FY14 Chief of Naval Operations (CNO) Environmental Awards
Natural Resources Management – Large Installation
Joint Base Pearl Harbor-Hickam

INTRODUCTION

The mission of Joint Base Pearl Harbor-Hickam (JBPHH) is to provide for the National defense and coordinate the Navy's local support of the Pacific Fleet, and the Air Force's local support of the Pacific Air Forces. This support includes berthing and maintenance services for surface ships and submarines homeported in Pearl Harbor, transient vessels, and support services for more than 70 shore commands, as well as support for air craft stationed and transiting through JBPHH.

On Oct. 1, 2010, NAVSTA Pearl Harbor combined with Hickam Air Force Base to form JBPHH to become one of the world's largest and most significant military bases. JBPHH manages installations comprising over 28,000 acres on the island of O'ahu, including Pearl Harbor Naval Complex, Pacific Air Forces, Naval Computer and Telecommunications Area Master Station Pacific (NCTAMS PAC) Wahiawa and NCTAMS PAC Radio Transmitter Facility Lualualei, Naval Magazine Pearl Harbor Lualualei Annex, Navy-retained lands at Kalaeloa, and Regional Relay Facility Kahuku. JBPHH supports a population of over 84,000 military and civilian personnel working or living within its borders. Additionally, JBPHH has stewardship over 68,081 acres of marine waters which constitute Pearl Harbor, the Pearl Harbor defensive sea area, and other near shore training areas.

All of these areas include a number of different Hawaiian ecoregions and habitat types including near shore marine, estuary, coastal wetland, dry coastal shrub land, wetland, aquatic, riparian, lowland dry forest, lowland mesic forest, dry cliff and wet cliff. Due to the wide range of habitats and the high biodiversity present in the Hawaiian Islands, JBPHH has more federally listed threatened and endangered species (33 total: 2 marine mammals, 2 sea turtles, 5 birds, 1 bat, 1 snail and 22 plants) than any other Navy or Air Force installation. The primary risk to most of these species and habitats are the negative effects from invasive species (aggressive plant and animal species that are not native to Hawaii). Other risks include impacts from operations and training and construction and/or industrial remediation projects. JBPHH is dedicated to delivering comprehensive and efficient management of these rich and varied natural resources while supporting the greater DoD mission objectives. It places full emphasis on awareness of Hawaii's unique environment and strives to foster respect for the 'aina (land/environment) from which it operates.

The JBPHH natural resources program maintains compliance with all natural resources laws and regulations and manages protected species and habitats through the September 2011 JBPHH Integrated Natural Resources Management Plan (INRMP). The JBPHH INRMP provides an inventory of all protected habitat and species in all areas of the installation to ensure that operators and planners account for all potential effects resulting from operations, training, new construction and facility modifications. Furthermore the INRMP outlines the natural resources

program organization structure through which natural resources related instructions, standard operating procedures, and best management practices are developed and implemented, and it is the document by which natural resources projects are planned and funded.

SUMMARY

The JBPHH natural resources program covers a number of different natural areas, ranging from the mountains to the ocean, and covers a wide variety of aspects from protecting endangered species to fighting invasive species to providing recreational opportunities for base personnel and their families. Because JBPHH has so many threatened and endangered species occurring within its boundaries, the primary focus of its natural resources program is Endangered Species Act (ESA) requirements, which include monitoring management of threatened and endangered species and addressing their identified risks. The installation's threatened and endangered species primarily occur in two major areas, the Pearl Harbor Naval Complex (including former Hickam Air Forces Base) and the Lualualei Annex, a munitions storage area in the Waianae Mountains of west Oahu. The JBPHH natural resources program has actively managed projects critical to the readiness and mission of JBPHH in these areas, however during the two year period of 1 October 2012 to 30 September 2014, the base experienced an incursion of a federally actionable invasive species, the Coconut Rhinoceros Beetle (CRB). This resulted in new, emergent requirements and a diversion of resources and efforts from planned projects. Listed below are efforts related CRB, as well as other pertinent projects which were the focus during the award period:

- Invasive species management: CRB response and eradication.
- Lualualei ungulate management and fencing.
- Lualualei threatened and endangered plant and snail monitoring and management.
- Lualualei invasive plant monitoring and management.
- Lualualei wildland fire management plan.
- Pearl Harbor Complex mangrove removal and wetland rehabilitation.
- Pearl Harbor marine resources surveys and protection.
- Pearl Harbor Complex waterbird tracking.

INVASIVE SPECIES MANAGEMENT: COCONUT RHINOCEROS BEETLE RESPONSE AND ERADICATION

The first ever breeding population of CRB, a highly destructive pest of palm trees and federally actionable invasive species native to Southeast Asia, found in the Hawaii Islands was discovered on JBPHH in December 2013 in mulched green waste along a fence line with Honolulu International Airport. It is suspected that the first beetle arrived as a stowaway aboard an International flight, and although it is

Adult Coconut Rhinoceros Beetle

unknown whether the flight carrying the beetle was civilian or military, JBPHH has been fully committed from the very beginning to support all eradication efforts and immediately partnered with the US Department of Agriculture (USDA) and State of Hawaii Department of Agriculture (HDOA) to do everything possible to contain the infestation and attempt to eradicate the population. Actions by JBPHH included:

- Initiated a weekly coordination meeting conducted by the JBPHH Public Works Officer with all stakeholders (USDA and State of Hawaii Incident Command, Oahu Invasive Species Council, US Fish and Wildlife Service, NAVFAC environmental, facilities, acquisitions, housing, Morale Welfare and Recreation (MWR), Federal Fire Department, City and County of Honolulu, landscape contractors and others) to ensure that appropriate actions were being implemented.

In-vessel composting. Developed at NAVFAC Hawaii as a means to "cook" green waste at temperatures above 140 deg

- Provided base access to the CRB breeding area to USDA and State of Hawaii for training of all stakeholders (state workers, county workers, landscapers, tree trimmers, university researchers, etc.) on CRB identification and the identification of CRB damage.
- Implemented a green waste quarantine zone based on CRB detections and a corresponding green waste decision table to prevent the movement of CRB to other parts of the island via organic material such palm waste, mulch, other potential breeding/host plant material.
- Coordinated comprehensive CRB breeding site surveys at all three JBPHH golf courses by having Navy, Air Force, DoD civilian, and other volunteers sweep all areas on foot during scheduled course closures.
- Conducted CRB awareness outreach at three separate Earth Day events on base in 2014, published CRB awareness articles in the base newspaper, disseminated CRB information in all base social media outlets.
- Developed and constructed a novel in-vessel composting method to meet

Air Curtain Burners purchased to burn infested green waste while creating minimum smoke and ash emissions

USDA standards for disinfecting mulched green waste that could not have been otherwise easily burned or incinerated in an economical manner (based on estimated costs for incineration, this potentially saved the Navy approximately $500,000 in FY14 alone).

- Worked out regulatory issues related to on-base burning of green waste with the State and FAA (due to proximity of airport) and set up and operated a USDA air curtain burner (ACB) on the base. Through using the ACB, the base was able to process whole green waste (palm logs, palm fronds, etc.) much faster than composting and cheaper than transporting material to a facility for incineration. JBPHH acquired 4 additional ACBs of its own in FY14, with the intent to eventually mitigate, through a combination of burning and composting, all of its green waste on site.
- Utilized the expertise and manpower of tenant commands (Navy Seabees, Navy Environmental and Preventive Medicine Unit 6, NAVFAC Pest Control, MWR golf course maintenance) to assist the USDA and State of Hawaii with constructing and monitoring CRB traps.
- Awarded contract for all trap monitoring and maintenance (approximately 400 traps) and breeding site surveys on base. This contract was critical to the overall eradication program because it allowed the State of Hawaii to focus its trap monitoring efforts on other areas of the island and took the burden off of the tenant commands listed above.
- Cut down approximately 150 palms due to either CRB infestation or potential for CRB infestation.

Approximately 150 infested or damaged Coconut palm trees were removed from the base in an effort to stop the spread of the CRB

From December 2013 through September 2014, in total JBPHH composted approximately 80 tons of infested mulch and burned approximately 20-30 tons of whole green waste. When added to tree cutting and trap monitoring costs, the total amount spent during this period was $1,453,228. As stated above, this figure is lower than it might have been had JBPHH not proactively sought practical and cost effective solutions. Furthermore, as the CRB infestation affects Army and Marine Corps properties on Oahu, the protocols and methods developed at JBPHH have been shared with and adopted by these other services. The USDA and State of Hawaii have given great praise to JBPHH for supporting the CRB eradication effort and have viewed their partnership with JBPHH as a great success. CRB has the potential not only to have a disastrous effect on Hawaii's iconic non-native coconut palms, but also on endemic species of native Hawaiian fan palms, some of which are federally listed as endangered. For these reasons, CRB eradication is and extremely high visibility action, and JBPHH has done an excellent job of making its involvement so far a good news story for the DoD.

LUALUALEI CONSERVATION OF THREATENED AND ENDANGERED PLANTS

Twenty two species of federally listed threatened and endangered plants occur within the boundaries of JBPHH Lualualei Annex. Just prior to the award period, JBPHH had designated critical habitat for these plant species removed based on its INRMP. Beginning in October 2012, JBPHH began to implement the INRMP projects through which endangered plant critical habitat ineligibility was granted. These projects included:

- Lualualei Ungulate Management Plan. Completed in June 2013, this plan provided locations and costs estimates 4 large fencing units. These 4 areas included the majority of the endangered plant species found in Lualualei. The plan also outlined the strategy for continued maintenance of fences after completion and management of the surrounding ungulate population.
- Lualualei Ungulate Fencing. JBPHH funded the first Lualualei fencing unit in FY14 through a cooperative agreement with the Pacific Cooperative Ecosystem Studied Unit out of the University of Hawaii. This method of acquisition was chosen over a traditional contract so that JBPHH could partner with the Waianae Mountains Watershed Partnership. Because the partnership includes the State Board of Water Supply, State Division of Forestry and Wildlife, other landowners in the Waianae mountain range, US Army Garrison Hawaii, and other non-profit conservation groups, JBPHH gains access to expertise far beyond the average environmental contractor and also is able to build stronger relationships with the Waianae community. This is particularly important when building fences since some of the fences will adjoin to existing fences of neighboring landowners.
- Lualualei Endangered Plant and Snail Management. JBPHH also utilized the Waianae Mountain Watershed Partnership for this work in FY14. US Army Garrison Hawaii shares a border with JBPHH's Lualualei Annex, and has an extremely successful endangered plant and snail conservation program. In order to save and costs, JBPHH has leveraged the partnerships involvement with the Army to recreate its success instead of trying to invent an entirely new program. The partnership also works with a Hawaii middle school to raise native plants and teach kids about conservation at the same time. JBPHH partially funded the partnership's involvement with Mililani Middle School in which they have a shade-house on campus where seventh and eighth grade children plant and raise seedlings for outplanting in Lualualei and other areas of the Waianae range. In FY14 approximately 1,500 to 2,000 seedlings were planted through this program.

Partnership with Mililani Middle School

- Lualualei Invasive Plant Management. The first phase one of a comprehensive survey for invasive plants in Lualualei Valley was

completed in FY14. Botanists from the Oahu Invasive Species Council were funded via cooperative agreement with the Pacific Ecosystems Studies Unit to survey the Halona Management Area of Lualualei for invasive plants, with emphasis on species with relatively newer and smaller populations that have greater chance at being controlled. Two invasive plant species were identified and rated high priority for control as a result of the survey.

- Lualualei Wildland Fire Management Plan. JBPHH again used a cooperative agreement to choose the most cost effective option for a Wildland Fire Management Plan. For this project JBPHH executed an agreement in FY14 with the Center for Environmental Management on Military Lands in order to access the expertise of a Wildland Fire Specialist who has done extensive work in Hawaii and in the Waianae range.

By executing these projects and other requirements, JBPHH is fulfilling the commitments contained in its INRMP for endangered plant conservation in the Lualualei Annex, thereby avoiding critical habitat designations and upholding its mission to support tenant commands which operate in that area.

PEARL HARBOR COMPLEX HABITAT RESTORATION AND THREATENED AND ENDANGERED SPECIES MANAGEMENT

Operations occurring within the Pearl Harbor Complex comprise the heart of JBPHH's military mission. Unfortunately Pearl Harbor and the surrounding area is also home threatened and endangered marine mammals, sea turtles, and waterbirds. To the extent that it is possible, JBPHH strives to improve habitat for these species in areas where they are lower risk of being impacted by harbor operations. These actions include:

- Removing mangrove. Mangrove is considered beneficial in every part of the world except Hawaii where it is not native and it chokes shorelines and mudflats, rending them unusable for native Hawaiian waterbirds and shorebirds. Mangrove also present a security risk, since intruders may easily hide within its dense thickets, and a flooding risk since it clogs drainage canals and ditches. In 2013 JBPHH removed approximately one acre of mangrove in canal near the airfield. This had the dual benefit of increasing drainage of water away from the airfield during heavy rains (thereby reducing standing

Areas of Mangrove Removal

water on the airfield which attracts birds) and providing habitat in the canal itself, away from the airfield for wading birds. Later in FY2013 and FY2014, JBPHH funded a much larger contract, approximately $1,000,000, for mangrove removal in other parts of Pearl Harbor. JBPHH was again able to achieve multiple goals by funding this project – it improved its own security in these areas, it strengthened relations with the community in these areas by making them safer and opening up harbor views, and it improved endangered bird habitat. Shortly after mangrove were removed in Area 4, a pair endangered Hawaiian stilts built a nest. Additionally it was common to see native sedges and other Hawaiian plants sprouting up after mangrove removal.

- The JBPHH natural resources program also funded surveys for marine mammals and turtles in the harbor to gain a better understanding of particular areas which may have a higher risk for vessel strike or other negative impact from operations – 10 shore surveys and 8 boat surveys were performed.

Endangered Hawaiian Stilt nest on a site of previously cleared mangrove

- Tracking waterbirds. JBPHH funded the US Geological Survey to design and begin a study with the US Fish and Wildlife Service to track waterbird movement in and around Pearl Harbor. This study is a requirement from a previous Biological Opinion from US Fish and Wildlife Service on the effects of construction and operations near the airfield on endangered waterbirds. The goal is gain insight on the wetlands around the harbor that are being utilized by birds and if/how they move between locations. This information will be used to guide future wetland rehabilitation projects throughout the harbor.