

INTRODUCTION AND BACKGROUND

1. Mission, Population, Acreage, Geographic, and Community Setting

- Marine Corps Base (MCB) Hawaii encompasses 4,500 acres within five parcels on the Island of O'ahu, and a 12-acre parcel on Molokai. On "leeward" O'ahu, we manage buildings and grounds at 220-acre Camp H. M. Smith; 137-acre Pu'uloa Range Facility; 27-acre Pearl City Warehouse Annex; and 63-acre Manana Housing Area. The remaining three parcels composing 90% of MCB Hawaii's acreage are found on "windward" O'ahu--MCB Hawaii, Kaneohe Bay (KBay) on 2,951-acre Mokapu Peninsula; 1,078-acre Marine Corps Training Area Bellows (MCTAB) in Waimanalo, and a 187-acre portion in Waikane Valley. KBay and MCTAB parcels contain the highest concentration of natural resources under MCB Hawaii jurisdiction, with 11 threatened/endangered marine and terrestrial species requiring focused management attention. MCB Hawaii's mission is to sustain combat readiness for its operating forces and tenants and provide for well-being, morale, and safety of military and civilian personnel. We support 25,000 personnel (Marines, Sailors, family members, civilian employees), and 10,000 military retirees using base service facilities. Additionally, the "Grow the Force" initiative will soon see another 2500+ Marines and family members arrive on MCB Hawaii, which will bring even more challenges to balancing the sustainability of our natural resources with supporting the military mission.

- Hawaii is the world's most isolated land mass, with distinctive evolution and biological diversity, but has become imperiled by habitat loss and introduced invasive species; 25% of U.S. endangered species are found in Hawaii. MCB Hawaii's windward properties are located within 11 watersheds comprising Ko'olaupoko District, a watershed region whose characteristics typify statewide ecological assets and threats. This region is a dramatic tropical landscape, with steeply-contoured drainage basins from Ko'olau mountain peaks to off-shore reefs of Kane'ohe, Kailua, and Waimanalo Bays. Public concerns about flooding, non-point source pollution, wetland, and wildlife conservation here are reflected by its State ranking as "Category One" for watershed restoration priority under the National Clean Water Action Plan. The State cites MCB Hawaii as a partner in restoring windward watersheds in their Polluted Runoff Control plan (2000). They cite our leadership in controlling invasive species in their Aquatic Invasive Species Control Plan (2003). A significant component of O'ahu's remaining wetland habitat for Hawaii's 4 listed endangered waterbirds is in this region (1600 acres). Fish and Wildlife (FWS)'s Waterbird Recovery Plan (2005) notes our key role in sustaining this habitat on base.

MCB Hawaii (KBay) in Ko'olaupoko Regional Watershed Context



75% of Mokapu peninsula is flat, supporting the "built environment" - about 5,000 buildings and 80 miles of road valued at over \$1.8 billion. 20% is coastal sand dunes, wetlands, and beaches. There are 3 volcanic features: Ku'au (Pyramid Rock), Pu'u Hawai'i Loa, and Ulupa'u Crater—whose 683-foot head is the highest point on Base. Weather is semitropical, temperatures 70's-80's, with 40 inches annual average rainfall. MCB Hawaii is bordered on the east by Kailua Bay, north by the Pacific, and south/southwest by Kane'ohe Bay and the Nu'upia Ponds. Adjacent Kailua and Kane'ohe communities contain a combined population of 82,749 residents (2010 census). We enforce a 500-yard Naval Defensive Sea Area around our 11-mile peninsular coastline. Adjacent bays host corals (two threatened species, threatened green sea turtles, endangered monk seals, state seabird island sanctuaries, and

public recreation. MCTAB is sandwiched between Waimanalo Bay and the town of Waimanalo, a rural community of small farm lots, native Hawaiian homesteads, and parks along O'ahu's largest white sand beach. Amphibious Assault Vehicles (AAVs) travel several nautical miles from KBay for critical beach landing maneuvers to MCTAB - the only convenient, cost effective Hawaii training location. MCTAB supports - non-live fire ground maneuvers, helicopter insertion/parachute and heavy equipment operators training, hosts visiting Marine Expeditionary Units (MEUs), civil defense exercises, law enforcement agencies, and a 48-acre tenant training facility run by Hawaii Army National Guard. Military trainers use

MCTAB's south shoreline on weekdays. Weekend public beach access is jointly managed with City & County (C&C) of Honolulu. Adjacent Bellows Air Force Station supports military recreation.

2. Significant Natural Resources and Features – Many stunning landscapes; seascapes, and shoreline natural resources are under our jurisdiction and are rich in Hawaiian culture, military history, and biological diversity.

- **Wildlife Management/Wetland Areas** – Together, MCB Hawaii's KBay and MCTAB support 133 acres of jurisdictional wetlands. About 112 of these acres are a component of the 517-acre Nu'upia Ponds Wildlife Management Area (NPWMA) on KBay. The NPWMA hosts 10% of the endangered Hawaiian Black-necked stilt population. Stilt and 3 other endangered waterbirds (Hawaiian coot, moorhen, and duck) and over 60 species of native and migratory birds (resident and visiting) have been recorded here and/or at several other smaller coastal and inland freshwater base wetlands. KBay hosts about 12 acres of coastal wetlands along our Kane'ohe Bay-facing shoreline, and about 9 acres of inland, freshwater wetlands. They all perform valuable stormwater retention and biofiltration roles as well as provide bird and fish habitat. MCTAB has 2.2 wetland acres located along Waimanalo stream, where waterbirds and native aquatic fish (e.g., gobies or o'opu) are found. The Nu'upia Ponds supports 16 native fish species. Wedge-tailed shearwater seabirds have colonized the eastern shoreline of Nu'upia Ponds WMA, with over 850 active burrows identified. Our 25-acre Ulupa'u Crater Head WMA located in the heart of the KBay Range Training Facility (RTF), is above an active weapons firing range and hosts one of only two red-footed booby seabird colonies in the main Hawaiian Islands, supporting 2,500 birds.

- **Diverse Coastal and Marine, Living and Fossil Flora and Fauna** - Sea cliffs and coastal sand dunes at KBay and MCTAB support native strand vegetation treasured in Hawaiian folklore and gathering traditions. In 2008, two small endangered 'Ohai plants (*Sesbania tomentosa*) were discovered self-established within a native plant community along Nu'upia Ponds WMA's eastern shoreline - the first sighting here since the 1930s. MCB Hawaii is the only Marine Corps installation with coral reefs resources. Mokapu's 500-yard Naval Defensive Sea Area, a.k.a, the security buffer zone around the peninsula, contains native corals, algae, sponges, bryozoans, feather duster worms, sea squirts, reef fish, culturally important seaweeds, and native seagrass meadows that support rare sea horses and threatened Hawaiian green sea turtles. Coastal waters support transiting dolphins, endangered humpback whales, and critically endangered Hawaiian monk seals who regularly haul out to rest on MCB Hawaii beaches. In 2009, a threatened Olive-Ridley turtle, normally found in waters around Costa Rica, Mexico, and in the Indian ocean - nested and successfully produced over 50 hatchlings on the Base's Pyramid Rock beach; Olive-Ridley hatchlings were again sighted here in Dec 2011. Pleistocene lake deposits in Ulupa'u Crater contain the oldest fossil bird remains known from the Hawaiian Islands, approximately 400,000 years old. These fossils are important for documenting evolutionary rates in a variety of lineages of land and water birds from the islands. Specimens collected from these deposits were curated, and made accessible for public display at Hawaii's Bishop Museum and the Smithsonian Institution (Washington, DC).

3. Organization and Staffing - The base Environmental Compliance and Protection Department (Env Dept) is comprised of a Marine Corps Captain (O-3) as Director, and 30 military and civilian environmental professionals. The natural resources staff within the Conservation Division consists of a GS-12 team leader/senior natural resources manager; a GS-11 natural resource manager; and a GS-9 bioscience technician. For most of the award period, the GS-12 senior natural resources manager was on medical leave, and subsequently retired; in her absence we relied upon interagency partnering, a contractor, and volunteers. The natural resources team works closely with other Env Dept staff in overlapping program areas (conservation enforcement, NEPA, clean air/water, solid/hazardous waste management, cultural resources, environmental management, spill response, recycling, pollution prevention, and geographic information system applications). External to the Env Dept, assistance comes from facilities planners, engineers, shop laborers, military/civilian DoD police, base legal services, Comptroller, Base inspectors and military units. Off-base assistance comes from US Fish & Wildlife (FWS), National Oceanic and Atmospheric Administration (NOAA)-Fisheries, US Geological Survey (USGS), Hawaii DLNR, US Department of Agriculture (USDA) Wildlife Services, O'ahu Invasive Species Committee, University of Hawaii (UH), contractors, scientists, volunteers, and native Hawaiians with traditional knowledge.

4. MCB Hawaii's Integrated Resources Management Plan (INRMP) – Since 2001, when we completed our first INRMP in accordance with the Sikes Act, it has guided our ecosystem-based approach to natural resource management that supports quality of life and “no net loss” in military training options. Required regulator concurrence on the initial development of the INRMP was received from FWS, NOAA-Fisheries, and DLNR, as were the 5-year updates in 2006 and

2011. During this decade of INRMP implementation, we completed over \$13M worth of discrete management actions. This reflects an average of \$6M spent every 5 years, consistent with the projected \$3M programmed over the current 5-year implementation period (2012-16). Types of INRMP management actions covered are similar over time, grouped under specific goals and objectives, within seven "courses of action" categories: fish & wildlife, wetlands, watershed, coastal and marine resources, grounds maintenance and landscape, access/quality of life/outdoor recreation, and resource information management. Per Federal and military directives, we have followed criteria for developing INRMP actions, measuring INRMP implementation progress, and completing required regulatory reviews since 2001. This systematic INRMP implementation/evaluation process contributed to MCB Hawaii's being the first USMC installation to successfully meet EPA's requirement that federal agencies implement principles-based environmental management systems (EMS) with performance measures for tracking progress. MCB Hawaii has also followed a required web-based Natural Resources Conservation Metrics to document annual INRMP implementation.

PROGRAM SUMMARY/OUTSTANDING ACCOMPLISHMENTS (FY12-FY13)

1. INRMP Program/Progress Summary – 60% of the management actions programmed to occur in these 2 years at time of this awards submission were successfully executed. A total of 111 out of 184 discrete management actions listed in the INRMP 2006 Update were either on-going, started, in-progress, or completed by the end of FY13. Some actions were implemented ahead of schedule while some optional action opportunities were pursued that were unforeseen at the time of the 2011 Update. Some less critical actions were deferred in order to address existing and emergent priorities. Overall, our INRMP is being implemented on time and within budget.

2. Outstanding Highlights - Integrated Natural Resources Management Program - Our INRMP is a "living" document, continuously improving through adaptive management after completion of each action, stakeholder input, and environmental project evaluation. Highlighted below are key prescribed management actions that are completed, on-going, or initiated in each of the seven components INRMP areas during FY12 – FY13. They are described in the context of steady improvements over the last decade, in a broad array of areas--innovative staffing supplementation through effective partnering with military operators and cooperating agencies, non-government organizations, contractors, and the public to expand resource inventories, enforce natural resources laws, enhance wildlife habitats, and control invasive species while supporting civil works, "no net loss" in military training, and quality of life.

a) Fish and Wildlife/Wetland Management – Wetland/WMA areas on KBay would be unable to support the protected bird diversity cited above without regular control of both invasive plants and vertebrate/invertebrate predators.



- Annual, supervised amphibious assault vehicle (AAV) "Mud Ops" training has been conducted in MCB Hawaii's coastal wetlands, just before endangered Hawaiian stilt nesting season, since the late 1970s. This annual training/habitat management breaks-up non-native pickleweed flats that otherwise encroaches upon stilt nesting/foraging grounds; this event also hones AAV operator skills. This enduring partnership supports bird conservation and combat readiness, results in favorable publicity and community good will; while also contributing to the survivability of the Hawaiian stilt whose numbers consistently range from 110 - 150 birds as confirmed through annual surveys (see photo to the left).

- In 2012, a wetland delineation project was initiated, performed by the Army Corps of Engineers (ACOE), for the remaining three undocumented potential wetlands located on MCTAB. This project will complete the inventory of wetlands that began in 2001; the Base's wetland data layer will be updated once the delineations are completed. Normally, surveys must be regularly updated since Army COE wetland boundary certifications are valid for only five years at a time. However, the ACOE conducted a cursory field inspection of the other previously delineated wetlands and determined that

there had been no substantial change to the wetlands to warrant a re-evaluation. Since no Base projects are being considered that would intrude on the wetlands, recertification was unnecessary.

- In the early 1980s, 10 artificial nesting platforms were created in the middle of the Nu'upia Ponds to deter predators of the endangered Hawaiian stilt; each "tire island" was constructed from approximately 30 tires of various sizes. Stilts initially utilized these "islands", but quickly abandoned them as the water around the islands was too deep for the young stilts that need to forage right after birth. In 2013, a unit of Marines assisting the Natural Resources staff helped remove 300 mud-laden tires located 100-300 feet off shore, in a back breaking and exhaustive effort (see photo on right).



- Three years ago we introduced 20 New Zealand-made DOC250s, a powerful and effective kill trap, to augment live-capture type traps to control predators of protected birds on base. Since their initial introduction, the trapping program has been increased to 80 traps, which replaced 50 rodenticide bait traps. These traps are humane, efficient, and decrease reliance on rodenticide bait stations, which, if used over a long period of time, could develop resistance in the target species. The DOC250 also supports DoD pesticide reduction goals. Unlike pesticides, there are no labeling restrictions, so trap saturation can be performed in areas of high predator incidences. Unlike pesticides that can be eaten by non-target species that go elsewhere and die, potentially spreading pesticides throughout the environment, the DOC250s are target-specific and provides the added benefit of identification of the type predator/wildlife taking the bait.

- A 2009 project with FWS cooperators experimented with various treatment options to stem the spread of a new aggressive insect, the yellow crazy ant. This one ant negatively impacted our wedge-tailed shearwater colony resulting in nest abandonment, as well as caused chick deformities and increased chick mortality. Since the treatment, colony nesting has rebounded from a low of 520 active nests in 2010 to over 850 active nests counted in each of the last two years; however, vigilance and close monitoring of the ants is required to suppress resurgence in the population.

b) Watershed Management – For the past 10 years, MCB Hawaii has made significant, systematic progress in addressing flooding, erosion, and sediment-laden run off problems on its properties and implementing solutions in a phased, geographically-focused watershed-based approach. Waimanalo stream that flows through the heart of MCTAB has been the focus over the last two years to address flooding events to neighboring property and the upstream community of Waimanalo.

- In 2012, a design was completed to restore the floodway of Waimanalo stream that was filled in when Waimanalo stream was channelized in the late 1930s by the ACOE. The stream was channelized to provide land for cultivation of sugar cane and to allow construction to occur in the surrounding area that once consisted of wetlands and a small primitive fishpond. Waters flowing out of the Waimanalo watershed, approximately 3800 acres in size and includes the Waimanalo and Kahawai Streams, drain to Kailua Bay 1.5 miles away. The \$645,000 project to restore 1.5 acres of the floodway began in FY2013. This project will reduce flood events that affect our adjacent neighbors by allowing flood waters to overflow the stream banks onto Marine Corps property, remove highly invasive plants that once overwhelmed the floodplain and stream banks and replace them with native dryland and riparian plants.



- Another project currently in design (FY 2013) is the maintenance dredging of Waimanalo stream (see photo on right).starting from the point where the

Waimanalo stream floodway is being restored to a location ½ mile downstream. This project will be the first time the stream has been dredged since the Marine Corps took possession of the training area from the Air Force in 2000. The dredging will remove the accumulation of approximately 30,000 cubic yards of sediment/soil. In addition, the dredging will improve stream health by ridding the stream of heavy vegetative growth constricting stream flow, removing debris, and alleviating stagnant waters that breed mosquitos. The free flowing stream will provide training opportunities for the military otherwise unavailable to them

c) Coastal and Marine Resources Management – The 2010, coastal and marine resources qualitative investigation of the waters surrounding Marine Corps Base Hawaii was completed in 2013. Both the initial quantitative survey (2008) and the latest project were carried out by a FWS-led interagency team that included the US Geological Survey, comprised of some of the top Federal marine biologists in Hawai'i. The surveys characterized many unique elements in KBay's 500-yard security buffer zone that surrounds the peninsula. Both surveys photo-documented benthic conditions and produced sensitivity maps for incorporation into the base Geographic Information System (GIS). The FWS biologist leading this inventory states that their findings show our waters rival "some of the best sites found within the Northwestern Hawaiian Islands," the most pristine part of the Hawaiian Island chain.

- The coastal and marine resources survey has been expanded to incorporate 1.5 square miles of ocean seaward of MCTAB. This survey, also being led by the FWS, will include an interdisciplinary team of marine biologists from NOAA and the State of Hawaii Department of Lands and Natural Resources (DLNR), Division of Aquatic Resources (DAR). This training area, bordered by Waimanalo Bay, provides a large beach frontage and open water, which is extremely valuable for amphibious operational training. It is heavily used during Rim of the Pacific (RIMPAC) exercises that support LCAC (Landing Craft Air Cushioned, a.k.a. hovercrafts) landings, and affords training for the Marine Corps' Force Recon and Combat Assault Company's amphibious assault vehicles (AAV's). This survey will provide a picture of the underwater environment, so in-water training and ship-to-shore movements can be conducted in a manner that won't impact the marine resources, thus avoiding incidents that could shut down training.

- Kane'ohe Bay's reef ecosystems are some of the most studied in the Pacific. Its coral reefs were severely damaged between 1937 and 1944 by dredge and fill operations undertaken to create ship channels and seaplane runways during construction of the Kaneohe Naval Air Station. Although dredged reef has failed to recover substantially in the Bay over the past 60 years, FWS and DLNR marine biologists are encouraged by how much coral has recovered within the Base's 500 yard security buffer zone. Unfortunately, non-point pollution from increasingly urbanized surroundings in Kane'ohe Bay (e.g., sedimentation/soil picked up by overland movement of water across the residential landscape flowing into the bay) are threatening the health of coral ecosystems in the Bay as are other threats (e.g., invasive non-native algae and fish species, marine debris, overfishing, and intense recreational use pressures); all continue to pose challenges for regional resource managers to include MCB Hawaii. The Base supports environmental research within our 500 yard buffer zone, i.e., the University of Hawaii (UH)



fish tagging research and carbon sampling to study effects on coral reef communities, as well as Strategic Environmental Research & Development Program (SERDP) funded efforts to study invasive algae in the Bay. Our conservation law enforcement officer has a dedicated vessel and teams with our waterfront operations' active-duty Navy personnel to patrol our 500-yard NDSA around the peninsula, and apprehend illicit fishing, net laying, and reef diving activities. Waterfront operations (WFO) assist the US Coast Guard (USGC) on windward O'ahu—providing critical first response to water safety accidents and spill situations. WFO makes available boat mooring/launch support for the FWS, NOAA, and State DLNR conservation enforcement officers. Sharing access has enabled all agencies to stretch limited dollars for more effective, cooperative region-wide marine enforcement, resource surveys, and research, while preserving valuable military marine training space.

- The geology of most coastlines in Hawaii is characterized by outcropping volcanic bedrock, lithified tephra (ash), and carbonate deposits. Unconsolidated calcareous and clastic sediment, eroded from either the offshore reef or upland sources or directly produced by calcareous marine organisms, i.e., corals, collects along the shore to form narrow beaches. Beach erosion is the dominant trend of shoreline change in Hawaii. It is the result of intense residential and commercial development that has hardened shorelines or caused a significant loss of vegetation that would normally reduce shoreline vulnerability from marine inundation, flooding and drainage problems, storm surge, and sea-level rise (climate change). At the **Pu'uloa Range Training Facility** located on the southern shores of O'ahu, a shoreline erosion study is being conducted to identify mitigation measures that may be taken to forestall further shoreline loss (see photo on left) of the training area's



beach and shoreline - 25 feet of shoreline has eroded away in the last 3 years; the erosion of the shoreline has already reached the backside of lead-filled impact berms that supports small arms training.

3. Grounds Maintenance and Landscape Management – For over a decade, MCB Hawaii has complied with numerous directives to implement sustainable development principles in everyday government practices. We strive to create exceptional, sustainable buildings and integrate them with the surrounding environment while conserving natural resources, providing operational effectiveness, and promoting a Hawaiian “sense of place”. Planting regionally-indigenous plants in public places; and systematically eradicating high-maintenance, often pyrophytic, invasive plant species in protected WMAs and critical military training areas, are two key aspects of this “greening of government”. Recent highlights of MCB Hawaii’s “sustainable landscaping” follow.

- Over six years in development, MCB Hawaii’s Landscape Manual is currently in its final review. The Manual will be the authority for the standards on the selection, care, use, installation, maintenance, and removal of landscape plants. The landscape manual addresses landscape planning and design, establishes construction and design standards to protect our trees, emphasizes proper landscape/grounds care and maintenance, identifies bad landscaping practices, and establishes approved preferred native/regionally indigenous species to be used and identifies prohibited species to be avoided due to being invasive, poisonous, thorny, or having high-maintenance characteristics. The Manual contains over 200 full color plant reference plates. Our, yet unpublished, landscape manual has been requested by the US Army Garrison at Schofield Barracks, Environmental Division.

- Our INRMP emphasizes planting and landscape maintenance requirements developed in the Landscape Manual that are required by both in-house and contracted projects. It cites the policy of not less than 50% native plants in new or renovated landscaping schemes and strives to achieve a 1-for-1 plant replacement. We review plans and inspect areas to ensure compliance. Our INRMP restates the Approved and Prohibited plant lists found in the Landscape Manual; these lists are regularly reviewed, updated as needed, reprinted with every INRMP Update, widely disseminated, and posted on our internet natural resources website.

- Vegetated cover on base training ranges, as well as those of other Services in Hawaii is primarily non-native; dominated by pyrophytic invasive grass species that do not hold the soil or water as efficiently as natives, hence amplifying erosion and flooding risks as well. An important INRMP objective has been to better control vegetation in training landscapes, using a phased, cooperative approach. The task is daunting due to the pervasive nature of the statewide introduced invasive plant cover.

d) Natural Resources Access/Educational Outreach/Outdoor Recreation Management –

- **Access/Outreach** - Providing public access to/outreach about Base natural resources is a Sikes Act requirement to be accomplished in such manner as to not compromise security, military training, or resource conservation. In 2012-2013, we coordinated 26 service projects, involving 528 military and civilian volunteers donating over 800 labor hours—mostly as “Weed Warriors” in KBay wetlands. Military volunteers participate, as well as civilians from environmental organizations and school students. Of note, the Sierra Club Hawaii Chapter has “adopted” MCB Hawaii’s wetlands, contributing volunteers over the past 30 years. Audubon bird counts have been hosted for over 6 decades. Collaborative bi-

annual State waterbird counts have been conducted each year for over 25 years. Earth Day events have been conducted in collaboration with the FWS and Sierra Club. We have provided access to local lauhala weavers for over 10 years to collect leaves from our native trees on base; the leaves are used to create a variety of articles, i.e., hats, mats, bracelets, belts, purses, bookmarks, fans. These enduring partnerships testify to sustained program bonds with the community.

- **Interpretive signs** - A \$95,000 project to develop 22 natural and cultural resource interpretive signs are currently under design. The National Park Service-quality signs will be located near sensitive resources around the Base to educate the base population and visiting units. Eight lower budget interpretive signs were developed in-house, fabricated locally, and installed around the Nu'upia Ponds Running Trail that skirts the perimeter of the Nu'upia Ponds; these signs educate viewers on native birds, fish, and plants, as well as non-native invasive species.

- **Tours/Presentations** - In 2012-13, natural resources tours or presentations were performed for a variety of public forums; e.g., a Navy environmental course, quarterly environmental awareness classes, during a safety stand-down for Marine Air Group-24, Marine Corps Community Services Water Safety class, military/DoD police units, Boy Scouts, visiting senior military officers, and more.

- **Recreational Resource Management**

- (1) **Shoreline Access**—MCB Hawaii provides public access to ocean/coastal resources within operational, environmental, and security constraints. The public is sponsored on base by families and for special events (e.g., surfing & body boarding competitions). The island community enjoys weekend access to MCTAB's training area along the beach under a cooperative agreement with City & County of Honolulu, who manages weekend use. The annual Hawaiian Makahiki celebration - a day of ancient Hawaiian sports, feasting, dancing and having a good time, is held in the training area each year. Marathon running/biking contests at KBay include access to scenic coastlines without disturbing native vegetation, wildlife nesting, or native Hawaiian burial grounds;

- (2) **Nu'upia Ponds Recreational Run Trail Access** – Since 2003, after an Environmental Assessment (EA) and FWS consultations were completed to ensure routes avoid impacts on sensitive wildlife, recreational running is enjoyed around the ponds' outer perimeter by hundreds of joggers and controlled unit formations. The popular annual MCB Hawaii "Swamp Romp" event attracts over 2,000 on- and off-base entrants; it is conducted on the perimeter of the Nu'upia Ponds wetlands and the base's coastline in a manner that avoids wildlife impacts;

- (3) **Hunting/Fishing Access** - Hunting had been prohibited aboard Marine Corps Base Hawaii (MCB Hawaii) properties since the 1950's. After completion of an Environmental Assessment (EA) and the INRMP was updated, the first ever recreational archery hunting program (feral pigs – see photo on right) at Marine Corps Training Area Bellows (MCTAB) will be conducted in 2014. The Sikes Act mandates that hunting programs be consistent with the conservation of natural resources and that public access is provided, subject to safety and military security requirements. Also, it was critical to ensure this recreational program does not affect training or readiness. Although MCTAB has a limited capacity for hunters, and limited available days and times due to training, this program will provide a previously unavailable hunting opportunity. Public fishing access is permitted at designated locations and off-base civilian fishermen are allowed aboard KBay within enforceable numbers. 200 permits per quarter are issued on a first-come, first-serve, no fee basis.



f) Resources Information Management/Data Sharing – We have made great strides since the 1980s, when natural resources data was stored in scattered locations (bookshelves, cabinets, staff files). In the past 10 years, a deliberate effort was made to inventory and archive these data, and improve data update/access. 12 four-drawer file cabinets of information are being reduced to a few boxes of digital data, which will preserve sensitive data that could not be replaced and provides the added benefit of freeing up valuable floor space.