FINAL

Integrated Natural Resources Management Plan Update 2021-2025

Prepared for:

U.S. Army Garrison Miami, Doral, Florida and Special Operations Command South Headquarters, Homestead, Florida

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Acronyms and Abbreviations

USAEC	U.S. Army Environmental Command
AFB	Air Force Base
AR	Army Regulation
Army	U.S. Army
ARS	Air Reserve Station
AT/FP	Antiterrorism/Force Protection
BO	Biological Opinion
dBA	A-weighted decibel scale
DoD	Department of Defense
CA	Conservation Area
EO	Executive Order
ESA	Endangered Species Act
FAC	Florida Administrative Code
FCMP	Florida Coastal Management Program
FDEP	Florida Department of Environmental Protection
FWC	Florida Fish and Wildlife Conservation Commission
FY	Fiscal year
GIS	Geographic Information System
GPS	global positioning system
HARB	Homestead Air Reserve Base
HQ	Headquarters
IMCOM	Installation Management Command
INRMP	Integrated Natural Resources Management Plan
IPP	invasive pest plants
m	meter
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
NRHP	National Register of Historic Places
SAC	Strategic Air Command
SF-IAQCR	Southeast Florida Intrastate Air Quality Control Region
SOCSOUTH	Special Operations Command SOUTH
SOUTHCOM	U.S. Southern Command
USACE	U.S. Army Corps of Engineers
USAF	United States Air Force
U.S.C.	United States Code
USFWS	U.S. Fish and Wildlife Service

Anti-Deficiency Act Statement

All requirements set forth in this INRMP requiring the expenditure of funds are expressly subject to the availability of appropriations and the requirements of the Anti-Deficiency Act (31 U.S.C. Section 1341). No obligation undertaken by USAG Miami under the terms of this INRMP will require or be interpreted to require a commitment to expend funds not obligated for a particular purpose.

Signature Page

INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN

U.S. Special Operations Command South Headquarters, Homestead, Florida

APPROVAL

This Integrated Natural Resources Management Plan meets requirements of the Sikes Act (16 U.S.C. 670a *et seq.*) as amended.

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Date 21 Jan 2021

Eric Sutton
Executive Director

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Fish and Wildlife Biological Scientist IV
Florida Fish and Wildlife Conservation Commission
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Date 05 Mar 2021

SECTION 1: Overview

1.1 Purpose

This Integrated Natural Resources Management Plan (INRMP) provides guidance for the implementation of the natural resources program at the U.S. Army (Army) Special Operations Command South (SOCSOUTH) Headquarters (HQ), Homestead, Florida for the period encompassing fiscal year (FY) 2021 through FY 2025. It serves as an update to the 2012-2017 INRMP, which is incorporated by reference. This INRMP integrates natural resources management at SOCSOUTH HQ, a subcommand of U.S. Army Garrison – Miami (USAG-Miami), in a manner that is consistent with maintaining support for SOCSOUTH's critical military mission. This INRMP was prepared in accordance with the Sikes Act, Sikes Act Improvement Act, and other relevant amendments to the Sikes Act (16 United States Code [U.S.C.] 670 et seq.) (Sikes Act). It was also prepared in accordance with AR 200-1 (Environmental Protection and Enhancement) and DoD Instruction 4715.3, in consultation with the U.S. Fish and Wildlife Service (USFWS) and coordination with the Florida Fish and Wildlife Conservation Commission.

1.2 Scope

The INRMP acts as a guiding document for the management of natural resources principally at SOCSOUTH HQ, Homestead, Florida (Figures 1-1 and 1-2). This INRMP will provide natural resources management for the 84.2-acre property which was formerly part of Homestead Air Force Base (HARB). It also provides preliminary guidance for a recreational fishing program, should there be funding and an opportunity, at USAG-Miami, located in Doral, Florida, in Miami-Dade County, approximately 3 miles west of Miami International Airport (Figure 1-0). Therefore, the two stormwater retention ponds at USAG-Miami in Doral are also included within the scope of this INRMP Update. The INRMP provides information for the internal and external organizations as well as state and federal agencies with interest in the management of SOCSOUTH HQ natural resources.

The SOCSOUTH HQ encompasses 84.2 acres in Miami-Dade County, adjacent to HARB, and approximately four miles northeast of Homestead, Florida. It is also approximately 25 miles southwest of the city of Miami, roughly 2 miles west of Biscayne National Park (BNP), and 8 miles east of Everglades National Park (USAF 2015). The SOCSOUTH HQ was obtained through a lease agreement with Miami-Dade County. The 2012 INRMP only addressed activities for SOCSOUTH HQ in Homestead, including the creation of two Conservation Areas (CAs) encompassing a total of 14.7 acres[1] for the endangered Small's milkpea (*Galactia smallii*) and sand flax (*Linum arencola*) as well as avoidance of 3.16 acres of unfenced, occupied habitat. This INRMP update includes management of CA 1 and CA 2, actions on 3.16 acres of occupied endangered species habitat, and updates on management activities to address changes since the original SOCSOUTH INRMP was developed in 2012.

[1] The 2012-2017 INRMP identified CA 1 as 8.5 and CA 2 as 6.2, totaling 17.86 acres. This was an administrative error. The actual acreage is 12.6 acres for CA 1 and 2.1 acres for CA 2, totaling 14.7 acres. The unfenced occupied habitat remains 3.16, consistent with the 2012 INRMP.

1.3 Goals

The goals of this INRMP are to:

GOAL 1 – Support the military mission through sound natural resources management and stewardship.

GOAL 2 – Protect and manage native ecosystems and endangered species populations that occur within two conservation areas (CA 1 of 12.6 acres and CA 2 of 2.1 acres) within the 84.2-acre leased site..

GOAL 3 – Maintain or restore Small's milkpea and sand flax populations and associated habitat scattered over a total of 3.16 acres in conservation mowing areas outside of CAs 1 and 2, as mission allows.

GOAL 4 – Conserve protected wildlife on the 84.2-acre property in a manner that supports the Army mission.

GOAL 5 – Plan for recreational fishing opportunities for garrison personnel and members of the public at the USAG-Miami in Doral, FL, as priorities and funding allows.

GOAL 6 – Promote environmental education and awareness for military and civilian personnel at the installation's Doral and Homestead locations.

Specific objectives and projects to achieve these goals are identified in Sections 3 - 5. The approach for achieving these goals includes:

- Support the military mission by reducing delays through timely compliance with natural resource statutes and regulations, and by reducing encumbrances of land use.
- Maintain and improve the sustainability and native biodiversity of ecosystems.
- Administer conservation management with consideration of ecological units and timeframes.
- Ensure full integration with other resource management plans to ensure mission success and work toward ecosystem health:
  - Coordinate with the key stakeholders early in the planning process.
  - Develop a detailed ecosystem management implementation strategy for installation lands and other programs.
  - Incorporate ecosystem management goals into strategic, financial, and program planning and design budgets to meet the goals and objectives of the ecosystem management implementation strategy.
  - Implement ecosystem management through installation plans and programs.
  - Seek to prevent undesirable duplication of effort, minimize inconsistencies, and create efficiencies in programs affecting ecosystems.
  - Rely on the best science and data available.
  - Use benchmarks to monitor and evaluate outcomes.
  - Use adaptive management.

1.4 Responsible and Interested Parties

1.4.1 U.S. Army Special Operations Command South

SOCSOUTH is the responsible party for implementation of this INRMP. The Commander of SOCSOUTH implements policies and directives.

1.4.2 Garrison Manager, U.S. Army Garrison - Miami

The Garrison Manager, acting through the Directorate of Public Works, is responsible for implementation of the INRMP, including maintaining an organization with the resources available to accomplish its purposes. Preparation of the INRMP has included coordination with multiple agencies and stakeholders.

1.4.3 Public Affairs Office

The Public Affairs Office promotes the SOCSOUTH operations to the general public.

1.4.4 Staff Judge Advocate

The Staff Judge Advocate provides legal advice and counsel and services to SOCSOUTH.

1.4.5 Headquarters U.S. Army Installation Management Command

Installation Management Command (IMCOM) Headquarters, located at Fort Sam Houston in San Antonio, Texas, provides command and technical supervision to the U.S. Army Garrison Miami, Homestead, Florida environmental program. This supervision includes:

- Managing funding and policy;
- Ensuring consistency with policy;
- Ensuring enterprise consistency.

1.4.6 U.S. Army Environmental Command

The U.S. Army Environmental Command (USAEC), located at Fort Sam Houston in San Antonio, Texas, provides technical support, oversight, centralized management, and execution of the Army's cleanup program. It also has technical support capabilities in the areas of National Environmental Policy Act (NEPA), endangered species, wildlife management, forestry, cultural resources, environmental compliance, cleanup, and related areas.

1.5 Review and Revision Process

Per DoDI 4715.03, SOCSOUTH will review the INRMP annually in cooperation with the U.S. Fish and Wildlife Service, the Florida Fish and Wildlife Conservation Commission, and installation stakeholders. Annual reviews are utilized to ensure the INRMP meets its targeted goals and objectives.

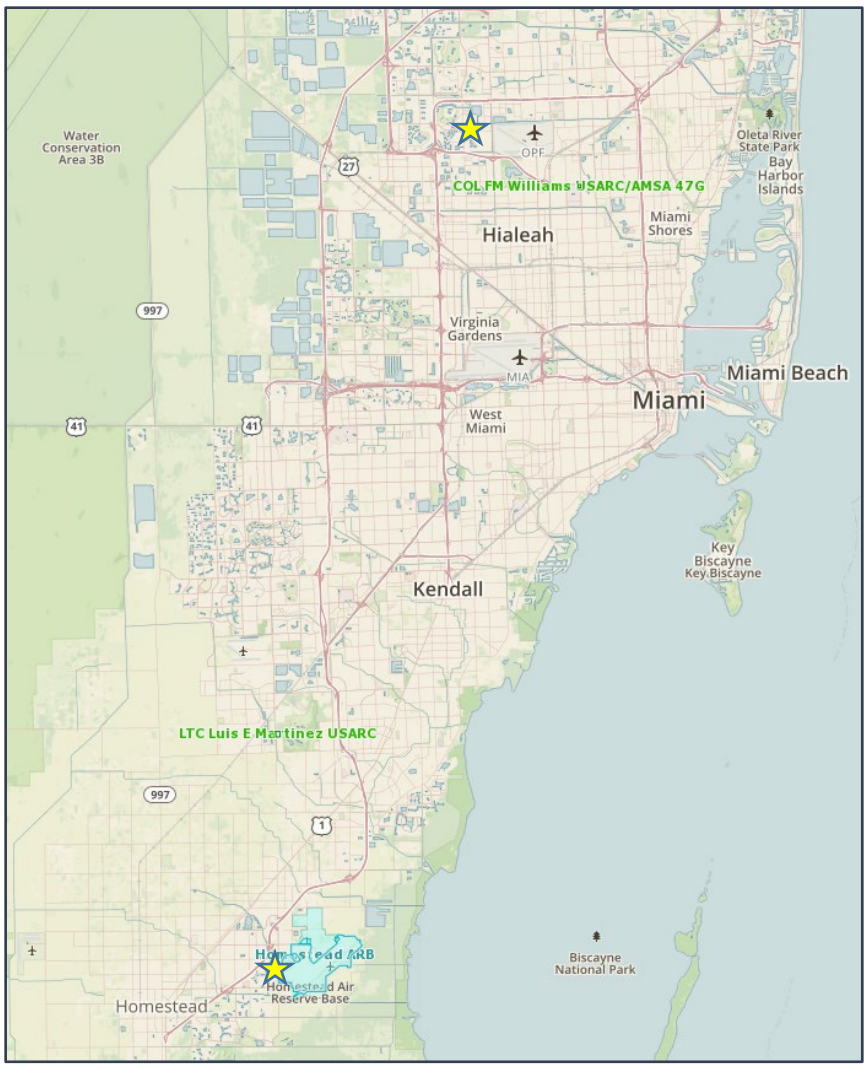

Figure 1-0. Location of USAG Miami, Doral relative to SOCSOUTH in Homestead, FL

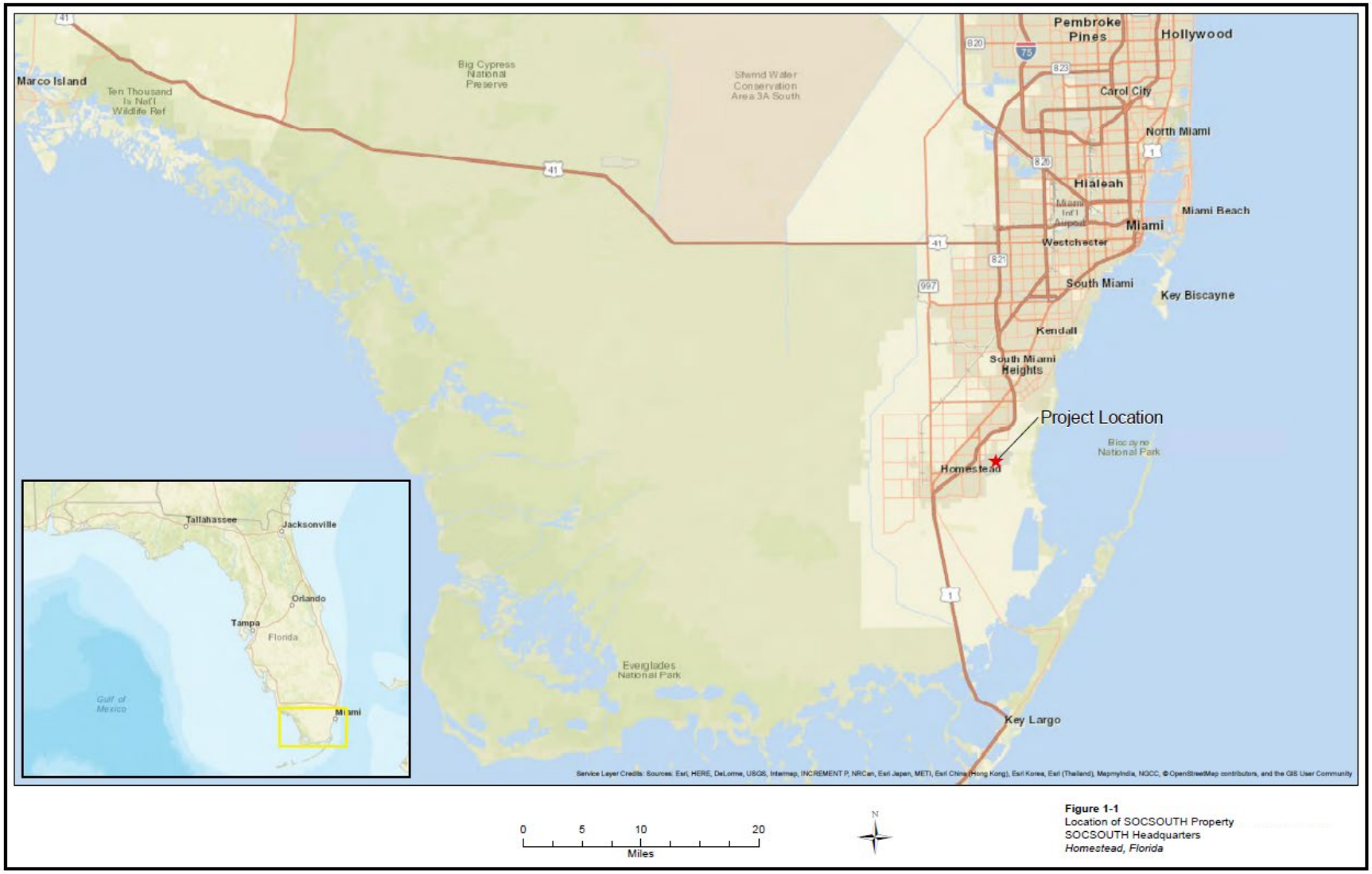

Figure 1-1. Location of SOCSOUTH Headquarters

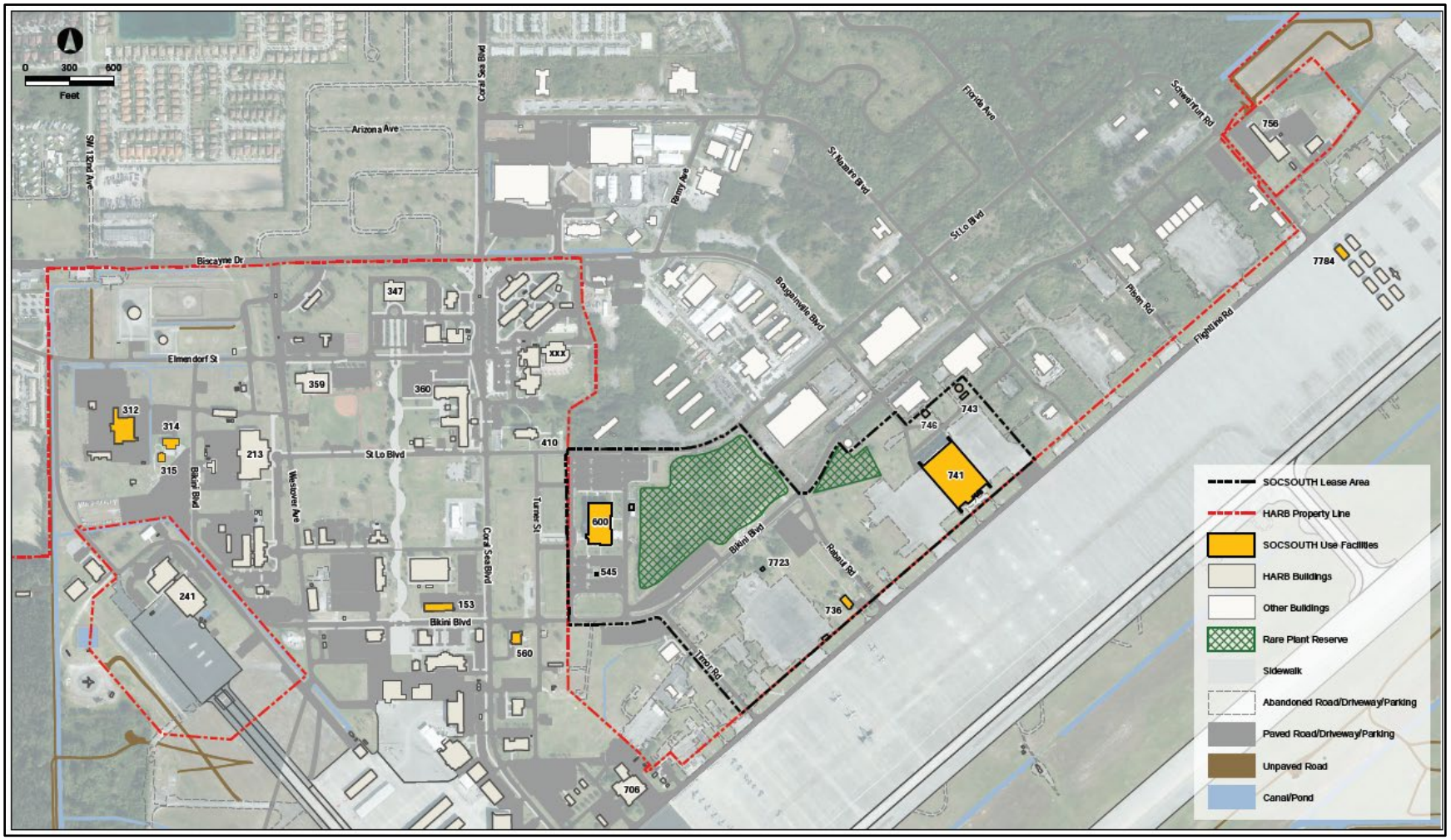

Figure 1-2. SOCSOUTH Map of Current Facilities and Conservation Areas

1.4.7 Homestead Air Reserve Base

In 1994, a portion of former Homestead AFB, which encompassed 2,938 acres, was transitioned from an active duty base to an Air Reserve Station (ARS) composed of 852 acres under the control of the Air Force Reserve Command. In 2003, an additional 1,091 acres, including the runway and associated taxiways, were transferred to the Air Force Reserve Command. This combined retained property, referred to as the cantonment area, comprises 1,953 acres and was officially re-designated as Homestead Air Reserve Base (HARB). HARB shares a boundary with SOCSOUTH and is to its south and east.

1.4.8 Other Federal Agencies

1.4.8.1 U.S. Fish and Wildlife Service

The Ecological Field Services Office of the U.S. Fish and Wildlife Service (USFWS) in Vero Beach, Florida, provides federal endangered and threatened species technical advice and consultation Under Section 7 of the Endangered Species Act (ESA) as amended in 1973, for management of threatened, endangered and candidate species and habitat on SOCSOUTH. Additionally, the USFWS Region 4 Office in Atlanta, GA has regional oversight of the southeastern United States. The USFWS is a signatory partner in implementation of this INRMP in accordance with the Sikes Act. The USFWS is a signatory partner in implementation of this INRMP in accordance with the Sikes Act and Sikes Act Improvement Act.

This INRMP will comply with terms and conditions that implement the reasonable and prudent measures required by the Biological Opinion (BO) in Appendix A. An endangered and threatened species management plan (included in Section 4) provides for the management and protection of the endangered Small's milkpea (*Galactia smallii*), sand flax (*Linum arenicola*), and Florida bonneted bat (*Eumops floridanus*) and their habitats occurring at SOCSOUTH HQ under Section 7 of the ESA.

1.4.8.2 U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) is responsible for implementing the provisions of the Clean Water Act. The USACE regulatory program permit evaluation process results in permit decisions that balance the need for proposed development with protection of the nation's aquatic environment.

Section 401 of the Clean Water Act (33 U.S.C. 1341) requires any applicant for a federal license or permit to conduct any activity that may result in discharge of a pollutant into waters of the United States to obtain a consistency determination from the state in which the discharge originates or would originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over the affected waters at the point where the discharge originates or would originate, that the discharge will comply with the applicable effluent limitations and water quality standards.

The USACE Mobile District, through IMCOM, assists SOCSOUTH by administering contracts for outside or other agency support, contracting environmental personnel to assist SOCSOUTH where support is needed.

1.4.9 State Agencies

1.4.9.1 Florida Fish and Wildlife Conservation Commission

The Florida Fish and Wildlife Conservation Commission (FWCC) is the wildlife agency in Florida. FWC is responsible for the management of approximately five million acres of natural resource land in Florida for the conservation of wildlife and habitat. As the state wildlife agency, it is a signatory partner with the Army and the USFWS in implementation of this INRMP in accordance with the Sikes Act.

1.4.9.2 Florida Department of Environmental Protection and the Florida Clearinghouse

The Florida Department of Environmental Protection (FDEP) is the lead agency for environmental management and stewardship in charge of protecting Florida's air, water, and land. FDEP is divided into three primary areas: Regulatory Programs, Land and Recreation, and Water Policy and Ecosystem Restoration. Florida's environmental priorities include achieving regulatory certainty, consistency and protection, and ensuring that water quality and quantity are protected.

The Florida State Clearinghouse, part of FDEP, administers the intergovernmental coordination and review process of certain state and federal activities within the state of Florida that involve federal financial assistance and/or direct federal activity. The Florida State Clearinghouse coordinates review of proposed federal activities and federally-funded projects by state and regional agencies. In particular, it administers Florida's Coastal Management Program (FCMP) pursuant section 307 of the Coastal Zone Management Act.

Applicants are required by the FCMP to provide the State Clearinghouse with a detailed description of proposed federal activities in accordance with the federal consistency regulations at 15 C.F.R. part 930. The State Clearinghouse distributes this information to each FCMP member agency with a statutory interest in the activity and consolidates the agency comments in a response to the applicant.

SOCSOUTH has evaluated the proposed action and found it to be consistent with coastal zone management in Florida. In 2020, SOCSOUTH submitted a Coastal Zone Act Consistency Determination to the Florida Department of Environmental Protection (FDEP) Coastal Management Program through the Florida State Clearinghouse (Appendix A). No impacts to coastal zone management would result.

1.4.10 Native American Tribes

The United States has a unique legal relationship with Indian tribal governments as set forth in the Constitution of the United States, treaties, statutes, executive orders, and court decisions. Since the formation of the Union, the United States has recognized Indian tribes as domestic dependent nations under its protection. EO 13175 and the American Indian and Alaska Native Policy (DoD 2006) establish regular and meaningful consultation and collaboration with Indian tribal governments.

DODI 47.10 governs consultation with federally recognized Native American Tribes. The closest Native Americans are the Miccosukee and Seminole tribes, which are located to the north of

SOCSOUTH and HARB. The Army, is responsible for coordinating with Native American tribes to identify any issues or concerns the tribes may have with the action.

1.4.11 Municipalities

Nearby communities to Homestead are Florida City to the south, Leisure City to the east; and Naranja and Princeton to the north. It is expected that communities near SOCSOUTH will be unaffected or positively affected by natural resources management on the installation. There are no significant conflicts between natural resources management on SOCSOUTH and the surrounding communities.

1.4.12 Miami-Dade County

SOCSOUTH has a 50-year agreement with Miami-Dade County to lease the HQ property, from June 1, 2011 to May 30, 2061.

1.5 Integrated Natural Resources Management Planning

1.5.1 Management History

There was no vegetation or wildlife management when the property in Homestead was under the control of Miami- Dade County. Following Hurricane Andrew in 1992, the property was vacant until SOCSOUTH acquired it through a lease with Miami-Dade County. During the time the land was vacant, Miami-Dade County implemented irregular mowing. However, nonnative and ruderal plant species overgrew much of the site, including most areas that were not paved or developed. SOCSOUTH acquired the 84.2-acre Homestead property in 2011 through a lease and operated its HQ there, as indicated in the 2012 INRMP.

Active Management on the SOCSOUTH HQ property began in 2013, following construction of the HQ facility. Management has included monitoring and maintenance activities in CAs 1 and 2. Monitoring has documented issues related to invasive pest plants.

Initial monitoring determined that 41 non-native species occurred within the CAs 1 and 2, and that 16 of these species were considered invasive. Maintenance activities focused on control of invasive pest plants. Initial efforts were focused on removal of invasive tree species, including Australian pine (*Casuarina equisetifolia*) and Brazilian pepper (*Schinus terebinthifolius*). Large stands of Brazilian pepper and Australian pine were located on both management sites and were removed via herbicidal and cut stump methods. Follow-up controls, cut stump, and the target-specific hack and squirt method of herbicide application were implemented after the first year to eliminate new growth and exhaust the seedbank. Treatments continued through 2020.

Additional control efforts have been directed at graminoid invasive species including silk reed (*Neyraudia reynaudiana*), napier grass (*Pennisetum purpureum*), Zoysia grass (*Zoysia spp*.), and other grasses. Small's milkpea and sand flax grow intermixed with Zoysia grass mats and highly focused control efforts are required to avoid incidental damage to the protected species. Within Zoysia patches, protected species were clipped by hand just above ground level, allowed to sit one to two days, and then treated with glyphosate herbicide. This technique was very effective and will continue to be used where small patches of Zoysia grass are growing or

expanding. Silk reed and napier grass grew in monoculture stands as well as isolated individuals. These species were cut and the resprouts were treated with glyphosate herbicides. Cutting and herbicide control continued through 2018. Since 2019, trials of new methods include immediate application of glyphosate or triclopyr to cut stems followed by treatment to resprouted plants.

The 2012 INRMP identified prescribed fire as a site management action, however prescribed burns have not been possible due to county requirements, mission requirements and concerns from nearby communities. The county requires the use of a county fire crew, which also includes covering simulation and actual exercise costs. There are access and security barriers for the fire crew; weather variables; and mission requirements as burning cannot be conducted unless there are no flights at HARB, SOCSOUTH, or the U.S. Coast Guard. Therefore, this INRMP update proposes to use vegetation management to simulate the effects of prescribed fire if prescribed fire isn't feasible. Multiple approaches may be employed by the contractor to achieve the effect of a prescribed burn including, but not limited to, mowing, selective physical removal, scraping, and chemical treatment of invasive and native woody vegetation. The contractor also will periodically reevaluate the use of prescribed fire as a management tool, should the logistics of implementation allow its use. Any future prescribed burns will be done in accordance with applicable state and local laws and Army policy (AR 200-1).

Due to delays in updating the 2012 INRMP, IMCOM extended the contract for management to cover FY 2018-2020 by extending the previous management measures. This revised INRMP is for the FY 2021 through FY 2025 planning period.

This INRMP provides conservation benefit to Small's milkpea, sand flax, and the Florida bonneted bat. It also provides conservation management of two relict pine rockland areas that provide habitat for state-listed species typically restricted to this habitat type.

1.5.2 Summary of Proposed Management

Conservation management of Small's milkpea, sand flax, the Florida bonneted bat, and the two relict pine rockland CAs is the focus of this INRMP. Three federally endangered butterfly species (Miami blue butterfly (*Cyclargus (=Hemiargus) thomasi bethunebakeri*), Bartram's scrub-hairstreak butterfly (*Strymon acis bartrami*), Florida leafwing butterfly (*Anaea troglodyta floridalis*) and several species listed by the State of Florida may occur on SOCSOUTH HQ. These species are associated with pine rockland habitat and the management of pine rockland habitat for Small's milkpea and sand flax will be beneficial for these other species. Therefore, management for these rare butterfly species and state-listed species is limited to the habitat management of pine rockland habitat that is described for Small's milkpea and sand flax in Section 4.2.

This INRMP will be reviewed annually by SOCSOUTH, as stipulated in Army Regulation (AR) 200-1. The list of goals and objectives (Sections 3 - 5) can be used to guide the review and adjust programs, per the adaptive management process. It is Army policy to periodically review program performance and management system implementation and ensure continual improvement. This is a management control step, where program performance indicators, or

other audit results, are used to develop corrective action measures or policy changes to steer course correction for program planning and execution.

CAs 1 and 2 (Figure 1-3) encompass 14.7 acres of pine rockland habitat (12.6 acres in CA 1 and 2.1 acres in CA 2,) occupied by Small's milkpea, sand flax, and multiple state-listed species on relatively intact Miami limestone. Permanent fencing has been erected to protect CAs 1 and 2. SOCSOUTH commits to avoiding disturbance on the conservation mowing area, an additional 3.16 acres of habitat containing Small's milkpea and sand flax that occur in eight scattered locations described in the 2012 INRMP, until there is a need to use the 3.16 acres for new development. These areas continue to be managed, but not protected, due to being spaced throughout the property. As described in Section 2.1.3.1, these 3.16 acres constrain the military mission because they are not contiguous, which limits further development of the property.

SOCSOUTH will consult with the USFWS under section 7(a)(2) to determine the effects of our actions prior to implementation of the INRMP.. Appendix B of the INRMP provides a project table for FY 2021 through FY 2025.

1.6 Changes since the 2012 INRMP

The list below summarizes changes from the 2012 INRMP:

- When a prescribed burn is not possible, mowing, selective physical removal, scraping, and chemical treatment of invasive and native woody vegetation will be done to approximate simulation of a prescribed burn (Section 4).
- Changes in mowing timing and height per FWS guidance (Section 4).
- Inclusion of the endangered Florida bonneted bat (*Eumops floridanus*).
- Discussion of potential future development on SOCSOUTH to support changing mission needs.
- Inclusion of two stormwater drainage ponds at USAG-Miami's Doral property in the scope of the INRMP for the purposes of creating a recreational fishing program at USAG-Miami's Doral property should there be an opportunity and funding to support it.

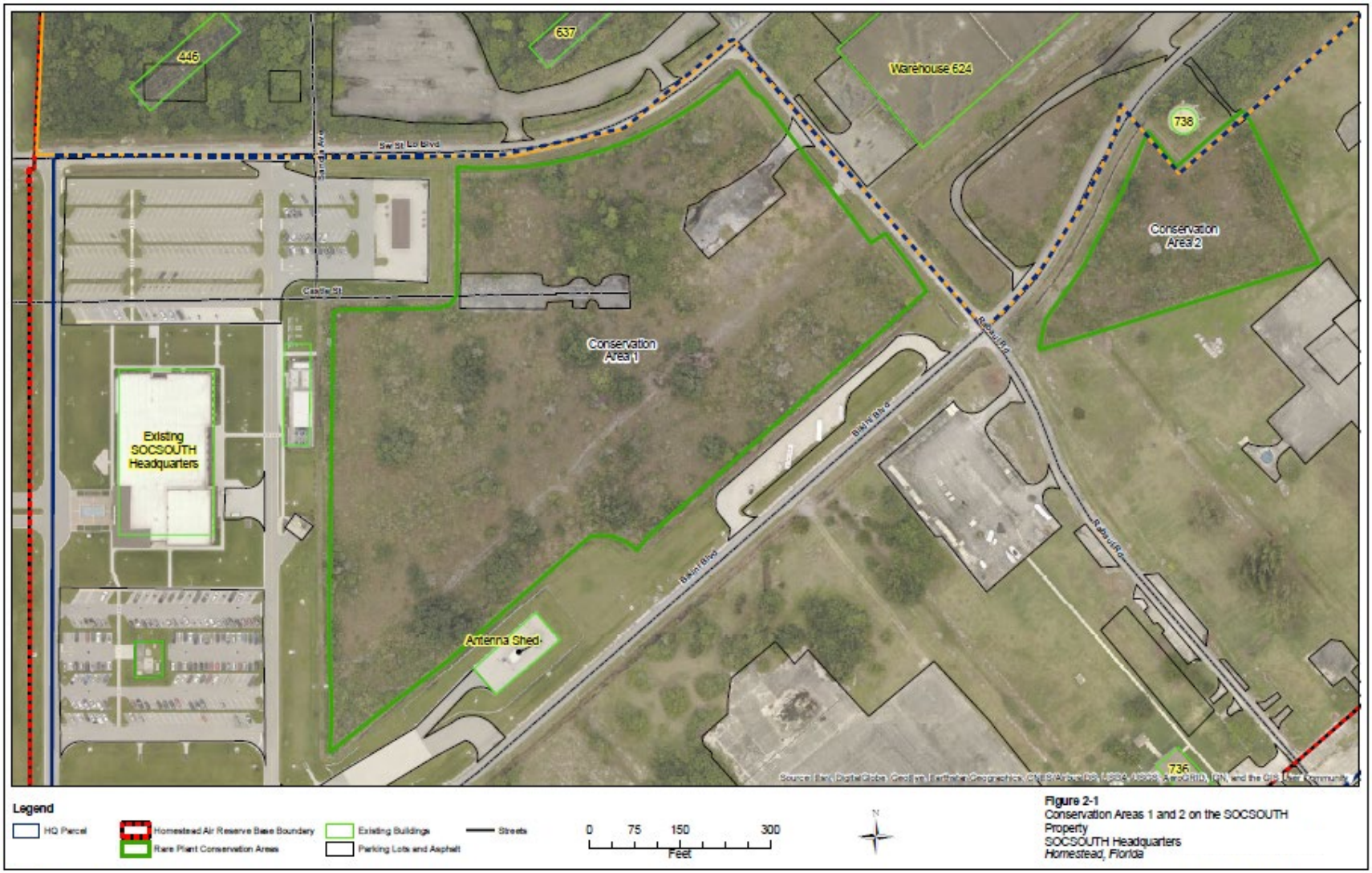

Figure 1-3. Location of Conservation Areas 1 and 2.

SECTION 2: Current Conditions and Use

2.1 Setting and History

2.1.1 Location, Adjacent Properties, and Acreage

The SOCSOUTH HQ encompasses 84.2 acres in Miami-Dade County, approximately four miles northeast of Homestead, Florida (Figure 1-2). HARB borders the site to the east, south, and west. The HARB airfield is adjacent to the site along the eastern border. The area north of the SOCSOUTH HQ is owned by Miami-Dade County and is being developed as an industrial park.

The SOCSOUTH Headquarters Building and associated parking is near the western edge of the SOCSOUTH property. To the east-southeast of the Headquarters Building there is an improved area with an antenna and associated support infrastructure, including an antenna shed; to the east of that is a graveled parking area for vehicles and equipment. Additional buildings and infrastructure include a large hangar (Building 741) and administrative building (Building 736) that are used by SOCSOUTH, and a 500,000-gallon aboveground storage tank and associated pump house (Building 743) that are part of the fire control system for Building 741.

Development of the site is constrained by Antiterrorism/Force Protection (AT/FP) requirements. AT/FP requirements prevent construction of buildings near the perimeter of the property. Additionally, mandatory safety setbacks and noise from airfield operations at HARB place further restrictions on buildings near the airfield boundary. Many of the undeveloped areas are maintained through mowing to prevent growth of woody vegetation.

Prior to development of the SOCSOUTH HQ, much of the area consisted of native pine rockland habitat. This sensitive vegetation community occurs only in southern Miami-Dade County, the Florida Keys, and parts of the Bahamas. Pine rockland habitat is restricted to outcropping of three limestone formations: Miami Limestone, Key Largo Limestone, and Tamiami Limestone (Austin 1997; Taylor 1998). Remnant vegetation of native pine rockland communities occurs within and around the SOCSOUTH HQ site.

Pine rockland species documented from the property include state-threatened species: Bahama brake (*Pteris bahamensis*), locustberry (*Byrsonima lucida*), pineland jacquemontia (*Jacquemontia curtisii*), quail berry (*Crossopetalum ilicifolium*), and West Indian lilac (*Tetrazygia bicolor*)(PBS&J 1996). The white-top sedge (*Rhynchospora floridensis*) and five-petaled leaf-flower (*Phyllanthus pentaphylus var. floridanus*) have also been found in the area (PBS&J 1996). These species and other pine rockland species were observed in 2009 surveys (Bradley 2009a) and are currently extant at the site (see Table 2-4).

2.1.2 Installation and Vicinity History

The original Army property, which was known as Homestead Army Air Field, is located within southeastern Miami-Dade County near the southern tip of the Florida peninsula. Homestead Army Air Field was the predecessor of the former Homestead AFB, and was officially activated in September 1942, when the Caribbean Wing Headquarters took over an airfield

approximately a mile inland from the shore of Biscayne Bay. The site was previously used by the Coconut Grove-based Pan American Air Ferries, Inc. The airline had developed the site a few years earlier and used it primarily for pilot training. Prior to that time, the site was undeveloped. Initially, Homestead Army Air Field served as a staging facility for the Army Transport Command, which was responsible for maintaining and dispatching aircraft to overseas locations (USAF 2000). In September 1945, a severe hurricane caused extensive damage to the airfield. Both the cost of rebuilding the field and the anticipated post-war reductions in military activities led to the Installation being placed on inactive status in October 1945. The Installation property was turned over to the Dade County Port Authority, which retained possession of it for the next eight years. The runways were used by crop dusters and the Installation buildings housed a few small industrial and commercial operations.

The property was used by Dade County until 5 January 1953, when the federal government reacquired the installation and some surrounding property and rebuilt it as a Strategic Air Command (SAC) base. The first operational squadron arrived at the new Homestead AFB in February 1955 and the Base was formally reactivated in November of the same year. Except for a short period in 1960 when modifications were made to accommodate B-52 aircraft, the Base remained an operational SAC base until 1968.

Homestead AFB was almost destroyed by Hurricane Andrew in August 1992 and, following the hurricane, the facility was nonoperational until March 1994 when a portion of the former Homestead AFB was reopened as Homestead Air Force Reserve Command. The remainder of the former Homestead AFB was transferred to Miami-Dade County for redevelopment.

SOCSOUTH was authorized by the Joint Chiefs of Staff on 20 May 1986 and activated by U.S. Southern Command (SOUTHCOM) on 4 August 1986 in Quarry Heights, Panama. SOCSOUTH used to be part of the SOUTHCOM J3 section, and Charlie 3rd of 7th was a component of United States Army South. Originally a small unit, SOCSOUTH functioned primarily as a staff office of SOUTHCOM. In August 1986, it was reorganized as a separate headquarters and moved to Albrook Air Force Station, Panama, where its offices resided in the basement of the Department of Defense Schools building. In 1988, in accordance with the Panama Canal Implementation Treaty, SOCSOUTH moved to Corozal East, Panama. In June 1999, as one of the last units to leave the Republic of Panama, SOCSOUTH moved to Naval Station Roosevelt Roads, Puerto Rico.

As a result of the closing of Naval Station Roosevelt Roads, SOCSOUTH moved to temporary facilities at HARB in April 2004. The temporary headquarters consisted of 32 modular office facilities. In 2009, SOCSOUTH began obtaining land from Miami-Dade County near the HARB airfield for development of a permanent headquarters. Construction of the headquarters facility began in January 2012 and the permanent headquarters opened in February 2014. The SOCSOUTH HQ is adjacent to HARB and north of the HARB airfield.

SOCSOUTH is a joint headquarters, with four permanently assigned operational units: Charlie Company 3rd Battalion, 7th Special Forces Group; Charlie Company 3rd Battalion, 160th Special Operations Aviation Regiment; Naval Special Warfare Group-Two Detachment South; and the Joint Special Operations Air Component sourced by Air Force Special Operations

Command, also a unified command. Honored 5 times, SOCSOUTH received an Expeditionary Streamer for Just Cause, and four Joint Meritorious Unit Awards.

2.1.3 Military Mission

The SOCSOUTH area of focus encompasses approximately 15.6 million square miles, including the countries and adjacent waters of Latin America south of Mexico. The SOCSOUTH mission includes conducting counter-narcotics operations, performing multinational training, and hosting symposiums for Latin American countries on combating terrorism. SOCSOUTH also participates in humanitarian relief throughout the region.

Counter-narcotics support is a major focus of SOUTHCOM. SOCSOUTH units are deployed on a continual basis throughout the source and transit zones to support interagency and host-nation interdiction efforts to disrupt the production, cultivation, and movement of illegal drugs. Charlie Company, 3rd Battalion, 7th Special Forces Group hosts the annual Special Operations Forces Counter-terrorism Tactics and Techniques Symposium that brings security forces from throughout the region together in friendship to exchange ideas and foster dialogue on the common issue of combating terrorism. Additionally, SOCSOUTH deploys forces to improve force protection for U.S. units and enhance the safety of U.S. citizens and interests during periods of strife in the region.

2.1.3.1 Relationship between Natural Resources and the Military Mission

The DoD formally established a policy for an ecosystem approach to natural resources management and for the conservation of biological diversity in its 1996 Conservation Instruction (DoD Instruction 4715.3). The 1996 DoD Biodiversity Handbook and subsequent revisions informally reinforce that policy. The key elements of the policy for ecosystem management include the following goals, principles, and guidelines under an overarching "goal of ecosystem management": To ensure that military lands support present and future training and testing requirements while preserving, improving, and enhancing ecosystem integrity. Over the long term, that approach shall maintain and improve the sustainability and biological diversity of terrestrial and aquatic (including marine) ecosystems while supporting sustainable economies, human use, and the environment required for realistic military training operations. The INRMP is the vehicle to support the military mission and promote biodiversity.

2.1.3.2 Effects of the Military Mission on Natural Resources

SOCSOUTH has no ground-disturbing mission (for example, no maneuvers or live-firing) that would have an adverse effect on natural resources. It is the Theater Special Operations Command, a "joint" sub-unified command of SOUTHCOM, and serves as the functional component for all special operation missions deployed throughout the Caribbean and Central and South American regions.

Implementation of this INRMP benefits the military mission and natural resources found within the Installation. This INRMP directs the management of Small's milkpea, sand flax, and the Florida bonneted bat. Management for Small's milkpea and sand flax is focused on the two CAs, totaling 14.7 acres. The 3.16 acre conservation mowing area containing scattered

populations of these two species were initially designated as no-disturbance areas but were not designated as CAs. These 3.16 acres, as no-disturbance areas, constrain the military mission due to limiting further development of the property. USFWS has indicated that if these areas are avoided then they would continue to be treated as no-disturbance areas (or conservation mowing areas), as described in Section 2.3.3.5.

The INRMP also addresses the Army's management responsibilities for other natural resources on the SOCSOUTH HQ.

2.1.3.3 Effects of Natural Resources or Their Management on the Military Mission

Minimal impact to the SOCSOUTH mission from the management of the 14.7 acres in two CAs for Small's milkpea and sand flax is expected, except for the inability to utilize the CAs for training.

Because of changing mission needs, the Army has identified that additional construction will be necessary to meet mission needs and has determined that some or all of the 3.16 acres in eight scattered areas occupied by Small's milkpea and sand flax on the HQ property are needed for development. SOCSOUTH plans to consult with the USFWS concerning potential impacts from the proposed development once specific project plans are made available, as described in Section 3.

There also will be some time involved with allowing access and issuing visitor passes to individuals conducting management and monitoring of the CAs and the 3.16 acre conservation mowing area. Appropriate planning will conserve the Florida bonneted bat while supporting the military mission, as described in Section 4.3.

2.1.3.4 Future Military Mission Impacts on Natural Resources

Because the seeds of Small's milkpea and sand flax are readily dispersed to nearby areas and the grassed areas along roads and canals can support both species, Small's milkpea and sand flax occur in scattered locations not overgrown by woody vegetation throughout the SOCSOUTH HQ. Because of the uncertainty of potential future growth and the potential sporadic and itinerant nature of small occurrences of Small's milkpea and sand flax, designation of additional CAs, beyond the two relict pine rockland areas already so designated, is not possible due to the need to retain flexibility to meet future mission changes. SOCSOUTH plans to continue to implement nonnative and undesirable ruderal species control and to manage the two CAs, which will be beneficial for both species regardless of future growth.

Potential future changes needed to meet the military mission are not likely to affect the Florida bonneted bat. Active management to provide for habitat for this species will not be conducted, as the species appears to forage extensively in the general area, of which the SOCSOUTH HQ makes up only a small fraction. SOCSOUTH plans to direct management at avoiding inadvertent harm to animals, to the extent practicable, that may occur in structures on the SOCSOUTH HQ and that would not be impacted by future mission-related growth.

2.2 Physical Environment and Climate

2.2.1 Geology

The geology of south Florida is characterized by carbonate rocks (limestone and dolostone) overlain by a thin veneer of soil. During the last 65 million years (the Cenozoic Era), cycles of sediment deposition and erosion occurred in Florida as a result of sea level changes. During this time, carbonate sediments, consisting mostly of whole or broken shells, formed in south Florida. Up to 11,800 feet of carbonate rock underlies much of south Florida.

The SOCSOUTH property is situated on a geological formation called the Miami Limestone, a marine- derived limestone of Pleistocene age. The Miami Limestone is porous, and outcrops generally display irregular karst topography. On SOCSOUTH, areas of exposed limestone are generally limited to canals. In most of the property, limestone is overlain with a calcium-rich mud called Perrine Marl (Hilsenbeck 1993). The Miami Limestone is considered part of the Biscayne (Shallow) aquifer and is generally less than 40 feet thick.

Beneath the Miami Limestone, the Key Largo Limestone merges laterally with the Anastasia Formation. It consists of hard limestone and is derived from coral, algae, and shells, with a thickness as great as 60 feet. The Key Largo Limestone is generally below the surface in the vicinity of SOCSOUTH.

The Fort Thompson Formation, consisting of interbedded limestone, sand, and shells, is below The Key Largo Limestone. This Pleistocene age formation is approximately 40 to 70 feet thick and is one of the most productive water-bearing units within the Biscayne aquifer.

The lowest relevant rock formation in the area is the Hawthorne Group, of Miocene age, which attains a thickness of more than 900 feet. This group consists of interbedded sand, silt, clay, dolostone, and limestone. The Tamiami Formation, of late Miocene to early Pliocene age, forms the top of this group. It consists of sand and clay and forms the base of the Biscayne aquifer. The upper part of the group acts as a confining unit for the Floridan (Deep) aquifer (USDA 1996).

With respect to geologic hazards, the potential for sinkhole formation in the SOCSOUTH area is minimal, as determined by the Florida Geological Survey (USAF 2000). There are very few sinkholes in the area and, when present, are generally shallow, wide, and slow to develop. The potential for seismic activity in the HARB area also is negligible.

2.2.2 Water Resources

2.2.2.1 Groundwater

Groundwater in south Florida is contained in two distinct aquifer systems: the Biscayne aquifer and the Floridan aquifer. The Biscayne is relatively shallow and unconfined with a thickness ranging from approximately 80 to 120 feet. The average transmissibility is estimated to be five million gallons per day per foot. Recharge to the Biscayne aquifer is from rainfall, irrigation runoff, surface water imported by canals, urban runoff, and groundwater inflow. Average recharge is approximately 38 inches per year (USAF 2000). The Floridan aquifer is deep and confined. At SOCSOUTH and HARB, the top of the aquifer is typically 950

to 1,000 feet below mean sea level. The Floridan aquifer has an approximate thickness of 2,800 feet. The typical well in this aquifer system yields 750 gallons per minute (USGS 2004).

2.2.2.2 Surface Water

Surface waters in the proposed project area are limited to manmade ditches and drainage canals. The natural drainage is generally poor due to relatively flat surface and the location of the water table, which is either at or near the land surface. Storm water runoff is collected in an internal drainage system of canals, swales, ditches, and pipes, most of which eventually discharge into the Boundary Canal system. The Boundary Canal system consists of the Boundary Canal, the Flightline Canal, several associated drainage canals/ditches, and the storm water reservoir. The Flightline Canal drains runoff from the HARB airfield and also drains much of the SOCSOUTH property. The Flightline Canal discharges into the Boundary Canal. The Boundary Canal encircles most of the former Homestead AFB area, and the canal system drains approximately 85 percent of runoff from this area. The water from the Boundary Canal flows into the storm water reservoir at the southeast corner of HARB, from which water is pumped into the Military Canal, which discharges into Biscayne Bay.

2.2.3 Air Quality

The SOCSOUTH property is in the Southeast Florida Intrastate Air Quality Control Region (SF-IAQCR), which includes Broward, Miami-Dade, Indian River, Martin, Monroe, Okeechobee, Palm Beach, and St. Lucie Counties. The SF-IAQCR is designated an ozone maintenance area. An ozone maintenance plan was developed for the SF-IAQCR to regulate emissions of ozone precursors, oxides of nitrogen and volatile organic compounds, from stationary sources but not mobile sources (USAF 2015). The SOCSOUTH HQ building is the only stationary source of air emissions on the SOCSOUTH property. The SOCSOUTH property is adjacent to the HARB airstrip, and aircraft operations account for 60 percent of all mobile air emissions in the area (USAF 2015).

2.2.4 Noise Environment

The 482nd Fighter Wing at HARB operates 24 F-16C aircraft and sound from aircraft operations dominates the noise environment. The Florida Air National Guard and the Miami Aviation Branch of the Department of Homeland Security's U.S. Customs and Border Protection also occupy HARB and have aircraft on-Base. SOCSOUTH operates its aircraft from HARB.

The SOCSOUTH HQ is adjacent to the HARB airstrip, where noise levels range from approximately 65 to 79 on the A-weighted decibel scale (dBA). The SOCSOUTH HQ property frequently is exposed to noise levels of 65 dBA and greater due to aircraft operations (Headquarters Air Force Reserve Command 2007).

2.2.5 Climate

In general, southeast Florida, including the HARB area, is characterized by two predominant seasons, summer and winter. The summer season is characterized by warm, humid conditions with frequent showers and thunderstorms. The winter season has cooler temperatures, lower humidity, and less frequent precipitation. The two "missing" seasons, autumn and spring, are

included in the winter season because these two transition periods are drier and cooler than the summer.

The summer season is characterized by high temperatures typically in the upper-80s and daily lows usually dropping only to the middle 70s. In addition to warm temperatures, high humidity prevails throughout the summer. The dew point temperature is the best predictor of moisture levels in Florida. During the summer, dew points remain in the lower- to middle-70s. Convection in the form of showers and thunderstorms is an almost daily occurrence during the summer. In an easterly wind regime, the precipitation occurs as late night and morning showers or thunderstorms over the coastal areas, and afternoon thunderstorms occur over the interior sections in a fairly predictable fashion. In a westerly wind regime, afternoon thunderstorms affect interior and coastal areas alike. In light wind conditions, afternoon thunderstorms affect most areas.

The winter season average temperatures range from 56 to 77 °F. Average precipitation is 1.77 inches, compared to 8.5 inches in the summer (US Climate Data 2020).

2.3 Biological Resources

2.3.1 Wildlife

The Homestead AFB Ecological Inventory identified 19 amphibian species, 58 reptile species, 23 mammal species, and 136 bird species that either occurred on Homestead AFB or were determined to have the potential to occur on Homestead AFB (Homestead AFB 1993).

Birds are frequently observed in the area, and common species include the northern mockingbird (*Mimus polyglottos*), common grackle (*Quiscalus quiscula*), mourning dove (*Zenaida macroura*), northern cardinal (*Cardinalis cardinalis*), red-shouldered hawk (*Butea lineatus*), and red-winged blackbird (*Agelaius phoeniceus*). Wading birds are found in the freshwater canals and wetlands on-Base and common species include the great blue heron (*Ardea herodias*), great egret (*Casmerodius albus*), cattle egret (*Bubulcus ibis*), white ibis (*Eudocimus albus*), and double-crested cormorant (*Phalacrocorax auritus*).

The Migratory Bird Treaty Act (MBTA), as amended, protects 1,026 bird species (USFWS 2013). A migratory bird, as protected by the MBTA, is any species or family of birds that live, reproduce, or migrate within or across international borders at some point during their life cycle. Protected migratory birds travel along the east coast of Florida and may use the SOCSOUTH HQ area seasonally.

Canals and lakes provide habitat for a variety of fish, reptiles, and amphibians. Common fish species include largemouth bass (*Micropterus salmoides*), warmouth (*Lepomis gulosus*), bluegill (*Lepomis macrochirus*), striped mullet (*Mugil cephalus*), Florida gar (*Lepisosteus platyrhincus*), and common snook (*Centropomis undecimalis*). The Florida slider (*Trachemys scripta*), Florida soft shell turtle (*Apalone ferox*), snapping turtle (*Chelydra serpentina*), American alligator (*Alligator mississippiensis*), American crocodile (*Crocodylus acutus*), and the nonnative spectacled caiman (*Caiman crocodiles*) are common reptiles in the area. The Nile monitor lizard (*Varanus niloticus*), green iguana (*Iguana iguana*), and brown basilisk (*Basiliscus vittatus*) are nonnative reptile species reported in the area. Native reptiles and amphibians

include rough grass snake (*Opheodrys aestivus*), corn snake (*Elaphe guttata*), eastern garter snake (*Thamnophis sirtalis*), Florida chorus frog (*Pseudacris nigrita verrucosa*), tree frogs (*Hyla sp.*), and two-toed amphiuma, a salamander (*Amphiuma means*).

Common mammals occurring in the area include raccoon (*Procyon lotor*) and marsh rabbit (*Sylvilagus palustris*) (Homestead AFB, 1993; USAF, 2004).

2.3.2 Vegetation

Vegetation in the SOCSOUTH HQ consists of a mix of native and nonnative species. The area was once part of the developed and landscaped Homestead AFB, but has become overgrown since Hurricane Andrew destroyed most of the aboveground structures. The property been maintained by SOCSOUTH since the headquarters building was constructed. As previously discussed, Brazilian pepper, silk reed, napier grass, Australian pine, Zoysia grass, and Bermuda grass are present and are pervasive throughout the property. Landscaping shrubs are common around old foundations and parking lots. The native poisonwood tree (*Metopium toxiferum*) was noted colonizing the property along road edges and parking lots. Areas overgrown with Brazilian pepper and silk reed tend to become monocultures and have very low vegetative diversity. Silk reed and napier grass grew in monoculture stands as well as isolated individuals.

Prior to development, the area was predominantly native pine rockland habitat. Remnant vegetation of native pine rockland communities still occur within the property.

2.3.3 Federally Protected Species

The Endangered Species Act (ESA) establishes the federal program for the conservation of threatened and endangered plants and animals and their habitats. The lead federal agencies for implementing the ESA are the USFWS and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA, NMFS). The USFWS has jurisdiction over the ESA-listed species that occur on SOCSOUTH. Section 7 of the ESA requires that the Army, in consultation with USFWS, ensure that actions conducted at SOCSOUTH are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of listed species (16 U.S.C. 35). SOCSOUTH prepared a Biological Assessment as part of a formal consultation with the USFWS, and in response the USFWS issued a biological opinion (BO) (Appendix A), for actions contained in this INRMP update that may adversely affect federally listed species.

The ESA also provides for the designation of critical habitat for listed species although it may not be designated at the time of listing. Critical habitat contains the physical or biological features that are essential to the conservation of the species. Federal agencies are required to avoid destruction or adverse modification of designated critical habitat (USFWS 2017a). However, pursuant to section 4(a)(3)(B)(i) of ESA, the Secretaries of the Departments of Interior and Commerce are prohibited from designating as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense (DoD), or designated for its use, that are subject to an INRMP prepared pursuant to section 670a of the Sikes Act. This restriction applies if either Secretary determines in writing that a given INRMP provides a benefit to the species for which critical habitat is proposed for designation. The SOCSOUTH property contains no designated critical habitat for listed species.

Two federally listed species have been confirmed to occur at SOCSOUTH. The endangered the Small's milkpea (*Galactia smallii*) and Sand flax (*Linum arenicola*) have been documented on SOCSOUTH (Table 2-1). In addition, the endangered Florida bonneted bat (*Eumops floridanus*) has been recorded on adjacent property.

Table 2-1. Federally Listed Species Known to Occur on or near the SOCSOUTH Property

Common Name	Scientific Name	Status	Preferred Habitat
Small's milkpea	*Galactia smallii*	FE	Pine rocklands
Sand flax	*Linum arenicola*	FE	Pine rocklands
Florida bonneted bat	*Eumops floridanus*	FE	Pine rocklands

FE = Federally Endangered

2.3.3.1 Life History of Small's Milkpea

Small's milkpea is a small, trifoliolate, perennial legume with small, purple flowers and a prostrate habit. The stems are grayish, due to a covering of short hairs, and grow up to 79 inches. Stem internodes are well-developed and have long, straight, soft hairs. Leaflets are broadly ovate to elliptic and are 0.4 to 0.9 inch long. The underside of the leaflet has long, soft, wavy hairs lying almost flat against the surface. The upper surface of the leaflet is either hairless or has sparse, stiff hairs, lying flat. Flowers are about 0.5 inch in length and pinkish-purple or lavender (USFWS 1999).

Small's milkpea is endemic to the pine rocklands of Miami-Dade County. Pine rockland habitat has been destroyed throughout much of its historic range in south Florida and replaced by residential housing, commercial construction, or agriculture. Less than two percent of the original pine rockland habitat remains and most occurs in small, isolated stands. Prior to documentation at SOCSOUTH, only seven additional populations of Small's milkpea were known, none of which are as large as that on the project site. Subsequently, a larger population was discovered on HARB. Habitat loss and fragmentation, soil disturbance, fire suppression, and invasion by native hardwoods and nonnative plants threaten the existence of Small's milkpea. The species typically is reduced or eliminated in areas where larger invasive nonnative plant species, such as Brazilian pepper and silk reed, native hardwoods, and undesirable ruderal plant species are prevalent. Paradoxically, Small's milkpea is known to occur at artificially high densities in areas of mowed Zoyia grass (Bradley 2009, Nelson 2017, Gann and Smith 2019). Most threats to Small's milkpea are ongoing and are considered imminent.

2.3.3.2 Life History of Sand Flax

Sand flax is a glabrous, perennial herb with wiry stems reaching up to 28 inches tall. Leaves are few, alternate, and early deciduous. Flowers are in terminal cymes, 5-parted, less than 2.5 inches wide, with ephemeral yellow petals and separate styles (USFWS 2015).

Sand flax occurs in pine rocklands and marl prairie habitats with an open subcanopy and ground layer with reduced litter levels and areas of bare substrate. Available data indicate

there are 11 extant occurrences of sand flax, with 11 others extirpated or destroyed. Only small and isolated occurrences remain in a restricted range of Miami-Dade and Monroe counties. Habitat loss and degradation due to development is a major threat to this species. Most remaining occurrences are on private land or non-conservation public land.

Nearly all remaining populations are threatened by fire suppression, difficulty in applying prescribed fire, road maintenance activities, nonnative and undesirable ruderal plant species, and/or illegal dumping. Most threats to the species are ongoing and are considered imminent. The reproductive ecology and biology of sand flax are currently being studied by Fairchild Tropical Botanic Garden and the University of Florida.

Sand flax seems to only rarely occur within intact pine rockland; however, it has been found in many disturbed areas adjacent to intact pine rockland with bare limestone substrate. Its persistence on roadsides or other disturbed areas is not fully understood, but it is possible that this species has evolved to recruit in areas of open bare substrate, such as are found immediately following fire, along wildlife trials, or in areas scoured during high water events.

2.3.3.3 Distribution of Small's Milkpea and Sand Flax in SOCSOUTH

Site surveys in 2009 confirmed that the federally endangered Small's milkpea and the federally endangered sand flax occur within the SOCSOUTH property (Figure 2-1). No other federally protected plant species were identified within or adjacent to the proposed project area (Bradley 2009a, 2009b).

Figure 2-1. Small's milkpea and sand flax colony locations

Sand flax and Small's milkpea are generally concentrated in the CAs 1 and 2. Scattered small populations occur along roads and canals and in drainage swales leading from the airfield. The Bradley 2009 survey estimated 100,702 Small's milkpea and 73,759 sand flax on SOCSOUTH using extrapolation from a smaller sample site from plot data. Of these numbers approximately 51 percent of Small's milkpea and 81 percent of sand flax occurred within CAs 1 and 2. Prior to initiation of management activities in 2013, estimates of Small's milkpea and sand flax in CAs 1 and 2 were between 8,669 and 46,826, and between 12,578 and 28,384 respectively (van der Heiden and Johnson 2013, Gann and Smith 2019). The 2019 monitoring results within CAs 1 and 2 reported Small's milkpea numbers ranged from 3,541-6,908 and those for sand flax ranged from 1,955-3,696 (Gann and Smith 2019), and response to restoration and difficulty of detection was discussed. The differences in the 2019 numbers are due to a variety of factors, including the use of a different survey technique, the location of the fencing relative to locations of colonies in the Bradley 2009 report (polygons A, B, D, and G were captured in the management areas, but some portions were chopped off) and the use of estimated ranges versus extrapolation. Adaptive management has been implemented within the CAs in recent years to better simulate prescribed burning and

control exotic weeds to better support the endangered plant populations, but restoration of pine rockland in the CAs is not expected to sustain the high numbers of plants reported in 2009 (Gann and Smith 2019).

Construction of the SOCSOUTH Headquarters Building removed approximately 160 Small's milkpea and 100 sand flax. The plants no longer occur in the immediate grounds of the Headquarters Building. In the eastern portion of the property, the level of disturbance and growth of non-native species results in more sporadic occurrences and fewer plants per occurrence. Locations where Small's milkpea and sand flax were found on the 84.2-acre SOCSOUTH property are provided in the two survey reports (Bradley 2009a, 2009b).

2.3.3.4 Conservation Areas

CAs 1 and 2 were established to protect the highest quality pine rockland habitat and the largest populations of Small's milkpea and sand flax on the SOCSOUTH HQ property. CA 1 encompasses a 12.6- acre area south of St. Lo Boulevard and west of Rabaul Road. CA 2 encompasses a 2.1-acre area east of the intersection of Rabaul Road and Bikini Boulevard (Figure 2-2). Both CAs have been fenced to prevent unauthorized entry into these areas.

The CAs are actively managed to conserve and improve the quality of pine rockland habitat. This management is beneficial for Small's milkpea, sand flax, and the Florida bonneted bat, and promotes growth of the host plants for three species of federally listed butterflies that may occur on SOCSOUTH. This active management also benefits the other state-listed plant and animal species that occur in pine rockland habitat.

2.3.3.5 Conservation Mowing Areas

The Army has identified eight areas, totaling 3.16 acres, where small populations of sand flax and Small's milkpea will benefit from a conservation mowing regime (Figure 2-2). If these areas are avoided, SOCSOUTH plans to place them on a mowing schedule that will support growth of these species. Signs will be placed to identify the extent of conservation mowing areas and to prevent mowing during routine landscape mowing that would not coincide with the beneficial mowing schedule. If these areas are impacted by the implementation of the military mission, then SOCSOUTH will consult with the USFWS in compliance with Section 7 of the ESA prior to any ground disturbing activities and will implement reasonable and prudent measures from that consultation to avoid jeopardy of the species.

2.3.3.6 Life History and Distribution of the Florida Bonneted Bat

The endangered Florida bonneted bat is the largest bat species native to Florida with adults ranging from 4.96 to 6.5 inches. Because of its large size, the Florida bonneted bat requires relatively large cavities that are at least 10 to 15 feet above the ground in areas where there is sufficient open space to allow the bats to enter and exit roosts. This bat occurs in urban/suburban areas as well as wooded areas and uses both natural and artificial habitat

structures. The Florida bonneted bat roosts in tree hollows (including those made by woodpeckers), tree snags, and foliage of palms. It also has been found beneath rocks, near excavations, in rock fractures, and on limestone outcrops. The species will roost in buildings, especially under Spanish roof tiles, but it also may roost in attics, rock or brick chimneys, and fireplaces. They will also colonize newly installed bat houses of appropriate design (USFWS 2012).

The Florida bonneted bat is active year-round and does not have periods of hibernation or torpor. It is confined to a small range in south Florida. The reproductive behaviors of the species are poorly understood. The species is polyestrous, having two breeding seasons a year. However, females give birth to only a single pup.

Historical threats to the Florida bonneted bat include habitat loss, degradation, and modification from human population growth and associated development and agriculture. These threats remain current. In addition, this species is at risk from its small population size, restricted range, and low number of colonies, slow reproductive rate/low fecundity, and relative isolation.

The Florida bonneted bat has been observed in the Homestead area near the SOCSOUTH HQ and throughout Miami-Dade County. There are two known roost sites in Coral Gables, near the Granada golf course and along the Ludlam Trail. An acoustic and roost survey was conducted by HARB in March 2015 (Smart Sciences 2015) on the property to the north of the Base's entry control point, including the former Base Exchange. The survey detected the Florida bonneted bat, but no roosts were identified.

An additional survey was conducted by HARB in 2017 that included acoustic monitoring, roost surveys, and mist netting (Smart Sciences 2017). The 2017 study included HARB, the remainder of the former Homestead AFB, and the Air Base Elementary School. High levels of Florida bonneted bat activity were detected on and around the SOCSOUTH HQ. In addition, high levels of Florida bonneted bat activity were detected around Building 741 on the SOCSOUTH property as well as the airfield tower to the southeast of the SOCSOUTH property and the Florida Army Reserve National Guard Facility to the east of the SOCSOUTH property. Moderate levels of Florida bonneted bat activity were detected around the U.S. Coast Guard training tower to the south of the SOCSOUTH CAs (Smart Sciences 2017).

Both abandoned structures and trees on the SOCSOUTH property may be used as roost sites by the Florida bonneted bat. Structures that are in use and that have openings that allow ingress and egress by the bats, also may be used as roost sites.

Site surveys during 2015 and 2016 confirmed that the federally endangered Florida bonneted bat uses the SOCSOUTH area and the HARB area for foraging. Automated ultrasonic recording systems recorded calls indicating both feeding and social activity for the Florida bonneted bat in the SOCSOUTH area. Although no bat roosts were found, the recording of bats immediately after sunset at multiple locations is only possible if roosts are

near, likely within one mile. High levels of Florida bonneted bat activity were documented around Building 741 on the SOCSOUTH property as well as at two locations just outside the SOCSOUTH HQ. Moderate levels of Florida bonneted bat activity were detected around the U.S. Coast Guard training tower south of the SOCSOUTH CAs. There are multiple abandoned buildings in this area that would make for suitable roost habitat for bats (Smart-Sciences Environmental Consulting 2015, 2017).

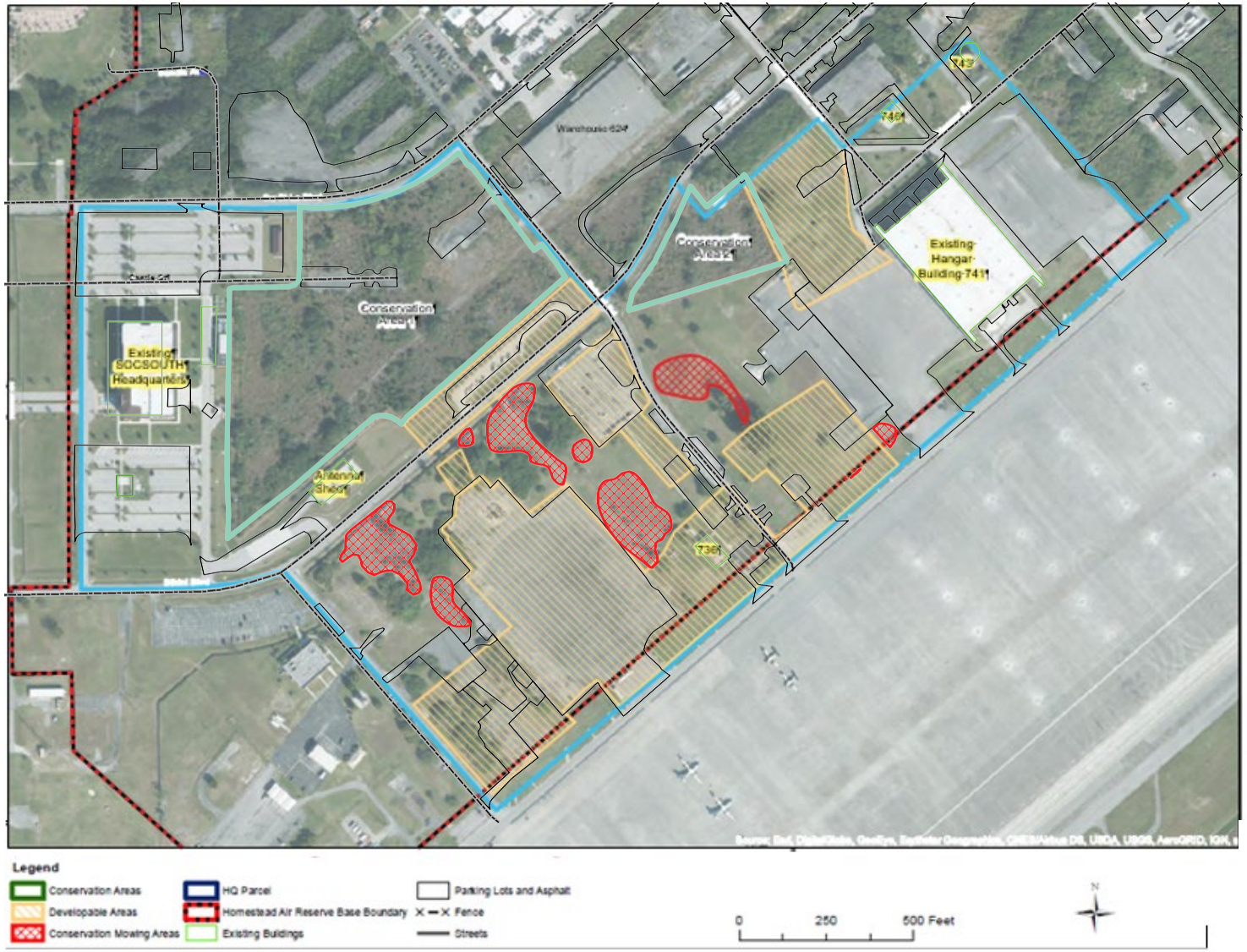

Figure 2-2. Conservation Mowing Areas and Developable Areas

2.3.3.7 Other Federally Listed Species with the Potential to Occur on SOCSOUTH

A summary of the federally listed animal species with the potential to occur near or within the SOCSOUTH HQ property is shown in Table 2-2.

Table 2-2. Federally Protected Animal Species with Potential to Occur on the SOCSOUTH Property

Common Name	Scientific Name	Status	Preferred Habitat	Potential Occurrence on SOCSOUTH
Everglade snail kite	*Rostrhamus sociabilis plumbeus*	FE	Shallow freshwater marshes and shallow grassy shorelines of lakes.	No, suitable habitat lacking
Cape Sable seaside sparrow	*Ammodramus maritimus mirabilis*	FE	Areas that are periodically burned and flooded, including flooded inland prairies of cordgrass (*Spartina* spp.), muhly grass (*Muhlenbergia filipes*), and short sawgrass (*Cladium mariscus* ssp. *jamaicense*).	No, suitable habitat lacking
Bachman's wood warbler	*Vermivora bachmanii*	FE	Bottomland forests and swamps (along with canebrakes)	No, suitable habitat lacking
Kirtland's warbler	*Setophaga kirtlandii*	FE	Only in Florida in winter, inhabits dense scrub during the winter.	No, suitable habitat lacking
Wood stork	*Mycteria americana*	FT	Nest in mixed hardwood swamps, sloughs, mangroves, and cypress domes/stands. They forage in a variety of wetlands including both freshwater and estuarine marshes, although limited to depths less than 10 to 12 inches.	No, suitable habitat lacking
Audubon's crested caracara	*Polyborus plancus audubonii*	FT	Wet prairies with cabbage palms (*Sabal palmetto*), wooded areas with saw palmetto (*Serenoa repens*), cypress (*Taxodium* spp.), scrub oaks (*Quercus geminata*, *Q. minima*, *Q. pumila*), and pastures	No, suitable habitat lacking
Piping Plover	*Charadrius melodus*	FT	Sandy beaches, sand flats, and mudflats along coastal areas	No, suitable habitat lacking
Red knot	*Calidris canutus rufa*	FT	Shores, tundra during the summer, tidal flats and as they migrate they will inhabit sandy beaches, coastal mudflats even areas away from the coast but close to streams and ponds.	No, suitable habitat lacking
Florida grasshopper sparrow	*Ammodramus savannarum floridanus*	FE	Dry open prairies that contain bunch grasses, low shrubs, and saw palmetto	No, suitable habitat lacking

Common Name	Scientific Name	Status	Preferred Habitat	Potential Occurrence on SOCSOUTH
Florida scrub-jay	*Aphelocoma coerulescens*	FT	Sand pine and xeric oak scrub, and scrubby flatwoods	No, suitable habitat lacking
Red-cockaded woodpecker	*Picoides borealis*	FE	Slash, longleaf, and loblolly pines	No, suitable habitat lacking
Schaus swallowtail butterfly	*Heraclides aristodemus ponceanus*	FE	Tropical hardwood hammocks	No, suitable habitat lacking
Miami blue butterfly	*Cyclargus (=Hemiargus) thomasi bethunebakeri*	FE	Tropical hardwood hammocks, tropical pine rocklands, and beachside scrub	Possible
Bartram's scrub-hairstreak butterfly	*Strymon acis bartrami*	FE	Pine rockland with pineland croton (*Croton linearis*)	Possible, pineland croton occurs in CAs
Florida leafwing butterfly	*Anaea troglodyta floridalis*	FE	Pine rockland with pineland croton	Possible, pineland croton occurs in CAs
Florida Panther	*Puma concolor coryi*	FE	Large forested communities and wetlands	No, suitable habitat lacking
Florida bonneted bat	*Eumops floridanus*	FE	Roosts in palms and hollow trees and in buildings.	None found in SOCSOUTH buildings; however, some were found in HARB warehouse areas
American alligator	*Alligator mississippiensis*	FT (S/A)	Freshwater lakes, slow moving rivers, and brackish water	No, suitable habitat lacking, known to occur on HARB in larger canals
Eastern indigo snake	*Drymarchon corais couperi*	FT	Broad range of habitats, from scrub and sandhill to wet prairies and mangrove swamps	Possible, known historically from Homestead AFB
American crocodile	*Crocodylus acutus*	FT	Coastal estuarine marshes, tidal swamps, and creeks along edges of mainland and islands	No, known to occur on HARB in larger canals
Gopher tortoise	*Gopherus polyphemus*	C	Sandhills, pine/scrub oak uplands, and pine flatwoods associated with the longleaf pine (*Pinus palustris*) ecosystem	No, suitable habitat lacking

Common Name	Scientific Name	Status	Preferred Habitat	Potential Occurrence on SOCSOUTH
Stock Island tree snail	*Orthalicus reses (not including Nesodryas)*	FT	Tropical hardwood hammocks, including host trees such as poisonwood, pigeon plum (*Coccoloba diversifolia*), Jamaican dogwood (*Piscidia piscipula*), strangler fig (*Ficus aurea*), and gumbo limbo (*Bursera simarouba*)	No, suitable habitat lacking

Source: USFWS 2017b (https://ecos.fws.gov/ecp0/reports/species-by-current-range-county?fips=12086) accessed April, 8, 2020
FE = Federally designated Endangered FT = Federally designated Threatened
FT(S/A) = Federally designated Threatened species due to similarity of appearance
C = Candidate

While there is no documented occurrence on SOCSOUTH HQ, the endangered Bartram's scrub-hairstreak, Florida leafwing, and Miami Blue butterflies may occur on SOCSOUTH HQ because there is potentially suitable habitat for these species in the two CAs. The Bartram's scrub-hairstreak (*Strymon acis bartrami*), the Florida leafwing (*Anaea troglodyta floridalis*), and the Miami Blue (*Cyclargus (=Hemiargus) thomasi bethunebakeri*) all may occur in pine rockland habitat. In addition, the host plant for the Bartram's scrub-hairstreak and Florida leafwing is pineland croton (*Croton linearis*), which occurs in the CAs. Surveys conducted in 2016 did not identify adults of these species on SOCSOUTH HQ and no eggs of these species were found on host plants in the CAs (Nelson et al. 2017).

Because there have not been any documented occurrences of these federally listed butterfly species, they will not be discussed further in this INRMP.

2.3.3.8 Migratory Birds

The Migratory Bird Treaty Act (MBTA), as amended, protects 1,026 bird species[2]. A migratory bird, as protected by the MBTA, is any species or family of birds that live, reproduce, or migrate within or across international borders at some point during their life cycle.

Protected migratory birds travel along the east coast of Florida and may use the SOCSOUTH HQ area seasonally. The SOCSOUTH HQ is located between two national parks, Everglades National Park and Biscayne National Park (Figure 2-3). These parks serve as breeding and migratory grounds for numerous bird species.

Executive Order 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds" (66 Federal Register 3853, January 17, 2001), prohibits federal agencies from taking actions that have, or are likely to have, a measurable negative effect on migratory bird populations. E.O. 13186 also requires that federal agencies avoid or minimize the impacts of their activities on migratory birds and make efforts to protect birds and their habitat. In 2007 the USFWS finalized the Military Readiness Rule that does not prohibit the military to incidentally take migratory birds in the course of military readiness activities (72 FR 8931, February 28, 2007).

[2] USFWS. 2015. https://www.fws.gov/birds/management/managed-species/migratory-bird-treaty-act-protected-species.php Accessed on April 14, 2020.

Although incidental take is not prohibited, the rule requires the military to assess the effects of military readiness activities on migratory birds through the National Environmental Policy Act (NEPA) process. The rule also requires the military to implement appropriate conservation measures if military readiness activities cause significant adverse effects on a migratory bird population. On December 22, 2017 Department of Interior's Office of the Solicitor issued M Opinion 37050, clarifying that the MBTA does not prohibit incidental take of migratory birds.[3] The M Opinion and the Military Readiness rule ensure that the Army can implement mission activities swiftly and effectively, while monitoring the potential impacts on migratory birds from military readiness activities. This INRMP's approach to migratory bird conservation is consistent with the executive order and related policies.

In Florida, neotropical migratory birds also receive special attention from state and local government agencies. A total of 87 species of neotropical land birds have been recorded, including 28 species of warblers, eight species of flycatchers, and six species of vireos. Based on the number of observations there are twelve common species and seven abundant species, including the black-whiskered vireo (*Vireo altiloquus*), blue-gray gnatcatcher (*Polioptila caerulea*), black-throated blue warbler (*Dendroica caerulescens*), prairie warbler (*D. discolor*), American redstart (*Setophaga ruticilla*), and ovenbird (*Seiurus auroapillus*; USAF 2000 and FAA 2001).

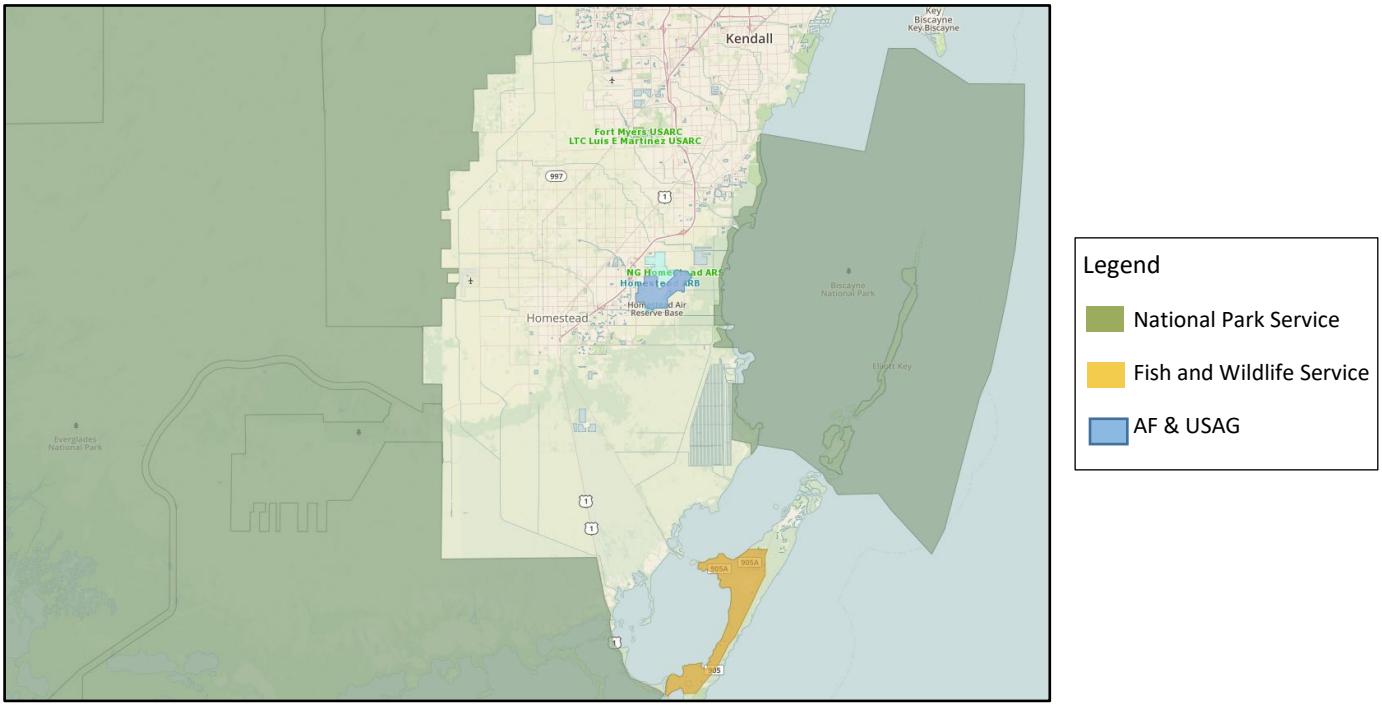

Figure 2-3. Location of SOCSOUTH HQ relative to Biscayne and Everglades National Parks

[3] DOI. 2017. M Opinion 37050. https://www.doi.gov/sites/doi.gov/files/uploads/m-37050.pdf Accessed on July 14, 2020.

2.3.4 State Listed Animal Species

DoD/Department of Army (DA) policy requires that garrisons should provide similar conservation measures for state-listed species as are provided to species listed under the ESA, as long as such measures are not in direct conflict with the military mission (DoDI 4715.03, Enclosure 3(3)(d) and AR 200-1, 4-3(5)(w)).

Six state-protected animal species, that are not also federally listed, have been identified as potentially occurring in the general SOCSOUTH HQ area (Table 2-3). The Florida burrowing owl (*Athene cunicularia floridana*) is known to occur around the HARB runway near the control tower. The SOCSOUTH HQ is adjacent to the runway and the Florida burrowing owl could occur on SOCSOUTH, at least occasionally. The little blue heron, reddish egret, tricolored heron, and least tern are unlikely to occur within the property due to lack of suitable habitat. There is no suitable habitat for the Florida pine snake (*Pituophis melanoleucus mugitus*) within the SOCSOUTH property. The gopher tortoise (*Gopherus polyphemus*) has not been observed on SOCSOUTH and is unlikely to occur there due to the lack of suitable habitat. The southeastern American kestrel (*Falco sparverius paulus*) may occur on SOCSOUTH in the CAs and around the maintained open areas near the HQ building. The rim rock crown snake (*Tantilla ooltica*) may occur in the CAs and other relict pine rockland areas.

Table 2-3. State Protected Animal Species with Potential to Occur on the SOCSOUTH Property

Common Name	Scientific Name	Status	Preferred Habitat
Birds			
Little blue heron	*Egretta caerulea*	*ST*	fresh, salt, and brackish water environments
Reddish egret	*Egretta rufescens*	*ST*	Coastal areas, mainly on estuaries near mangroves, and lagoons
Tricolor heron	*Egretta tricolor*	*ST*	Fresh and saltwater marshes, estuaries, mangrove swamps, lagoons, and river deltas
Southeastern American kestrel	*Falco sparverius paulus*	*ST*	Pine flatwoods
Florida burrowing owl	*Athene cunicularia floridana*	*ST*	Grasslands and other open areas.
Least tern	*Sterna antillarum*	*ST*	Estuaries and bays, as well as areas around rivers
White-crowned pigeon	*Patagioenas leucocephala*	*ST*	Inhabit low-lying forest habitats with ample fruiting trees. Not common in Miami-Dade county.[4] Use of SOCSOUTH may be for breeding, but noted as uncommon.[5]

4FWC. 2020. White-crowned pigeon (*Patagioenas leucocephala*). https://myfwc.com/wildlifehabitats/profiles/birds/white-crowned-pigeon/#:~:text=Conservation%20and%20Management,Endangered%20and%20Threatened%20Species%20Rule.

[5] Audubon. 2020. White-crowned pigeon (*Patagioenas leucocephala*). https://www.audubon.org/field-guide/bird/white-crowned-pigeon. Accessed on 20 Aug 2020.

Common Name	Scientific Name	Status	Preferred Habitat
Roseate spoonbill	*Platalea ajaja*	*ST*	Mangrove islands and occasionally dredge-spoil islands are the preferred nesting habitat for the species.[6]
Reptile			
Florida pine snake	*Pituophis melanoleucus mugitus*	*ST*	Habitats with open canopies and dry sandy soils, sand hills, pastures, sand pine scrub and scrubby flatwoods
Gopher tortoise	*Gopherus polyphemus*	*ST*	Dry upland habitats, including sandhills, scrub, xeric oak hammock, and dry pine flatwoods
Rim rock crowned snake	*Tantilla ooltica*	*ST*	Pine rocklands and tropical hammocks

Source: USAF 2015
ST = State Threatened

2.3.5 State Protected Plant Species

DoD/DA policy requires that garrisons should provide for the conservation of state protected species when practicable (DoDI 4715.03, Enclosure 3(3)(d) and AR 200-1, 4-3(5)(w)). In addition to Small's milkpea and sand flax, 21 plant species listed by the State of Florida Department of Agriculture and Consumer Services as Endangered, Threatened, or Commercially Exploited were documented on the property (Table 2-4; Bradley 2009a, 2009b; van der Heiden and Johnson 2013). Of these, *Ernodea cokeri* is extremely rare in Florida and is listed as Critically Imperiled by the Florida Natural Areas Inventory (2010) and The Institute for Regional Conservation. One small populations of this species have been documented in CA 2 (Bradley 2009a; van der Heiden and Johnson 2013).

Table 2-4. State Protected Plant Species Identified on the SOCSOUTH Property

Common Name	Scientific Name	State Status
Pineland-allamanda	*Angadenia berteroi*	Threatened
Locustberry	*Byrsonima lucida*	Threatened
White sunbonnets	*Chaptalia albicans*	Threatened
Florida silver palm	*Coccothrinax argentata*	Threatened
Quailberry	*Crossopetalum ilicifolium*	Threatened
Blodgett's swallowwort	*Metastelma blodgettii*	Threatened
Coker's creeper	*Ernodea cokeri*	Endangered
Man-in-the-ground	*Ipomoea microdactyla*	Endangered
Pineland clustervine	*Jacquemontia curtisii*	Threatened
Rockland shrub verbena	*Lantana depressa*	Endangered

[6]FWC. 2020. Roseate spoonbill (*Platalea ajaja*). https://myfwc.com/wildlifehabitats/profiles/birds/waterbirds/roseate-spoonbill/ Accessed on 20 Aug 2020.

Common Name	Scientific Name	State Status
Southern fogfruit	*Phyla stoechadifolia*	Endangered
Pineland spurge	*Euphorbia pinetorum*	Endangered
Longstalked-stopper	*Mosiera longipes*	Threatened
Bahama ladder brake	*Pteris bahamensis*	Threatened
Bahama sachsia	*Sachsia polycephala*	Threatened
Havana skullcap	*Scutellaria havanensis*	Endangered
Havana greenbrier	*Smilax havanensis*	Threatened
Everglades Keys false buttonweed	*Spermacoce terminalis*	Threatened
Abrupt-tip maiden fern	*Thelypteris augescens*	Threatened
Rockland noseburn	*Tragia saxicola*	Threatened
Coontie	*Zamia integrifolia*	Commercially Exploited
pine-pink or sharp-petaled bletia	*Bletia purpurea*	Threatened
small-leaf squarestem	*Melanthera parvifolia*	Threatened
Chapman's senna	*Senna Mexicana var. chapmanii*	Threatened
Everglade Key pencilflower	*Stylosanthes calcicola*	Endangered

Survey references: Bradley 2009a; Gann and Smith 2019, van der Heiden and Johnson 2013, Gann and Smith 2019.

Section 3: Mission Sustainability and Collaborative Planning

3.1 Proposed Development of SOCSOUTH

Mission sustainment for SOCSOUTH includes implementation of the Real Property Master Plan Update and DD 1391 (Master Plan) dated April 2019. The Master Plan provides a conceptual development plan for the SOCSOUTH lease property in Homestead, FL. Proposed new construction would support logistics, operational training, and communications support. New buildings proposed include a climate-controlled warehouse, an administrative communications facility, and a parachute rigging facility. New construction would also involve installation of new utilities and creation of unpaved trails, paved sidewalks, road upgrades, and swale/drainage channels. The estimated area of disturbance is 41,451 ft^2 or 1 acre.

Once details of the project are determined and if adverse effects from any proposed construction are likely, SOCSOUTH will prepare a biological assessment and consult with the USFWS for ESA Section 7 compliance.

SECTION 4: Program Elements

4.1. Actions to Support the Military Mission

Integration of natural resource planning in all activities that directly and indirectly impact the military mission ensure sustainment of operations. The first INRMP goal is meant to assist with natural resource planning in other military operations on installation. For example, new construction activities, landscape maintenance, and pest management are addressed in this and following sections, as well as Appendix B and C.

Goal 1: Support the military mission through sound natural resources management and stewardship.

Objective 1.1: Conduct all management activities in a manner that supports and enhances the military missions assigned to those lands.

Objective 1.2: Remain compliant with environmental and natural resource statutes, regulations, and DOD policies.

4.2 Protected Resource Management

Natural resources management at SOCSOUTH focuses on habitat management for the endangered Small's milkpea and the endangered sand flax, as well as proactive measures to avoid inadvertent take of the endangered Florida bonneted bat during normal operations and maintenance activities. Habitat management for Small's milkpea and sand flax also benefits other native pine rockland plant species; therefore, separate management for state-listed pine rockland species is not provided. Because Small's milkpea and sand flax occur in the same type of habitat, these species are addressed together. Management for the Florida bonneted bat is addressed separately from that for the plant species because the management measures are independent of management for listed plants. No specific management for the Bartram's scrub-hairstreak, the Florida leafwing, and the Miami Blue butterflies is proposed. Management for these species is limited to the habitat management of pine rockland habitat that is described for Small's milkpea and sand flax.

4.2.1 Management Objectives for Small's Milkpea and Sand Flax

For each goal identified in Section 1.3 that applies to Small's milkpea and sand flax, specific objectives to achieve those goals are described below. Specific projects that would be implemented to manage natural resources under this INRMP are discussed in Section 6.2.

Goal 2: Protect and manage native ecosystems and endangered species populations that occur within two conservation areas (CA 1 of 12.6 acres and CA 2 of 2.1 acres) within the 84.2-acre leased site.

Objective 2.1: Protect and manage and two conservation areas, CAs 1 and 2, that support Small's milkpea and sand flax, and monitor their condition.

Objective 2.2: Control invasive species through mechanical removal, herbicide application, mowing and prescribed burning[7], as appropriate.

Objective 2.3: Restore degraded habitat within CAs 1 and 2.

Objective 2.4: Identify and manage 3-5 small hardwood hammock patches in CAs 1 and 2.

Objective 2.5: Reduce incidences of unauthorized entry in CAs 1 and 2.

Objective 2.6: SOCSOUTH will develop an Integrated Wildland Fire Management Plan (IWFMP).

Goal 3: Maintain or restore Small's milkpea and sand flax populations and associated habitat scattered over a total of 3.16 acres in conservation mowing areas outside of CAs 1 and 2, as mission allows.

Objective 3.1: Control invasive plant species in habitat for Small's milkpea and sand flax in the conservation mowing areas (outside of CAs).

Objective 3.2: Provide viable habitat for growth and reproduction of Small's milkpea and sand flax outside CAs, within designated conservation mowing areas (8 areas being passively managed for Small's milkpea and sand flax outside of the CAs).

Objective 3.3: Avoid impacts, to the extent possible, to Small's milkpea and sand flax outside of CAs.

Invasive Plant Control

Several invasive plants occur on the property, including Brazilian pepper, silk reed, napier grass, and Australian pine (Bradley 2009a, van der Heiden and Jonson 2013). Control measures to be implemented differ depending on the plant species being targeted. Control of woody invasive plants poses little risk to non-target species, including Small's milkpea and sand flax, and these control efforts can be implemented without special measures as long as the root mass is left in place and no ground disturbance occurs. However, because the herbaceous invasive plants are intermixed with Small's milkpea and sand flax, control efforts must be designed to minimize the risk to non-target species.

Woody Invasive Plant Control

Control of woody invasive plants would be implemented throughout the property and would benefit Small's milkpea and sand flax. Control of would include treatment and, where appropriate, removal of existing woody invasive plants in phases, followed by continued treatments to control new growth from the persistent seed bank. Both the CAs and the areas outside the CAs would be treated to eliminate the potential for seeds from other parts of the property to spread to the CAs. Control of woody invasive plants in CAs 1 and 2 would occur annually. Control of woody invasive plants outside the CAs would occur as needed, but is expected to be annually in the first few years of INRMP implementation.

[7] This would be done following an Integrated Wildland Fire Management Plan in accordance with the Army Wildland Fire Policy and AR200-1.

Within the CAs, treatment of woody invasive plants would primarily be accomplished through basal bark or cut and stump paint with concentrated herbicide. Basal bark and cutting and stump painting minimizes the risk to non-target species. Triclopyr, because of its specific effectiveness on woody plants, would be used for chemical control efforts. This chemical is readily available, is consistent with the Army's Integrated Pest Management Plan (Appendix D), and is suitable for these types of applications. Other herbicides consistent with the Integrated Pest Management Plan could be considered.

Woody species will continue to grow in the CAs due to germination from the persistent seed bank and incidental animal dispersal. Following initial treatment, seedlings would be hand-pulled, if present in low numbers, or treated with the same methods described for herbaceous invasive plants below. If any woody seedlings develop into saplings, the saplings would be treated in the same manner as the original woody invasive plant treatment.

Within areas assigned for conservation mowing, SOCSOUTH plans to treat woody invasive plants with herbicide application limited to specific plants using basal bark or similar method with very low non-target risk. Outside of the CAs and areas assigned for conservation mowing, SOCSOUTH intends to treat invasive plant areas with mechanical methods, basal bark, cut stump, or broadcast foliar applications of herbicide. The chemical selected for application will have demonstrated effectiveness against the target species. Treatments would be repeated through time, as needed. Treatments would be applied under conditions when there is no immediate forecast of rain and little to no potential for wind drift to transport broadcast foliar chemicals to non-treatment areas.

Herbaceous Control of Invasive Plants

Herbaceous invasive plants would be controlled in a stepwise manner. One treatment method would be used where herbaceous invasive plants occur without co-occurrence of either Small's milkpea, sand flax, or state-protected plant species. A different approach would be used where the protected species and invasive plants co-occur. Control of herbaceous invasive plants in CAs 1 and 2 would occur annually.

Both inside and outside CAs, areas where invasive plants and protected species do not co-occur may be treated with directed foliar applications of herbicide. The chemical or chemicals used will be consistent with the Integrated Pest Management Plan (Appendix D) and will have demonstrated effectiveness against the target species. Treatments would be repeated over time, as needed. Treatments would be applied when there is little to no potential for wind drift to transport broadcast foliar chemicals to non-treatment areas and when there is no immediate forecast for rain.

A monocot-selective herbicide may be used on grass species that respond to this type of treatment. For Zoysia grass, which does not respond well to monocot-specific herbicides, chemical treatment may be combined with other treatments to achieve control. To date, rare native plant stems have been manually clipped below the Zoysia grass and allowed to sit for 24-72 hours (allowing cuts to seal) prior to the application of glyphosate. Silk reed and napier grass grow in monoculture stands as well as isolated individuals. SOCSOUTH plans to have these

species cut and treat the resprouts with glyphosate herbicides. Broad-leaved invasive plants would be controlled through hand-pulling, basal, and directed foliar applications of herbicides to minimize the potential for non-target exposure and wind drift. The treatments would be repeated as necessary to achieve control.

Where Zoysia grass co-occurs with Small's milkpea or sand flax, specialized procedures will be employed to implement chemical treatment to achieve control without non-target damage to the listed species. Small's milkpea will be clipped near the ground surface below the height of Zoysia grass prior to spraying. Sand flax cannot be clipped as low as Small's milkpea and will not be trimmed below 2.5 centimeters above the ground. Glyphosate or another broad-spectrum herbicide consistent with the Integrated Pest Management Plan (Appendix D) would be applied. Multiple treatments likely would be required in a given area because Zoysia grass is extremely difficult to eradicate. SOCSOUTH plants to apply this treatment throughout the CAs where Zoysia grass occurs.

Seed Collection/ Distribution

If mature seeds are available prior to a chemical treatment of an area containing Small's milkpea or sand flax, seeds could be collected prior to chemical treatment to provide a ready source of propagules to be used in areas of active groundcover restoration.

While the Army does not have resources to fund such activities, the Army would consider cooperating with other agencies or organizations that wish to conduct research on the populations of Small's milkpea and sand flax occurring on the property. The Army would arrange to allow researchers to access sites containing the species, as necessary and within mission limitations, to complete their investigations.

Such cooperation could include allowing access to:

- Collect seeds to support restoration efforts in Miami-Dade County.
- Conduct ecological or genetic population studies.
- Conduct manipulative investigations where USFWS determines in advance that the proposed study is feasible and would not jeopardize existence of Small's milkpea and sand flax.

No projects are proposed for these activities. However, any such activities undertaken would be tracked in annual reporting.

Vegetation Management to Simulate Prescribed Fire Effects

SOCSOUTH intends to manage vegetation to simulate the effects of fire to maintain the savanna-like conditions. Competition from woody species and the physical impediment of groundcover thatch would retard growth of desirable pine rockland species, including sand flax and Small's milkpea, and a buildup of thatch would create a wildfire hazard. SOCSOUTH intends to reduce the number of native hardwood trees and shrubs to increase cover of native grassy understory and thus habitat for Small's milkpea and sand flax. A variety of reduction techniques will be employed, including hand-pulling, basal herbicide treatments, cut stump, and mowing.

Monitoring data will be analyzed to determine where this vegetation management is needed. Vegetation removal treatments to simulate the effects of fire will be implemented annually in areas where the need is identified, if prescribed burns are not possible.

Native Pine and Grass Propagation

Within the CAs, SOCSOUTH plans to restore native pine trees to the habitat primarily through natural dispersal and recruitment. Natural dispersal and recruitment have proven sufficient to meet the goal of establishing an open pine community and restoring the canopy vegetation of the pine rockland community in most areas of CA 1, but the reintroduction of pines to CA 2 have been proposed.

Mowing and targeted raking of biomass will be conducted in mixed weedy areas, with follow-up herbicide treatments to create optimal substrate for re-establishment of native pine rockland vegetation. Direct seeding of native grasses has been successfully trialed on site and may be used to increase spread of native groundcover. If needed, scraping off the substrate or other techniques, including installation of pines, palmettos, and native groundcovers may be trialed.

Mowing Outside of the CAs

Mowing will be done between July and January and avoided February through June to the greatest extent practicable. In areas where weed-whacking occurs, the weed-whacking height will be increased to 6 inches above the ground to avoid cutting protected plants too low.

Perimeter Fence: An area around the perimeter fence would be mowed to a distance of 10 feet from the outside of the fence to maintain a patrollable perimeter for installation security. SOCSOUTH plans to mow the fence buffer, as needed, to a height of 6 inches to provide for security patrols.

Where nonnative species occur in the mowed perimeter fence buffer and where Small's milkpea and sand flax do not occur, approximately one month after mowing, an appropriate herbicide solution to target woody species would be broadcast applied to the areas with nonnative species. It is expected that triclopyr, due to its specific effectiveness on woody plants, would be used for chemical control efforts. This chemical is consistent with the Integrated Pest Management Plan (Appendix D), readily available, and suitable for these types of applications. Other herbicides consistent with the Integrated Pest Management Plan would be considered. Broadcast herbicide treatments would not be applied in any areas where Small's milkpea and sand flax are determined to occur along the perimeter fence.

Conservation Mowing Areas: Within the areas marked for conservation mowing that are being passively managed for Small's milkpea and sand flax outside of the CAs, mowing is to be done twice per year, the first being in June and the second between September and early October, to a height of 4-6 inches to produce growing conditions suitable for Small's milkpea and sand flax. Broadcast herbicide treatments would not be applied in any Conservation Mowing Areas. Precise herbicide applications to target specific invasive plants may be implemented in these areas if precautions approved by a qualified botanist are taken to prevent injury to Small's milkpea, sand flax and other listed species.

Canals: SOCSOUTH plans to mow areas along canals after initial control/removal of mature woody invasive plants is complete. As with the perimeter fence area, these areas would be mowed two or three times per year with one mowing event done in winter. However, these areas would be mowed to a height of 12 inches. If an area is to be mowed only once in a year, the mowing event would occur in winter. Broadcast herbicide treatments would not be applied in these areas due to the risk to the aquatic environment. Application of herbicide to specific plants using hack-and-squirt or similar method with no non-target risk, may be done along canals as needed.

4.2.2 Management Objectives for the Florida Bonneted Bat

Although the Florida bonneted bat has yet to be documented on SOCSOUTH, it was found next door on HARB. Given that this species is mobile, if Florida bonneted bat are found on SOCSOUTH in the future, then the following objectives for the bat, in support of Goal 4, will apply. Specific projects that would be implemented tomanage natural resources under this INRMP are included in Appendix B.

Goal 4: Conserve protected wildlife on the 84.2-acre property in a manner that supports the Army mission.

Objective 4.1: Conserve any Florida bonneted bats found within SOCSOUTH.

Because the Florida bonneted bat has not been reported on SOCSOUTH property, SOCSOUTH does not plan to actively manage for the species. However, if the species is found, SOCSOUTH will consult with the USFWS, in accordance with section 7(a)(2) of the ESA, prior to implementing any activity that could adversely affect the species.

4.2.3 Management Objectives for Migratory Birds for SOCSOUTH

Objective 4.2: Conserve Migratory Birds to the greatest extent practicable without effecting mission.

Compliance with the MBTA and E.O. 13186 is mainly fulfilled through eliminating migratory bird attractants near the runway to reduce risk of collision with moving aircraft. SOCSOUTH avoids actions that may attract migratory birds near the HARB runway to avoid collisions with moving aircraft. SOCSOUTH plans to manage regular trash removal and ensuring no standing water (except in the canals). The Army will uphold the DOD and USFWS 2006 Memorandum of Understanding, which outlines a collaborative approach to promote the conservation of migratory bird population, in accordance with E.O. 13186 (DoD and USFWS 2006). SOCSOUTH intends to assess and monitor its activities that may have an adverse effect on migratory birds through the NEPA process.

In accordance with Executive Order 13186 and the associated MOU between the DoD and the USFWS to Promote the Conservation of Migratory Birds, SOCSOUTH will, to the extent feasible and practical, conduct non-military readiness activities in a manner that will minimize or avoid their impacts on migratory birds, with special emphasis on migratory bird species of concern. “Military Readiness Activities” includes all training and operations of the Armed Forces that relate to combat, and the adequate and realistic testing of military equipment, vehicles,

weapons, and sensors for proper operation and suitability for combat use. It does not include (a) routine operation of installation operating support functions, such as administrative offices; military exchanges; commissaries; water treatment facilities; storage facilities; schools; housing; motor pools; laundries; morale, welfare, and recreation activities; shops; and mess halls, (b) operation of industrial activities, or (c) construction or demolition of facilities listed above.

4.2.4 Management Objectives for State-listed Species

Objective 4.3: Conserve State Listed Species where practicable.

Planned management to control invasive vegetation, as well as trash and standing water is expected to benefit state-listed species that occur on SOCSOUTH. Vegetation management within the two CAs will avoid harm to pineland croton, the host plant for the Bartram's scrub-hairstreak and Florida leafwing butterflies, except during conservation mowing or prescribed burning of pine rockland habitat.

SOCSOUTH intends to cooperate with State authorities in efforts to conserve state-listed species to the extent practicable. SOCSOUTH will provide similar conservation measures for state-listed species as are provided to species listed under the ESA, as long as such measures are not in direct conflict with the military mission.

If conflicts occur, SOCSOUTH will coordinate with FWC to determine if any conservation measures can be feasibly implemented to mitigate impacts.

4.3 Geospatial Information Systems

In April of 2020, the Army determined that a Geospatial Information System (GIS) program was not needed at USAG-Miami because of the small size of the garrison.

4.4 Conservation Law Enforcement

The garrison does not have a conservation law enforcement program due to the size and urban location of the garrison and the lack of game species within its borders, however, consistent with DoDI 5525.17, it coordinates with the State and Federal officers. The major command or regional criminal investigative office, installation lead criminal investigator, and conservation officer are concurrently responsible for liaison with local, State, tribal, and federal agencies on matters relating to natural and cultural resource law enforcement. USAG-Miami and SOCSOUTH will make every effort to cooperate with and assist officials of State fish and game agencies and law enforcement officials of other federal, State, tribal, and local agencies for the purpose of enforcing natural and cultural resource laws on DoD installations. In addition, in accordance with the Sikes Act and DODI 5525.17, SOCSOUTH will provide access to federal and state conservation officers as needed to conduct official business.

4.5 Climate Change

The potential effects of climate change are increasingly significant and could impact military readiness, local ecosystems, biodiversity, and threatened and endangered species. Department

of Defense Manual 4715.03 (March 2011) requires installations to address potential impacts of climate change on natural resources and the training mission. Global climate models increasingly predict warming temperatures and changes in the timing and amount of precipitation in the southeastern U.S. These changes can permanently alter ecosystems. At the ecosystem level, effects will likely be gradual and challenging to assess. The average annual temperature in the United States has increased over the last century. Increasing temperatures have wide-ranging effects including stream flow; precipitation patterns; increases in insects and invasive plant species; and influence on drought, heat waves, sea level rise, and wildfire.

Increased rainfall is projected for Florida as the climate continues to warm (Runkle et. al. 2017).[8] Since the 1800s, the sea level has risen 8 inches around Florida. Sea level rise continues to cause an increase in tidal flooding. Sea level rise is projected to increase by 1 to 4 feet by between 2000 and 2100 (Runkle et. al. 2017). Thus, an associated increase in flooding can be expected. Flooding can damage infrastructure, cause road closures and overpower storm drains.

Florida has faced damages costing over $1 billion from at least 13 notable weather and climate events in the past 10 years (Runkle et. al. 2017). The number of hurricanes impacting the state of Florida is highly variable from year to year. Sea level rise in South Florida poses significant challenges that adversely impact urbanized areas. In addition to increased flooding and potential damage to infrastructure, saltwater contamination of limestone aquifers may adversely impact drinking water (Runkle et. al. 2017).

Climate-related impacts can also amplify the adverse effects from invasive species. Wetter conditions would likely increase competition, especially without the ability to conduct prescribed burns. Invasive vegetation pose a threat to the quality of rockland habitat and compete for essential resources with the endangered sand flax and Small's milkpea. Hotter and drier conditions could be particularly challenging for sand flax because it does not have any storage capacity (Gann 2020).

SOCSOUTH will incorporate management considerations to address the impacts of climate change. Monitoring and adaptive management actions will be implemented to lessen the impacts of climate change. Some of the actions SOCSOUTH and USAG-Miami are taking to manage natural resources is likely helping ecological systems adapt to changing conditions, even though climate change was not a specific consideration in developing those actions. These actions include thinning of unwanted vegetation, promoting habitat connectivity, and controlling invasive species. If prescribed burning can be implemented, that too will benefit the pineland ecosystem in the face of climate change.

4.6 Integrated Pest Management

See Appendix D.

8 Runkle, J., K. Kunkel, S. Champion, R. Frankson, B. Stewart, and W. Sweet, 2017: Florida State Climate Summary. NOAA Technical Report NESDIS 149-FL, 4 pp. Website: https://statesummaries.ncics.org/chapter/fl/ Accessed on July 15, 2020.

4.7 Noxious Weeds and Invasive Species

Noxious and invasive species are discussed in Section 4.2.1.

4.8 Wildlife Aircraft Strike Hazard

The use of HARB's runway is coordinated with the Air Force. The Air Force has a robust bird/wildlife aircraft strike hazard (BASH) reduction plan that is discussed in their 2015 INRMP. The BASH plan applies to SOCSOUTH's use of their runway.

4.9 Compatible Use Buffering and Conservation Easements

There are no compatible use buffers or conservation easements bordering SOSOUTH's leased property at this time.

4.10 Wild Land Fire Management

The garrison does not have an Integrated Wildland Fire Management Plan (IWFMP) given the size and urban location of the garrison. However, if an opportunity arises to conduct a prescribed burn to benefit pine rockland habitat, an IWFMP would be developed before then.

SECTION 5: Recreational Fishing and Environmental Education

5.1 Recreational Fishing in Doral, FL

Should USAG-Miami in Doral, Florida decide to create a recreational fishing program on the installation, it would be done to benefit military and civilian personnel, as well as the public. Goal 5 is contingent on whether an opportunity and funding allow for this recreational opportunity to be realized at the Installation's Doral property.

Goal 5: – Plan for recreational fishing opportunities for garrison personnel and members of the public at the USAG-Miami in Doral, FL, as priorities and funding allows.

Objective 5.1: Provide recreation fishing opportunities for the public using the two storm water retention ponds in Doral, if the opportunity and funding allows.

The two storm water retention ponds on the Doral property would first be tested for water quality and pH. If the water quality and pH are adequate, aeration machines would be installed to sustainably maintain fish. Otherwise, appropriate measures would be taken to improve the water quality prior to the installation of the aeration machines. The two ponds would then be stocked with native game fish. Frequent testing of both water and fish would be required to ensure appropriate consumption decisions.

The USAG-Miami DWP would manage the recreational fishing program. Consistent with AR-200-1, coordination would be made with morale, welfare, and recreation (MWR) for the management and collection of fees for fishing. The public, military personnel, and civilians would all be charged the same price, consistent with DODI 4715.03. Additional information and detail will be provided in an INRMP update, should there be sufficient funding and USAG-Miami decides to move forward with the program.

5.2 Environmental Education

Environmental education fosters understanding of resource management needs. At SOCSOUTH, environmental education will be provided for military and civilian personnel, as well as contract personnel, including temporary construction contractors.

Goal 6: Promote environmental education and awareness of military and civilian personnel at the installation's Doral and Homestead locations.

Objective 6.1: Develop Environmental Education Training Program to include self-tutorial for military and civilian personnel and instructor-led program for contract personnel.

SOCSOUTH intends to develop an environmental education program that will specifically address Small's milkpea, sand flax, the Florida bonneted bat, and the pine rocklands. The program will provide information on how to identify the three species, the regulatory and conservation requirements of these species, as well as identification of other federally and state-listed species

that may occur on SOCSOUTH. The information will include how to avoid impacts to these species, best practices, and the penalties for harassing or harming protected species. Onsite personnel will complete the training through a self-tutorial administered by SOCSOUTH. Contract personnel, including temporary construction and demolition workers, will receive an instructor-led program prior to working onsite.

SECTION 6: Implementation

6.1 Cooperative Agreements

USAG-Miami is currently implementing this plan through a US Army Corps of Engineers Cooperative Agreement with The Institute for Regional Conservation for habitat management, restoration, and conservation of CAs 1 and 2, totaling 14.7-acres for the benefit of Small's milkpea and sand flax. Projects are implemented under the direction of Alain Pierre, Environmental Compliance Specialist with the U.S. Army Garrison Miami Directorate of Public Works.

6.2 Projects by Goal and Objective

The following projects are included for implementation during the five-year period covered by this INRMP. The implementation schedule and estimated costs for these projects is provided in Appendix B and D.

Goal 1: Sustain and enhance military missions through sound natural resources management and stewardship.

Objective 1.1: Conduct all management activities in a manner that supports and enhances the military missions assigned to those lands.

Project 1.1.1 – Per AR200-1, develop and maintain a Geographic Information System (GIS) database of natural resource constraints that would be considered early in planning stages of development projects to support all the Goals in this INRMP.

Project 1.1.2 – Prepare and submit Annual Work Plan in accordance with Headquarters IMCOM Environmental Funding Guidance by August 20 of the fiscal year. Project to be implemented annually.

Project 1.1.3 – Document and assess the general condition of pine rockland habitat within ((CAs) 1 (12.6 acres) and 2 (2.1acres)). Project to be implemented annually.

Objective 1.2: Remain compliant with environmental and natural resource statutes, regulations, and DOD policies.

Project 1.2.1 – Complete INRMP Checklist to track progress of committed tasks and submit to Garrison Manager.

Project 1.2.2 – Document all management and monitoring measures of protected species that occur within the garrison in the INRMP annual report. Submit findings to the Garrison commander by August 20 of the fiscal year. Project to be implemented annually.

Project 1.2.3 – Develop an overarching environmental compliance plan that addresses pest management, storm water management, and hazardous waste management. Ensure that it is up to date on an annual basis.

Goal 2: Protect and manage native ecosystems and endangered species populations that occur within two conservation areas (CA 1 of 12.6 acres and CA 2 of 2.1 acres) within the 84.2-acre leased site.

Objective 2.1: Protect and manage and two conservation areas, CAs 1 and 2, that support Small's milkpea and sand flax, and monitor their condition.

Project 2.1.1 – Maintain transects or plots for monitoring populations of Small's milkpea and sand flax in CAs 1 and 2.

Project 2.1.2 – Perform monitoring of populations of Small's milkpea and sand flax in CAs 1 and 2, including photographic monitoring. Project to be implemented annually.

Project 2.1.3 – Conduct monitoring of conservation mowing to include comparison of pre- and post-mowing counts of Small's milkpea and sand flax in plots, and photographic monitoring. Project to be implemented annually.

Project 2.1.4 - Document and assess general condition of pine rockland habitat within Conservation Areas 1 and 2.

Objective 2.2: Control invasive species though mechanical removal, herbicide application, mowing and prescribed burning, as appropriate.

Project 2.2.1 – Collect seeds of Small's milkpea and sand flax from areas in CAs 1 and 2 as needed prior to chemical treatment of invasive species to provide a ready source of propugules to be used in areas of active ground cover restoration. Project to be implemented annually, as needed.

Project 2.2.2 - Document and assess invasive plant control within Conservation Areas 1 and 2.

Project 2.2.3 –Implement mowing within a width of 10 feet on the outside of the perimeter fence to 6-inch vegetation height to provide a patrollable perimeter. Mowing to be done as needed. Project to be implemented annually.

Project 2.2.4 – Implement targeted prescribed burns if the use of the County fire crew is possible and coordinated with mission requirements during favorable weather. Timing would be key.

Objective 2.3: Restore degraded habitat within CAs 1 and 2.

Project 2.3.1 – Restore native pines and understory species though planting, direct seeding, and habitat improvement. Project to be implemented annually.

Project 2.3.2 – When prescribed burning is not possible, use mechanical means (e.g., brush cutting, weedwacking, conservation mowing) and herbicides to simulate the effects of fire to reduce native hardwoods and promote the restoration of the pine rockland ecosystem within the 2 CAs. Project to be implemented as needed on an annual basis.

Objective 2.4: Identify and manage 3-5 small hardwood hammock patches in CAs 1 and 2.

Project 2.4.1 – Manage hardwood hammock forests that have been identified in 5 areas (4 on CA 1 and 1 in CA 2) totaling 0.75 acres. Control nonnative species, including Zoysia, within these designated areas. Project to be implemented annually.

Objective 2.5: Reduce incidences of unauthorized entry in CAs 1 and 2.

Project 2.5.1 – Maintain CA 1 and 2 fencing and install signage. Signs will indicate that habitat is being protected for endangered species. Project to be implemented annually, or with greater frequency if needed.

Project 2.5.2 – Conduct periodic patrols/ monitoring of CA security at both locations. Project to be implemented annually.

Objective 2.6: SOCSOUTH will develop an Integrated Wildland Fire Management Plan (IWFMP).

Project 2.6.1 – USAG – Miami will develop the IWFMP on behalf of SOCSOUTH, as funding and priorities allow.

Goal 3: Maintain or restore Small's milkpea and Sand flax populations and associated habitat scattered over a total of 3.16 acres in conservation mowing areas outside of CAs 1 and 2, as mission allows.

Objective 3.1: Control invasive plant species in habitat for Small's milkpea and sand flax (outside of CAs).

Project 3.1.1 – Make and install signage to indicate the 8 areas to be managed by conservation mowing. Signage will indicate that the area is being maintained for endangered species conservation. Information on boundaries of areas that will be managed to promote growth of Small's milkpea, sand flax, and other pine rockland species; herbicide application restrictions; and mowing restrictions will be included in the mowing contract.

Project 3.1.2 –Implement mowing to a height of 5-6" within the conservation mowing areas to promote growing conditions suitable for Small's milkpea and sand flax. Mowing is to be done twice per year, the first being in June and the second between September and early October. Mowing will be followed by herbicide treatment of invasive species where appropriate. Project to be implemented annually.

Project 3.1.3– Minimize threats of invasive species from immediate proximity of Management Areas (e.g., roadsides, ditch banks), through routine mowing and treatment of invasive species outside of the Management Areas that pose a threat. Project to be implemented at least annually.

Objective 3.2: Provide viable habitat for growth and reproduction of Small's milkpea and sand flax outside CAs, within designated conservation mowing areas (8 areas being passively managed for Small's milkpea and sand flax outside of the CAs).

Project 3.2.1 – Perform three-year monitoring of populations of Small's milkpea and sand flax in the designated conservation mowing areas.

Project 3.2.2 - Document and assess invasive plant control outside of CAs 1 and 2.

Objective 3.3: Avoid impacts, to the extent possible, to Small's milkpea and Sand flax outside of CAs.

Project 3.3.1 – Avoid impacts to a total of 3.16 acres of occupied Small's milkpea and sand flax habitat scattered throughout the site until the mission requires development of these sites.

Goal 4: Conserve protected wildlife on the 84.2-acre property in a manner that supports the Army mission.

Objective 4.1: Manage and protect Florida bonneted bats if they are found on SOCSOUTH. The following projects will apply only if the species is found on SOCSOUTH.

Project 4.1.1 – Document and monitor bonneted bat populations within Homestead. Project to be implemented annually.

Project 4.1.2 – Create planning buffers of 250 ft. (76 m) distance around occupied bonneted bat roosts. Project to be implemented contingent on the species being found on SOCSOUTH.

Project 4.1.3 – As needed, survey trees in areas proposed for land clearing to determine whether Florida bonneted bats roost in the proposed work area prior to vegetation removal. Surveys must be conducted by a qualified biologist and may include both acoustic and visual survey as appropriate prior to taking down any potential roost trees or sealing off any openings. Project to be implemented annually, or as needed.

Project 4.1.4 – As needed, survey abandoned buildings or buildings with openings that provide access for Florida bonneted bats to determine whether Florida bonneted bats roost in the structure prior to any activity that may cause disturbance to the species. Surveys must be conducted by a qualified biologist prior to razing any buildings or sealing off any openings. Project to be implemented annually, or as-needed.

Project 4.1.5 – If Project 4.1.4 detects bats in structures, SOCSOUTH would first consult with the USFWS prior to any relocation of the species. Following consultation, any Florida bonneted bats in the structure would be relocated by a qualified biologist with a valid permit and the paths of entry for bats into the building would be barricaded prior to implementing the planned work. If relocation and barricade is not possible, then work would be delayed until paths of entry are barricaded after the bats voluntarily vacate the building. Project to be implemented annually, or as-needed.

Project 4.1.6 – As needed, coordinate integrated pest management activities that involve use of pesticides with INRMP activities to avoid impacts to Florida bonneted bats. Project to be implemented annually, or as-needed.

Objective 4.2: Conserve Migratory Birds to the greatest extent practicable without effecting mission.

Project 4.2.1 – Consistent with Executive Order 133186, the following avoidance measure will be implemented: removal of any trash scattered on the site that may serve as an attractant for birds. Project implemented daily.

Project 4.2.1 - Ensure no standing water after rain events except in the canal area. Project implemented as needed.

Objective 4.3: Conserve State Listed Species where practicable.

Project 4.3.1 – To the extent practicable, and in a manner that does not affect the Army mission, avoid impacts to state listed species.

Goal 5: Plan for recreational fishing opportunities for garrison personnel and members of the public at the USAG-Miami in Doral, FL, as priorities and funding allows.

Objective 5.1: Provide recreation fishing opportunities for the public using the two storm water retention ponds in Doral, if the opportunity and funding allows.

Project 5.1.1 – Develop a recreation fishing plan for the Doral property. Project to be implemented if and when funding is available.

Project 5.1.2 – Obtain necessary state and county permits to stock and manage recreation fish species in the 2 storm water retention ponds. Project to be implemented if and when funding is available.

Project 5.1.3 – Stock and manage the 2 storm water retention ponds with native recreation fish species. Project to be implemented if and when funding is available and maintained annually.

Goal 6: Promote environmental education and awareness of military and civilian personnel at the installations.

Objective 6.1: Develop Environmental Education Training Program to include self-tutorial for military personnel and instructor-led program for contract personnel.

Project 6.1.1 – Develop training material on endangered species identification, requirements, and best practices.

Project 6.1.2 – Deliver training to military, civilian personnel, and contractors on environmental and natural resource compliance requirements, procedures, and best practices. Project to be implemented annually, and as needed.

Project 6.1.3 – Develop Environmental Education Training Program to include self-tutorial for military personnel and instructor-led program for contract personnel.

6.3 INRMP Implementation Costs

As part of the INRMP development, a five-year projected management action schedule and budget to implement those actions has been developed (Appendix B). Yearly and five-year reviews would modify the schedule and budget as appropriate.

SECTION 7: Conclusion

The INRMP outlines the steps required to meet DoD, Army, USAEC, IMCOM, and SOCSOUTH's legal obligations to provide for the stewardship of natural resources at the 84.2-acre SOCSOUTH HQ, Homestead and SOUTHCOM HQ Doral, Florida locations. The INRMP has been generated through cooperation with federal and state regulatory agencies. As a public document, this INRMP will support and perpetuate the SOCSOUTH mission while fostering stewardship and goodwill between SOCSOUTH, USAEC, IMCOM, the Army, and local communities.

This INRMP focuses on the conservation management of Small's milkpea, sand flax, the Florida bonneted bat, and the two relict Pine Rockland CAs. This INRMP will be reviewed annually by SOCSOUTH, as stipulated in AR 200-1. The goals and objectives will be used to guide the review and adjust programs, per the adaptive management process. Management of the federally listed Small's milkpea, sand flax, and Florida bonneted bat, as well as management of two pine rockland CAs, will benefit other federally and state-listed species and allow for the continuation of the SOCSOUTH mission while remaining in compliance with the requirements of the BO issued by the USFWS.

SOCSOUTH will protect and manage two pine rockland CAs (14.7 acres total) where habitat will be managed to promote growth and sustainment of Small's milkpea and sand flax, as well as other endemic pine rockland species. Management of these areas also will provide suitable habitat for host plant species for endangered butterfly species and other state-listed plant and animal species. Permanent fencing will be maintained to restrict access to the pine rockland CAs. Impacts to a total of 3.16 acres of occupied Small's milkpea and sand flax habitat will be avoided to the extent practicable, as mission allows. These 8 areas will be managed to promote growth of Small's milkpea and sand flax, but will not be protected as conservation areas because they are spaced throughout the site and may be affected by future development.

Measures have been established that will prevent inadvertent take of the Florida bonneted bat during operations and maintenance.

Details of management are found in Section 4 and are provided in Appendix B.

It is Army policy to periodically review program performance and management system implementation and ensure continual improvement. This management control step will be followed by this INRMP. Program performance indicators, or other audit results, will be used to develop corrective action measures or policy changes to steer course correction for overall SOCSOUTH program planning an execution.

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Appendix A: Interagency Consultations

[BIOLOGICAL OPINION FROM USFWS, CZMA Consistency Determination Concurrence]

FEDERAL AGENCY COASTAL ZONE MANAGEMENT ACT (CZMA) CONSISTENCY DETERMINATION

Introduction

This document provides the State of Florida with the Consistency Determination under CZMA Section 307 and 15 C.F.R. Part 930 sub-part C developed by the United States Special Operations Command South (SOCSOUTH). The information in this Consistency Determination is provided pursuant to 15 C.F.R. Section 930.39 and Section 307 of the Coastal Zone Management Act, 16 U.S.C. § 1456, as amended, and its implementing regulations at 15 C.F.R. Part 930. This federal consistency determination addresses the Proposed Action in the Environmental Assessment to develop an updated *Integrated Natural Resources Management Plan 2020-2024 for U.S. Army Special Operations Command South Headquarters, Homestead, Florida*.

SOCSOUTH, a sub-unified command of United States (U.S.) Southern Command, is headquartered in a new facility on leased land from Miami-Dade County adjacent to Homestead Air Reserve Base, Florida (Figure 1-1). The SOCSOUTH Headquarters, which formerly was located on Naval Station Roosevelt Roads in Ceiba, Puerto Rico, was moved when that facility was closed in 2004.

The SOCSOUTH mission area of focus encompasses approximately 12.5 million square miles, including the countries and adjacent waters of Latin America south of Mexico. The SOCSOUTH mission includes conducting counternarcotics operations, performing multinational training, and hosting symposiums for Latin American countries on combating terrorism. SOCSOUTH also participates in humanitarian relief throughout the region. SOCSOUTH is a joint headquarters comprising three operational units:

- C Company, 3rd Battalion, 7th Special Forces Group (Airborne)
- Naval Special Warfare Unit 4
- D Company, 160th Special Operations Aviation Regiment

Counternarcotics support is a major focus of the U.S. Southern Command. SOCSOUTH units are deployed on a continual basis throughout the source and transit zones to support interagency and host-nation interdiction efforts to disrupt the production, cultivation, and movement of illegal drugs. C Company, 3rd Battalion, 7th Special Forces Group hosts the annual Special Operations Forces Counter-terrorism Tactics and Techniques Symposium that brings security forces from throughout the region together in friendship to exchange ideas and foster dialogue on combating terrorism. Additionally, SOCSOUTH deploys forces to improve force protection for U.S. units and enhance the safety of U.S. citizens and interests during periods of strife in the region.

Proposed Action

The proposed action is to update the 2012 Integrated Natural Resources Management Plan (INRMP) for SOCSOUTH. The INRMP update addresses protected resource management actions on the 84.2 acre leased property, the possibility of future development on 3.16 acres in SOCSOUTH Headquarters, and the potential for creation of a recreational fishing program at

United States Army Garrison Miami (USAG-Miami)'s property in Doral, FL.

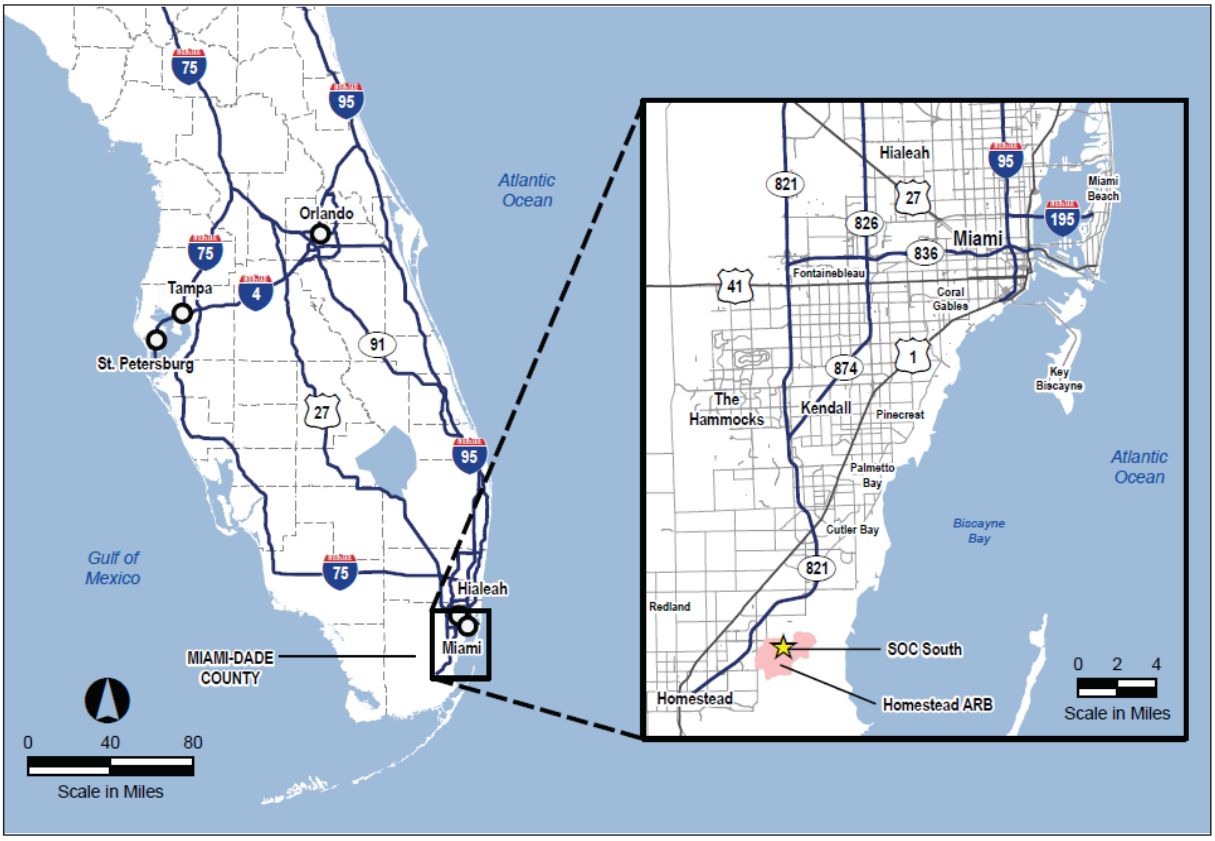

Figure 1. Location of SOCSOUTH that is addressed in INRMP Update

Federal Consistency Review

Statutes addressed as part of the Florida Coastal Zone Management Program consistency review and considered in the analysis of the proposed action are discussed in the following table. Pursuant to 15 C.F.R. § 930.41, the Florida State Clearinghouse has 60 days from receipt of this document in which to concur with or object to this Consistency Determination, or to request an extension, in writing, under 15 C.F.R. § 930.41(b). Florida's concurrence will be presumed if SOCSOUTH does not receive its response on the 60th day from receipt of this determination. The U.S. Army has determined that the proposed action is consistent with the enforceable policies of the Florida Coastal Zone Management Program to the extent practicable. Specific consistency determinations for each enforceable policy are provided in Table 1.

Table 1. Florida Coastal Management Program Consistency Review

Statue	Consistency	Scope
Chapter 161 *Beach and Shore Preservation*	The proposed action is the development of a plan and would not adversely affect beach and shore management, specifically as it pertains to: • The Coastal Construction Permit Program.	Authorizes the Bureau of Beaches and Coastal Systems within DEP to regulate construction on or seaward of the states' beaches.

Statue	Consistency	Scope
	• The Coastal Construction Control Line (CCCL) Permit Program. • The Coastal Zone Protection Program. All land activities would occur inland on county property under federal control.	
Chapter 163, Part II *Growth Policy; County and Municipal Planning; Land Development Regulation*	The proposed action is supported by the Miami-Dade County Planning Commission and is included in their comprehensive plans.	Requires local governments to prepare, adopt, and implement comprehensive plans that encourage the most appropriate use of land and natural resources in a manner consistent with the public interest.
Chapter 186 *State and Regional Planning*	The proposed action would not have a negative effect on state plans for water use, land development or transportation.	Details state-level planning requirements. Requires the development of special statewide plans governing water use, land development, and transportation.
Chapter 252 *Emergency Management*	The proposed action would not increase the state's vulnerability to natural disasters. Emergency response and evacuation procedures would not be impacted by the proposed action.	Provides for planning and implementation of the state's response to, efforts to recover from, and the mitigation of natural and manmade disasters.
Chapter 253 *State Lands*	All activities would occur on county property already designated for development, therefore there would be no impact to state or public lands.	Addresses the state's administration of public lands and property of this state and provides direction regarding the acquisition, disposal, and management of all state lands.
Chapter 258 *State Parks and Preserves*	State parks, recreational areas and aquatic preserves would not be affected by the proposed action.	Addresses administration and management of state parks and preserves (Chapter 258).
Chapter 259 *Land Acquisition for Conservation or Recreation*	Tourism and outdoor recreation would not be affected.	Authorizes acquisition of environmentally endangered lands and outdoor recreation lands (Chapter 259).
Chapter 260 *Recreational Trails System*	Opportunities for recreation on state lands would not be affected.	Authorizes acquisition of land to create a recreational trails system and to facilitate management of the system (Chapter 260).
Chapter 375 *Multipurpose Outdoor Recreation; Land Acquisition, Management, and Conservation*	Opportunities for recreation on state lands would not be affected.	Develops comprehensive multipurpose outdoor recreation plan to document recreational supply and demand, describe current recreational opportunities, estimate need for additional recreational opportunities, and

Statue	Consistency	Scope
		propose means to meet the identified needs (Chapter 375).
Chapter 267 *Historical Resources*	In support of the 2000 Supplemental Environmental Impact Statement: *Disposal of Portions of the Former Homestead Air Force Base, Florida,* a Phase I survey for archeological resources was conducted. The survey found no resources listed or eligible for listing on the NRHP occurring within the project area. This survey was coordinated with the State Historic Preservation Office. There would be no impacts to cultural resources under the proposed action.	Addresses management and preservation of the state's archaeological and historical resources.
Chapter 288 *Commercial Development and Capital Improvements*	The proposed action would occur on county property and is supported by the Miami-Dade County Planning Commission. The proposed action is included in their comprehensive plan.	Provides the framework for promoting and developing the general business, trade, and tourism components of the state economy.
Chapter 334 *Transportation Administration*	The proposed project would not have an impact on transportation.	Addresses the state's policy concerning transportation administration (Chapter 334).
Chapter 339 *Transportation Finance and Planning*	The proposed project would have no effect on the finance and planning needs of the state's transportation system.	Addresses the finance and planning needs of the state's transportation system (Chapter 339).
Chapter 370 *Saltwater Fisheries*	The proposed action would not have an effect on saltwater fisheries.	Addresses management and protection of the state's saltwater fisheries.
Chapter 372 *Wildlife*	The proposed project area is disturbed and is dominated by exotic, invasive vegetation. Wildlife use would be limited. Conservation management areas established within the SOCSOUTH Headquarters facility would support native wildlife. The state protected burrowing owl is known to occur in the area. However, neither this species nor burrows suitable for its use were observed in the project area during a site investigation. The proposed action would not have a negative impact on wildlife resources.	Addresses the management of the wildlife resources of the state.

Statue	Consistency	Scope
Chapter 373 *Water Resources*	No impacts to water resources would occur from developing an update to the INRMP.	Addresses the state's policy concerning water resources.
Chapter 376 *Pollutant Discharge Prevention and Removal*	The proposed action would not involve the discharge of pollutants.	Regulates transfer, storage, and transportation of pollutants, and cleanup of pollutant discharges.
Chapter 377 *Energy Resources*	Energy resource production, including oil and gas, and the transportation of oil and gas, would not be affected by the proposed action.	Addresses regulation, planning, and development of oil and gas resources of the state.
Chapter 380 *Land and Water Management*	Under the proposed action, development of state lands with regional (i.e. more than one county) impacts would not occur. No changes to coastal infrastructure would occur.	Establishes land and water management policies to guide and coordinate local decisions relating to growth and development.
Chapter 381 *Public Health, General Provisions*	The proposed action does not involve the construction of an on-site sewage or treatment system.	Establishes public policy concerning the state's public health system.
Chapter 388 *Mosquito Control*	The proposed action would not affect mosquito control efforts.	Addresses mosquito control effort in the state.
Chapter 403 *Environmental Control*	The groundwater on a portion of the proposed site has elevated levels of arsenic. Groundwater use in the area has been restricted as a result of the arsenic contamination. The proposed action would have no impact on groundwater, water quality, air quality, pollution control, solid waste management, or other environmental control efforts.	Establishes public policy concerning environmental control in the state.
Chapter 582 *Soil and Water Conservation*	The proposed action does not include construction and demolition activities and soil disturbance.	Establishes policies that require the conservation, development and use of soil and water resources to preserve natural resources and control and prevent soil erosion.

Appendix B: Project Checklist

Category	Project	Needed [1]	Scheduled	Implemented	Follow-up Required [2]
Mission Sustainment	Project 1.1.1: Per AR200-1, develop and maintain a Geographic Information System (GIS) database of natural resource constraints that would be considered early in planning stages of development projects to support all the Goals in this INRMP. Project to be implemented in fiscal year (FY) 2022.				
Mission Sustainment	Project 1.1.2 – Prepare and submit Annual Work Plan in accordance with Headquarters IMCOM Environmental Funding Guidance by August 20 of the fiscal year. Project to be implemented annually.				
Mission Sustainment	Project 1.1.3 – Document and assess the general condition of pine rockland habitat within ((CAs) 1 (12.6 acres) and 2 (2.1acres). Project to be implemented annually.				
Mission Sustainment	Project 1.2.1 – Complete INRMP Checklist to track progress of committed tasks and submit to Garrison Manager.				
Mission Sustainment	Project 1.2.2 – Document all management and monitoring measures of protected species that occur within the garrison in the INRMP annual report. Submit findings to the Garrison commander by August 20 of the fiscal year. Project to be implemented annually.				
Mission Sustainment	Project 1.2.3 – Develop an overarching environmental compliance plan that address pest management, storm water management, and hazardous waste management. Ensure that it is up to date on an annual basis.				
Conservation Areas	Project 2.1.1: Establish transects or plots for monitoring populations of Small's milkpea and sand flax in CAs 1 and 2. Project to be implemented before the end of FY 2021.				
Monitoring	Project 2.1.2: Perform monitoring of populations of Small's milkpea and sand flax in CAs 1 and 2. Project to be implemented annually.				
Monitoring	Project 2.1.3: Conduct monitoring of conservation mowing to include comparison of pre- and post-mowing counts of Small's				

Category	Project	Needed [1]	Scheduled	Implemented	Follow-up Required [2]
	milkpea and sand flax in plots, and photographic monitoring. Project to be implemented annually.				
Monitoring	Project 2.1.4: Document and assess general condition of pine rockland habitat within Conservation Areas 1 and 2.				
Conservation Areas	Project 2.2.1: Collect seeds of Small's milkpea and sand flax from areas in CAs 1 and 2 as needed if control of invasive species methods pose a unavoidable threat. Project to be implemented annually, as needed.				
Conservation Areas	Project 2.2.2: Document and assess invasive plant control within Conservation Areas 1 and 2.				
Conservation Areas	Project 2.2.3: Implement mowing to 6-inch vegetation height to provide a patrollable perimeter outside the perimeter fence. Mowing to be done as needed. Project to be implemented annually.				
Conservation Areas	Project 2.2.4: Implement targeted prescribed burns if the use of the County fire crew is possible and coordinated with mission requirements during favorable weather. This would be done following an Integrated Wildland Fire Management Plan in accordance with the Army Wildland Fire Policy and AR200-1. Timing would be key.				
Conservation Areas	Project 2.3.1: Restore native pines and understory species though planting, direct seeding, and habitat improvement. Project to be implemented annually.				
Conservation Areas	Project 2.3.2: When prescribed burning is not possible, use mechanical means (e.g., brush cutting, conservation mowing) and herbicides to simulate the effects of fire to reduce native hardwoods and promote the restoration of the pine rockland ecosystem within the 2 CAs. Project to be implemented annually.				
Conservation Areas	Project 2.4.1: Manage hardwood hammock forests that have been identified in 5 areas (4 on CA 1 and 1 in CA 2) totaling 0.75				

Category	Project	Needed [1]	Scheduled	Implemented	Follow-up Required [2]
	acres. Control nonnative species, including Zoysia, within these designated areas. Project to be implemented annually.				
Conservation Areas	Project 2.5.1: Maintain CA 1 and 2 fencing and signage. Project to be implemented annually, or with greater frequency if needed.				
Conservation Areas	Project 2.5.2: Conduct periodic patrols/ monitoring of CA security at both locations. Project to be implemented annually.				
Conservation Areas	Project 2.6.1 – USAG – Miami will develop the IWFMP on behalf of SOCSOUTH, as funding and priorities allow.				
Outside Conservation Areas	Project 3.1.1: Make and install signage to indicate the 10 areas to be managed by conservation mowing. Signage will include: a) boundaries of areas that will be managed to promote growth of Small's milkpea, sand flax, and other pine rockland species, b) herbicide application restrictions, and c) mowing restrictions. Project to be implemented in fiscal year (FY) 2025.				
Outside Conservation Areas	Project 3.1.2: Implement mowing to a height of 5-6" within the conservation mowing areas to promote growing conditions suitable for Small's milkpea and sand flax. Mowing is to be done twice per year, the first being in June and the second between September and early October. Mowing would will be followed by herbicide treatment of invasive species where appropriate. Project to be implemented annually.				
Outside Conservation Areas	Project 3.1.3: Minimize threats of invasive species from immediate proximity of Management Areas (e.g., roadsides, ditch banks), through routine mowing and treatment of invasive species outside of the Management Areas that pose a threat. Project to be implemented at least annually.				
Outside Conservation Areas	Project 3.2.1: Perform three-year monitoring of populations of Small's milkpea and sand flax in the designated conservation mowing areas. Project to be implemented in FY 2022 and FY 2025.				

Category	Project	Needed [1]	Scheduled	Implemented	Follow-up Required [2]
Outside Conservation Areas	Project 3.2.2 – Document and assess invasive plant control outside of Conservation Areas 1 and 2.				
Outside Conservation Areas	Project 3.3.1 – Avoid impacts to a total of 3.16 acres of occupied Small's milkpea and Sand flax habitat scattered throughout the site.				
Florida Bonneted Bat Management	Project 4.1.1: Document and monitor bonneted bat populations within Homestead. Project to be implemented annually.				
Florida Bonneted Bat Management	Project 4.1.2: Create planning buffers of 250 ft. (76 m) distance around occupied bonneted bat roosts. Project to be implemented in FY 2022.				
Florida Bonneted Bat Management	Project 4.1.3: As needed, survey trees in areas proposed for land clearing to determine whether Florida bonneted bats roost in the proposed work area prior to vegetation removal. Surveys must be conducted by a qualified biologist and may include both acoustic and visual survey as appropriate. Project to be implemented annually, or as needed.				
Florida Bonneted Bat Management	Project 4.1.4: As needed, survey abandoned buildings or buildings with openings that provide access for Florida bonneted bats to determine whether Florida bonneted bats roost in the structure prior to any activity that may cause disturbance to the species. Surveys must be conducted by a qualified biologist. Project to be implemented annually, or as-needed.				
Florida Bonneted Bat Management	Project 4.1.5: If Project 4.1.4 detects bats in structures, then any Florida bonneted bats in the structure would be relocated by a qualified biologist with a valid permit and the paths of entry for bats into the building would be barricaded prior to implementing the planned work. If relocation and barricade is not possible, then work would be delayed until paths of entry are barricaded after the bats voluntarily vacate the building. Project to be implemented annually, or as-needed.				
Florida Bonneted Bat Management	Project 4.1.6: As needed, coordinate integrated pest management activities that involve use of pesticides with INRMP				

Category	Project	Needed [1]	Scheduled	Implemented	Follow-up Required [2]
	activities to avoid impacts to Florida bonneted bats. Project to be implemented annually, or as-needed.				
Migratory Birds	Project 4.2.1: Remove trash. Project implemented daily				
Migratory Birds	Project 4.2.2: Ensure no standing water after rain events except in the canal area. Project implemented as needed.				
State Listed Species	Project 4.3.1: To the extent practicable, and in a manner that does not affect the Army mission, avoid impacts to state listed species.				
Recreational Fishing	Project 5.1.1: Develop a recreation fishing plan for the Doral property. Project may be implemented [if an opportunity and funding is available].				
Recreational Fishing	Project 5.1.2: Should project 5.1.1 be implemented, obtain necessary state and county permits to stock and manage recreation fish species in the 2 storm water retention ponds. Project may be implemented [if an opportunity and funding is available].				
Recreational Fishing	Project 5.1.3: Should project 5.1.1 be implemented, stock and manage the 2 storm water retention ponds with native recreation fish species. Project may be implemented [if an opportunity and funding is available].		TBD		
Environmental Education	Project 6.1.1: Develop training material on endangered species identification, requirements, and best practices. Project to be implemented in FY 2022.				
Environmental Education	Project 6.1.2: Deliver training to military, civilian personnel, and contractors on environmental and natural resource compliance requirements, procedures, and best practices. Project to be implemented annually, and as needed.				
Environmental Education	Project 6.1.3: Develop Environmental Education Training Program to include self-tutorial for military personnel and instructor-led program for contract personnel.				

Appendix C: FY 21 Annual Work Plan

The following table includes a subset of the FY 21 Annual Work Plan that addresses implementation of all the INRMP components.

Project Title	Total Cost
INRMP – Endangered Plant Conservation	$254,250
INRMP – Wildlife Monitoring	$7,259
INRMP – SAR and Candidate Species Management	$57,832
INRMP- MBTA Compliance	$27,904
INRMP - IRC Contract to manage CAs	$65,000
TOTAL	**$412,245**

Projected Costs for FY 2022

Project Title	Total Cost
INRMP – Wildlife Monitoring	$7,259
INRMP – SAR and Candidate Species Management	$57,832
INRMP- MBTA Compliance	$27,904
INRMP - IRC Contract to manage CAs	$65,000
INRMP- Education and Outreach	10,000
TOTAL	$167,995

Projected Costs for FY 2023

Project Title	Total Cost
INRMP – Wildlife Monitoring	$7,259
INRMP – SAR and Candidate Species Management	$57,832
INRMP- Habitat Restoration within CAs	$25,000
INRMP- MBTA Compliance	$27,904
INRMP - IRC Contract to manage CAs	$65,000
INRMP- Education and Outreach	10,000
TOTAL	**$192,995**

Projected Costs for FY 2024

Project Title	Total Cost
INRMP – Wildlife Monitoring	$7,259
INRMP – SAR and Candidate Species Management	$57,832
INRMP- MBTA Compliance	$27,904
INRMP - IRC Contract to manage CAs	$65,000
INRMP- Education and Outreach	10,000
TOTAL	**$192,995**

Projected Costs for FY 2025

Project Title	Total Cost
INRMP – Wildlife Monitoring	$7,259
INRMP – SAR and Candidate Species Management	$57,832
INRMP- MBTA Compliance	$27,904
INRMP - IRC Contract to manage CAs	$65,000
INRMP- Education and Outreach	$10,000
TOTAL	$192,995

Appendix D: Integrated Pest Management Plan

DRAFT
INTEGRATED PEST MANAGEMENT PLAN

US Army Garrison Miami and SOCSOUTH
Miami, Florida

June 2020

Pest Management Plan Annual Review

Year	Completion Date	Integrated Pest Management Coordinator	Copies of changes to the Pest Management Consultant (Annual) Date Completed
20			
21			
22			
23			
24			

Scheduled On-Site Pest Management Technical Review

Scheduled Date	Integrated Pest Management Coordinator	Pest Management Consultant Date Review Completed

Note: Technical Reviews should be scheduled approximately 18 months apart.

Appendices

Appendix	Content
A	Applicator Licenses and Certifications, Appointment Letters
B	Publications
C	Program Review Reports
D	Authorized Use Pesticides
E	Contracts
F	Integrated Pest Management Outlines

List of Tables

Executive Summary

This Integrated Pest Management Plan (IPMP) provides a comprehensive, long-range document that captures all the pest management operations and pesticide-related activities conducted at USAG- Miami and SOCSOUTH. The plan incorporates pest management practices in accordance with local, State, Federal and Department of Defense regulations and conforms to the requirements of DoD Instruction 4150.07 and DoD Manual 4150.07, Volume 1. The plan provides comprehensive information to Garrison staff and internal and external compliance auditors. The plan was prepared from data collected through pest management data collection, on-site observations, document reviews and interviews with Garrison personnel.

The mission of USAG- Miami is to provide quality installation support services, infrastructure and force protection to US Southern Command, and SOCSOUTH supporting tenant units, their service members, families and civilians. Pest control services are needed at USAG- Miami and SOCSOUTH to:

(1) Provide services that will prolong the life of the structures through subterranean termite and nuisance pest control;

(2) Maintain the safety and security of industrial and storage areas through weed control

(3) Provide nuisance pest control to all buildings to insure a good working and living environment

(4) Control weed and insect pests in all recreational and lawn areas to maintain aesthetics and provide recreational facilities to personnel

(5) Provide control of mosquitoes, flies and other potential disease vectors to insure the comfort and well-being of all personnel

(6) Provide vertebrate pest control to all areas of the Garrison

For the current level of work to be accomplished, a sufficient staff of qualified applicators must be maintained. There is no MWR Golf course, Commissary or Housing on the Garrison. Pest control operations are conducted by contracted pest control personnel. Contract personnel must meet state certification requirements as specified in the pest control contract. In accordance with DoD Manual 4150.07, Vol 1 4.2g If a DoD installation pest management contract efforts are less than 3 months, the presence of a trained PMQAE or PMPAR is recommended, but not mandatory. The pest control operations at USAG- Miami, and SOCSOUTH require less than 3 months out of the year, PMQAE training is not required but is recommended to better evaluate the performance of the contracted pesticide applicators.

The focus of the Plan is safe, environmentally sound and cost-effective pest control through Integrated Pest Management (IPM). IPM depends on education, proper surveying and identification of pests; non-chemical and chemical control methods, and individual responsibility for pest prevention.

1. Introduction

1.1 The Pest Management Plan

1.1.1. Scope

The USAG- Miami and SOCSOUTH Integrated Pest Management Plan (IPMP) is a long-range, comprehensive planning and operational document that establishes the strategy and methods for conducting safe, effective, and environmentally sound integrated pest management (IPM). The IPMP covers all pest management and pesticide-related activities conducted by civilian and military DoD personnel and commercial contractors within all functional areas of USAG- Miami and SOCSOUTH.

1.1.2. Authority

DoDI 4150.07 requires all DoD activities that apply pesticides to have an IPMP. The Plan is fully implemented upon the review and signature of the Garrison CO.

1.1.3. Purpose and Structure

The IPMP provides a comprehensive overview of pest management and pesticide related operations on USAG- Miami and SOCSOUTH. The Plan is structured as follows:

- Section 1 addresses the purpose of the Plan and its maintenance and implementation. It also provides background on the Garrison and an overview of the current pest management program and requirements.
- Section 2 describes the organization and responsibilities of the functional area of the program and the administrative requirements and documentation.
- Section 3 describes the field operation of pest management including integrated pest management (IPM), pesticide management, contracting, and current practices.
- Section 4 provides lists and descriptions of hazards and hazard abatement practices associated with pest management.
- Section 5 addresses the environmental considerations of the program including regulatory compliance, the application of environmental management systems to pest management.
- Section 6 describes emergencies that are the result of infestations.
- Section 7 provides a list of resources available to the Garrison.
- The Appendices provide references and supporting documents.

1.1.4. Plan Implementation

The Plan must be reviewed and approved by Garrison stakeholders and technically approved by the IMCOM pest management consultant. The Plan is implemented upon signature of the Garrison Commanding Officer. The Integrated Pest Management Coordinator (IPMC) has the task of implementing, coordinating and executing the Plan among each of the functional areas of the Garrison.

1.1.5. Plan Maintenance

The USAG- Miami and SOCSOUTH Integrated Pest Management Coordinator (IPMC) maintains the Garrison IPMP. The plan is to be reviewed and updated annually to reflect all changes made in the pest management program during each fiscal year. Annual updates of this plan are sent to the AEC Pest Management Consultant no later than 30 October of each year.

1.1.5.1. *Internal Review*

An internal review is conducted annually by the IPMC in coordination with the Contract Pest Controller and other functional area points of contact (POC). The review should include updating contract information, applicator certifications and pesticides used on the garrison. Pesticide use records should be reviewed as well.

1.1.5.2. *On-site Review*

In accordance with DODM 4150.07, Vol 1 4.1a. An on-site review of the entire pest management program shall be performed by a pest management consultant every 3 years to ensure compliance with the Plan. The review may be performed more frequently if requested or required.

1.1.5.3. *Plan Rewrite*

The Plan should be rewritten every 5 years to reflect new contracts, personnel, pest management practices, and regulatory changes. The rewritten plan must be reviewed and approved by a pest management consultant prior to implementation.

1.2. Garrison Background

1.2.1. Location and Facilities

USAG- Miami occupies 55 acres and SOCSOUTH 84 acres of land in Miami Dade County Florida and includes a Command building and an administration building.

1.2.2. Facilities' Descriptions and Missions

1.2.2.1. ***US Army Garrison- Miami***

United States Army Garrison-Miami provides quality installation support services, infrastructure and force protection to US Southern Command, supporting tenant units, their service members, families and civilians; to enable the Combatant Command to accomplish its mission.

1.2.2.2. ***US Army Garrison- SOCSOUTH***

SOCSOUTH plans, directs and executes special operations missions throughout Central A merica, South America and the Caribbean to achieve operational and strategic objectives in support of the Commander, USSOUTHCOM. As directed, SOCSOUTH responds to crisis in the USSOUTHCOM area of responsibility to protect U.S. vital interests and to fight and win our nation's wars.

1.3. Pest Management Program Overview

1.3.1. Overview

All pest control services are provided by contracted pesticide applicators. All scopes of work for pesticide contracts must be provided to the IPMC for review and concurrence. Contracts must also be reviewed and approved by the IMCOM Pest Management Consultant before contract solicitation.

1.3.2. Pest Management Objectives

The objectives of the USAG- Miami pest management program are:

1. **The prevention of pest-related health and safety problems that affect the mission.** Prevention of pest-borne disease and injury is a component of Force Health Protection (FHP). FHP seeks to maintain a healthy and fit military and civilian force in order to maintain the highest levels of readiness. The military and civilian infrastructure on the Garrison must be protected in order to provide the necessary support to complete the mission. Readiness also ensures that all Garrison personnel are provided with healthy work conditions that contribute to a high quality of life.
2. **The protection of government real property, materiel and aesthetics.** Buildings and roads that form the infrastructure of the Garrison are susceptible to pests. Termites can cause extensive damage to wood structures if not adequately prevented and controlled. Weeds can cause damage to roadways and increase the risk of fire.
3. **The prevention of pest damage to equipment and subsistence used to support the operational mission of the activities and tenant commands.** Millions of dollars of high tech materiel are maintained and stored on USAG Miami. This material is susceptible to physical damage by pests. Rodents, for example, can cause considerable damage to electronic equipment through gnawing on electrical components
4. **Vegetation management to protect the local environment.** The introduction of non-native species of plants can increase the risk of fire and degrade the surrounding native environment.
5. **Reduce the use and dependence on pesticides.**

1.3.3. Program Requirements

1.3.3.1. *Administration*

Table 1-1 outlines the pest management administrative program requirements.

1.3.3.2. *Operations*

Pest management on USAG- Miami and SOCSOUTH includes the following categories of operations:

- **Ornamental and turf -** Control and management of pests of landscape plants and turf, including arthropods, fungi, and weeds
- **Right-of-way -** Control and management of vegetation along roadways and perimeter fence
- **Aquatic Weed Control –** Control of vegetation in ponds and ditches
- **Industrial, Institutional, Structural, and Health-Related -** Control and management of pests in and around buildings. Pests may include cockroaches, termites, bees, venomous animals, stored product insects, rodents, and feral animals
- **Mosquito Abatement -** Control and management of mosquito and disease vector pests.
- **Invasive weeds -** Removal of non-native species of plants that are detrimental to native plant and animal habitats

Table 1-1. Pest Management Administration Program Requirements

Requirement	Description	Reference	Responsibility
PLANNING	Review and revise the Pest Management Plan annually.	DoDM 4150.07, Vol 1	IPMC/PMQAE
RECORDING	Record all pest management operations conducted on the Base after each operation.	DoDM 4150.07, Vol 1	All pesticide applicators
MAINTAINING	Maintain records of all pest management operations conducted on Base on-site indefinitely	DoDM 4150.07, Vol 1	IPMC/PMQAE
REPORTING	Compile and report all pest management operations to AEC on a quarterly basis.	DoDM 4150.07, Vol 1	IPMC/ PMQAE in coordination with pesticide applicators
PESTICIDE APPLICATOR QUALIFICATION	Ensure that all personnel applying pesticides on Garrisons have current DoD pesticide applicator certification if in-house or state commercial applicator certification if contracted.	DoDM 4150.07, Vol 1	IPMC/PMQAE
COMPLIANCE	Ensure that all program elements are in compliance with all Federal regulations. The Base is also encouraged to comply with County and State regulations.	DoDM 4150.07, Vol 1	IPMC/PMQAE
PESTICIDE APPROVAL	Compile and submit list of new pesticides to the Pest Management Consultant for approval for use on the Base.	DoDM 4150.07, Vol 1	IPMC/PMQAE
CONTRACT REVIEW	Review pest management contract specifications for compliance with the Integrated Pest Management Plan and submit to the Command Pest Management Consultant for final review and approval prior to advertising.	DoDM 4150.07, Vol 1	IPMC/PMQAE

2. PROGRAM ADMINISTRATION

2.1. Roles and Responsibilities

2.1.1. Commanding Officer

- Designate an Integrated Pest Management Coordinator in writing
- Approve and support the IPMP
- Ensure appropriate funding of pest management programs to provide effective and safe pest management on USAG- Miami and SOCSOUTH
- Ensure all pest management operations are conducted safely and have minimal impact on the environment

2.1.2. Integrated Pest Management Coordinator (IPMC)

- Coordinate the USAG- Miami and SOCSOUTH pest management program including implementation, maintenance and annual update of the garrison IPMP
- Coordinate revision of the IPMP every 5 years
- Promote IPM to provide cost-effective and safe pest management
- Receive and consolidate pest management records from all pesticide applicators and submit quarterly to AEC
- Ensure current certification of all pesticide applicators
- Receive pesticide approvals from AEC prior to use
- Maintain current list of approved pesticides
- Ensure the Garrison Contracting Officer submits pest management contract specifications to AEC for review prior to solicitation
- Act as the Commanding Officer's advisor for pest management issues

2.1.3. Facilities Support Contracting Division

Personnel in this Division monitor the performance of the contracted Pest Control Contractor. The responsibilities of this Division are to:

- Provide PMQAE to monitor and evaluate the performance of the contract-provided service to ensure that pest control measures are being properly applied. In accord with DoDM 4150.07, Vol 1 4.2 g If a DoD installation pest management contract efforts are less than 3 months, the presence of a trained PMQAE or PMPAR is recommended, but not mandatory Coordinate with the IPMC on contract specifications prior to submittal to AEC for review and final approval
- Maintain copy of each contract on file
- Monitor commercial pest management contractors to ensure effective and safe pest management practices. Identify and document discrepancies and seek corrective action with contractor in accordance with the contract

2.1.4. Preventive Medicine

Personnel in preventive medicine have the overall responsibility to ensure the prevention of vector-borne disease and other environmental health concerns on the Garrison. Preventive medicine support is provided by USPHD-Ft Gordon and Dwight D. Eisenhower Army Medical Center, Ft Gordon. Responsibilities include:

- Act as medical department liaison to Commanding Officer for public health pest management
- Conduct food service sanitation inspections at Garrison facilities
- Provide support for pest management operations involving medically-important pests
- Conduct surveys and surveillance for pests of medical importance
- Maintain current DoD pesticide applicator certification in Category 8: public health pest management
- Establish and maintain liaison with local health agencies
- Provide occupational health and safety support for DoD pesticide applicators

- Maintain a record of pest management operations including food handling area surveys, mosquito trap surveys, mosquito control applications performed and other disease vector surveys preformed. This data should be provided the IPMC to provide station wide IPM coordination and data management

2.1.5. U.S. Army Veterinary Services

The primary mission of the Army Veterinary Techs is to:

- Report pest infestations that require profession pest management services
- Conduct surveillance for pests which damage, destroy or contaminate food stored in Garrison facilities

2.1.6. Department of Public Works

The Department of Public Works provides oversight and compliance regarding pest management operations. Responsibilities include:

- Provide IPMC
- Provide review and approval of the IPMP

2.1.7. Army Exchange

If the Exchange sells pesticides to private consumers. Responsibilities include:

- Ensure pesticides for retail sale are safely displayed on shelves
- Properly dispose of pesticides and containers if the product has exceeded its shelf life or the EPA registration has been cancelled
- Ensure that store employees are properly trained on the emergency procedures in the event of a pesticide spill

2.1.8. Contract Pest Management Service Providers

See section 2.3 for more information on contracted pest control.

- Conduct pest management operations in accordance with the contract specifications
- Comply with all DoD, federal, state and local pest management regulations
- Comply fully with the Garrison IPMP

2.1.9. All Garrison Personnel

- Apply appropriate sanitary and pest exclusionary practices to prevent pest infestations
- Control minor pest infestations through mechanical or other means before requesting professional pest management services
- Coordinate and cooperate fully with pest control contractor

2.2. Records and Reporting

2.2.1. Maintaining pest management operations records

In accordance with DoDM 4150.07, Vol 1. 4.5 a, all pesticide use must be recorded on DD Form 1532-1, “Pest Management Maintenance Record,” or a computer-generated equivalent. Daily records of **all** pest control are to be recorded. Garrison commanders shall ensure these records are archived after 2 years for permanent retention.

2.3. Training, Certification and Licensing

All personnel applying pesticides on the Garrison must have current DoD pesticide applicator certification if in-house or state commercial applicator certification if contracted. Copies of certifications and licenses of pesticide applicators currently conducting pest control operations on USAG- Miami and SOCSOUTH are in Appendix A.

2.3.1. Requirements for DoD applicators

All Garrison pest management personnel who apply or supervise the application of pesticides shall be trained and certified within two years of employment in accordance with the DoD Plan for the Certification of Pesticide Applicators.

2.3.2. Requirements for commercial contractor applicators

All contract employees performing pest management on the Garrison must hold a "Qualified Applicator License" issued by the Florida Department of Agriculture and Consumer Services (DACS).

For more information on pesticide applicator licensing in Florida go to http://www.freshfromflorida.com/Divisions-Offices/Agricultural-Environmental-Services/Agriculture-Industry/Pesticide-Applicator-Certification
Copies of commercial pesticide applicators are found in Appendix A.

2.3.2.1. *Grounds maintenance*

Applicators applying pesticides to the grounds must have an applicator license in both turf and ornamental and right of way pest control.

2.3.2.2. *Structural Pest Control*

Applicators applying pesticides inside and outside buildings to control household or structural pests must have an applicator license in structural pest control. Persons conducting fumigations must be licensed in fumigation.

2.3.2.3. *Mosquito Control*

Applicators conducting mosquito control must have an applicator license in public health pest control.

2.3.3. Pest Management Quality Assurance Evaluators

n accord with DoDM 4150.07, Vol 1 4.2 g If a DoD installation pest management contract efforts are less than 3 months, the presence of a trained PMQAE or PMPAR is recommended, but not mandatory Information on training courses can be found on the Armed Forces Pest Management Board website:
https://www.acq.osd.mil/eie/afpmb/training_courses.html

2.3.4. Integrated Pest Management Coordinator

In accordance with DoDI 4050.7 (5.4.20.3) The IPMC shall attend a DoD pest management course to familiarize themselves with the administrative and operational requirements of Garrison pest management. Information on the Pest Management Coordinator Course can be found on the Armed Forces Pest Management Board website:
https://www.acq.osd.mil/eie/afpmb/training_courses.html

3. Operations

3.1. Pesticide Use

3.1.1. Pesticide Approval

Only pesticides approved by both the EPA and the state of Florida shall be used. Additionally, DoDM 4150.07 requires Garrisons to submit a list of all pesticides that will be used during control operations to the IMCOM Pest Management Consultant for review and approval. The purpose of this approval process is to ensure that only registered pesticides will be used on the Garrison. New pesticides may be submitted for approval as needed.

3.1.2. Pesticide label

A copy of the manufacturer's label and an MSDS or SDS for each pesticide on the approved pesticide list shall be maintained by the IPMC. Electronic versions of the labels may also be maintained.

3.2. Integrated Pest Management (IPM)

3.2.1. Federal Regulation and Policy

US Code states "Federal agencies shall use Integrated Pest Management techniques in carrying out pest management activities and shall promote Integrated Pest Management through procurement and regulatory policies, and other activities." (7 USC Title 7, Chapter 6, Subchapter II, Sec. 136r-1)

3.2.2. IPM

IPM is a sustainable approach that incorporates the use of multiple techniques to prevent or suppress pests in a given situation. Although IPM emphasizes the use of non-chemical strategies, chemical control may be an option used in conjunction with other methods. IPM strategies depend on surveillance to establish the need for control and to monitor the effectiveness of management efforts.

Under an IPM program, execution of individual pest management practices involves the following steps:

- **Identify** pests and possible natural enemies
- **Develop plans/strategies** that are effective against the pest, least disruptive to natural controls and least hazardous to human health and the environment
- **Establish action thresholds** of the pest population sufficient to warrant treatment. In determining threshold levels, the amount of aesthetic or economic damage that can be tolerated must be correlated with the population size of pests, natural enemies, time in the season, and/or life stage of the pest or host
- **Monitor pest population**
- **Control pest**
- **Document results**
- **Evaluate/redesign plan** to determine the outcome of treatment actions

Controlling pests has traditionally been the responsibility of the pest control operator. IPM requires all personnel in the garrison to take part in preventing and controlling pests.

3.3. Current Operations

3.3.1. General Household and Nuisance Pests

The mission of pest control is to manage arthropod and vertebrate pests in and around buildings. Sanitation, glue traps and exclusion are the primary means of non-chemical control. When pesticide treatment is required, low toxicity insecticidal baits and pesticides with residual action are recommended.

3.3.1.1. *Cockroaches*

The cockroaches most commonly found in and around Florida homes are the Florida woods roach, American, smoky brown, brown, Australian, German and Asian cockroaches. The German cockroach is usually found in the kitchen and bathroom, although it may be found all over the house. The other cockroaches prefer damp, warm places and usually develop in garages, sewers, attics or storerooms. **See Appendix F for control strategy**.

3.3.1.2. ***Ants***

Ants are nuisance pests around the home because they feed on and contaminate food, infest structures and build unsightly mounds in lawns and other landscapes. In some cases, ants are able to inflict painful bites or can have venomous stings. Ants do not attack or eat fabrics, leather or wood in houses. However, some species can establish nests in decaying wood. Several species of ants are found in or around houses in Florida. In general, the most common ants can be grouped as house-infesting ants, yard-infesting ants, and carpenter ants. The most commonly encountered pest ants are pharaoh, white footed, Argentine, ghost, pyramid, carpenter, rover, native fire, imported fire, crazy, thief, Caribbean, acrobat, and big-headed ants. **See Appendix F for control strategy**.

3.3.2. Grounds

Grounds maintenance is performed on improved or landscaped grounds. Pest management during grounds maintenance may involve weed control, control of pests and disease on plants, trees and turf.

3.3.2.1. ***Turf and Ornamental Pests***

Turf and ornamental pests include insect, fungi and nematodes. White grubs, mole crickets and ants infest the soil and roots of the plant. Japanese beetles, bagworms, tent caterpillars, sod webworms, and army worms feed on the leaves of the plant. Chinch bugs, leaf hoppers, scale insects, and aphids are referred to as plant sucking insects and feed on the fluids inside the plant. Various plant diseases including brown patch, dollar spot, and fusiform rust are also possible pests that may be encountered**. See Appendix F for control strategy**.

3.3.2.2. ***Weed Control***

A wide variety of herbicides are available for controlling unwanted vegetation. Herbicides are used around mowing obstacles such as signs, fire hydrants and manholes. **See Appendix F for control strategy**.

3.3.3. Structural pests

Structural pests infest the cellulose containing materials of a structure**.** These structural pests include termites, powder post beetles, wood borers, and wood destroying fungi. Of these, subterranean termites and wood destroying (decay) fungi cause the most damage.

3.3.3.1. ***Decay Fungi***

Decay fungi grow on and in wood, and destroy the wood substances as they grow. Generally, conditions that are favorable for subterranean termites are also favorable for decay fungi, and vice versa. Temperature affects the activity decay fungi and thereby affects the rate of their destructive action. **See Appendix I for control strategy**

3.3.3.2. ***Termites***

Both subterranean and dry wood termites are common in Florida. Termites are cryptic by nature. Structural infestations of subterranean termites are usually not visible. Most people become aware of an infestation when annual flights of winged termites occur in structures. Dry wood termites leave frass piles, so they are easier to detect. **See Appendix F for control strategy.**

3.3.4. Stored Products Pests

Although USAG Miami does not have a Commissary, stored product pests can still pose a potential problem at USAG Miami AFEES facilities. Receipt inspection and rejection of obviously infested materials generally prevents heavily infested material from being placed in the storage area.

3.3.4.1. ***Dermestid Beetle***

If the Dermestid beetle *Trogoderma* is found in a commodity, the whole lot of food must be condemned. The pointed hairs on the larvae will cause digestive problems if the

contaminated food is eaten. An accurate identification of *Trogoderma* is required to condemn the lot. **See Appendix F for control strategy.**

3.3.5. Health Related Pests (Insect)

Mosquitoes, biting gnats or sand gnats (Culicoides) filth flies, bed bugs, kissing bugs, spiders, bees and wasps constitute the most important insect groups from the standpoint of both disease transmission and general annoyance. Operations directed at controlling potential disease vectors must be based on a thorough knowledge of the target pest. Survey operations are essential in determining the species present, the population level involved and the potential hazard of disease transmission. Surveys also serve as a valuable tool in evaluating control operations.

3.3.5.1. ***Mosquitoes***

Adult mosquitoes in Florida can vector West Nile, Eastern Equine Encephalitis St. Louis Encephalitis and Dengue Fever. Mosquito surveillance should have two basic components. These components include identifying and mapping larval habitats and monitoring adult activity. Both activities provide useful information in a proactive surveillance program. Mapping and monitoring larval habitats gives early estimates of future adult densities and provides the information necessary to eliminate mosquitoes at the source. A high proportion of males in a light trap usually indicates a nearby larval breeding site, and a survey of the area should be done to locate possible breeding sites. **See Appendix F for control strategy**.

3.3.5.2. ***Culicoides (biting midges)***

Biting midges can be a nuisance to people who spend time outdoors during early morning and evening or during the daytime on cloudy days when winds are calm. They will readily bite humans and the bites are irritating and painful. The bites can cause long-lasting painful lesions for some people. Fortunately there are no human diseases vectored by Culicoides. **See Appendix F for control strategy**.

3.3.5.3. ***Filth Flies***

Filth flies (houseflies, blow flies, flesh flies, bottle flies, etc.) can be a problem during the warm summer months if high sanitation levels are not maintained. Filth flies can be a mechanical vector to many pathogenic bacteria. **See Appendix F for control strategy**.

3.3.5.4. ***Bees and Wasps***

Wasps and bees can cause problems around structures. Most are social insects that live in colonies. They will aggressively defend their nests by stinging. The sting usually involves the injection of a venom which acts as a neurotoxin. The sting may cause death in cases of allergy or when many wasps or bees sting. **See Appendix F for control strategy**.

3.3.5.5. ***Spiders***

See Appendix F for control strategy.

3.3.6. Health Related Pests (Vertebrate)

Because of great diversity of habitat types, Florida is home to more wildlife species than most other states. It is impossible to live in Florida without seeing or hearing wildlife on a daily basis. Rodents, wildlife, feral pets and birds can pose a health risk to personnel. These vertebrate pests can vector rabies and harbor deadly bacteria and fungi in their feces.

3.3.6.1. ***Rodents***

Rats and mice often enter homes, farm buildings, and warehouses in search of food and shelter. The most common rodent pests in Florida are the Roof Rat, Norway Rat, and House Mouse. Rats and mice consume or contaminate large quantities of food and damage structures, stored clothing, and documents. They also serve as reservoirs or vectors of numerous diseases, such as Rat-bite fever, Leptospirosis (Weil's Disease), Murine Typhus, Rickettsial pox, Plague, Trichinosis, Typhoid, Dysentery, Salmonellosis, *Hymenolepis* tapeworms, Lymphocytic choriomeningitis, and Hanta virus. **See Appendix F for control strategy.**

3.3.6.2. ***Birds***

Pigeons, seagulls, and English sparrows are the primary bird pests. Be very careful when conducting bird control as many bird species require special permits before any control measures can be taken. Bird droppings are corrosive and can damage buildings and equipment. The droppings also pose a health hazard as histoplasmosis and other respiratory problems can occur when bird feces are allowed to accumulate. **See Appendix F for control strategy.**

3.3.6.3. ***Feral Cats***

Feral cats are a potential problem at USAG Miami, especially near food handling areas. They are often found dwelling in crawl spaces under buildings where they can cause flea problems inside the buildings. Feral cats can also be carriers of Rabies. The activity should discourage people from feeding stray cats. **See Appendix F for control strategy.**

3.3.7. Prohibited Operations and Devices

3.3.7.1. ***Application of liquid and dust formulations in occupied spaces***

Garrisons shall not permit liquid spray and dust pesticide formulations in any space occupied by unprotected personnel. However, pesticides contained in gel or paste bait formulation may be applied in occupied spaces if allowed by the label.

3.3.7.2. ***Preventive or Scheduled Pesticide Treatments***

DoD policy prohibits the use of regularly scheduled, periodic pesticide applications. The only exception is in situations where it has been clearly documented that no other technology or approach is available to protect personnel or property of high value.

3.3.7.3. ***Electrically Operated Devices***

DoD policy prohibits the use of electromagnetic exclusion or control devices, ultrasonic repellent or control devices, and outdoor devices for electrocuting flying insects on DoD Garrisons, except as noted in AFPMB TG 29: IPM In an Around Buildings. Indoor devices for electrocuting flying insects can be used when selected, purchased, located, and used in accordance with AFPMB TG 29."

3.4. Regulatory Compliance

3.4.1. Policy

Department of Defense policy complies with all Executive Orders (E.O.s) and federal statutory and regulatory requirements that apply to IPM. Although federal agencies are not required to comply with State and local laws relating to pesticides and pest management, the DoD voluntarily meets the substantive portions of State pesticide and pest management laws and regulations when meeting those standards does not degrade DoD missions. A pesticide that has a current EPA registration but not a State of Florida registration can be used on DoD property. The goal is to only use Florida Registered products when possible.

3.4.2. Pesticide Regulation and Enforcement

3.4.2.1. ***Pesticide Regulation***

The EPA has the primary authority to regulate pesticides in the U.S. The EPA delegates pesticide enforcement authority to states through cooperative agreements. DoDI 4150.7 para 4.3, requires DoD to comply with state and local pesticide use regulations.

3.4.2.2. ***Enforcement***

The responsibility for compliance and enforcement lies with the Garrison CO. As the CO's pest management advisor, the IPMC shall be familiar with federal, state and local pesticide use regulations and ensure all Pest Control Contractors conduct operations in compliance with these regulations.

- **Commercial contractor applicators:** PMQAEs shall provide assistance by monitoring the contract pest control contractor's compliance with all applicable regulations as specified in the contract, appropriate actions will be recommended to the contracting officer if the contractor does not comply. PMTs conducting inspections of food service facility pest management programs may also be utilized to ensure compliance.

- **DoD applicators:** Per DoDM 4150.07, Vol 2. , the DoD may deny, suspend, or revoke the certificate of any DoD employee who violates any provision of FIFRA or falsifies records under DoD 4150.7-P. In accordance with DoDM 4150.07, Vol 2, the Garrison CO may initiate a formal review if FIFRA violations are suspected. Violations shall be reported through appropriate command channels to the AEC certifying authority for review. The certifying authority shall determine if further action is required.

The AEC shall provide the Garrison IPMC with assistance with compliance and enforcement issues and clarification of regulations.

3.4.3. Laws and Regulations

3.4.3.1. ***Primary Pesticide Regulations***

- **Federal**: U.S. Code of Federal Regulations (CFR) at 40 CFR 152-180
- **DoD:** DoDI 4150.07: DoD Pest Management Programs
- **Florida**: The Bureau of Entomology and Pest Control, Pest Control Section, regulates the Structural Pest Control Industry by the authority granted by the Structural Pest Control Act, Chapter 482, Florida Statutes and the associated rules, Chapter 5E-14, Florida Administrative Code.

The primary source of pesticide regulations for the pesticide applicator is the pesticide label. Florida may add supplementary labels which are regulations that must be complied with-in the State. It is a violation of Federal and/or State law to use a pesticide in a manner inconsistent with the label. Pesticide applicators should be aware of any endangered species before beginning any new pesticide application. The EPA Endangered Species Protection Program (ESPP) requires additional precautions to be taken if endangered species are found in the proposed application site. When referenced on a pesticide label, the ESPP Bulletins are enforceable under FIFRA. The ESPP program and Bulletins Live! can be found at the following website. http://www.epa.gov/oppfead1/endanger/bulletins.htm

3.4.3.2. ***Other Regulations***

All applicable directives, laws and regulations concerning pesticide applications and pest management operations are listed and described in Appendix B.

3.5. Pesticide Management

Chemical control of pests using pesticides can be an integral part of an IPM program. Proper management of pesticides will ensure a safe and cost-effective pest management program. Management of pesticides include the proper selection of pesticides, pesticide approval, procurement, storage, mixing, use of pesticide application equipment, and clean-up. The pesticide label provides all of the information needed to manage pesticide use and must be affixed to the container at all times.

3.5.1. Pesticide Selection

The following criteria should be used when selecting a pesticide:

- **Determine the need for a pesticide.** In some situations non-chemical control methods may be more effective or less costly and time-consuming in the long term. Will exclusion or habitat elimination take care of the problem?
- **Choose a pesticide with a low toxicity.** Can the pest be sufficiently controlled with a pesticide that has a low toxicity to humans?

- **Choose pesticides and pesticide formulations with minimal environmental impact.** Avoid using "Restricted Use" pesticides if possible. The environmental impact of pesticide spills is reduced when using a granular pesticide formulation rather than a liquid. Can bait stations be used instead of broadcast application of a pesticide?
- **Choose pesticides that provide a long-term or sustainable solution.** Barrier treatments with a residual pesticide can provide long term control.

3.5.2. Pesticide Procurement by DoD Personnel

Most pesticides used by USAG Miami SOCSOUTH are procured through commercial sources. DoD certified applicators can purchase pesticides through the Federal Stock System or from commercial sources. Contractors are not permitted to purchase pesticides through the Federal Stock System and must procure pesticides on the open market. A list of pesticides approved by DoD and found in the Stock System are found at https://extranet.acq.osd.mil/eie/afpmb/cac/standardlists/DOD_PESTICIDES_LIST.pdf (CAC Card required to access site.)

3.5.3. Pesticide Storage

3.5.3.1. ***Pesticide Storage***

Commercial pesticide storage is not permitted on USAG Miami and SOCSOUTH.

3.5.3.2. ***Retail Sale Pesticide Storage***

All pesticides sold and displayed at the AAFES Mini Mall shall be stored and sold in their original sealed containers.

3.5.3.3. ***Vehicles***

Pest control vehicles must carry pesticide spill kits in accordance with Technical Guide NO 15. Pesticides shall not be transported in the vehicle's passenger compartment and pesticides shall be secured to vehicles to prevent spillage.

3.5.4. Mixing

No pesticide mixing shall take place on USAG Miami and SOCSOUTH. All pesticides shall be mixed off site.

3.5.5. Application

3.5.5.1. ***Equipment***

Only pest control equipment that is in good repair and safe to operate shall be used the contract applicator. The equipment shall be in good condition, free from corrosion, clean and free from leaks. The PMQAE shall inspect equipment used by contract applicators. Applicators shall also ensure that they use equipment suitable to ensure proper application of pesticides.

3.5.5.2. ***Pesticide Application***

All pesticides shall be applied in accordance with Federal and State label directions. Application of pesticides are timed to ensure contact with and maximum kill of the pest and to prevent use under adverse weather conditions that can cause drift of the chemical outside the target area. See section 4.2.2.2 for more information on timing and drift prevention

3.5.6. Post-application Clean Up

All pest control equipment shall be properly cleaned. Contract applicators shall not dispose of excess pesticide, used containers, or residues on the Garrison.

4. Health and Safety

4.1. Pesticide Applicator and Public Safety

To ensure the safe use of pesticides, DoD and contract pest control personnel shall handle and apply pesticides in accordance with the product's label directions and AFPMB Technical Guides concerning safety.

4.1.1. Potential Occupational Hazards

The following hazards may be encountered by pesticide applicators. They may also be encountered by PMQAEs while inspecting pest management operations.

4.1.1.1. ***Direct Contact Toxic Chemical Exposure***

The three routes of pesticide exposure include dermal, inhalation and ingestion. For applicators the most common route of exposure is dermal. Most dermal exposure results from not wearing the appropriate personal protective equipment. The severity of pesticide exposure is determined by duration and the toxicity of the chemical. The effects can be acute (rapid onset due to high dosage, high toxicity) or chronic (slow or delayed onset; due to long term exposure to low dosage, low toxicity chemicals). The highest risk for severe chemical exposure occurs during pouring and mixing of concentrated pesticide.

4.1.1.2. ***Heat***

The use of protective equipment such as respirator, goggles, gloves and coveralls increases the risk of heat injury.

4.1.1.3. ***Noise***

Some pesticide application equipment use gas powered air compressors or pumps. Powered backpack sprayers are particularly hazardous.

4.1.1.4. ***Eye Hazards***

Eye hazards may result from chemical splashed into the eyes causing corrosive, toxic, or impact injury. Highest risk occurs during pesticide pouring, mixing and application. Injury may also occur during equipment cleaning.

4.1.1.5. ***Blood-borne Pathogens (Disease Hazards)***

Rodents may carry human diseases such as plague, Hantavirus and rabies. These diseases may be transmitted from the animal to humans through body fluid exposure. Pest management providers can be exposed while handling rodent carcasses after trapping.

4.1.1.6. ***Inhalation Hazards***

Many pesticides release hazardous vapors and are particularly hazardous in enclosed spaces. Personnel may be exposed during mixing, application and cleaning equipment.

4.1.1.7. ***Electrical and Fire Hazards***

Spot and crack and crevice applications may require application of a pesticide to areas near an electrical shock hazard. Pesticides may also be applied to areas near pilot lights resulting in an explosion and/or fire hazard.

4.1.1.8. ***Head Impact, Falls, and trip Hazards***

Surveys and pest control procedures may be done in attics, crawl spaces, basements and other areas with low overheads where head impact hazards exist. Special permits are required to enter areas determined to be a "Confined Space." Some pest control operations may involve climbing ladders or walking on roofs or other elevated surfaces requiring fall protection.

4.1.1.9. ***Exposure to Harmful Animals***

Venomous animals such as bees, wasps, rattlesnakes and scorpions are potential hazards to personnel who are allergic. Feral dogs, cats, coyotes, raccoons and other large pest animals can inflict serious wounds. Rabies vaccination is recommended for pest controllers.

4.1.1.10. ***Fumigation Hazard***

Fumigation of structures or materiel is particularly hazardous to the applicator due to the high toxicity of many fumigants. Fumigants are rarely used on DoD installations.

4.1.2. Hazard Abatement

4.1.2.1. ***Operational Risk Management***

Operational Risk Management (ORM) is a decision making tool to reduce the risk of mishaps, whether in military contingency or support operations. Pest management operations pose risks to human health and the environment that affect the Garrison's mission that can be reduced and minimized by ORM. Pest management ORM uses the following process to minimize hazards:

- **Identify hazards** – the hazards may involve the pesticide or the application equipment (see list of hazards above)
- **Assess hazards** – determine the degree of risk based on the probability and severity of these hazards. For example, the risk may be high if a highly toxic pesticide is used daily.
- **Make risk decisions** – Develop risk control options. Decide whether benefits of control outweigh the risks involved.
- **Implement controls**
    - Engineering controls – Example: use a less toxic pesticide for controlling the pest
    - Administrative controls – Example: place warning placards around pesticide vehicles and pesticide storage areas
        - Personal protective equipment – Example: wear a respirator when an inhalation hazard exists
- **Supervise** – Follow-up to determine effectiveness of controls and monitor changes to hazards.

4.1.2.2. ***Training and education***

Pesticide safety is a core requirement for DoD and civilian pesticide applicator certification and licensing programs. Topics included in the DoD training are included in DoD Directive 4150.7, Volume 1: DoD Plan for the Certification of Pesticide Applicators. Safety topics are also given during recertification courses.

Personal Protective Equipment
Personal protective equipment (PPE) should always be used when applying pesticides. The type and level of protection needed will be determined by the toxicity, formulation and method of application of the pesticide. The pesticide label provides guidance on what PPE to use. PPE must be appropriate for the type and application of the pesticide being used. It is the applicator's responsibility to maintain the PPE.

4.1.2.3. ***Medical Surveillance Program***

DoD pesticide applicators are required to be in a medical surveillance program depending on their hazard exposure. Contract pest management companies must provide for the health and safety of their employees.

4.2. Public Safety

4.2.1. Potential hazards to public

4.2.1.1. ***Direct contact with pesticides***

Exposure can occur if pesticide applications are done while unprotected building occupants are present, occupants are allowed entry into buildings before the pesticide has dried, or food and food preparation and serving equipment are not properly protected or cleaned after application.

4.2.1.2. ***Pesticide drift***

Pesticide drift occurs when a pesticide leaves the target area and affects unprotected persons outside the area. Pesticide applications that involve highly volatile chemicals, dusts or small pesticide droplets from fogging or ultra-low volume (ULV) applications are most susceptible to drift.

4.2.1.3. ***Contact with contaminated water***

Pesticides have the potential to be washed away from the application site or move through soil resulting in contaminated groundwater and surface water.

4.2.1.4. ***Fumigation hazards***

Fumigation hazards pose a health risk to both the applicators and people in the area surrounding the fumigation site. Fumigation requires time to circulate in the covered structure in order to effectively control pests. During this time, there is potential for someone to open up the tarp and enter the structure.

4.2.2. Hazard Abatement

4.2.2.1. ***Proper timing of pest control operations***

Most indoor application of pesticides should be conducted when building occupants are not present. An exception to this is the application of pesticide baits that are enclosed in a tamper-proof bait station that does not allow exposure to occupants or pets. The building occupants must remain out of the building to allow the liquid pesticide to dry. Re-entry times (time after application that occupants are allowed back into the treated site) as specified on the pesticide label must be followed. Certain operations, such as bee and wasp control or removal are best conducted after building occupants are not present.

4.2.2.2. ***Preventing pesticide drift***

Pesticide drift from the target area can be reduced by:

- Selecting low or nonvolatile pesticides.
- Reading and following the pesticide label. Apply a pesticide only if an application is warranted.
- Using spray additives that decrease drift within label guidelines.
- Using larger spray nozzle orifice sizes.
- Avoiding high pressure. High pressure creates finer droplets.
- Using wide angle nozzles, low boom heights.
- Applying when wind velocity is under 10 mph. Do not spray when wind is greater or blowing towards sensitive crops, gardens, dwellings, and livestock or water sources.
- Using shielded spray booms.

4.2.2.3. ***Water protection***

Apply in accordance with Label directions or state environmental regulations.

4.2.2.4. ***Prevent tampering with animal traps***

Caged animals can be very aggressive. Traps should be placed in areas where they will not be tampered with by humans or pets. Warning signs can be placed on the traps and area occupants can be warned of the injury risks.

4.2.2.5. ***Protection of fumigation sites***

Warning signs should be posted at the fumigation site warning of the hazards. Some Garrison contracts require the contractor to provide a 24-hour roving watch person to patrol the fumigation site to prevent entry by unauthorized personnel.

4.2.3. Emergency Planning and Community Right-to-know Act (EPCRA)

Executive Order 12856 requires all Federal agencies, including DoD, to comply with the provisions of EPCRA. EPCRA is intended to 1) encourage and support emergency planning between the Garrison and the surrounding community, 2) provide the community with information about potential chemical hazards stored and used on the Garrison, and 3) establish a framework for local and state emergency planning. Chemical lists and applicable EPCRA sections and threshold quantities are found in the EPA List of Lists at http://yosemite.epa.gov/oswer/lol.nsf/SearchForm?OpenForm

4.2.3.1. ***Section 302: Emergency Planning Notification***

Some pesticide active ingredients are extremely hazardous substances, however the Garrison stores other extremely hazardous substances that would require the Garrison to provide notification under this section.

4.2.3.2. ***Section 304: Emergency Release Notification***

Extremely hazardous substances or CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) listed hazardous substances that exceed a reportable quantity are accidentally released **must be reported** to local, state and federal authorities. Pesticides applied in accordance with the pesticide label are exempt from this requirement. Pesticide spills, are not exempt. The amount of pesticides stored, used and transported on the Garrison should be minimized to prevent accidental spills.

4.2.3.3. ***Section 311 and 312: Hazardous Chemical Inventory Reporting***

This applies to OSHA hazardous chemicals which are any chemicals with an MSDS or Safety Data Sheet (SDS). Nearly all the pesticides used on the Garrison an MSDS or SDS. However, this applies to pesticide storage and pesticides in spray tanks and it is unlikely that pesticide amounts in storage will exceed the threshold quantity.

4.2.3.4. ***Section 313: Toxic Chemical Release Reporting***

Application of pesticides on the Garrison are categorized as “otherwise use”. The threshold quantity for most pesticide active ingredients is 10,000 lbs per year. It is highly unlikely that pesticide use will exceed this quantity. In addition, pesticide use in grounds maintenance and MWR (i.e. golf course) are exempt. The clinic is also exempt.

5. Environmental Considerations

5.1. Vulnerable Assets

5.1.1. Mission

Pest management practices affect the mission through depletion of USAG Miami, and SOCSOUTH resources that are needed to maintain the Garrisons mission. USAG Miami and SOCSOUTH depends heavily on its people to accomplish the mission. When pests affect human or material assets the financial costs can be high. Likewise, pest management practices must be managed to prevent expenditures on unnecessary or unproven pest control methods and mishaps due to improper handling of pesticides or equipment.

5.1.2. Human health and safety

The Army depends on the readiness of its military members and invests resources on the quality of life for those members and their dependents. Force health protection includes protecting them from pests that cause impacts to their health and well-being. Pest management practices can effectively protect or adversely affect human health. Proper pest management and use of pesticides to control disease vectors and nuisance pests can lead to health protection and an enhanced quality of life. Conversely, accidents involving pesticides and inappropriate or illegal use of pesticides can cause human poisoning or allergic reactions leading to acute or chronic health problems.

5.1.3. Environmental Resources

Air, water and soil are at risk from pesticide contamination. Pesticides moving outside the target area are the primary reason for contamination. Pesticides that pose the highest risk are herbicides applied to improved and unimproved grounds.

5.1.4. Natural Resources

The mission of the natural resource program at USAG Miami is to support the Army and DoD through responsible stewardship of the Garrison's natural resources. The mission is achieved using integrated natural resources management and the principles of adaptive ecosystem management to ensure viability and biodiversity in the ecosystem while supporting compatible multiple uses. The recommendations developed by the natural resource program and the INRMP serve as the medium for the base to ensure compliance with both federal and state environmental regulations as well as Department of Defense (DoD) and Army policies.

5.2. Managing Environmental Impact

5.2.1. Natural and Cultural Resources Protection

5.2.1.1. *Pest management impact on natural resources*

The following pest management operations can potentially impact the Garrison's natural resources.

- Pesticides in the water may harm and deplete aquatic invertebrate animals that serve as food sources for protected animals
- Herbicides that drift off-target may kill plants that are critical to animal habitats or kill protected plants
- Direct pesticide exposure may cause acute or chronic injury to animals
- The noise of pesticide application equipment (i.e. powered sprayers, aircraft) may disturb and cause harassment of animals
- Pest management personnel intrusion into critical habitats may disturb, injure or destroy plants or animals
- Use of non-chemical control methods such as noise-makers and traps may disturb or harm non-target organisms
- Pesticide contamination of the soil and water

5.2.1.2. *Minimizing impact risks*

The following IPM methods may be utilized to minimize the impact of pest management operations on natural resources:

- Use of non-chemical methods, such as tidal marsh restoration, that minimize pesticide use and enhance the environment
- Comprehensive pest surveillance program that uses mapping to identify pest infestations and breeding.
- Investigate uses of biological control methods where possible; such as mosquito fish, *Gambusia affinis*, or enhancement of native predators to control mosquito larvae.

- Use of non-chemical control methods for weeds including mechanical removal and elimination of plants by steam or hot water.
- Use of less toxic and target pest specific pesticides such as Bti and methoprene.
- Precision targeting of pesticide applications to put pesticide where the pest is located.

5.2.2. Hazardous Materials and Hazardous Waste Management

Pesticides shall be managed in accordance with the Garrison Hazardous Material Management Plan. The appropriate use of pesticides produces very little hazardous waste. Pesticide mixing or storage by the pest control contractor is not permitted on USAG Miami. This requirement eliminates the risk of pesticide spillage and disposal as well as the need for disposing of empty pesticide containers.

5.2.3. Spill Prevention

Garrison spill prevention guidelines shall be followed. The following spill prevention actions shall be taken:

- No pesticide mixing on Garrison by pest control contractors.
- No pesticide storage on Garrison by pest control contractors.
- Spill kits shall be readily accessible in all pest management vehicles.
- All pesticide applicators shall be familiar with the Garrison spill contingency plan.

Spills will be managed as described in the Base spill contingency plan. Further information on preventing and controlling pesticide spills is contained in the AFPMB TG #15: Pesticide Spill Prevention and Management.

6. Emergency Pest Management

6.1. Public Health Emergencies

Pests become a public health emergency when the pest numbers increase to unacceptable levels or are found to carry human disease pathogens. A public health emergency requiring pest management action may be indicated in several ways:

1. Natural or manmade disaster – This includes earthquakes, floods, vehicle accidents and terrorist attacks. Public health pest problems may be the result of increased amounts of refuse, collapse of local infrastructure (i.e. lack of garbage pickup), decaying human and animal bodies, and accumulation of standing water. The potential consequences are disease outbreaks, particularly food-borne illness.

2. Vector-borne or zoonotic disease as indicated by the following:
    a. Reports of human cases – Many human cases of vector-borne and zoonotic disease identified in local medical facilities. Immediate vector control may be necessary to prevent further transmission.
    b. Detection of Infected mosquitoes or sentinel animals – Routine surveillance for vector-borne or zoonotic diseases are conducted by local and State health agencies. These agencies report testing results through the public health system. This surveillance program is an early warning system that indicate when vector control should be initiated or increased to prevent human disease.

6.2. Emergency Pest Management Resources

The Pest Control Contractor maintains pesticides and equipment to manage most emergencies, however emergency services must be included in the contract specifications. The Base has access to the following support agencies and organizations for pest management assistance.

6.2.1. Army Environmental Command

The AEC is responsible for managing the Army Pest Management Program. AEC entomologists act as the Professional Pest Management Consultants for the Army. AEC is currently staffed by two full-time civilian entomologists. The entomologists are certified in DoD pesticide applicator categories 3, 5,6,7,8 and 11 and are responsible for the review and approval of the IPMP and pesticide use approvals. Other services are available by request and are tailored to the needs of the requesting organization.

6.2.2. Public Health Command Region South

The pest management program is responsible for providing technical assistance and support in all aspects of vector borne disease, pesticides, and integrated pest management. PHCR-South maintains laboratories and a staff of military and civilian for the purpose of providing assistance to the Army pest management community. Other services are available by request and are tailored to the needs of the requesting organization.

6.2.3. Army Environmental Command

AEC is currently staffed by two full-time civilian entomologists. The entomologists are certified in DoD pesticide applicator categories 3, 5,6,7,8 and 11 and are assigned the responsibility to act as the Army Professional Pest Management Consultant to provide review and approval of IPMP

6.3. University of Florida Cooperative Extension Service

http://solutionsforyourlife.ufl.edu/

6.4. Florida Department of Agriculture and Consumer Services (DACS)

http://www.freshfromflorida.com/Divisions-Offices/Agricultural-Environmental-Services

6.5. State of Florida Structural Pest Control Board

Regulates structural pest control companies, providing inspection services of treated structures for consumers. Consumer advice is provided and information sheets on various structural pests are available. http://www.freshfromflorida.com/Divisions-Offices/Agricultural-Environmental-Services/Business-Services/Pest-Control

APPENDIX A

Applicator Licenses and Certifications, Appointment Letters

APPENDIX B

PEST MANAGEMENT REFERENCES.

A. Federal Laws.

1. The Federal Insecticide, Fungicide and Rodenticide Act (through PL 100-460, 100-464 to 100-526, and 100-532).

2. Title 29, CFR, Current revision, Section 1910, Occupational Safety and Health Standards.

3. Federal Noxious Weed Act [7 U.S.C. 2801-2814]:

4. Food Quality Protection Act (FQPA), 1996, Section 303

5. Endangered Species Act, 1973

6. Food, Drug, and Cosmetic Act

7. Occupational Safety and Health Act, 29 U.S.C 651-678

8. Pollution Prevention Act of 1990, PL 101-508

B. Directives and Instructions

1. DoDI 4150.07, DoD Pest Management Program, 26 Dec 19

2. DoDM 4150.07, Vol 1, DoD Pest Management Program Elements and Implementation: Structure and Operations, 22 Jan 20

3. DoDM 4150.07, Vol. 2, DoD Pest Management Program Elements and Implementation: Pesticide Applicator Training and Certification Program, 22 Jan 20

C. Regulations.

1. AR 11-34, The Army Respiratory Protection Program, 25 Jul 2013.

2. AR 40-5, Preventive Medicine, 25 May 2007.

3. AR 200-1, Environmental Protection and Enhancement, 13 December 2007.

4. AR 385-10, The Army Safety Program, RAR: 4 Oct 2011.

D. Technical Manuals.

TM 5-629, Weed Control and Plant Growth Regulation, 24 May 1989.

TB Med 561, Occupational and Environmental Health, Pest Surveillance, June 1992.

E. Armed Forces Pest Management Board Technical Guides.

- TG 6 - Delousing Procedures for the Control of Louse-borne Disease During Contingency Operations, November 2011

- TG 7 (CAC access only) - Installation Pesticide Security, August 2003
- TG 11 - Hydrogen Phosphide Fumigation with Aluminum Phosphide, March 2013
- TG 13 - Dispersal of Ultra Low Volume (ULV) Insecticides by Cold Aerosol and Thermal Fog Ground Application Equipment, July 2011
- TG 14 - Personal Protective Equipment for Pest Management Personnel, April 2011
- TG 15 - Pesticide Spill Prevention and Management, August 2009
- TG 16 - Pesticide Fires: Prevention, Control, and Cleanup
- TG 17 (CAC access only) - Military Handbook - Design of Pest Management Facilities, August 2009
- TG 18 - Installation Pest Management Program Guide, March 2013
- TG 20 - Pest Management Operations in Medical Treatment Facilities, December 2012
- TG 21 - Pesticide Disposal Guide for Pest Control Shops
- TG 22 - Guidelines for Testing Experimental Pesticides on DoD Property, June 2001
- TG 24 (CAC access only) - Contingency Pest Management Guide, September 2012
- TG 26 - Tick-Borne Diseases: Vector Surveillance and Control, November 2012
- TG 27 - Stored-Product Pest Monitoring Methods, November 2015
- TG 29 - Integrated Pest Management in and around Buildings, August 2009
- TG 30 - Filth Flies: Significance, Surveillance and Control in Contingency Operations, October 2011
- TG 31 - Guide for Agricultural and Public Health Preparation of Military Gear and Equipment, February 2012
- TG 34 - Bee Resource Manual with emphasis on The Africanized Honey Bee, November 2013
- TG 36 - Personal Protective Measures Against Insects and Other Arthropods of Military Significance, November 2015
- TG 37 (CAC access only) - Integrated Management of Stray Animals on Military Installations, May 2012
- TG 38 - Protecting Meal, Ready-to-Eat Rations (MREs) and Other Subsistence During Storage, November 2015
- TG 39 - Guidelines for Preparing DoD Pest Control Contracts Using Integrated Pest Management, February 1997
- TG 40 (CAC access only) - Methods for Trapping and Sampling Small Mammals for Virologic Testing, September 1995 (Reviewed March 2013)
- TG 41 - Protection from Rodent-borne Diseases with special emphasis on occupational exposure to hantavirus, December 2013
- TG 42 - Self-Help Integrated Pest Management, April 2015

- TG 44 - Bed Bugs - Importance, Biology, and Control Strategies, March 2012 (Supplemental Information)
- TG 45 (CAC access only) - Storage and Display of Retail Pesticides, November 2012
- TG 46 (CAC access only) - DoD Entomological Operational Risk Assessments, April 2011
- TG 47 - Aedes Mosquito Vector Control, March 2016
- TG 48 (CAC access only) - Contingency Pest and Vector Surveillance, November 2013
- TG 49 - Sand Flies (Diptera: Psychodidae: Phlebotominae): Significance, Surveillance, and Control in Contingency Operations, January 2015

F. USAEC Documents

Final Programmatic Environmental Assessment for the Implementation of US Army Integrated Pest Management Program, August 2010

State Rules and Regulations

APPENDIX C

Program Review Reports

APPENDIX D

Pesticide Authorized Use List

FY20 PESTICIDE USE LIST		
Installation, State/Country:		
IPMC Name/Email:		
Reviewed and Approved as of:	**XX XXX 19**	
PMC Reviewer: William B. Miller, Ph.D., 210-466-1308; william.b.miller54.civ@mail.mil		
Pesticide Trade Name	**Registration No. (US EPA or Host Nation)**	**Active Ingredient(s)**

APPENDIX E

Contracts

APPENDIX F

Integrated Pest Management Outlines

U.S. Army Integrated Pest Management Outline

PEST: MOSQUITOES	SITE: CANTONMENT AREA

Surveillance

Conducted by: Pest Controller/Preventive Medicine
Methods: Larval surveys in standing water on main post and ranges; traps distributed on main post in areas where mosquitoes tend to be more prevalent.
Frequency: Larval surveys done weekly; traps operated twice per week or as indicated by other Army standards.

Control Techniques

Type	Conducted by	Method
Physical	DPW	Screens on windows and doors
Mechanical	Pest Controllers	Apply monomolecular film to water
Cultural	DPW	Standing water sites graded or filled in; remove vegetation around ponding areas.
Biological	Pest Controllers	Treatment of standing water sites with *Bacillus thuringiensis israeliensis*.
Chemical	Pest Controllers	Adulticide – ULV spraying or residual treatment of resting site Larvicide – treating breeding sites with growth regulators

Control Thresholds

Basis for treatment: Adult mosquitoes found in light traps exceed 25 female mosquitoes/trap/night or any number established as threshold by Army protocols
Conducted by: Preventive Medicine
Control standard: Mosquito numbers are reduced in trap below the 25 mosquito level or the established Army threshold.

Remarks

Sensitive areas: Do not apply fog when wind speeds are in excess of 10 miles per hour or per label requirements.
Prohibited practices: Do not apply pesticides in areas where honey bees can be harmed
Environmental concerns: Do not contaminate water or wetlands

**** ALL PESTICIDES MUST BE APPROVED PRIOR TO USE****

U.S. Army Integrated Pest Management Outline

PEST: SPIDERS	SITE: CANTONMENT AREA, OCCUPIED BUILDINGS

Surveillance

Conducted by: Buildings occupants and pest controllers

Methods: Visual observation. Spiders are frequently found in dry, cool, usually undisturbed places inside buildings, carports, utility sheds, and under buildings

Frequency: In conjunction with other pest control service orders or through customer complaints.

Non-chemical Techniques

Type	Conducted by	Method
Physical	DPW	Maintenance of screens and weather- stripping around doors and windows will keep out small insects which spiders use for food
Mechanical	Building occupants/DPW	Spiders and their webs can be eliminated by using a broom or vacuum cleaner in most cases. Sticky traps can also be placed next to door jams to intercept incoming spiders.
Cultural	Building occupants	Spiders can be discouraged through good housekeeping, both inside and outside. Clean up and dispose of trash, debris, old equipment, etc.
Chemical	Pest controller	Insecticide must be sprayed directly on the spider

Control Thresholds

Basis for treatment: Spiders present in and around buildings and structures

Conducted by: Pest Controllers

Control standard: Application of pesticide by the Pest Controllers should not be done unless the occupants have first tried self-help and their efforts have failed to control the spiders. No complaints or call backs should be received within 30 days after treatment.

Remarks

Sensitive areas: None

Prohibited practices: None

Environmental concerns: None

FOLLOW ALL LABEL DIRECTIONS

**** ALL PESTICIDES MUST BE APPROVED PRIOR TO USE****

U.S. Army Integrated Pest Management Outline

PEST: BEES AND WASPS	SITE: OCCUPIED BUILDINGS

Surveillance

Conducted by: Pest Controllers
Methods: Visual observations following occupant complaints
Frequency: As required

Control Techniques

Type	Conducted by	Method
Physical	DPW	Screening windows and doors
Mechanical	Pest controllers or beekeeper	Removal of wasp nests; and removal of bee swarms by a beekeeper
Cultural		
Biological		
Chemical	Pest Controller	Residual Treatment

Control Thresholds

Basis for treatment: Bees and wasps found in or around buildings
Conducted by: Pest Controllers
Control standard: Bees and wasps are killed following treatment

Remarks

Sensitive areas: None
Prohibited practices: None
Environmental concerns: None

FOLLOW ALL LABEL DIRECTIONS

**** ALL PESTICIDES MUST BE APPROVED PRIOR TO USE****

U.S. Army Integrated Pest Management Outline

PEST: FILTH FLIES	SITE: FOOD SERVICE FACILITIES

Surveillance

Conducted by: Food service personnel, Preventive Medicine, and Pest Controllers
Methods: Visual observations.
Frequency: Daily by food service personnel. During sanitation inspections or conducted as a special survey for flies by Preventive Medicine. Monthly by Pest Controllers.

Control Techniques

Type	Conducted by	Method
Physical	DPW	Screens should be installed on all open windows. Air curtains may also be used at entry points.
Mechanical	Pest controller	Sticky can be used in areas which are not directly over prepared food or food preparation surfaces. Fly grids designed to stun and capture flies on a sticky surface may be used in kitchen and eating areas (as opposed to older fly grids which are designed to electrocute flies causing them to explode and fragment).
Cultural	Food service personnel, Building occupants	Use good sanitation to reduce food and water that attract flies. Do not place dumpsters within 50 feet of facility Keep garbage containers clean.
Biological		
Chemical	Pest controller	Baits / Residual treatment

Control Thresholds

Basis for treatment: Flies found within the facility
Conducted by: Pest Controllers
Control standard: No flies are detected within the facilities

Remarks

Sensitive areas: See pesticide label for precautions
Prohibited practices: None
Environmental concerns: None

FOLLOW ALL LABEL DIRECTIONS

**** ALL PESTICIDES MUST BE APPROVED PRIOR TO USE****

U.S. Army Integrated Pest Management Outline

PEST: CULICOIDES	SITE: OUTDOOR AREAS

Surveillance

Conducted by: Preventive Medicine or Pest Controllers
Methods: Light trap
Frequency: ???

Control Techniques

Type	Conducted by	Method
Physical	DPW	Screens on windows and doors.
Mechanical		???
Cultural		???
Biological		
Chemical	Pest controller	Residual treatment of resting areas

Control Thresholds

Basis for treatment: Flies found within the facility
Conducted by: Pest Controllers
Control standard: No flies are detected within the facilities

Remarks

Sensitive areas: Water or wetlands
Prohibited practices: Do not apply pesticides in areas where honey bees can be harmed
Environmental concerns: Do not contaminate water or wetlands

FOLLOW ALL LABEL DIRECTIONS

**** ALL PESTICIDES MUST BE APPROVED PRIOR TO USE****

U.S. Army Integrated Pest Management Outline

PEST: COCKROACHES	SITE: FOOD SERVICE AREAS

Surveillance

Conducted by: Occupants, Pest Controller
Methods: Visual observation and sticky traps
Frequency: On-call basis

Control Techniques

Type	Conducted by	Method
Physical	Pest Controller	Sticky traps
Mechanical	DPW	Caulking and filling harboring sites
Cultural	Occupants	Apply strict sanitation measures and dispose of waste appropriately.
Biological		
Chemical	Pest Controller	Gel Bait, Insect growth regulators

Control Thresholds

Basis for treatment: Visual evidence of live cockroaches.
Conducted by: Certified pest control personnel
Control standard: No observation of live cockroaches for 90 days

Remarks

Sensitive areas: Avoid areas where food preparation surfaces, aquariums, open flames are present, and other areas as labels direct.
Prohibited practices: Do not apply pesticides on food items, utensils, or food preparation surfaces. Do not treat when people are in buildings.
Environmental concerns: None

FOLLOW ALL LABEL DIRECTIONS

Additional comments: Pesticides should be considered the last option in controlling cockroaches. As long as poor sanitation or harborage exist, the effectiveness of chemicals to control cockroaches may be limited. Also, eliminate ultra-Low Dosage fogging inside buildings. This promotes resistance, reduces air quality, and limits applications due to preparation

**** ALL PESTICIDES MUST BE APPROVED PRIOR TO USE****

U.S. Army Integrated Pest Management Outline

PEST:FIRE ANTS	SITE: TURF AREAS

Surveillance
Conducted by: Building occupants and Pest Controllers
Methods: Visual observations
Frequency: As required by work orders

Control Techniques

Type	Conducted by	Method
Physical		
Mechanical		
Cultural		
Biological		
Chemical	Pest Controller	Baits / Mound Treatment

Control Thresholds
Basis for treatment: Fire Ants seen in turf areas
Conducted by: Pest Controllers
Control standard: No call backs to treated quarters within 30 days following treatment

Remarks
Sensitive areas: Follow label directions for applications
Prohibited practices: None
Environmental concerns: None

FOLLOW ALL LABEL DIRECTIONS

Additional comments – Because fire ant stings can be deadly, complete fire ant control should be achieved in the Child Development Center playground area.

**** ALL PESTICIDES MUST BE APPROVED PRIOR TO USE****

U.S. Army Integrated Pest Management Outline

PEST: ANTS	SITE: ADMINISTRATIVE BUILDINGS

Surveillance
Conducted by: Building occupants and Pest Controllers
Methods: Visual observations following occupant complaints
Frequency: As required by work orders

Control Techniques

Type	Conducted by	Method
Physical	DPW	Sealing cracks and crevices where ants may be entering the building
Mechanical	Pest Controller	Sticky traps will catch the occasional ant
Cultural	Occupant	Spilled food items, to include pest food, should be cleaned up immediately. Food products which are not being used should be kept in containers with tight fitting lids.
Biological		
Chemical	Pest Controller	Baits (fire ants) or residual spray

Control Thresholds
Basis for treatment: Ants seen in the quarters or other buildings
Conducted by: Pest Controllers
Control standard: No call backs to treated quarters within 30 days following treatment

Remarks
Sensitive areas: Follow label directions for applications
Prohibited practices: None
Environmental concerns: None

FOLLOW ALL LABEL DIRECTIONS

**** ALL PESTICIDES MUST BE APPROVED PRIOR TO USE****

U.S. Army Integrated Pest Management Outline

PEST: Ornamental Plant Pests	SITE: Cantonment areas

Surveillance
Conducted by: DPW or Pest Controllers
Methods: Visual observations
Frequency: As needed

Control Techniques

Type	Conducted by	Method
Physical	DPW	Manual removal of affected areas from the tree or shrub
Mechanical		
Cultural	DPW	Planting of trees and shrubs suited for the area and resistant to disease.
Biological		
Chemical	Pest Controller	Residual Treatment

Control Thresholds
Basis for treatment: Infestations too large to be controlled by mechanical removal of affected areas
Conducted by: Pest Control
Control standard: Pests sufficiently controlled to prevent further damage to the shrub or tree.

Remarks
Sensitive areas: Areas in which pesticide application might have an impact on sensitive individuals
Prohibited practices: None
Environmental concerns: When using pesticides on ornamentals, care must be exercised around sensitive plants. Drift or runoff must not contaminate standing water areas

FOLLOW ALL LABEL DIRECTIONS

**** ALL PESTICIDES MUST BE APPROVED PRIOR TO USE****

U.S. Army Integrated Pest Management Outline

PEST: BROADLEAF WEEDS	SITE: LAWNS, AND OTHER COMMON GRASSY AREAS

Surveillance
Conducted by: DPW - Roads and grounds
Methods: Visual observation for weeds
Frequency: Monthly or as requested by units

Control Techniques

Type	Conducted by	Method
Physical		
Mechanical		
Cultural	DPW maintenance personnel	Proper fertilization and watering of grassy areas promotes good grass growth. This practice will prevent many broadleaf weeds from taking hold and growing
Biological		
Chemical	Pest Controller	Selective Herbicide Treatment

Control Thresholds
Basis for treatment: Presence of broadleaf weeds in grass
Conducted by: Pest controllers
Control standard: Broadleaf weeds are killed within two weeks following treatment

Remarks
Sensitive areas: See the pesticide labels for precautions
Prohibited practices: None
Environmental concerns: None

FOLLOW ALL LABEL DIRECTIONS

**** ALL PESTICIDES MUST BE APPROVED PRIOR TO USE****

U.S. Army Integrated Pest Management Outline

PEST: ALL VEGETATION	SITE: SIDEWALKS, AROUND BUILDINGS FOUNDATIONS, PARKING LOT FENCES, FENCE LINES OR OTHER AREAS WHERE VEGETATION IS NOT WANTED

Surveillance
Conducted by: DPW – Grounds Maint.
Methods: Visual observation for weeds
Frequency: Monthly or as requested

Control Techniques

Type	Conducted by	Method
Physical		
Mechanical	DPW Contractors or units personnel	Hand and small machine removal of vegetation in parking areas, ground buildings, along fences, and like places
Cultural		
Biological		
Chemical	Pest Controller	Non Selective Herbicide Treatment

Control Thresholds
Basis for treatment: Vegetation around the bases of hydrants and utility poles, along fences, and on or along sidewalks and building perimeters.
Conducted by: Pest controllers
Control standard: Vegetation is killed within two weeks following treatment

Remarks
Sensitive areas: Avoid contact with foliage, green stems or fruit of desirable plants and trees. Avoid direct application to any body of water. Avoid drift which could damage desirable plants; do not spray if wind is over 5 miles per hour. Keep application away from trees drip linen to avoid absorption of herbicide by roots
Prohibited practices: None
Environmental concerns: None

FOLLOW ALL LABEL DIRECTIONS

**** ALL PESTICIDES MUST BE APPROVED PRIOR TO USE****

U.S. Army Integrated Pest Management Outline

PEST: SUBTERRANEAN TERMITES	SITE: BUILDINGS AND OTHER STRUCTURES

Surveillance

Conducted by: Pest Controller
Methods: Visual observation for termites and/or conditions that could favor termite infestations.
Frequency: Annually – may be done in conjunction with service orders for other pests.

Control Techniques

Type	Conducted by	Method
Physical		
Mechanical		
Cultural	Pest controller	Eliminate water sources that could support termite colonies – this is most likely to occur in the main post area where grass watering or broken utility lines provide water next to foundations and under buildings. Ventilate wet or damp areas under buildings. Repair and replace infested wood and structural material. Pretreat soil under new construction
Biological		
Chemical	Pest Controller	Non Repellant Pre-treatment, Non Repellant Post Treatment

Control Thresholds

Basis for treatment: Pretreat soil under new construction. Treat active termite infestations when they are found.
Conducted by: Pest controllers
Control standard: No subsequent termite infestations or damage from treated structures fro 5 years after application

Remarks

Sensitive areas: Avoid getting pesticides in areas where water can become contaminated and in air ducts or buildings. Do not apply when people are in buildings
Prohibited practices: Only use non-repellant termiticides on DoD property
Environmental concerns: None

FOLLOW ALL LABEL DIRECTIONS

**** ALL PESTICIDES MUST BE APPROVED PRIOR TO USE****

U.S. Army Integrated Pest Management Outline

PEST: RODENTS	SITE: ADMINISTRATIVE BUILDINGS

Surveillance
Conducted by: Building occupants and Pest Controller
Methods: Visual observation for mouse damage, droppings and structural deficiencies which could provide mouse entry
Frequency: On-call basis

Control Techniques

Type	Conducted by	Method
Physical	DPW	Eliminate external openings (greater than ¼ inch) that provide mouse entry to buildings. Give particular attention to loading doors
Mechanical	Pest controllers	Mechanical mouse traps and glue boards can also be used
Cultural	Occupants	Utilize good sanitation to reduce harborage, food and water source.
Biological		
Chemical	Pest Controller	Baits

Control Thresholds
Basis for treatment: Mice or evidence of mice found during surveillance.
Conducted by: Pest Controllers
Control standard: No Product damage from mice. If mouse baiting is instituted following evidence of a large mouse infestation, then significant reduction in number of droppings should be seen within the first 30 days. If no evidence of mice after 30 days, then remove bait stations. Service bait stations at least monthly

Remarks
Sensitive areas: Follow product label directions
Prohibited practices: Do not place pesticides where bait will be accessible to children or pests. Bait should be placed in tamper proof containers
Environmental concerns: None

FOLLOW ALL LABEL DIRECTIONS

**** ALL PESTICIDES MUST BE APPROVED PRIOR TO USE****

U.S. Army Integrated Pest Management Outline

PEST: PIGEONS	SITE: Cantonment Area

Surveillance
Conducted by: Pest Controllers
Methods: Visual observations during routine maintenance
Frequency: As required

Control Techniques

Type	Conducted by	Method
Physical		
Mechanical	DPW, Pest Controller	Exclusion from roosting sites using screens and metal mesh, etc. Use of spikes to inhibit landing and roosting.
Cultural		Avoid providing water, food and shelter.
Biological		
Chemical	Pest Controller	Repellants

Control Thresholds
Basis for treatment: Pigeon congregations in unwanted areas
Conducted by: Pest controllers
Control standard: No pigeon congregations in the area

Remarks
Sensitive areas: Follow product label directions
Prohibited practices: Consult Migratory Bird Treaty Act before control measures are taken
Environmental concerns: None

FOLLOW ALL LABEL DIRECTIONS

**** ALL PESTICIDES MUST BE APPROVED PRIOR TO USE****

U.S. Army Integrated Pest Management Outline

PEST: MISCELLANEOUS VERTEBRATE PESTS (e.g., stray dogs and cats, skunks, raccoons, opossums, squirrels)	SITE: Cantonment Area

Surveillance
Conducted by: Building occupants / Pest Control
Methods: Visual observations
Frequency: As required

Control Techniques

Type	Conducted by	Method
Physical		
Mechanical	Pest Controllers	Live trapping (if applicable) with wire or solid cage traps. Release wild animals in remote areas. Take cats and dogs to a local animal shelter.
Cultural	Building occupants	Good Sanitation. Animals are attracted to uncovered trash and debris. Place all trash in covered dumpsters or closed trash cans. Screen or repair entry points through which animals can gain access to crawl spaces, attics, etc. Do not feed these animals.
Biological		
Chemical		

Control Thresholds
Basis for treatment: Presence of unwanted vertebrates in the area
Conducted by: Pest controllers
Control standard: Removal of the pests from the area

Remarks
Sensitive areas:
Prohibited practices: None
Environmental concerns: None

FOLLOW ALL LABEL DIRECTIONS

Additional comments: Domestic cats are often abandoned on military installations by their owners. Over time, these cats and their offspring become feral and live under buildings. Not only do these cats carry diseases, but their fleas also pose a health threat to personnel working in and around the buildings. Feeding of feral cats should be discouraged. Cats that appear to be without ownership should be captured and removed as quickly as possible.

**** ALL PESTICIDES MUST BE APPROVED PRIOR TO USE****

U.S. Army Integrated Pest Management Outline

PEST: STORED PRODUCT PESTS	SITE: FOOD STORAGEAREAS

Surveillance

Conducted by: Pest Controllers
Methods: Pheromone traps
Frequency: Continuous

Control Techniques

Type	Conducted by	Method
Physical	DPW	Screens on windows and doors.
Mechanical		Sticky Traps
Cultural		
Biological		
Chemical	Pest controller	Residual treatment of resting areas

Control Thresholds

Basis for treatment: Pests found within the facility
Conducted by: Pest Controllers
Control standard: No pests detected within the facility

Remarks

Sensitive areas: None
Prohibited practices: None
Environmental concerns: None

FOLLOW ALL LABEL DIRECTIONS

**** ALL PESTICIDES MUST BE APPROVED PRIOR TO USE****