



FY 2009

Secretary of Defense Environmental Awards

15TH CIVIL ENGINEER SQUADRON (15 CES)

Natural Resources Conservation — Small Installation

Hickam Air Force Base, HI

Installation: **Hickam AFB, HI**

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Installations

Hickam AFB is home to the 15th Civil Engineer Squadron (15 CES), which is directly responsible for implementing the Integrated Natural Resource Management Plan (INRMP). Within the 15 CES, a team of environmental specialists, architects, engineers, biologists, and air quality specialists advise United States Air Force (USAF) personnel on best management plans (BMP's) and new techniques for certain environmental issues. The 15 CES is part of the Mission Support Group under the 15th Airlift Wing. The base hosts approximately 140 tenant units and includes a small Hawaii Air National Guard installation. Base operations support air transport and other activities in the Pacific. Hickam Air Force Base has consistently played a major role in the movement of troops and material from the mainland through the Pacific and into Asia.

Introduction

It is the mission of the 15th Airlift Wing to provide command functions which operate and maintain Hickam AFB as well as other outlying installations. Base property occupies approximately 2,520 acres (excluding aquatic property) on the leeward side of the Koolau Range, on the island of Oahu, Hawaii. Based on GIS GeoBase maps

Hickam AFB,Oahu — Management Emphasis Area							
Managed Natural Habitat	Natural Resource Multiple Uses	Watercourse	Intensive Recreation	Intensive Training	BASH Reduction	Landscaped High Maintenance	Landscaped Low Maintenance
0.00	920.7	51.7	114.3	41.3	1006.7	1168.1	361.3

Values represent acreage and include both land and aquatic areas.

of the property, the base has a total of 3,664 acres, including water courses which increase the property land use acreage. Land use on the property includes the following categories: military, industrial, administrative, commercial, residential, and recreational. These categories are further broken down into Management Emphasis Areas which explain their explicit usage within the INRMP.

The varied habitats and developed areas are home to USAF families and the workplace for many civilians. A recent census of the base population revealed that there are 5,471 people, 1,632 households, and 1,589 families residing at Hickam. The property contains 2,659 privatized family housing units, in addition to several dormitories for transient members of the armed forces and other visitors. In fiscal year 2001, there were 4,395 active duty Air Force personnel at Hickam

AFB, in addition to 2,408 Air National Guard members. This number does not include the number of DoD contractors who are employed to maintain or build facilities, advise USAF personnel on projects, and support the overall mission of the USAF. This number fluctuates based on base operations, time of the year, and current military activity in the region.

The base was designed using a development scheme coined "Garden City", defined as an approach to urban planning that was founded in 1898 by Sir Ebenezer Howard in the United Kingdom. Garden cities were intended to be planned, self-contained communities surrounded by "greenbelts" containing carefully balanced areas of residences, industry, and agriculture. Many of these greenbelts support native shorebirds, such as the Pacific Golden Plover.



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Given its location and proximity to sensitive habitats, personnel employed under the 15 CES are continually dealing with complex development issues, interactions with wildlife, and complicated environmental assessments. Creative uses of funds and innovative mitigation allow the 15 CES to conduct complicated mission activities without receiving environmental infractions or penalties. Essentially, the 15 CES has acted as a steward of the land so that the property retains its value, efficiency, ecological integrity, and aesthetically pleasing appearance.

Background

The base and several of the nearby installations have INRMPs that have been drafted to ensure resources are properly managed. There is a 2008 – 2012 Final INRMP housed on base that is used to direct project development and prioritizations for the natural resource managers and environmental engineers. The most recent form of the document was signed by Col. Giovanni K. Tuck in 2008. In 2007, the United States Fish and Wildlife Service, United States Marine Corp, Department of the Navy, and State of Hawaii Dept of Land and Natural Resources reviewed the Hickam AFB INRMP and provided comments on how to improve or alter certain sections so that resources are managed in compliance with federal laws or new research that has provided a new means which was not available or known during the creation of the document. The history of interagency cooperation can be found back in 1986, when a Memorandum of Understanding (MOU) was signed into effect between USAF and USFWS which described the creation of a long term program for “The Conservation and Development of Fauna and Flora”. A subsequent MOU signed by the USAF and USFWS in 2006, laid out the steps describing the inclusion of outside conservation agencies in the formulation and



USAF personnel and local representatives gather together on-site to determine the best course of action. Interagency cooperation is a common goal when carrying out natural resource projects. Making sure that project elements are in line with state, federal, and USAF policy is a mandate of any well designed project.

comment on INRMP changes or amendments. New revisions or additions to the INRMP are housed with the current edition for inclusion in the 2013 – 2017 edition since new editions are elicited every 5 years. The INRMP is a guide to preserving Hickam’s future and is a dynamic document seeking input from a variety of professional backgrounds.



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Overall Natural Resources Conservation Management

The staff's daily work is a reflection of the INRMP and the directives or monitoring strategies contained within the document. Significant progress has been made to incorporate requirements identified in the INRMP into concrete projects. The following examples are INRMP directives translated into on-the-ground activities managed by the 15 CES:

- Bi-annual, base-wide shorebird surveys. These indices are collected in the same areas each period to monitor changes on base. Shorebirds commonly seen on the base include the endangered Hawaiian stilt, ruddy turnstone, sanderling, and Pacific Golden Plover. Data is shared with state officials to monitor state-wide sites and regions for population fluctuations. The most recent survey was completed January 2010.
- The INRMP documents harmful bird-light interactions on Kokee AFS, located on Kauai. As a result of the negative impact, Newell's Shearwaters (a threatened species), which are protected by the ESA, must be protected from the potential threat to their survival. Sight evaluations, consultations, and an in-depth look at mitigation measures elsewhere in the world (using various colored light filters not seen by birds) has resulted in a recipe for alleviating the majority of strikes. The initial site evaluation was conducted in 2009, and a second trip to identify each light, its location, and the cost for alteration will be ready prior to next year.
- The INRMP document failed to describe the "potential" harmful effects of electromagnetic radiation to the endangered Hawaiian Hoary bat. As a result, the USFWS commented on this situation and highlighted the Microwave Antennae Site (Kokee AFS area) as a possible threat in their 2007 comments of the INRMP. Field biologists were contracted to test the hypothesis that "microwave antennae" negatively affect this species. Results showed no effect in 2009, and the USFWS received word and acknowledged the results in addition to the efforts taken. The 15 CES has assumed responsibility for ensuring that this installation's operation wasn't negatively affecting the species' ability to survive, and the results depict the willingness to discover any actions that may be injurious to wildlife species.
- Wetland enhancement at Ahua Reef. Invasive red mangrove and pickleweed have taken over several shoreline areas on Hickam property. In order to reduce bird strike hazards on the flight line, birds need to be attracted to areas away from the path of danger. The reef provides such an area, but has been invaded by an aggressive species of mangrove that does not allow a shorebird to feed or seek refuge from the flight line. A volunteer effort was mounted with local schools and Boy Scout troops to "take back the reef." Native species were planted in areas where invasive pickleweed and mangrove previously dominated the area.



The future of Hickam AFB hard at work removing invasive red mangrove from Ahua Reef beach area.



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Mission Enhancement

The ability to mesh mission success with natural resource conservation and correct management is the ideal result of a management decision. These instances when “both sides” benefit do occur even though many might assume that natural resources always take a back seat to the flight line, training exercises or building placement. One very interesting case study the 15 CES initiated is a rodent removal project on USAF property. The 15 CES is charged not only with the pleasure of supporting activities on Wake Atoll, but also

rectifying the remnant mistakes of the past. Unfortunately, two species of rodent were introduced to the atoll which have changed the biology of the atoll in many ways. These rodents have also negatively affected the mission (chewing through arrestor cable equipment, contaminating food stores, health risk, etc.) and natural resources on the island (seabird predation, plant suppression, altering food webs, etc.). There is a solution underway! Both the mission and biota of the island will be rewarded in 2011 when an aerial and ground-based eradication occurs using



Field investigators now have a handle on how to manage invasive rodents on Wake Atoll. A future natural resource project is being planned for the summer of 2010. An island-wide eradication campaign targeting the introduced species will help the USAF protect both the mission of the Air Force as well as the sensitive seabird colonies which rely on the atoll for breeding sites.



Field biologists use radio telemetry tools to determine the movements of two introduced rodent species, *Rattus exulans* and *Rattus tanezumi*.

new technology born out of New Zealand (helicopters using suspended bait buckets to disperse bait to the entire island). This action fits within the requirements of the INRMP, falling under the “exotic predator control” component. Currently, a baseline of biological data is being built that will serve as a comparison after implementation in 2011.



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Wildlife biologists gather for a group photo prior to departing their study site, which happens to be the precise location where "America starts their day", also known as Wake Atoll, a geographically separated unit (GSU) managed by Hickam AFB.

Land Use Management

Not all of the daily work related to natural resource management is glamorous and high profile. There is ample amount of work being completed from the desk and behind the scenes in order to make these projects fly. Over the period of 2006 to 2009, 1 Environmental Impact Statement and 18 Environmental Assessments were conducted in order to move forward with various development or mission related activities. These documents and processes are in place to protect the environmental quality of the landscape, but can be daunting since there are so many stages of

development, comment, and revision before reaching a final product. The team pooled various resources and funding together to ensure 100% compliance with all state and federal regulations. Other behind-the-scenes work includes the constant updates to the GEOBASE mapping project (wetlands and sensitive areas), which is used by outside personnel when planning development projects, military exercises, and presentations (excellent mapping tool). GEOBASE allows users to activate uses and land types to see where conflicts may occur or areas that may be more applicable to the proposed action.

Whether evaluating C-17 training routes, co-writing the 2009 and 2010 PWS for the Wake Base Operation Specialists, or planting over 60 trees for Earth Day, there is always a niche to fill when it comes to managing natural resources and the 15 CES has used the talents of each employee to do so.

Community Relations and Conservation Education

The employees deserve credit, but the public and America's youth also play a significant role in the development of the base's natural resource program. In an environment of reduced budgets, the 15 CES identified locations where outside sources could be injected into the USAF operational model. Over the past three years, an intern program was established and has since allowed two students to see what it is really like to be part of a management team. The team partnered with the University of Hawaii and interns have participated in aspects ranging from native plantings to creating PowerPoint presentations; all tools that may someday benefit their careers. In addition, the team has mentored 25 University of Hawaii undergraduate students and facilitated natural resource tours for over 1600 youth, some of whom took part in native plantings and invasive mangrove removal.



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The volunteer base on Hickam has supported feral cat relocations and captures, which is a serious issue since the base is home to several rare or threatened species that cats are known to prey on. Without the support of the Hawaiian community and the families of Hickam, the base cannot run itself the way it does. For this reason, the 15 CES would like to include these special individuals in the award and praise them for taking pride in their home, island, and future resources. Future generations will dictate the condition, status, and abundance of natural resources. It is an obvious goal of the 15 CES to pave the way for young men and women to learn from educated practitioners of resource management.



The Ahua Reef volunteer crew gathers for a final group photo after a day full of invasive plant management comes to completion.

Conclusion

It would be hard to select a single outstanding accomplishment out of the many from the “finished pile”, however one that does stand out in our minds is the sheer number of work requests submitted and completed in the allotted time period. A work request could range from a small task on a project all the way up to an entire project or undertaking. 2,364 work requests were submitted at six locales over the given time period by various natural resource managers. This achievement isn’t outstanding because of its significance with regards to value, but rather it signifies why the 15 CES is able to function effectively: efficient project management. One person

cannot achieve every element of each project. This results in having to delegate certain tasks someone else has the capacity to do. It’s how things are accomplished quicker, and in most cases, results in a better product. Many of these work orders resulted in 1 day turnarounds. The tasks completed over the course of the award period are the result of utilizing base-wide tools and people with the knowledge to use those tools to accomplish goals set forth in the INRMP. We look forward to the future and securing the natural resources of Hickam AFB and its installations for all generations to come.