPP developed to address and reduce stormwater pollution from installation operations (MS ANG 2018).

Below are stormwater BMPs proposed for Gulfport CRTC as outlined in the SWPPP (MS ANG 2018):

- Fueled equipment should not be staged on top of or near storm water inlets
- Storm water inlets near vehicle parking areas should have drain covers staged nearby for deployment during spill events

- Monthly inspections should be conducted in areas storing surplus or scrap equipment and materials awaiting disposal
- Drums of used oil absorbent should be staged inside or on adequate secondary containment

7.8.4 Bird/Wildlife Aircraft Strike Hazard (BASH)

A bird/wildlife aircraft strike hazard exists at Gulfport CRTC and its vicinity, due to resident and migratory bird species, and other wildlife. Daily and seasonal bird movements create various hazardous conditions. The BASH Plan (MS ANG 2019) establishes procedures to minimize the hazard to ANG and other DoD aircraft at the installation and in their associated operating areas. The BASH plan is based on historical bird/wildlife strike records from the Gulfport CRTC, the Gulport/Biloxi International Airport Wildlife Hazard Management Plan (WHMP), and the FAA database of aircraft strike incidents.

Birds can be encountered up to altitudes of 30,000 feet and higher. However, most birds fly close to ground level, and more than 95 percent of all reported incidents in which a USAF aircraft has struck a bird have been below 3,000 feet above ground level (AGL). Approximately half of these bird strikes occur in the airfield environment, and approximately one quarter occurs during low-altitude training. Strike rates rise significantly as altitude decreases, which is partly due to the greater number of low- altitude missions, but mostly because birds are commonly active close to the ground. Any gain in altitude represents a substantially reduced threat of a bird strike.

At the installation, the species most commonly struck included gull (associated with the adjacent marine habitat), swifts and swallows (associated with summer eruption of insects on the airfield) and other perching birds and shorebird species that are common to the area and will periodically pass through the airfield environment or loaf on the airfield (MS ANG 2019). There are two normal migratory seasons, spring and fall. Waterfowl are usually only a hazard during the migratory season. Waterfowl typically migrate at night and generally fly between 1,500 and 3,000 feet AGL during the fall migration and 1,000 to 3,000 feet AGL during spring migration.

8.0 MANAGEMENT GOALS AND OBJECTIVES

Goals and objectives provide the framework for natural resources management programs. Goals provide a general guiding direction for each technical area and objectives are more specific actions that facilitate achieving those goals. The objectives then drive the development of specific projects. Management goals and objectives for the Gulfport CRTC INRMP were developed through a thorough evaluation of the natural resources present on the installation in accordance with AFI 32-7064 and the principles of adaptive ecosystem management by an interdisciplinary team of biologists, planners, and environmental scientists. Goals and objectives should be revised over time to reflect evolving environmental conditions, adaptive management, and the completion of tasks as the INRMP is implemented.

GOAL - Ecosystem Management (EM): The goal of ecosystem management at Gulfport CRTC will be to focus on conserving and enhancing biodiversity by managing the ecosystem rather than focusing on a single biotic or abiotic component of the ecosystem.

OBJECTIVE EM 1: Promote practices that integrate ecosystem management principles into the planning of projects.

PROJECT EM 1.1: Include ecosystem management justifications for all land management projects as provided by the environmental office.

OBJECTIVE EM 2: Inform appropriate Gulfport CRTC personnel of the goals and objectives of environmental management practices, as established by the environmental management office.

GOAL – Fish and Wildlife Monitoring (FW): Establish a general wildlife and plant population trend monitoring program as a component of long-term ecological trend monitoring.

OBJECTIVE FW1: Every 3-5 years, update the biological surveys conducted on the installation as a means to monitor and track significant wildlife populations.

OBJECTIVE FW2: Maintain an updated inventory of plants and animals present on Gulfport CRTC.

PROJECT FW2.1: Monitor species or communities that are indicators of ecosystem integrity.

OBJECTIVE FW3: Support the Mississippi State Wildlife Action Plan

PROJECT FW3.1: Identify possible areas where the installation could support wildlife conservation projects in cooperation with the goals and objectives of MS's SWAP.

OBJECTIVE FW4: Determine the feasibility for implementing DoD supported conservation programs such as the Partners in Flight Program (PIF), Watchable Wildlife Program (WW), and Partners in Amphibian and Reptile Conservation Program (PARC).

OBJECTIVE FW5: In cooperation with the Safety Office and the USDA Wildlife Specialist, minimize impacts on migratory birds that may be caused by day to day operations of the installation.

PROJECT FW5.1: Conduct surveys to identify population numbers of migratory birds during fall and spring migration.

PROJECT FW5.2: Conduct an initial power line and poll survey to identify ones that could be bird electrocution hazards. Determine what mitigating measures could be implemented to reduce any hazards found and how often this survey should be conducted.

PROJECT FW5.3: Work with installation grounds maintenance personnel and electrical service personnel to install agreed upon mitigating measures in accordance with equipment and procedures identified by the Avian Power Line Interaction Committee or more recent documents.

PROJECT FW5.4: Determine and implement a review protocol to evaluate all new power poles to ensure electrocution hazards are minimized to the greatest extent practicable

OBJECTIVE FW6: Manage habitats proximal to mission-critical areas to minimize BASH potential, while conserving regional biodiversity and maintaining the structural and functional integrity of the regional ecosystem.

PROJECT FW6.1: Support the Safety Office, the USDA Wildlife Specialist and the installation Pest Management Coordinator with implementation of the BASH Plan.

PROJECT FW6.2: Attend quarterly BASH meetings.

PROJECT FW6.3: Review the Wildlife Hazard Assessment Report/Plan and the BASH Plan to ensure the objectives and goals of the Report/Plan are not in conflict with the goals and objectives of the INRMP and the IPM Plan.

PROJECT FW6.4: Review quarterly Depredation Permit reports completed by the USDA Wildlife Specialist.

GOAL - Threatened and Endangered Species Management (TE): The goal of threatened and endangered species management on Gulfport CRTC is to take a regional ecosystem-based approach that manages for potential sensitive species while protecting the operational functionality of the mission.

OBJECTIVE TE1: Perform wildlife and vegetation surveys for federally listed species and suitable habitat at Gulfport CRTC to determine species presence or areas that may provide habitat for species on the installation.

PROJECT TE1.1: Conduct wildlife and plant surveys every 5 years or as needed to include listed species and their associated habitat to determine the presence of species on the installation.

PROJECT TE1.2: Maintain an up-to-date list of threatened and endangered species which occur or have the potential to occur in the region by annually consulting with federal and state agencies.

PROJECT TE1.3: If listed species are discovered at Gulfport CRTC, develop a plan that presents and implements management strategies to benefit listed species present and those with suitable habitat on the installation in coordination with USFWS and MDWFP.

GOAL – Wetlands and Habitat Management (WHM): The major goal of wetland management on Gulfport CRTC is to minimize the impact that mission activities have on wetlands while striving to enhance healthy, functional wetlands that maximize the floral and faunal diversity of the ecosystem.

OBJECTIVE WHM1: Adhere to all regulatory requirements when planning and performing work in or near WOUS and wetlands.

PROJECT WHM1.1: Incorporate wetland protection requirements into all phases of facilities siting, construction, renovation, operation maintenance, and demolition activities.

PROJECT WHM1.2: Perform agency coordination, notification and permitting on ANG's actions within or potentially affecting wetlands and WOUS.

PROJECT WHM1.3: Re-verify existing Jurisdictional Determination(s) from the USACE. Submit request for re-verification prior to expiration, so that re-verification may be obtained. If a revision is warranted, request jurisdictional determination extension, after applicable conditions or regulations that make revisions necessary have gone into effect.

PROJECT WHM1.4: Maintain wetland and WOUS vegetation buffers.

GOAL – Floodplains and Watershed Management Goals (FWM): The goal of floodplains and watershed management on Gulfport CRTC is to comply with federal, state, local, and USAF environmental regulations in preventing pollutants from entering the watershed and protecting surface waters.

OBJECTIVE FWM1: Increase water quality benefits by limiting sedimentation in nearby waterways. Use and implement erosion and sediment control procedures for exposed soil areas.

PROJECT FWM1.1: Within construction zones, implement erosion and sediment control techniques to minimize soil runoff from exposed soil areas.

PROJECT FWM1.2: Monitor sites at risk for erosion and sediment control and re-vegetate exposed soils.

PROJECT FWM1.3: Remove accumulated sediment and debris, install stormwater management or control structures as necessary, to improve stormwater flows in accordance and as authorized by applicable permits.

GOAL – Nuisance and Non-Native Species Management (NNNS): The goal of nuisance and non-native species management on Gulfport CRTC will be to follow an ecosystem-based approach to promoting biodiversity while establishing and maintaining safe, effective, and environmentally sound integrated pest management programs to prevent or control pests and disease vectors that could adversely impact readiness or military operations.

OBJECTIVE NNNS1: Update, implement, and maintain a safe, effective, and environmentally sound IPM Plan to prevent or manage pests, invasive species, and disease vectors.

PROJECT NNNS1.1: Annually review, implement, and evaluate the IPM Plan.

PROJECT NNNS1.2: Conduct year-round observation and surveillance of wildlife and plant populations during mission activities to identify any potential disruptions to natural resources integrity or mission activities.

PROJECT NNNS1.3: Update the IPM Plan every 5 years to incorporate all current programs and ensure it reflects changes in pest and invasive species populations and current management issues.

OBJECTIVE NNNS2: Manage and control non-native invasive plant species in accordance with IPM principles for the purpose of increasing and promoting biodiversity and reducing any negative impacts to the military mission at Gulfport CRTC. Develop and incorporate strategies for addressing non-native invasive vegetation into the IPM Plan.

PROJECT NNNS2.1: Develop and implement actions to control invasive/exotic plant species, consistent with the requirements of EO 13112 and the IPM Plan to address threats to native plant community integrity from invasive/exotic species.

GOAL – Land Management and Grounds Maintenance (LG): The land management and grounds maintenance goal Gulfport CRTC is to improve the aesthetic appearance of lands controlled by the ANG as well as contribute to overall biodiversity and ecosystem health. Use of regionally native plant species should be maximized in landscaping and restoration.

OBJECTIVE LG1: Maintain roads to ensure quick response to emergencies and to minimize erosion and sedimentation into the watershed.

PROJECT LG1.1: Perform road maintenance activities in a manner that will prevent erosion and control sedimentation.

OBJECTIVE LG2: Utilize grass and landscape plant species that are native and well-adapted to the growing conditions in Harrison County, Mississippi. The use of native plant species will discourage the introduction and spread of invasive plant species.

PROJECT LG2.1: Utilize weed-free mulches to facilitate the establishment of ground cover on impoverished soils.

PROJECT LG2.2: Re-seed exposed soils, especially after ground-disturbing activities, using a certified weed-free native grass mix or other native plant species.

PROJECT LG2.3: Future landscaping around buildings will utilize native plantings.

GOAL – Law Enforcement of Natural Resources Law and Regulations (LE): Gulfport CRTC will be responsible for enforcing regulations and ensuring environmental compliance.

OBJECTIVE LE1: Assure that environmental staff are aware of mission related activities that could affect natural resources and ensure that staff are enforcing natural resources laws and regulations.

PROJECT LE1.1: Environmental staff will educate other personnel on natural resource laws and regulations.

PROJECT LE1.2: Inspect natural resources areas on a regular basis during mission activities to ensure compliance with environmental regulations.

GOAL – Geographical Information Systems (GIS): Gulfport CRTC will employ the use of GIS in their planning processes to accurately and completely analyze the potential effects of all projects and activities to watersheds, wetlands, wildlife, and various other natural resource management applications.

OBJECTIVE GIS1: Maintain a GIS database of available mapping resources by digitizing installation's maps, incorporating existing databases, and mapping onsite resource not currently mapped.

GOAL – Outdoor Recreation (OR): Identify possible locations for outdoor leisure space for base personnel that incorporates natural resource viewing and education.

OBJECTIVE OR1: Determine the feasibility for development of outdoor educational/relaxation space for base personnel that may include seating, interpretive signage, and/or habitat viewing opportunities near natural resource areas.

9.0 ANNUAL WORK PLANS

The INRMP Annual Work Plans contain projects listed by fiscal year (FY). For each project, a specific fiscal year for implementation is provided (as applicable), as well as the office of primary responsibility (OPR), funding source, and priority for implementation (**Tables 9-13**). 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 ANG 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 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 on Invasive Species. However, the INRMP signatories will not contend the INRMP is not being implemented if the project is 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 support long-term compliance with specific requirements within natural resources law; but is not directly tied to specific compliance within the proposed year of execution.

Table 9. Work Plans FY 2020			
Project	**OPR**	**Funding Source**	**Priority Level**
Prepare budget to implement the natural resources management program			High
Complete annual review of INRMP with USFWS and MDWFP			High
Attend quarterly BASH meetings			High
Review quarterly Depredation Permit reports completed by the USDA Wildlife Specialist			High
Continue to support IPM Plan/monitor invasive species			High
Conduct year-round observation and surveillance of wildlife and plant populations during mission activities to identify any potential disruptions to natural resources integrity or mission activities			Medium
Investigate potential need to conduct T&E species surveys			Medium
Conduct surveys to identify population numbers of migratory birds during fall and spring migration			Medium
Conduct an initial power line and poll survey to identify ones that could be bird electrocution hazards			Medium
Monitor species or communities that are indicators of ecosystem integrity			Medium
Maintain an up-to-date list of threatened and endangered species which occur or have the potential to occur			High
Within construction zones, implement erosion and sediment control techniques to minimize soil runoff from exposed soil areas			High
Manage and control non-native invasive plant species			Medium
Maintain a GIS database of available mapping resources by digitizing installation's maps, incorporating existing databases, and mapping onsite resource not currently mapped			Medium

Table 10. Work Plans FY 2021			
Project	**OPR**	**Funding Source**	**Priority Level**
Prepare budget to implement the natural resources management program			High
Complete annual review of INRMP with USFWS and MDWFP			High
Conduct wildlife and plant surveys every 5 years or as needed to include listed species and their associated habitat to determine the presence of species on the installation.		NGB	Medium
Implement mitigation measures for bird electrocution hazards		NGB	Medium
Attend quarterly BASH meetings			High
Reverify wetland JD with USACE.			High
Review quarterly Depredation Permit reports completed by the USDA Wildlife Specialist			High
Continue to support IPM Plan/monitor invasive species			High
Monitor species or communities that are indicators of ecosystem integrity			Medium
Maintain an up-to-date list of threatened and endangered species which occur or have the potential to occur			High
Within construction zones, implement erosion and sediment control techniques to minimize soil runoff from exposed soil areas			High
Manage and control non-native invasive plant species			Medium
Maintain a GIS database of available mapping resources by digitizing installation's maps, incorporating existing databases, and mapping onsite resource not currently mapped			Medium

Table 11. Work Plans FY 2022			
Project	**OPR**	**Funding Source**	**Priority Level**
Prepare budget to implement the natural resources management program			High
Complete annual review of INRMP with USFWS and MDWFP			High
Conduct wildlife and plant surveys every 5 years or as needed to include listed species and their associated habitat to determine the presence of species on the installation.			High
Attend quarterly BASH meetings			High
Review quarterly Depredation Permit reports completed by the USDA Wildlife Specialist			High
Continue to support IPM Plan/monitor invasive species			High
Monitor species or communities that are indicators of ecosystem integrity			Medium
Maintain an up-to-date list of threatened and endangered species which occur or have the potential to occur			High
Within construction zones, implement erosion and sediment control techniques to minimize soil runoff from exposed soil areas			High
Manage and control non-native invasive plant species			Medium
Maintain a GIS database of available mapping resources by digitizing installation's maps, incorporating existing databases, and mapping onsite resource not currently mapped			Medium

Table 12. Work Plans FY 2023			
Project	**OPR**	**Funding Source**	**Priority Level**
Prepare budget to implement the natural resources management program			High
Complete annual review of INRMP with USFWS and MDWFP			High
Attend quarterly BASH meetings			High
Review quarterly Depredation Permit reports completed by the USDA Wildlife Specialist			High
Continue to support IPM Plan/monitor invasive species			High
Conduct year-round observation and surveillance of wildlife and plant populations during mission activities to identify any potential disruptions to natural resources integrity or mission activities			Medium
Monitor species or communities that are indicators of ecosystem integrity			Medium
Maintain an up-to-date list of threatened and endangered species which occur or have the potential to occur			High
Within construction zones, implement erosion and sediment control techniques to minimize soil runoff from exposed soil areas			High
Manage and control non-native invasive plant species			Medium
Maintain a GIS database of available mapping resources by digitizing installation’s maps, incorporating existing databases, and mapping onsite resource not currently mapped			Medium

Table 13. Work Plans FY 2024			
Project	**OPR**	**Funding Source**	**Priority Level**
Prepare budget to implement the natural resources management program			High
Complete review for operation and effect at least every 5 years with INRMP Task Force. Initiate update or revision as appropriate.			High
Attend quarterly BASH meetings			High
Review quarterly Depredation Permit reports completed by the USDA Wildlife Specialist			High
Continue to support IPM Plan/monitor invasive species			High
Conduct year-round observation and surveillance of wildlife and plant populations during mission activities to identify any potential disruptions to natural resources integrity or mission activities			Medium
Monitor species or communities that are indicators of ecosystem integrity			Medium
Maintain an up-to-date list of threatened and endangered species which occur or have the potential to occur			High
Within construction zones, implement erosion and sediment control techniques to minimize soil runoff from exposed soil areas			High
Manage and control non-native invasive plant species			Medium
Maintain a GIS database of available mapping resources by digitizing installation’s maps, incorporating existing databases, and mapping onsite resource not currently mapped			Medium

10.0 INRMP IMPLEMENTATION, UPDATE, AND REVISION PROCESS

10.1 INRMP Implementation

In accordance with AFI 32-7064, an INRMP is considered implemented if an installation:

- Actively requests, receives, and uses funds for "must fund" projects as defined by Chapter 4 of AFI 32-7001 (Environmental Quality Programming and Budgeting).
- Executes all "must fund" projects in accordance with specific time frames identified in the INRMP.
- Prepares the INRMP in cooperation with appropriate stakeholders. Notifies stakeholders when a new or revised INRMP will be prepared, and solicits participation and input to the INRMP development and review process.
- Ensures that sufficient numbers of professionally trained natural resources management personnel are available to perform the tasks required by the INRMP.
- Ensures INRMP has been approved in writing by the appropriate representative from each cooperating agency within the past 5 years.
- Reviews the INRMP annually and coordinates annually with cooperating agencies.
- Establish and maintain regular communications with the appropriate federal and state agencies for the region where the installation is located.
- Documents specific INRMP action accomplishments undertaken each year.
- Ensures INRMP updates and reviews are conducted in cooperation with the USFWS, MDWFP, and NOAA, where applicable.
- Ensures the INRMP implements ecosystem management on ANG installations by setting goals for attaining a desired land condition.

Natural resource and land use management issues are not the only factors contributing to the development and implementation of the INRMP. Facility management and other seemingly unrelated issues affect implementation. It is important to the implementation of this INRMP that Gulfport CRTC personnel take ownership of the INRMP to provide the necessary resources (e.g. personnel and equipment), and to utilize the appropriate funding allocated by the ANG NGB/A4AM to enact the INRMP. It is extremely important that the ESOH Management Team continue to participate in the implementation of this INRMP. The ESOH Management Team is made up of the Gulfport CRTC environmental working groups, and has an oversight role to ensure the effective implementation of this INRMP. Top and middle-level management representation, as well as representation from several individuals with day-to-day on-site experience will provide the ESOH Management Team with the leadership and structure necessary for the successful implementation of this INRMP.

10.1.1 Monitoring INRMP Implementation

10.1.1.1 Gulfport CRTC INRMP Implementation Analysis

The Gulfport CRTC INRMP implementation will be monitored for meeting the legal requirements of the Sikes Act as well as for other mission and biological measures of effectiveness. The ultimate successful implementation of this INRMP is realized in no net loss in the capability of the Gulfport CRTC training lands to support the military mission while at the same time providing effective natural resources management.

In order to monitor and evaluate the effectiveness of the INRMP implementation, the following will be reviewed as applicable and discussed within the context of the annual review and/or a formal review of operation and effect:

- Impacts to/from the military mission.
- Conservation program budget.
- Staff requirements.
- Program and project implementation.
- Trends in species and habitat diversity as evidenced by recurring biological surveys, land use changes, and opinions of natural resource experts.
- Compliance with regulatory requirements.
- Feedback from military trainers, the USFWS, the MDWFP, and others.

Some of these areas may not be looked at every year due to lack of data or pertinent information. The effectiveness of this INRMP as a mission enabling conservation tool will be decided by mutual agreement of the USFWS, the MDWFP, and Gulfport CRTC during annual reviews and/or reviews for operation and effect.

10.1.1.2 USAF and DoD INRMP Implementation Monitoring

The USAF uses the Defense Environmental Programs Annual Report to Congress (DEPARC) to monitor Sikes Act compliance. DEPARC is the automated system used to collect installation environmental information for reporting to DoD and Congress. Established to fulfill an annual requirement to report the status of DoD's Environmental Quality program to Congress, DEPARC collects information on enforcement actions, inspections and other performance measures for high-level reports and quarterly reviews. DEPARC also helps the USAF track fulfillment of DoD Measures of Merit requirements. The Deputy under Secretary of Defense's (DUSD) Updated Guidance for Implementation of the Sikes Act also includes an updated Conservation Metrics for Preparing and Implementing INRMPs section. Progress toward meeting these measures of merit is reported in the annual report to Congress.

10.1.2 Priorities and Scheduling

The Office of Management and Budget considers funding for the preparation and implementation of this INRMP, as required by the Sikes Act, to be a high priority. However, the reality is that not all of the projects and programs identified in this INRMP will receive immediate funding. Therefore, projects need to be funded consistent with timely execution to meet future deadlines. Projects are generally prioritized with respect to compliance. Highest priority projects are projects related to recurring or current compliance, and these are generally scheduled earliest. The prioritization of the projects is based on need, legal drivers, and ability to further implement the INRMP.

Current compliance includes projects needed because an installation is currently or will be out of compliance if projects are not implemented in the current program year. Examples include:

- Environmental analyses, monitoring, and studies required to assess and mitigate potential effects of the military mission on conservation resources.
- Planning documents.

- Baseline inventories and surveys of natural and cultural resources (historical and archaeological sites).
- Biological Assessments (BAs), surveys, or habitat protection for a specific listed species.
- Mitigation to meet existing regulatory permit conditions or written agreements.
- Wetland delineations in support of subsequent jurisdictional determinations.
- Efforts to achieve compliance with requirements that have deadlines that have already passed.
- Initial documenting and cataloging of archaeological materials.

Maintenance requirements include those projects needed that are not currently out of compliance but shall be out of compliance if projects are not implemented in time to meet an established deadline beyond the current program year. Examples include:

- Compliance with future requirements that have deadlines.
- Conservation and GIS mapping to be in compliance.
- Efforts undertaken in accordance with non-deadline specific compliance requirements of leadership initiatives.
- Wetlands enhancement in order to achieve the EO for no net loss or to achieve enhancement of existing degraded wetlands.
- Public education programs that educate the public on the importance of protecting natural resources.

Lower priority projects include those that enhance conservation resources of the installation mission, or are needed to address overall environmental goals and objectives, but are not specifically required under regulation or EO, and are not of an immediate nature. These projects are generally funded after those of higher priority are funded. Examples include:

- Community outreach activities, such as Earth Day and Historic Preservation Week activities.
- Educational and public awareness projects, such as interpretive displays, oral histories, nature trails, wildlife checklists, and conservation teaching materials.
- BAs, biological surveys, or habitat protection for a non-listed species.
- Restoration or enhancement of cultural or natural resources when no specific compliance requirement dictates a course or timing of action.
- Management and execution of volunteer and partnership programs.

10.1.3 Funding

Implementation of this INRMP is subject to the availability of annual funding. Funding sources for specific projects can be grouped into 3 main categories by source: federal ANG or NGB funds, other federal funds, and non-federal funds. When projects identified in the plan are not implemented due to lack of funding, or other compelling circumstances, the installation will review the goals and objectives of this INRMP to determine whether adjustments are necessary. Funding options include:

- The Legacy Resource Management Program provides financial assistance to DoD efforts to conserve natural and cultural resources on federal lands. Legacy projects could include regional ecosystem management initiatives, habitat preservation efforts, archeological investigations, invasive species control, and/or flora or fauna surveys. Project proposals

are submitted to the Legacy program during their annual funding cycle (https://www.dodlegacy.org/Legacy/index.aspx).

- There are also grant and assistance programs administered by other federal agencies that could be accessed for natural resources management at Gulfport CRTC. Examples include funds associated with the CWA and endangered species.
- Other non-federal funding sources that could be considered include The Public Lands Day Program, which coordinates volunteers to improve the public lands they use for recreation, education, and enjoyment, and the National Environmental Education and Training Foundation, which manages, coordinates, and generates financial support for the program (https://www.neefusa.org/npld).
- Gulfport CRTC may also consider entering into cooperative or mutual aid agreements with states, local governments, non-governmental organizations, and other individuals.

10.1.4 Cooperative Agreements

The DoD and subcommand entities have MOU, Memorandums of Agreement (MOA), and other cooperative agreements with other federal agencies, conservation and special interest groups, and various state agencies in order to provide assistance with natural resources management at installations across the US. Generally, these agreements allow installations and agencies, or conservation and special interest groups to obtain mutual conservation objectives. The DoD agreements applicable to Gulfport CRTC include:

- MOU between DoD and USFWS/International Fund for Animal Welfare (IFAW) to promote the conservation of migratory birds (2011).
- MOU between DoD and USFWS/IFAW for a Cooperative Integrated Natural Resource Program associated with the ecosystem-based management of fish, wildlife, and plant resources on military lands (2006).
- MOU between the DoD and US EPA to form a working partnership to promote environmental stewardship by adopting IPM strategies to reduce the potential risks to human health and the environment associated with pesticides (2012).
- MOA for federal Neotropical Migratory Bird Conservation Program and addendum (Partners in Flight-Aves De Las Americas) among DoD, through each of the Military Services, and over 110 other federal and state agencies and non-governmental organizations (1991).
- MOU between the DoD and Ducks Unlimited, Inc. to provide a foundation for cooperative development of selected wetlands and associated uplands in order to maintain and increase waterfowl populations and to fulfill the objectives of the North American Waterfowl Management Plan, within the context of DoD's environmental security and military missions (2006).
- MOU between DoD and NRCS to promote cooperative conservation, where appropriate (2006).
- MOU with Watchable Wildlife Incorporated (2002).
- MOU between the DoD and BCI to identify, document, and maintain bat populations and habitats on DoD installations (2011).
- MOA between FAA, USAF, US Army, US EPA, USFWS, and USDA to address aircraft-wildlife strikes (2003).
- Cooperative Agreement between DoD and The Nature Conservancy to work cooperatively in areas of mutual interest (2010).

- Interagency Agreement (2010) and MOU (2009) between USAF and US Forest Service (USFS) to enhance cooperation and improve public service, and management of natural and cultural resources on lands managed by the USAF and the USFS.

For a further list of cooperative agreements and MOUs please visit:
https://www.denix.osd.mil/announcements/unassigned/sikes-tripartite-mou/
https://www.denix.osd.mil/arc/derpfy2002/unassigned/appendix-d-interagency-agreements-dsmoas-atsdr-and-cooperative-agreements-derp-fy02/

10.1.5 Consultations Requirements

The Gulfport CRTC has multiple natural resources consultation requirements in addition to the INRMP development and review requirements as identified in the Sikes Act. Federally-listed species management requires ESA Section 7 consultation with the USFWS. State-listed species management, as well as game species management, requires consultation with MDWFP. Actions that fall under the jurisdiction of Section 401 of the CWA necessitate permitting from MDWFP, while Section 404 actions necessitate permitting from the USACE.

10.2 Annual INRMP Review and Coordination Requirements

Per DoD policy, Gulfport CRTC will review the INRMP annually in cooperation with the USFWS and MDWFP. On an annual basis, the EM will invite the USFWS Regional Office, the USFWS local Field Office, the MDWFP, and ANG NGB/A4AM to attend a meeting or participate in a conference call to review previous year INRMP implementation and discuss implementation of upcoming programs and projects. Invitations will be either by letter or email. Attendance is at the option of those invited, but at minimum the USFWS local field office and a representative of MDWFP are expected to attend. The meeting will be documented with an agenda, meeting minutes, and sign-in roster of attendees.

At this annual meeting the need for updates or revisions will be discussed. If updates are needed, Gulfport CRTC will initiate the updates and, after agreement of all 3 parties, they will be added to the INRMP. If it is determined that major changes are needed, all 3 parties will provide input and an INRMP revision will be initiated with Gulfport CRTC 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, Gulfport CRTC will specifically:

- Invite feedback from USFWS and MDWFP on the effectiveness of the INRMP.
- Inform USFWS and MDWFP which INRMP projects are required to meet current natural resources compliance needs.

- Document specific INRMP action accomplishments from the previous year.

10.3 INRMP Update, and Revision Process

10.3.1 Review for Operation and Effect

Not less than every 5 years, the INRMP will be reviewed for operation and effect to determine if the INRMP is being implemented as required by the Sikes Act and contributing to the management of natural resources at Gulfport CRTC. The review will be conducted by the 3 cooperating parties to include the Commander responsible for the INRMP, the Supervisor of the USFWS Local Field Office, and Executive Director of the MDWFP. While these are the responsible parties, technical representatives generally are the personnel who actually conduct the review.

The review for operation and effect will either conclude that the INRMP is meeting the intent of the Sikes Act and only needs an update and implementation can continue; or that it is not effective in meeting the intent of the Sikes Act and it must be revised. The conclusion of the review will be documented in a jointly executed memorandum, meeting minutes, or in some way that reflects mutual agreement.

If only updates are needed, they will be completed in a manner agreed to by all parties. The updated INRMP will be reviewed by the local USFWS Local Field Office and MDWFP. Once concurrence letters or signatures are received from the Supervisor of the USFWS Local Field Office and the MDWFP Executive Director, the update of the INRMP will be complete and implementation will continue. Generally, the environmental impact analysis will continue to be applicable to updated INRMPs, and a new analysis will not be required.

If a review of operation and effect concludes that an INRMP must be revised, there is no set time to complete the revision. The existing INRMP remains in effect until the revision is complete and USFWS and MDWFP concurrence on the revised INRMP is received. Gulfport CRTC will endeavor to complete such revisions within 18 months, depending upon funding availability. Revisions to the INRMP will go through a detailed review process similar to development of the initial INRMP to ensure Gulfport CRTC’s military mission, USFWS, and MDWFP concerns are adequately addressed, and the INRMP meets the intent of the Sikes Act.

11.0 APPENDICES

APPENDIX A. REFERENCES

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APPENDIX B. LAW, REGULATIONS, POLICIES, AND EXECUTIVE ORDERS

Federal Laws

American Indian Religious Freedom Act of 1978 (Public Law 95-341; 42 USC §1196) – requires the US, 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 US EPA 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 US jurisdiction from taking, including any harm or harassment, endangered species.

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 INRMP through cooperation with the Department of the Interior (through the USFWS), DoD, 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 – CEQ Regulations on Implementing NEPA Procedures
40 CFR 6 – US EPA Regulations on Implementation of NEPA Procedures
40 CFR 162 – US EPA Regulations on Insecticide, Fungicide, and Rodenticide Use
40 CFR 171 – Certification of Pesticide Applicators
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
7 CFR 360 – Noxious Weed Regulations

Federal Executive Orders (EOs)

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) – The respective agency shall determines that the use of off-road vehicles will cause or is causing considerable adverse effects on the soil, vegetation, wildlife, wildlife habitat or cultural or historic resources of particular areas or

trails of the public lands, immediately close such areas or trails to the type of off-road vehicle causing such effects, until such time as he determines that such adverse effects have been eliminated and that measures have been implemented to prevent future recurrence.

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 MOU with the USFWS by January 2003 that shall promote the conservation of migratory bird populations.

DoDI, AFI, & Air Force Pamphlets (PAM)

DoDI 4715.03 – Natural Resources Conservation Program
DoDI 4165.57 – Air Installations Compatible Use Zones
DoDI 4150.07 – Pest Management Program
DoDI 6055.06 – Fire and Emergency Services Program
AFI 32-7064 – Integrated Natural Resources Management
AFI 32-1053 – Integrated Pest Management Program
AFI 32-7062 – Air Force Comprehensive Planning
AFI 32-7065 – Cultural Resources Management
AFPAM 91-212 – BASH Techniques

Department of Defense Memoranda

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

Memorandum, Assistant DUSD (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 DUSD (Environment, Safety and Occupational Health), 14 Aug 06, Subject: *Integrated Natural Resource Management Plan (INRMP) Template*

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

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

Memorandum, DUSD (Installations and Environment), 10 Oct 02, Subject: *Implementation of Sikes Act Improvement Act: Updated Guidance*

Memorandum, Assistant DUSD (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.*

State Laws

Coastal Wetlands Protection Act, Mississippi Code Ann. Title 49 Chapter 27
Mississippi Pesticide Law of 1975 (69-23-1 thru 69-23-29 of MS Code of 1972 as amended),
Mississippi Pesticide Application Law of 1975 (69-23-101 thru 69-23-135 of MS Code of 1972 as amended) 2 Miss. Admin. Code Subpart 3, Chapter 9, Rule 200.
Possession of prohibited aquatic species – 40 MS Admin Code, Part 3, Rule 1.1.
Releasing aquatic species or animals not indigenous to Mississippi - MS Code of 1972 as amended Title 49, Chapter 7, Section 80
State Noxious Weed List - 2 Miss. Admin. Code Part 1, Subpart 3, Chapter 9, Rule 136