

NASKW 2022 Secretary of Defense Environmental Award Nomination

2. Narrative

INTRODUCTION

Naval Air Station Key West (NASKW) is the southernmost military installation in the continental United States prized for perfect flying weather conditions and unparalleled aerial ranges designed to provide exceptional training and meet Department of Defense (DoD) national security requirements. NASKW serves a total population of 2,478 personnel, including 1,493 military and 985 civilians directly supporting the military readiness mission for armed forces, the Department of Homeland Security, National Guard units, federal agencies, and allied foreign nationals. The installation is the Navy's premier East Coast pilot training facility for tactical aviation squadrons; as such, NASKW's Boca Chica Field hosts aviation squadrons from around the country on a regular basis. Customers include active and reserve fighter/strike fighter communities, Chief of Naval Air Training, fleet replacement squadrons, and other military service customers. Fighter Squadron Composite (VFC) 111, "Sun Downers," is a homeported squadron that uses real world intelligence to provide adversary tactics in order to expertly train military pilots in air to air combat. NASKW also hosts more than 30 tenant commands with diverse missions, including unique naval research, development testing, counter-drug operations, and special warfare training. Major tenants or detachments operating out of NASKW include the U.S. Army Special Forces Underwater Operations School; Strike Fighter Squadron (VFA) 106 Detachment; Atlantic Targets & Marine Operations Detachment; Naval Special Warfare Group Two Training Detachment; Naval Research Laboratory; U.S. Coast Guard Sector Key West; and Joint Interagency Task Force South (JIATF-S).

NASKW successfully achieves the installation's mission while concurrently managing sensitive habitats and ecosystems spread throughout 12 distinct properties encompassing of approximately 6,433 acres of land and containing over 20 miles of shoreline. The largest property, Boca Chica Field, is located on Boca Chica Key, four miles east of the City of Key West in Monroe County, Florida. Boca Chica Field occupies 4,700 acres which is nearly the entire land area of the key. More than 60 percent of Boca Chica Field is undeveloped wetlands, supporting a wide variety of native flora and fauna. Many of these species are federally listed as either threatened or endangered. The installation is also nestled within the Florida Keys National Marine Sanctuary (FKNMS) and is located within two of only five regions of the state designated as an "Area of Critical State Concern." The designation is issued by the state to protect natural resources of statewide significance and oversee local government land use management to promote orderly and balanced growth. The NASKW Integrated Natural Resources Management Plan (INRMP) identifies 25 federally listed species on the installation's property including 23 animals and two plants. Over 115 migratory bird species are observed on NASKW properties throughout the year. The installation resides along the shorelines of the only living coral reef observed in the continental United States and provides habitat to a variety of coral species. One notable species includes the endangered Lower Keys Marsh Rabbit which coexists and flourishes amongst a heavily operational airfield. The species is endemic to the Lower Florida Keys and the U.S. Fish & Wildlife Service (USFWS) estimates only 2,116 acres of suitable Lower Keys marsh rabbit habitat remains in the entire Florida Keys with NASKW supporting an estimated 60% of the total Lower Keys marsh rabbit population in only 15% of the total available habitat.



Two Juvenile Lower Keys marsh rabbit (Sylvilagus palustris hefneri) on NASKW Boca Chica Field.

BACKGROUND

The NASKW Integrated Natural Resource Management Plan (INRMP) is used to manage natural resources observed throughout the installation. The INRMP highlights regulatory legal drivers as well as

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identifies management projects to protect and enhance habitats associated with NASKW. In accordance with the Sikes Act of 1997, the NASKW INRMP underwent a formal 5-year revision during November 2020. On an annual basis, NASKW meets with state and federal partners to assess overall operational effectiveness and concurrence. The last annual INRMP review took place September 2021.

Representatives from the USFWS, the Florida Wildlife Conservation Commission (FWC), National Oceanic Atmospheric Administration (NOAA), and the FKNMS attended the review and INRMP implementation was deemed satisfactory by all partners. The last External Emergency Management Services (EMS) Audit of NASKW was in June 2017; the audit found the natural resources program to be in full compliance. An audit scheduled for 2020 was delayed due to COVID-19 requirements.

INRMP implementation is supported by two Caribbean Cooperative Ecosystem Studies Unit (CESU) cooperative agreements, one with the University of Florida (2010-2022) and the other with Texas A&M University (2019-2021); these universities conduct species surveys and population studies for NASKW. The installation has a support agreement with the U.S. Department of Agriculture (USDA) Wildlife Services (WS) (2013-2022) for nuisance wildlife control.

The NASKW Environmental Division consists of a total of eight civilian personnel including the Installation Environmental Program Director (IEPD) and five media managers. The Natural Resources (NR) program is a multi-disciplinary effort that requires cooperative supports from all personnel. Overall, the program is administered by the NR Manager and the IEPD. Environmental staff, volunteers, and cooperative agreements provide additional support when necessary. Program goals and tasks could not be achieved without the direct involvement and team comradery of the entire organization. Partnering universities assist with field work, data collection, and surveys based on their area of expertise. While, volunteers and environmental staff are integrated into projects and activities as often as possible to encourage community involvement, stewardship, provide educational outreach opportunities, and enhance the morale and welfare within the installation. The NR program is in full compliance with all environmental regulations and permits.

The Environmental Division sits on three significant committees that have major impacts on the NR program. The NR Manager is a long-standing member of the Florida Keys Invasive Exotics Task Force (FKIETF) and the Florida Keys Shorebird Partnership. The FKIETF offers additional financial support for invasive and exotic vegetation removal on public lands while the Florida Keys Shorebird Partnership offers a platform to share information, identify potential trends, and better manage and conserve seabird and shorebird resources throughout Monroe County. These established relationships have been fundamental for greatly improving natural habitats and safety of flight for airfield operations. Additionally, the Florida Keys National Marine Sanctuary Advisory Council (SAC) was established to advise the Sanctuary Superintendent on issues regarding management of the sanctuary. The Navy has critical operational interests within the existing sanctuary boundaries that cannot be accomplished elsewhere without significant mission degradation. The Naval Air Station Key West Commanding Officer was invited to be a member of the SAC to ensure national security interests were adequately addressed in Sanctuary management actions. The SAC provides an exceptional forum for NASKW NR program outreach, showcasing the critical role it plays in endangered species management and habitat preservation.

SUMMARY OF ACCOMPLISHMENTS

NASKW has exceeded the goals of the INRMP through projects and programs, highlighted below, that implement the Commanding Officer's environmental policy to protect, preserve and conserve our natural environment through proper stewardship of natural resources.

Getting It Done in an Environmentally Sensitive Area

Boca Chica Field consists of an interconnected system of lagoons and drainage ditches that flush naturally with the ebbs and flows of coastal tides. The drainage system is free-flowing and feeds directly from the Atlantic Ocean and the Gulf of Mexico. As such, aquatic wildlife including fish, sharks, and

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crocodilians are able to navigate and roam freely through the water ways. American Crocodiles (*Crocodylus acutus*) are occasionally found along the southern ranges of Florida and observed throughout Mexico. The species is both federally and state protected and the greatest threat during recent years has been contributed to habitat destruction due to development and human population growth.



Juvenile American Crocodile (*Crocodylus acutus*) being released into a lagoon by NASKW Environmental staff.

Several resident American Crocodiles have established permanent refuge at Boca Chica Field. On occasion, installation personnel report sightings of both adult and juvenile crocodiles within the airfield perimeter and along the drainage ditches. Although active nests have not been identified, species surveys suggest NASKW has suitable crocodile nesting habitat. The reports of crocodiles on the installation posed potential safety and management concerns. To better understand their movement and potential impact to flight operations, NASKW collaborated with the FWC in a scientific research study initially intended to determine the effects of translocating crocodiles. The study

involved collecting blood samples and placing Global Positioning System (GPS) transmitter devices on crocodiles to monitor location, overall movement patterns, and stress levels. While this study was fundamental for developing guidelines and best management strategies for responding to negative crocodile-human interactions, the study offered valuable information for undergoing daily operations on the naval installation.

First and foremost, the study confirmed the presence of residential crocodiles on NASKW and further provided awareness of their general location. This information was imperative for executing a large 12-month unexploded ordinance (UXO) remediation project in the nearby vicinity. Knowing the precise location of the crocodiles allowed the work to be completed while avoiding impact to their habitats as well as minimize human interactions to the maximum extent possible.

Further, the information improved overall human safety and awareness for individuals working in natural habitats and understanding the location of each crocodile allowed work to continue uninterrupted and successfully complete project goals. The study also showed the two residential crocodiles primarily reside within a relatively short distance with slow steady movements indicating contentment and low stress levels. This further demonstrates that even though the protected American Crocodiles found refuge within an active airfield that, facilitate hundreds of sorties each day, there has been relatively no impact to the overall military mission at NASKW fulfilling both operational requirements and coexistence with endangered species.



GPS transmitter data for a female crocodile collected in August 2021. Data indicates the crocodile is a resident of a lagoon on Boca Chica Field.

Overcoming Challenges to Accomplish the Mission

Although least terns (*Sterna antillarum*) are not federally listed, they are state protected under the migratory bird treaty act. A primary consideration for their status is due to a loss in suitable nesting

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habitat. Least terns nest on gravel substrate and overtime, due to coastal development, terns diverted from gravel shorelines to gravel rooftops. During the mid-20th century, many Florida rooftops were flat with gravel coatings. However, Florida building codes no longer allow the placement of gravel on rooftops due to safety concerns when hurricanes strike—subsequently reducing available nesting habitat. At Boca Chica Field, the shoulders and overruns of the runways and taxiways are gravel, providing desirable space for least terns to nest. Unfortunately, an active runway with departing military jets is not the most ideal location for birds to nest. Once least terns establish their nests along the runway, nearly nothing, including pyrotechnics will deter them.

Historically, NASKW implemented innovative techniques to reduce the number of birds on the airfield. NASKW completed an airfield restoration project in 2015 which involved the removal of mangroves and woody vegetation from the airfield clear zones. The project improved overall safety of flight and operations while also deterring various species of migratory birds from nesting and foraging within the airfield perimeters. NASKW executed a pilot project using green dye to deter terns from nesting. All light-colored gravel along the runways and taxiways were painted green to blend in with the surrounding grasses and vegetation. The color variation no longer offered adequate protection and camouflage from predators and demonstrated success as terns did not nest on the painted substrate. Since the initial pilot rollout, the project has been incorporated into routine airfield operations as an added deterrent measure. Each year prior to the nesting season, NASKW airfield operations paint the airfield green to prevent terns from nesting.

In 2017 and 2020, NASKW constructed two artificial nesting platforms envisioned to replicate a flat rooftop to promote tern nesting. The nesting platforms were designed to withstand hurricane-force winds, avoid flooding from seasonal tides and sea level rise, and discourage terrestrial predation. During nesting season, tern monitoring surveys were performed on a weekly basis between April and August. The artificial nesting platforms observed immediate success. Least terns began nesting and rearing chicks within the first season. The platforms currently provide nesting habitat while simultaneously reducing the number of terns on the airfield and ultimately, reducing the number of bird strikes and the impact to military operations and mission readiness.



State protected Least terns flying over an artificial nesting platform constructed on NASKW's Geiger Key property.

The federally listed roseate terns (*Sterna dougallii dougallii*) began nesting on the JIATF-S rooftops in 1996. JIATF-SC enables U.S. interagency counterparts to advance U.S. influence and interests, maintains a favorable regional balance of power in the Western Hemisphere, ensures that maritime and air common domains remain open and free, and bolsters partners against coercion by Transnational Criminal Organizations, while fairly sharing responsibilities for common defense. JIATF-S currently partners with 20 nations and allies, as well as the Departments of State, Treasury, Justice, Homeland Security, the Intelligence Community, and Federal Law Enforcement to thwart the threat of illicit drug movements to the U.S.

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*A roseate tern (*Sterna dougalii dougalii*) and least tern (*Sternula antillarum*) in nesting boxes located on the rooftop of an NASKW facility on Truman Annex.*

The buildings associated with the roofs used by roseate terns have reached their maximum lifespan and need to be replaced. A Military Construction (MILCON) project is scheduled to demolish eleven JIATF-S buildings and construct a modern compound capable of supporting their current and future infrastructure needs. Consequently, the construction project poses a potential concern for the roseate tern nesting habitat on the JIATF-S rooftop. To offset the loss of this potential nesting habitat, the Navy partnered with USFWS and FWC for potential mitigation strategies. Due to the overall success of the two artificial nesting platforms surrounding the airfield, NASKW initiated consultation with USFWS to construct a third elevated nesting platform on Navy property located at North Boca Chica Key. The nesting platform will benefit JIATF-S and the

roseate terns by being located in a more natural area away from buildings and other infrastructure subsequently, reducing the impact on the JIATF-S critical mission.

Protecting Endangered Species while Promoting Stewardship and Community Involvement

Innately, military installations are transient communities bringing people together from all corners of the world. Many incoming families have not had an opportunity to experience living in the middle of a National Marine Sanctuary or physically witness a nest full of tiny sea turtle hatchlings erupt prior to coming to the Florida Keys for duty. To involve the installation community in these activities leaves an impactful memory that inspires appreciation, mindfulness of personal behaviors, and respect towards wildlife and their natural environments which further returns an invaluable service to the species and their overall protection and sustainment.

Every year during sea turtle nesting season, NASKW monitors four associated beaches including a residential beach for turtle activity. Of the five sea turtle species occurring in the Florida Keys, the loggerhead and green turtles, are the most common. Data including the number of positive nests and the number of non-nesting emergences, or false crawls, is compiled and reported to the FWC annually. In order to successfully execute the program, volunteers including military personnel and their families, assist with daily beach surveys, nest inventories, and hatchling releases. During the 2021 nesting season, over 20 nests were identified on NASKW beaches and over 15 false crawls were observed including approximately five turtle sightings. Two disoriented hatchling events occurred on the residential beach at Truman Annex which involved mutual effort from local residents, volunteers, base security, and FWC to collect and return all hatchlings to the water.



Sea turtle volunteers performing a nest inventory of a successful turtle nest on the beach at Geiger Key.

Naval Special Warfare (NSW) Command's mission training profile routinely includes small boat and boat coxswain training as well as beach assault training. NSW completed an Environmental Assessment in 2019 to sustain this existing training and implement future NSW training within the vicinity of NASKW. During NSW's consultation with USFWS and NOAA National Marine Fisheries Service it was determined training activities involving

water-to-land transitions, in particular, have the potential to disturb sea turtle nests on the beaches of Truman Annex. NASKW is able to successfully apply Sea Turtle Nest Monitoring protocols to

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accurately mark and safeguard nests to avoid impacts to sea turtles and facilitate NSW training activities during sea turtle nesting season which spans from April 1 through October 31.

Shoreline Cleanups:

It is estimated that approximately 8 million metric tons of plastic are thrown into the ocean each year. Many marine animals and migratory birds often mistakenly digest plastic materials or become entangled in manmade debris discarded into the ocean. Each piece of plastic and debris removed from the shoreline, prevents an accidental wildlife death or injury. Every effort makes a tremendous impact in supporting the NASKW INRMP and better protecting the sensitive environmental resources found throughout the Florida Keys. During 2021, NASKW organized shoreline cleanups in support of Earth Day and the Ocean Conservancy's International Coastal Cleanup. Two additional clean-up events were organized to remove debris immediately following Tropical Storm Elsa. The events received strong support from installation personnel and the local community. Over 60 volunteers participated in the events and approximately 2,000 pounds of man-made refuse was removed from NASKW shorelines.

National Public Lands Day



National Public Lands Day Pollinator garden installed on NASKW Boca Chica.

In 2014, the President of the United States issued a memorandum to create a federal strategy to promote the health of pollinators including honey bees and butterflies. NASKW implemented several projects to work toward meeting the goals of the memorandum by protecting pollinators and enhancing habitats to ensure healthy and productive populations compatible with the military mission. During 2020 and 2021, NASKW received grant funding through the National Environmental Education Foundation in support of National Public Lands Day to install gardens. In 2020, the installation chose to install a pollinator garden in the middle of an ordinary parking lot median. The garden features native palms, flowering plants, walking paths, and a water structure. The garden has

since attracted many different species of butterflies-including candidate species such as the monarch butterfly, birds, and other pollinators, and it offers a more diverse landscape habitat and provides a natural resource focal point in the administrative area of the installation for personnel to enjoy and experience nature. Throughout the year, NASKW environmental personnel have worked to maintain the garden by pruning, watering, and replacing plants as needed. Botanical name cards are affixed to each plant so everyone visiting the garden can learn to identify the many various species of native flora.

In 2021, NASKW partnered with the Sigsbee Charter School to install a community garden. Thirty participants from organizations throughout the community and the military installation gathered together and assembled six raised garden beds complete with vegetables and native flowering plants to attract pollinators and reduce water consumption. The garden was installed in an area that was previously considered an under-used space.



Community garden installed at Sigsbee Charter School by volunteers.

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The area consisted of a grassy lawn with two clusters of palm trees planted in the center. The area was restored to provide a usable outdoor classroom space designed to fit approximately 20 students with adequate teaching space. The garden serves a dual purpose. The planted flowers and vegetables attract pollinators and wildlife while simultaneously providing a usable outdoor space by members of the public to learn how to grow vegetables.

Additional Measures to Support our Candidate Species



The monarch butterfly (Danaus plexippus), a candidate species, feeding on a native milkweed plant in the NASKW pollinator garden on Boca Chica.

The NASKW pollinator garden features several butterfly host plants including native milkweed which attracts the monarch butterfly, a candidate species. Environmental personnel began observing eggs on the underside of the milkweed leaves but did not notice any caterpillars. It was determined that other insects in the garden were feeding on the eggs, preventing the monarchs from hatching into caterpillars, and progressing through their lifecycle. To offer a better chance of survival and promote the success of the monarch butterflies, the environmental division began rearing butterflies indoors. Milkweed with eggs on the underside were collected and placed inside a mesh rearing cage. Once the butterflies emerged from their chrysalis,

environmental personnel released the butterflies into the garden. Due to the overall success of the monarch butterfly rearing, other caterpillar species have since been collected. Overall, approximately 30 monarch butterflies and 20 Gulf fritillaries have been released.

Sustainable Bee Removal

Occasionally, honeybees find themselves in inconvenient locations throughout the NASKW installation including the soffits and small nooks and crannies of buildings. Left untreated, the bees have potential to create significant and costly damage. Commercial methods for removal typically involve extermination with chemicals, which essentially destroys the bees and the hive. The NASKW Environmental Division offers a unique—yet sustainable solution for handling bee infestations when appropriate. Throughout the year, environmental personnel respond to swarms by luring and relocating hives—successfully preventing the need to exterminate and further prevent costly damage to installation infrastructure.

CONCLUSION

NASKW exceeded the goals of the INRMP to protect, enhance, and maintain natural resources and provided public outreach highlighting the unique ecological value and diversity of the Lower Florida Keys. The installation's environmental staff has developed exceptionally close relationships with resource and regulatory agencies, local governments, and universities which has served as valuable instrument for cohesively managing protected species on a naval installation.

NASKW demonstrates a successful balance between sustaining its multifaceted mission and effectively managing natural resources and critically endangered species. NASKW is an award-winning leader in natural resources conservation in the U.S. Navy and continues to set the standard for others to follow on how to successfully sustain its missions in an extremely critical and sensitive environment.