
Appendix C

Threatened and Endangered Species

Attachments to Appendix C

Attachment C-1 Sea Turtle Management Plan

Attachment C-2 Florida Scrub-jay Management Plan

Attachment C-3 Scrub Habitat Restoration Plan

Attachment C-4 Gopher Tortoise Relocation Plan

Appendix C: Threatened and Endangered Species

Air Force Instruction (AFI) 32-7064, Chapter 7, Threatened and Endangered Species Management, instructs military installations to develop and implement programs to protect and conserve federally listed threatened and endangered plants and wildlife in accordance with Public Law 93-205. Paragraph “c.” of this law further acknowledges separate state-recognized lists and advises installations to also consider impacts of actions that could jeopardize the quality of the state listed species’ habitat. An ecosystem management strategy should be provided in the Integrated Natural Resources Management Plan (INRMP) for the protection and recovery of Threatened and Endangered (T&E) species and Candidate species when practical. Protection measures for state listed species are also included in the INRMP. With the exception of the West Indian manatee, there is no formally designated critical habitat (under Section 4 of the Endangered Species Act) within 45th Space Wing (45 SW) properties. **Section C.2.6** (West Indian manatee) discusses the critical habitat within 45 SW property for this federally listed threatened species. Additionally, critical habitat has been designated in waters adjacent to and used by the 45 SW (Banana River and Atlantic Ocean). Additionally, the 45 SW is home to numerous state and federally listed species. Species management plans have been developed for listed species located within 45 SW properties in which specialized and/or significant management is required due to Biological Opinion and/or other regulatory requirements. The responsibilities associated with the SAIA is the major factor contributing to 45 SW future planning, funding and implementation of management actions to protect, conserve, and contribute to the recovery of federally-listed species under the INRMP.

C.1 Identified Species

This appendix focuses on those species requiring specialized and/or significant management. Species management plans include the following species and these plans are incorporated as Attachment to this appendix (Appendix C):

- Sea turtles (Attachment C-1)
- Florida scrub-jay (Attachment C-2)
- Scrub-jay habitat (Attachment C-3)
- Gopher tortoise (Attachment C-4)

Protected species were identified as high, medium, or low priority species. The definition of each category is provided below.

- **High** priority species include federally listed species with management plans (attached to this Appendix), Biological Opinions (BO) and incidental take permits (see **Appendix B**), and/or which are directly managed by 45 SW with projects undertaken specific for them, or have critical habitat within the boundary of the 45 SW installations.
- **Medium** priority species include federally listed species known to occur on at least one of the 45 SW installations; however, these species are not typically directly managed by 45 SW nor are projects undertaken directly by 45 SW to support these species, although protection measures are often used to reduce potential impacts.

- **Low** priority species include all federal species of special concern as well as all state listed species known to occur on at least one of the 45 SW installations.

High Priority Species

- Federally threatened eastern indigo snake
- Federal candidate and state threatened gopher tortoise
- Federally threatened Florida scrub jay
- Federally threatened southeastern beach mouse
- Federally threatened loggerhead sea turtle
- Federally threatened green sea turtle
- Federally endangered leatherback sea turtle
- Federally endangered hawksbill sea turtle
- Federally endangered Kemp's Ridley sea turtle
- Federally endangered West Indian manatee
- Federally endangered Florida perforate lichen

Medium Priority Species

- Federally threatened red knot
- Federally threatened piping plover
- Federally protected bald eagle
- Federally threatened wood stork
- Federally threatened roseate tern
- Federally endangered Atlantic sturgeon
- Federally endangered smalltooth sawfish
- Federally threatened Nassau grouper
- American alligator (treated as federally threatened)
- Federally endangered North Atlantic right whale

C.2 High Priority Species

C.2.1 Sea Turtles

Years of nesting data has been collected for these listed species, which is provided in the associated Attachments to Appendix C. Sea turtle nesting must be monitored in order to meet USFWS Biological Opinion requirements to limit incidental take due to disorientation/misorientation caused by 45SW mission artificial lighting. The Sea Turtle Management Plan can be found in Attachment C-1. Sea turtles nest on the Atlantic beaches of CCAFS and PAFB. The National Marine Fisheries Service has designated critical habitat areas in the Atlantic Ocean adjacent to CCAFS and PAFB for the loggerhead sea turtle (Figures 1 and 2). However, CCAFS

and PAFB beach (terrestrial) areas are exempt from designated terrestrial critical habitat for the loggerhead sea turtle, per the USFWS.

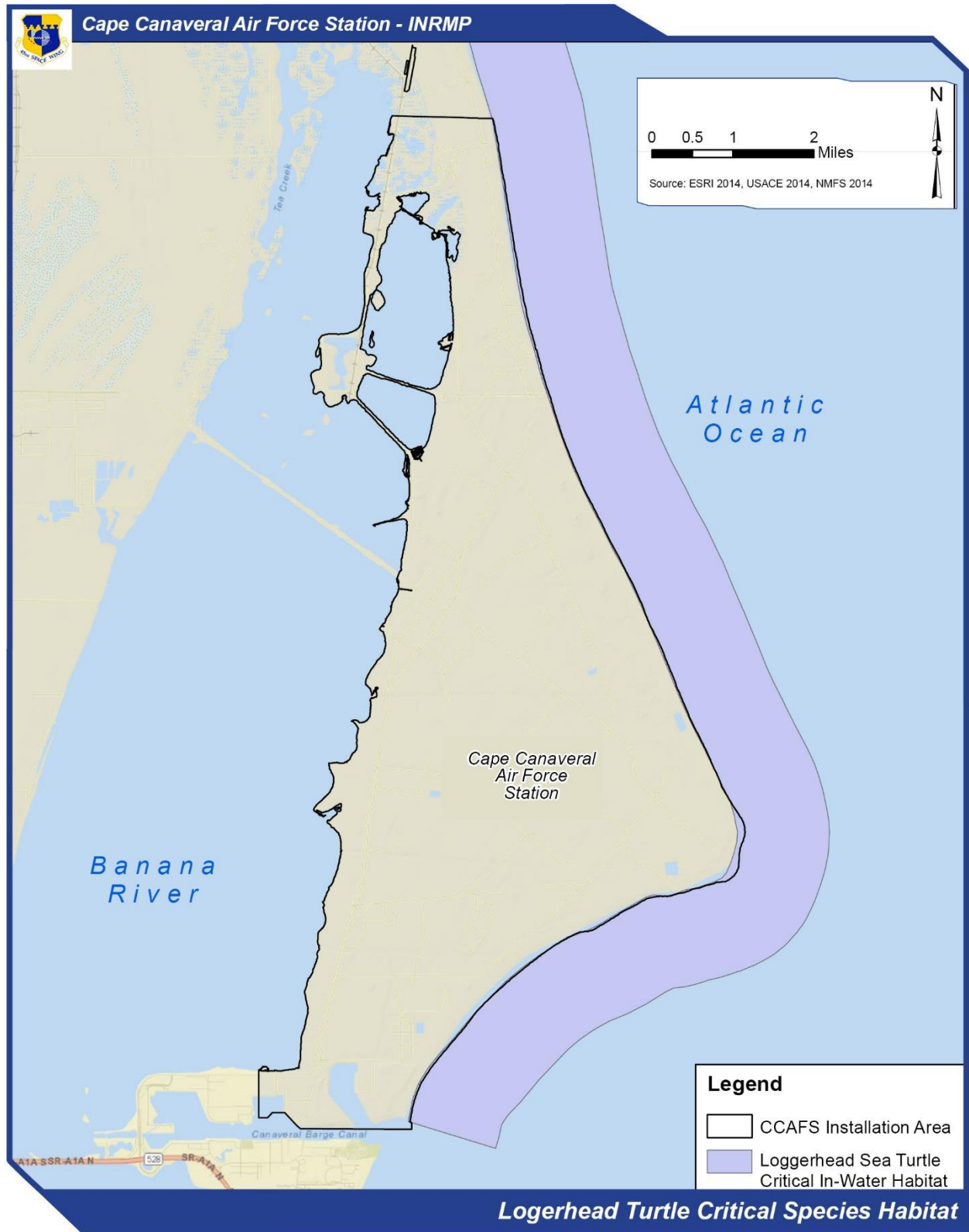


Figure 1. Loggerhead sea turtle in-water critical habitat (per NMFS), adjacent to CCAFS



Legend

- PAFB Installation Area
- Loggerhead Sea Turtle Critical In-Water Habitat

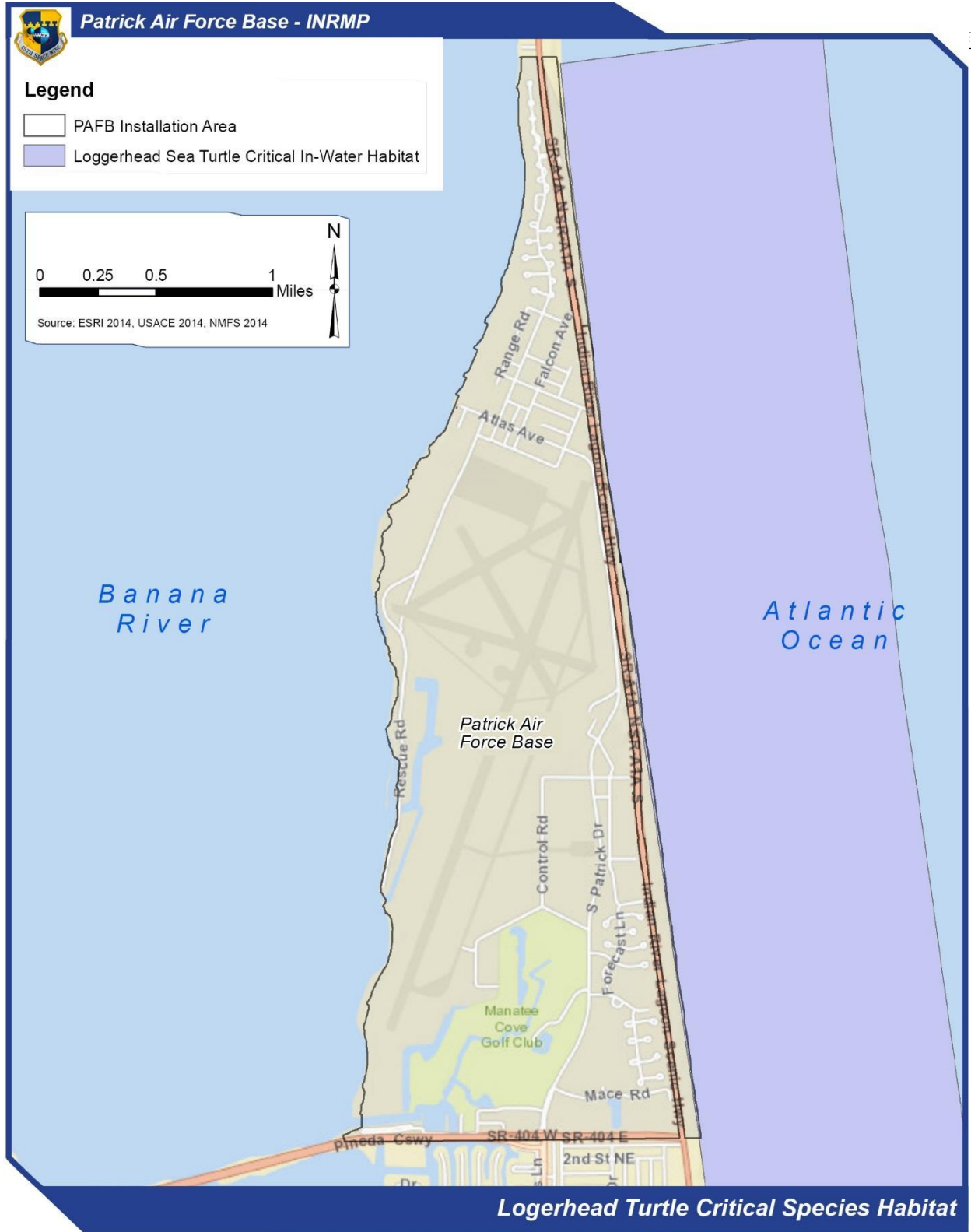
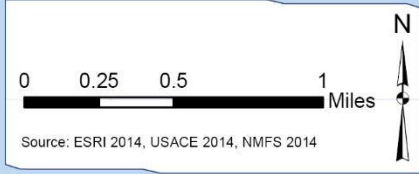


Figure 2. Loggerhead sea turtle in-water critical habitat (per NMFS), adjacent to PAFB

C.2.1.1 Juvenile Green Sea Turtle

The Trident Basin (Basin) at CCAFS is home to a significant population of juvenile green sea turtles which are listed as federally endangered. These resident juvenile turtles inhabit the Basin and forage for algae from the rock revetments along the shoreline of the Basin. In addition to the management objectives of the Sea Turtle Management Plan (Attachment C-1), a study of the juvenile green sea turtles that inhabit the Basin at CCAFS is conducted annually, under a contract with the University of Central Florida (UCF). Study objectives include the distribution, biology, morphology, and size class determinations of this population and may include any potential and/or observed impacts to the species from activities occurring in the Basin. Useful information is gathered and documented about this particular population and its associated size class for the species. Since little is known about the complete life cycle of sea turtles, particularly of this size class, the study provides information to the scientific community regarding the foraging needs and range of this size class, and may contribute to the recovery of the species. The data results indicate the Navy submarine activity in the Basin has not adversely affected the juvenile green turtle population, and the construction of the rock lined Basin has provided a foraging area that is supplementing the juvenile green sea turtles' diet.

C.2.2 Florida Scrub-Jay

Years of nesting data has been collected for this listed species, which is provided in the associated Attachments to Appendix C. The Florida Scrub-Jay Management Plan can be found in Attachment C-2. The Florida scrub-jay is found within CCAFS, and utilizes habitat within JDMTA.

C.2.3 Southeastern Beach Mouse

The Southeastern beach mouse (beach mouse) is a federally listed threatened species. It is a sub-species of the numerous, widely distributed old field mouse. The beach mouse is found within CCAFS. Beach mice populations have historically been restricted to the coastal dune and coastal strand communities along Florida's East Coast. The historical distribution of this species was from Ponce Inlet (Volusia County), south to Hollywood Beach (Broward County). Human alteration of the coastal barrier islands has resulted in extirpation of the beach mouse from the majority of its range. The most viable populations are now located on federal lands, including the Canaveral National Seashore, Merritt Island National Wildlife Refuge/Kennedy Space Center and CCAFS. Studies conducted in the vicinity of LC-40 indicate a large and healthy population of beach mice residing in coastal dune/strand and disturbed oak scrub communities in this area. Further research has shown that beach mice are located in interior oak scrub sites, as well as buildings. The coastal dune habitat is afforded considerable protection, and the species is protected by Section 7 of the ESA. Currently no critical habitat for the beach mouse has been designated.

Impacts to this species are addressed on a project specific basis and through Section 7 Consultation with USFWS. Mitigation measures to reduce potential impacts to this species, if appropriate, are determined by USFWS. The beach mouse may be relocated out of the project area and/or USFWS may issue a "take permit" to the proponent of the project.

Smaller projects that involve digging in areas where beach mice may be found will be reviewed by the personnel of the 45 SW Civil Engineer Squadron Environmental Conservation Element

(CES/CEIE-C) and consultation normally will not occur if it is determined that impacts to the beach mouse can be avoided.

Currently, the 45 SW has two Programmatic BO that address impacts to the beach mouse. The first BO (USFWS Log No. 41910-2009-F-0110) issued December 23, 2008 (Appendix B, Attachment B-1) involves disturbance to areas where beach mice are present, but will not result in a permanent removal of the habitat. Examples of such projects include scrub restoration, burning, and installation of utility lines. The BO allows a take for all beach mice located in these areas.

The second Programmatic BO (USFWS Log No. 02-617) issued August 22, 2002 addresses pest control operations on CCAFS. Several years ago, beach mice were being captured inside facilities on CCAFS. As a result, pest control operations were changed to ensure no beach mice were killed. The BO allowed a take of 50 beach mice within CCAFS associated with pest control operations for a period of one year from 22 Aug 2002. The BO was extended via emails following that first year. For areas located east of Pier Road, Lighthouse Road, ICBM Road and North Phillips Parkway, which are considered typical beach mouse habitat, the USAF is required to live trap. Any beach mice captured in these areas are relocated outside the facility. The USAF is currently working on updating this BO.

C.2.4 Eastern Indigo Snake

Federally listed as a threatened species, the Eastern indigo snake (indigo snake) has been identified throughout CCAFS from road kills, field collections, and observations. The indigo snake is also present, or presumed present, within MTA, and JDMTA. The major threats within CCAFS to this protected species are habitat loss and vehicle strikes. Relatively stable habitat exists on CCAFS due to controlled access and minimal development which makes this installation capable of maintaining a population of indigo snakes close to that which would occur in an undisturbed habitat.

Management of the indigo snake occurs on a project specific basis and all potential impacts are addressed through the use of the Environmental Impact Analysis Process (EIAP). Impacts to the indigo snake are addressed through Section 7 consultation with USFWS if the USAF believes that the proposed action “may affect” the species. Construction activities in the preferred habitat of the indigo snake will require adherence to the USFWS *Standard Eastern Indigo Snake Protection Measures*, and should be a component in the project specifications and contract language/drawings. Indigo snakes typically leave construction areas once activities begin and mitigation actions are not required. If any indigo snakes are encountered during construction, work will stop until the indigo snake moves out of the area on its own, and the 45 CES/CEIE-C is contacted immediately. Resumption of construction/clearing can begin after the indigo snake is out of the area. Other components of the *Standard Eastern Indigo Snake Protection Measures* include informational posters about the indigo snake that are provided to construction contractors for display in a prominent location at construction sites and access roads to the site. The 45 CES/CEIE-C developed an Indigo Snake Education Plan (Plan) (approved by USFWS) that is

provided to contract managers prior to initiation of projects (Attachment C-5). ¹The USFWS also has indigo snake protection measures that must be followed. The contract manager is required to read and be familiar with the Plan, as well as ensure all construction personnel are familiar with the Plan. If required per BO, an indigo snake monitoring report is submitted to the USFWS after construction/clearing activities.

Normally, the only time indigo snakes may be relocated is during relocation of gopher tortoises. The personnel of the 45 CES/CEIE-C should be contacted in the event it is determined an indigo snake should be relocated since this action would require a permit.

C.2.5 Gopher Tortoise

The gopher tortoise is listed as threatened in the State of Florida, and a candidate for federal listing in Florida. The gopher tortoise is present on all four 45 SW properties: CCAFS, PAFB, MTA, and JDMTA. Although the gopher tortoise is not federally protected in Florida, it is afforded protection by the USAF due to its state ranking and use of its burrow by commensal species, some of which are federally protected species. The gopher tortoise is considered a keystone species because its burrow provides important habitat for many other native species; some commensal species observed utilizing gopher tortoise burrows within CCAFS include the eastern diamondback rattlesnake, eastern coach whip, ghost crabs, box turtle, cotton mouse, cotton rat, Florida gopher frog, and armadillo.

Gopher tortoises inhabit upland habitats common in central Florida, including scrub, pine flatwoods, and the dune area along beaches. Their diet consists mainly of grasses, grass-like plants, and legumes. The primary reason for the decline of this species throughout the southeast United States (U.S.) is habitat destruction. The dry upland habitat favored by this species is also desired for construction development for business and residential areas.

The current population of gopher tortoises on CCAFS is not known; although, based on the observations of 45 CES/CEIE-C personnel, a considerable number of individuals inhabit CCAFS, probably in the thousands. The current number of gopher tortoises present on PAFB, MTA, and JDMTA are not known. According to 45 CES/CEIE-C personnel, the population at PAFB is estimated at less than 20 gopher tortoises based on the limited number of gopher tortoise burrows found on the airfield and the closed landfill south of the FamCamp. The population is estimated as 63 tortoises at MTA, based on a recent survey (VZ Technologies 2014b) with observations of tortoise inside and outside of burrows. Personnel of the 45 CES/CEIE-C report the tortoise population on JDMTA is estimated at less than 10, as there are only a few burrows found in open areas within stormwater swale banks and other elevated locations near the fence line.

In 1999, the 45 CES/CEIE-C received the first blanket tortoise relocation permit for CCAFS, allowing captures and relocations for a three year period rather than requiring procurement of

¹ The USFWS standard *Indigo Snake Education Plan* can be found at: https://www.fws.gov/northflorida/IndigoSnakes/20130812_Eastern_indigo_snake_Standard_Protection_Measures.htm.

individual permits for projects. A 45 SW Gopher Tortoise Conservation Plan (Attachment C-3), approved by FWC, was developed that outlined procedures for relocating gopher tortoises within CCAFS, and other 45 SW properties. This enabled the 45 SW to receive blanket gopher tortoise relocation permits. In 2009, the FWC implemented a new gopher tortoise permitting process and informed the 45 SW it was no longer issuing blanket permits. This initiated discussions within DoD regarding the legality of a state agency assessing fees on a federal agency on a species that is not federally listed. As a result and as reflected in the FWC *Gopher Tortoise Management Plan*², military activities are exempt from permitting and fees therefore a permit is no longer required for the 45 SW. The 45 CES/CEIE-C reviews all projects and flags those actions which may impact the gopher tortoise. Surveys occur prior to land disturbance activities to assess potential impacts to the gopher tortoise. If avoidance of impacts to the gopher tortoise and/or its habitat is not possible, the 45 CES/CEIE-C personnel will relocate the gopher tortoise outside of the project area, but within a 45 SW property.

In 2008, a Candidate Conservation Agreement (CCA) was developed for the gopher tortoise as a cooperative effort among state, federal, non-governmental, and private organizations. The purpose of the CCA was to collectively implement proactive gopher tortoise conservation measures across its eastern range. In accordance with this CCA, annual reports are submitted by the 45 SW that detail gopher tortoise habitat management and relocation efforts that have taken place throughout the year.

C.2.6 West Indian Manatee

The West Indian manatee (manatee) is federally listed as endangered, but is now under consideration by USFWS for reclassification to threatened (USFWS, 2014).

In Brevard County, the USFWS has designated all inland waters of the Banana River and all waterways between the Indian and Banana Rivers as critical manatee habitat, including contiguous waterbody features such as tributaries, bays, covers, and inlets (Figures 3 and 4). Since 1990, the northern Banana River, north of the National Aeronautics and Space Administration (NASA) Causeway has had restricted boat access due to the manatee. An increasing number of manatees using the region (Provancha and Provancha 1988) pre-empted the USFWS to deny public power boats access to nearly all of the Banana River waters adjacent to CCAFS.

Manatees are one of the few marine mammals known to inhabit the local salt-water lagoon system within and near CCAFS and PAFB. The turning basin, west of CCAFS facility Hangar AF, typically has an area of exceptionally high concentration, and is considered critical habitat for the manatee. Manatees may also be found in the Port Canaveral area, including the Trident Basin (also designated by USFWS as critical habitat).

² FWC *Gopher Tortoise Management Plan* can be found at website: <http://myfwc.com/wildlifehabitats/managed/gopher-tortoise/management-plan/>.

Due to the nature of the activities conducted at 45 SW properties and the presence within CCAFS of designated manatee critical habitat, the USAF will carefully consider the siting of projects which could adversely affect manatee habitat located within the USAF turning basin, Trident Wharf, Poseidon Warf, Air Force Warf, waterways and adjacent shorelines of the Banana River, and contact USFWS for Section 7 consultation early in the process for projects proposed in these waters within CCAFS and PAFB boundaries.. Manatees also utilize the waters of the PAFB marina and the Banana River waters adjacent to PAFB western boundary. Construction activities in the manatee critical habitat within CCAFS and PAFB, including dredging, docks/pilings repair and replacement, will require a Section 7 consultation with USFWS, and adherence to the FWC *Standard Manatee Conditions for In-Water Work*³, which will be a component in the project specifications and contract language/drawings.

Any projects that have the potential to impact manatees will require Section 7 consultation under the ESA, consultation under the Marine Mammal Protection Act and/or consultation under the Fish and Wildlife Coordination Act with USFWS. The USFWS will determine the necessary mitigation to be taken to reduce potential impacts to this species. Normal safeguarding actions consist of installation of signs warning construction personnel of the presence of manatees, the protected status of the manatee, no wake requirements, and work stoppage requirement if a manatee enters the project area from as far as 50 feet. Any natural resource enhancement projects or installation construction actions that may affect manatee habitat or the species will also be compared to the guidelines established in the *Brevard County Manatee Protection Plan*⁴ developed under the Florida Manatee Sanctuary Act.

C.2.7 Northern Right Whale

In water habitat for the North Atlantic right whale can be found in the Atlantic Ocean adjacent to CCAFS and PAFB (Figures 3 and 4). Although the USAF does not own these water body areas, there are some activities that do/will take place within designated critical habitat, or have the potential to impact the North Atlantic right whale critical habitat; these activities will be conducted in accordance with the appropriate in-water construction guidelines. Projects that have the potential to impact North Atlantic right whales will require Section 7 consultation under the ESA and consultation with NMFS under the Marine Mammal Protection Act.

³ FWC *Standard Manatee Conditions for In-Water Work* can be found at website: http://myfwc.com/media/415448/Manatee_StdCondIn_waterWork.pdf.

⁴ *Brevard County Manatee Protection Plan* can be found at website: <http://www.brevardcounty.us/docs/default-source/natural-resources-documents/brevard-county-manatee-protecton-plan.pdf?sfvrsn=0>.

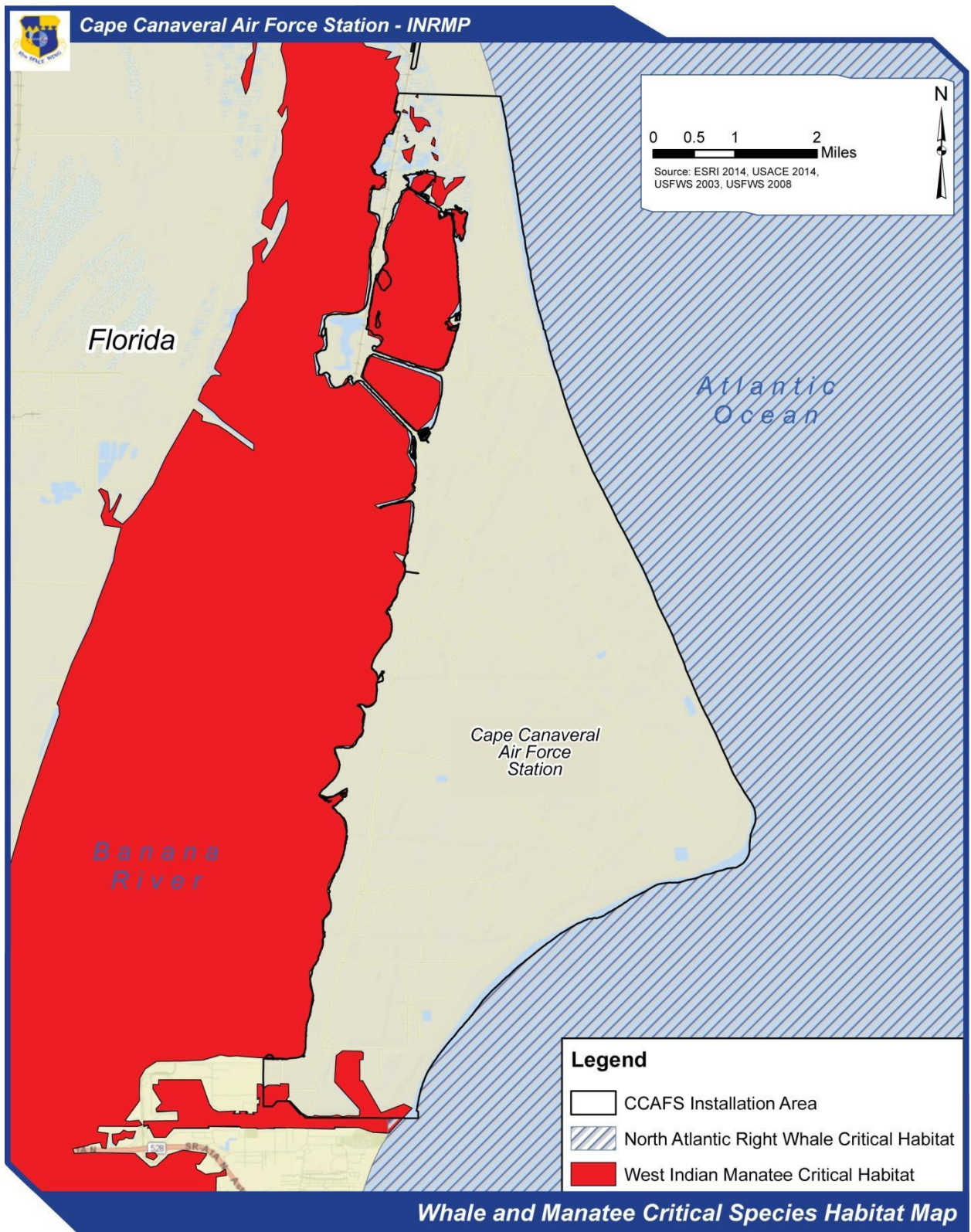


Figure 3. In-Water Critical Habitat for W. Indian manatee and N. Atlantic right whale, CCAFS

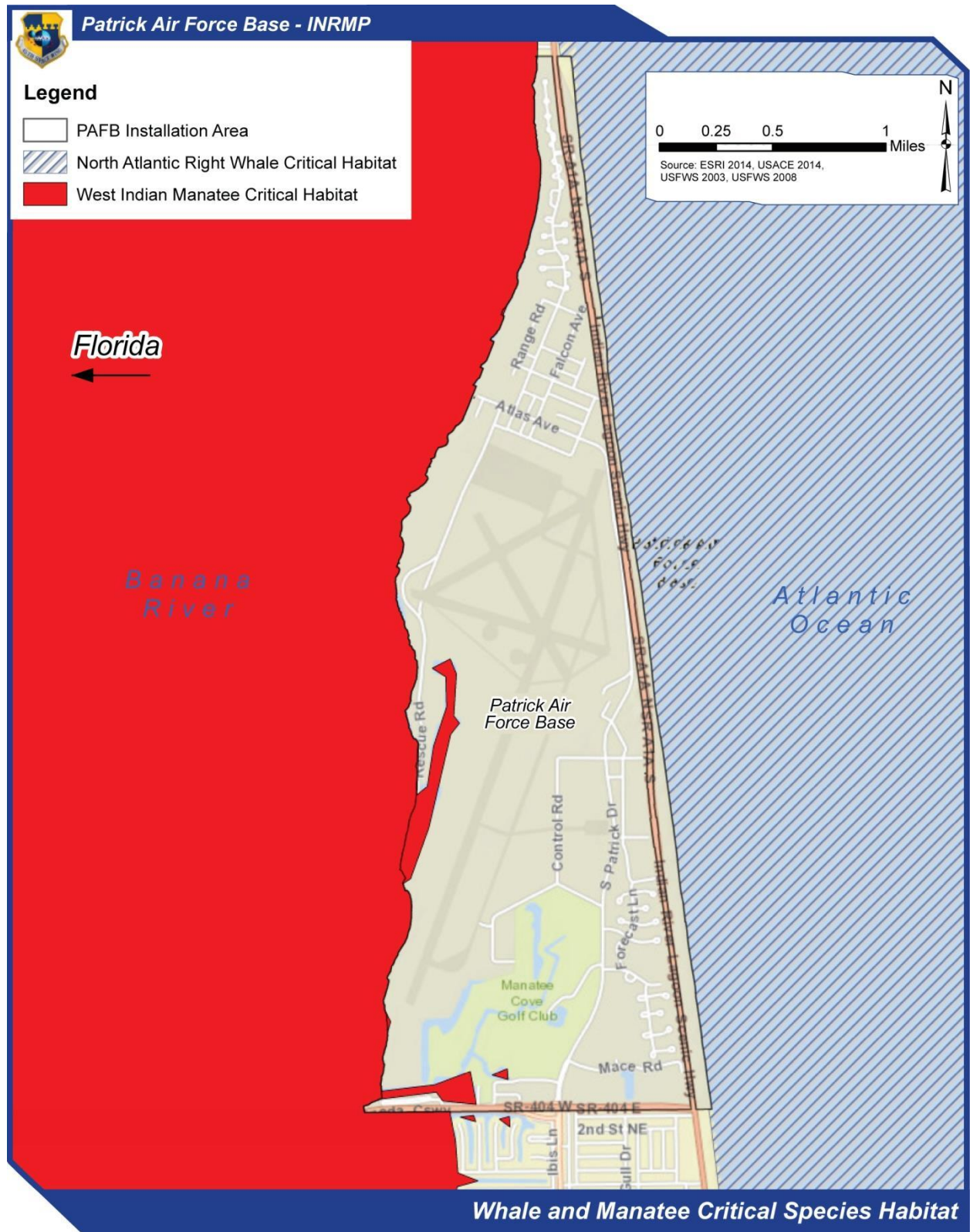


Figure 4. In-Water Critical Habitat for W. Indian manatee and N. Atlantic right whale, PAFB

C.2.7 Florida Perforate Lichen

The Florida perforate lichen (lichen) is a federal and state listed endangered plant species. The lichen is present only at the JDMTA property of the 45 SW. The population found within JDMTA is part of a larger population at Jonathan Dickinson State Park (JDSP), located adjacent to JDMTA. The lichen is found in well-drained sands of scrub in only a few locations in Florida. Currently, no critical habitat for the lichen has been designated.

Impacts to this species are addressed on a project specific basis and through Section 7 ESA consultation with USFWS. In 2005, under USFWS Section 7 consultation (7 Feb 2005) for a JDMTA fence and tower replacement project the lichen at JDMTA was relocated to an offsite location within JDSP through coordination with the JDSP biological staff. A 30-foot wide clear zone was established as a part of the fence replacement. In accordance with USFWS guidance, this clear zone will be maintained for security purposes and vegetation will be cleared and mowed regularly. The lichen at JDMTA was almost entirely limited to a relatively open area at the edge of pine and oak tree line near the boresight tower with some areas of the lichen being closer to the fence line. Global Positioning System (GPS) coordinates of the recipient sites were recorded and provided to JDSP for locations to prevent fire impacts from their controlled burns. The personnel of 45 CES/CEIE-C monitor the recipient sites. Only fragments of the lichen that were too difficult to retrieve/remove still remain on JDMTA.

Smaller projects that involve impacts to areas where any remaining lichen may be found at JDMTA will be reviewed by 45 CES/CEIE-C; consultation will occur if it is determined that impacts to the lichen cannot be avoided. Generally, impacts will be avoided by prohibiting mowing and foot and vehicular traffic in the areas where lichen is located. It is possible that the lichen may disperse back into JDMTA with wind and rain; JDMTA will be surveyed annually to determine if new populations of the lichen have established on this 45 SW property.

A 70-foot clear zone was established adjacent to the fence clear zone for Florida scrub-jay (scrub-jay) habitat enhancement. This 70-foot area will be maintained on approximately five-year cycles with a mosaic restoration by prescribed burning by JDSP to maintain natural vegetation to heights that the scrub-jay prefers in accordance with the burn plan for JDSP. Refer to the JDMTA and Other Managed Species sections (sections 1.4 and 1.5.2.4) for scrub-jay and indigo snake conservation measures, respectively.

C.3 Medium Priority Species

There are several other listed species that are managed on the 45 SW properties without a specific management plan as there are no requirements outlined in a Biological Opinion (BO). If specific plans were developed, additional information of each species' population would be required including detailed demographics and site specific species utilization of habitat found within 45 SW properties. USFWS has indicated a desire for more monitoring of protected species. Monitoring will be funded by the Air Force (USAF) for species that may be subjected to recurring impacts due to 45 SW actions and for those that are easily disturbed. However, unless a BO outlines the specific monitoring requirements, most protected species monitoring to provide population trends and demographics will occur every three to five years, or as funding allows. If

these studies indicate impacts then the USAF will request a BO from the USFWS to devise an adaptive management strategy.