



2024 Secretary of Defense

Environmental Awards

Natural Resources Conservation, Individual
Mr. Hugo Cobos

Introduction

Coming from a 10-year background as a Wildlife Biologist for the U.S. Forest Service, Mr. Hugo Alejandro Cobos is the Natural Resource Program Manager (NRPM) for the 718th Civil Engineering Squadron, Environmental Management Office located on Kadena Air Base (AB). Kadena AB is located on the Japanese island of Okinawa, often referred to as the “Keystone of the Pacific.” It is the largest base in the Pacific region at 11,017 acres and home to the Department of the Air Force’s (DAF) largest combat air wing, the 18th Wing. Kadena AB also oversees all Military Family Housing on the island of Okinawa and has two geographically separated units (GSUs), one at Okuma Recreation Center in northern Okinawa and one at Bellows Air Force Station (AFS) in

Hawaii, bringing the total acreage to 11,638 acres. Mr. Cobos preserves the rich resources on Kadena AB and its GSUs while supporting the 18th Wing’s mission to deliver unmatched combat airpower, provide sovereign options that promote peace and stability in the Asia-Pacific region, ensure the common defense of our allies, and enhance the United States’ unparalleled global engagement capability.

Background

As the NRPM for the 718th Civil Engineering Squadron, Environmental Management Office since 2021, Mr. Cobos has been managing contracts for biological surveys, mongoose trapping, invasive species removal, pine tree beetle infestation control, mile-a-minute weed removal, and banyan tree pruning. He also

regularly conducts avian surveys across Kadena properties, including the Kadena Marina and the Munitions Storage Area.



Mr. Hugo Cobos

Mr. Cobos serves as the Natural Resources Program Manager for the 18th Wing, covering Kadena AB on Okinawa and Bellows AFS on Hawaii. On top of his regular duties, Mr. Cobos is an avid naturalist and wildlife photographer; he provided all wildlife photos in this package.

Mr. Cobos is also significantly involved in the overseas Environmental Impact Analysis Process, attending planning meetings and design charettes, providing guidance to project planners and managers, and analysis of Air Force Forms 813-O. As part of the Environmental Impact Analysis Process, Mr. Cobos frequently goes on site visits to assess the condition of natural resources and landscape vegetation and provides natural resource guidance to project managers and construction contractors after projects have begun work on site. To ensure that required survey work and analyses are performed, Mr. Cobos consistently works up to five years ahead of proposed major construction projects to ensure proper mitigations or abatements can be included into contracts and not delay

project design or construction. In addition to these duties, Mr. Cobos also serves as the reviewer for Air Force Forms 103 Dig Permits, manages all the money transfers for the Installation Management Flight within the Defense Enterprise Accounting and Management System, and represents Kadena AB as the governmental authority for Cultural Resources.

Accomplishments

Kadena AB and its GSUs contain a rich variety of natural resources. Approximately 590 acres of unimproved forest are located on Kadena AB. The Munitions Storage Area covers more than 6,400 acres of mostly semitropical jungle and wetlands. Natural resources at these locations include protected species, coastal shorelines, native forests, and wetlands. Compliance requirements for Kadena AB and its GSUs not only includes U.S. and DAF regulations, but Japanese regulations as well. Within the vast footprint of Kadena AB, there are 11 listed species under the Japan Environmental Governing Standards (JEGS), 312 Japan Ministry of the Environment (MOE) protected species, plus an additional 41 bird species protected by the Migratory Bird Treaty Act. Bellows AFS has an additional 11 Federally listed Threatened & Endangered species, plus one additional species listed at the state level. Kadena AB's natural resources program has four goals: 1) Manage for long-term sustainability of the military mission and natural resources by maintaining an active natural resource program and well-trained staff; 2) Protect and enhance known endangered or threatened species and the Government of Japan-protected species and their habitats to support the military mission and comply with the JEGS; 3) Maintain Kadena AB grounds to meet designated mission use and ensure harmony with the natural landscape and/or the adjacent Government of Japan facilities in support of the military mission; and 4) Ensure land and vegetative management activities are

consistent with current conservation and land use principles for biodiversity conservation and invasive species control.

Invasive Species Management

Historical events, natural phenomena, and human-induced events shaped the biotic landscape of Okinawa. Much, if not all, of the original Okinawan vegetation and ecosystems at and around Kadena AB have been lost. Intense fighting on Okinawa during WWII denuded the landscape of vegetation and extirpated the associated fauna. The soils and even local geology have been significantly altered through post-war development and growth, and natural ecosystems and native plant species replaced by agriculture and foreign species. Invasive plant control is vital in natural lands management to curtail the spread of harmful species. Infestations of a variety of non-native, invasive, and JEGS-listed species occur across Kadena AB.

The result of the flora and fauna survey for Kadena AB found a total of 407 fauna species and 707 flora species, of which 14 are considered invasive species. Mr. Cobos developed a \$1.3M installation-wide Invasive Species Management Plan that included habitat modeling for assessing treatment success and guiding adaptive management approaches in 2022 and 2023. The habitat model provides information to strategically target locations and specific seasons for treatment to ensure maximum impact. This plan targets oriental fruit flies, small-footed mongooses, pine sawyer beetles, white-lipped treefrogs, yellow crazy ants, and mile-a-minute weed (MAM). Although not currently listed as invasive species in the JEGS, MAM (*Mikania micrantha*) is a recently listed as an MOE priority Invasive Alien Species for removal. MAM grows rapidly, producing a thick tangle of vines over herbaceous and woody plants and even climbs up into trees, eventually suffocating the plants it covers causing as of yet uncalculated amounts of economic harm by threatening local

agriculture products and clogging waterways. Mr. Cobos established a standalone contract in 2023 for \$220,000 with flexible options for the removal of MAM after identifying the previous years' contracting costs had been greatly underestimated.

The invasive species removal effort is done in coordination with the Okinawa Defense Bureau, the Okinawa Ministry of Agriculture, Forestry and Fisheries (MAFF), and local city municipalities to ensure successful eradication of the species on the island of Okinawa as a whole, and not just the installation. The aggressive approach outlined in the plan has successfully removed over 2,700 white-lipped treefrog nests and 1,900 mongooses between FY21 and FY23 without any use of any pesticides. These species greatly threaten the listed native species survival through predation or competition for breeding sites, and their removal has improved listed species population numbers and habitat formations on Kadena AB.



Okinawa Tree Lizard, *Japalura polygonata*

Listed as Vulnerable in Okinawa, the Okinawa tree lizard is a species endemic to the islands of Okinawa that is being threatened by the invasive mongoose.

Yellow crazy ants (YCA) are not considered invasive on Okinawa; however, they are highly invasive to other areas to which Kadena AB moves equipment. In 2022, a shipment to South Korea was held at port due to YCA being found onboard, causing a critical 10-day delay in cargo delivery and costing the Department of Defense over \$7.5M in docking

fees, disinfecting costs, and increased inspections. After the detection, Mr. Cobos created an Invasive Species Working Group to address the movement of invasive species in and out of Kadena AB. This group included members of Kadena AB Pest Management Office, 18th Logistics Readiness Squadron, and the 18th Munitions Squadron, as well as representatives from the Navy, Army, and Marine Corps. The working group developed methods to clean and inspect all cargo coming in and out of the Kadena storage area to prevent further incurred costs and delays.

The oriental fruit fly poses significant risk to agricultural products of Okinawa, threatening the livelihoods of many residents. The fly has caused over \$100M in economic damage in the past and Kadena AB is working closely with the MAFF to ensure they are detected and removed as soon as possible. MAFF personnel work closely with Mr. Cobos to gain access to the base and are escorted into remote areas to set up detection traps and fruit fly-specific attractants laced with pesticides. The fly has been detected all around the base, but by working closely with the MAFF to prevent their intrusion, no flies have been found on Kadena AB yet.

Sustainability

Flooding is an issue on Kadena AB due to extensive subtropical storms and typhoons that produce a monthly average of 8.2 inches of rainfall during the rainy season. Areas where infrastructure impedes floodplains and natural drainages experience frequent localized inundation. Mr. Cobos advocated for and received a contract totaling \$1.5M for a comprehensive floodplain and stormwater infrastructure assessment for Kadena AB. A new flood map was created and identified the 100- and 500-year floodplains for the installation. In the U.S., the Federal Emergency Management Agency (FEMA) is the designated entity to develop and maintain flood maps, but it is not responsible for mapping locations outside of the U.S. No

comparable source of flood data for Kadena AB is available. The comprehensive assessment used information available through high-resolution elevation and precise land cover data to conduct flood modeling and generate the flood map. FEMA reviewed the map and endorsed the models and methodologies used. The new map estimates the potential floodplain area to be 2,469 acres from a 500-year flood and 2,055 acres from a 100-year flood, compared to 2,168 acres and 1,842 acres, respectively, in the older models. The improved models show more than 40 additional buildings are at risk of flooding, lining up with what has been observed more frequently in recent storm events. The stormwater infrastructure assessment is currently ongoing and the data from the survey will be uploaded into BUILDER Sustainment Management System, a web-based software application to track conditions of all DAF real property that is used in facility upgrades, maintenance, and planning.



Okinawa Blueberry Hermit Crab, *Coenobita purpureus*

Threatened by erosion, habitat loss, and the pet trade, the Okinawa blueberry hermit crab is endemic to southern Japan. This species can be found at the marina and nearby woods on Kadena AB. This terrestrial crab spends most of its life in the forests near rocky shores and can grow to about the size of a large fist.

Mr. Cobos completed an erosion control and wetland study in 2022. The study provided an assessment of sites where erosion was causing impacts to the Kadena AB mission, environment, and public relations. Due to the soil on Kadena AB being predispositioned for

erosion, it is essential to the overall mission that erosion is mitigated since mission essential roads and critical infrastructure are buried across the installation. As a result of the study, approximately \$5M in projects have been programmed for erosion mitigation, erosion control measures, and installation improvements. The projects are now awaiting funding for FY24 – FY27 on top of the current \$1.75B installation construction portfolio.

Mr. Cobos actively participates in and advises the Kadena AB Bird/wildlife Aircraft Strike Hazard (BASH) group. Aircraft strikes with wildlife can cause severe damage, with one incident at Marine Corps Air Station in Iwakuni, Japan, causing over \$2M in damage to an aircraft in 2019. BASH hazards exist at Kadena AB due to its proximity to the ocean, resident wildlife, and seasonal bird migration. A substantial portion of Kadena AB is occupied by the dual runways and the airfield, with several different habitat types within proximity of the airfield including the forested uplands, lowland forested floodplains, a coastal tidal pools and shoreline, and a lagoon at the Kadena Marina. Activity at Kadena AB is consistently high due to the different habitats and the climate of the island. Ryukyu hawk-owls and Okinawa fruit bats are frequently found in hangars, often getting trapped in the rafter netting, dying, and leaking bodily fluids on people and equipment below. Mr. Cobos crafted guidance for the installation BASH Plan to reduce wildlife conflicts with airfield buildings. The guidance provided a design for sliding metal screen doors that allows maintenance crews to keep the hangar bay doors open to provide air circulation in the high heat and humidity of Okinawa but keep out birds and wildlife. This design was incorporated into a renovation project that includes eight hangars and maintenance docks and is set to begin construction in FY24. These doors will prevent the birds' and bats' entry and discourage them from hanging around the hangars and flight line, thereby reducing the

chance of a collision and any potential health hazards to those working inside the hangars.



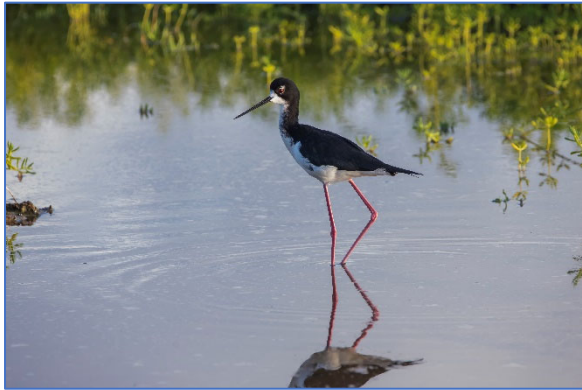
Ryukyu Hawk-Owl, *Ninox japonica totogo*

The Ryukyu Hawk-Owl is found all over Kadena AB, including hangars on the flightline. The ensuring that they are discouraged from using the hangars will protect the listed Near Threatened species, personnel working in and around the hangars, and aircraft using the flightlines.

Coordination/Partnerships

Mr. Cobos regularly coordinates with the local Okinawa government and groups to help combat invasive species and maintain the native species on the island. Recently, Mr. Cobos coordinated an effort with the Okinawa Ministry of Agriculture and Forestry to install 6,000 deterrents and 40 traps for the invasive oriental fruit fly. The oriental fruit fly is known to target over 230 different fruit, vegetable, and plant commodities, consequently causing significant damage to the tenant and surrounding farmers of Kadena AB. Another invasive species of interest is the ring-necked pheasant, which has begun to out-compete the Yanbaru kuina, a native bird species protected by the Okinawan government. Mr. Cobos works with the local conservation groups and Okinawa Prefectural Government to survey and develop trapping methods for these pheasants. On the conservation side, Mr. Cobos coordinated with the Okinawa Defense Bureau to transplant 100 banyan trees, which have cultural significance in Okinawa, in support of the new \$200M Theater Corrosion Control Hangar. While this hangar is necessary in supporting the air fleet mission at Kadena AB,

the location for the hangar was impacted by an earthen berm that contained thousands of trees. The banyan trees on the berm were transplanted to areas around the installation for conservation and beautification.



Hawaiian Stilt, *Himantopus mexicanus knudseni*

The Hawaiian stilt is a federally endangered subspecies of the black-necked stilt found only on the Hawaiian Islands. With habitat loss being its primary cause for decline, restoring wetlands on Bellows AFS has increased their available breeding habitat.

Mr. Cobos also maintains a strong relationship with the U.S. Fish and Wildlife Service (USFWS) at Bellows AFS. Wetland restoration at Bellows AFS is required by the 2009 Biological Opinion on the Endangered Waterbird Air Strike Hazard Interaction at Hickam Air Force Base issued by the USFWS to ensure the Hickam Air Force Base flying mission began in 2011. In 2022, monitoring procedures and various projects were developed to protect species on the station. Projects included waterbird surveys at wetlands and bat acoustic recordings throughout the station. Through the waterbird surveys, two endangered species were identified on Bellows AFS, the Hawaiian stilt and the Hawaiian moorhen. In 2022, the first two confirmed Hawaiian stilt nests were found and successfully produced five surviving chicks. After identifying these nests, Mr. Cobos worked with Bellows AFS staff and the USFWS to develop Section 7 Conservation Measures, which included maintaining 100-foot distance from the breeding endangered Hawaiian waterbirds (nest, adults, and fledglings) for 67 days from

the start of incubation. Volunteer groups are organized almost monthly to continue removal of invasive plants in the wetlands and maintain the work that has been done. Mr. Cobos is overseeing the development of two long-term plans, the Wetland Management Plan and Wetland Restoration Plan, to ensure the long-term resilience of the wetlands.

Outreach and Impact

Mr. Cobos’ dedication and enthusiasm for his profession at Kadena AB has had significant impact to the conservation of Okinawa and relationships with the local community. Since beginning his tenure as the NRPM in 2021, he has contributed to the successful eradication of over 2,700 white-lipped treefrog nests and 1,900 mongooses. He identified a total of 831 beetle-infested Ryukyu pine trees and oversaw removal of 310 trees in 2022. Mr. Cobos sourced an additional \$300,000 to remove the remaining infested trees in 2023. His invasive species management and coordination with military construction project planners has enabled him to preserve over 230 Japan-protected species found within the installation boundaries.

On Bellows AFS, Mr. Cobos propelled a \$600,000 project to remove the invasive ironwood trees from around the installation, focusing near the beach dunes and the wetlands. As of 2022, more than 1,700 linear feet of beach dunes were restored, with the first 8 documented cases of nesting wedge-tailed shearwater birds, a Hawaii state listed species, being documented that year. In 2023, over 50 nests were found in the restored dunes with successful hatchlings.

For Kadena AB leadership, Mr. Cobos conducts Natural and Cultural Resource tours of the installation, at their request. These tours are to give installation leadership perspective on the natural and cultural prosperity Kadena AB has and their importance to the local community. In support of Kadena AB hosting “America Fest” on Earth Day in 2023,

Mr. Cobos helped set up a booth that discussed flooding and the role of wetlands, air pollution, recycling, and solid waste to over 3,000 visitors. As an interactive activity for the visitors, he created a photo guide and checklist of 103 common and unusual bird species found on Kadena AB.



Presenting Habu Snakes to Third Graders

Mr. Cobos provided a presentation on adaptations in local wildlife to 100 third graders at Bob Hope Elementary School on Kadena AB. The presentation included displaying two species of venomous snake endemic to Okinawa, talking about their different adaptations, and how to react when seeing a venomous snake.

Mr. Cobos' passion is seen when he visits the Department of Defense Dependents Schools on Kadena AB. He regularly presents on the adaptations of local wildlife to elementary students, focusing on understanding of local wildlife and their importance in ecosystems. He coordinates with the Kadena AB pest management shop to take live animals to the students to better engage their interests. Mr. Cobos' commitment and enthusiasm in natural resources has been recognized by the Pacific Regional Installation Support Team from the Air Force Installation and Mission Support Center Detachment 2 for creating and fostering new partnerships with the local Okinawan natural resource professionals.

As an avid birder and photographer, Mr. Cobos uses his time out in the field and his free time to photograph birds and wildlife around the Okinawan islands. During his time as the NRPM, two of his photographs have been published in local museum publications. He was featured and given author credit for identifying the Taiga Flycatcher in the Yuntanza Museum Journal. The Taiga flycatcher is an extremely rare bird siting for Okinawa, and Japan in general, as it typically migrates from Mongolia and central Russia to south Asia for the winter. His article can be found in the World Heritage Zakimi Castle, Yunatanza Museum issue number 45, 2022. Mr. Cobos regularly contributes information and photos of birds for public display at local museums.



Ryukyu Ruddy Kingfisher, *Halcyon coromanda bangsi*

The shy and reclusive ruddy kingfisher is a summer resident around Kadena's undeveloped forested areas. Ensuring that a species like this is found on the installation is an indicator that a variety of habitat is being protected that includes large stands of mature trees. Studies have shown that greenspaces help improve overall well-being of residents and reduce stress.