

NAVAL BASE VENTURA COUNTY

FY2010 SECRETARY OF DEFENSE ENVIRONMENTAL AWARD

Large Installation – Natural Resources Conservation



Naval Base Ventura County (NBVC) is proud of the environmental stewardship initiatives carried out by its Natural Resources Conservation Program (NRCP). The NRCP balances environmental stewardship with the critical mission as a major aviation shore command and Naval Construction Force mobilization base.

NBVC is composed of three operating facilities: Point Mugu and Port Hueneme, both located along the Pacific coastline in southwestern Ventura County, California, adjacent to the cities of Oxnard, Port Hueneme and Camarillo and San Nicolas Island (SNI), located offshore. NBVC provides airfield, seaport and base support services to fleet operating forces and shore activities. Employing more than 17,800 military and civilian personnel, the more than 80 military commands located at NBVC support the diverse missions of the Department of Defense. These missions include combat and weapon systems testing on the 93 300 hectare (ha) Sea Test Range off the coast of Point Mugu.

As part of the Environmental Division at NBVC, the NRCP has developed and implemented three Integrated Natural Resource Management Plans (INRMPs) as the basis for managing natural resources at NBVC. As listed in the INRMP, Point Mugu consists of 1817 ha, which 871 ha are of designated wetland (unimproved), 120 ha are of beach habitat (unimproved), 138 ha are of mixed disturbed habitat (unimproved), 176 ha are of airfield grasslands (semi-improved), and 511 ha are of developed lands (improved), all along 10 km of the Pacific coastline. Port Hueneme has more than 47 km of roads and streets and 16 km of railroad track. Port Hueneme experiences casual use by two federally listed species and consists of 668 ha, 601 ha of improved lands, 60 ha of semi-improved, and 7 ha of unimproved lands. SNI is approximately 15 km long and 6 km wide, and lies in the Santa Barbara Channel, 121 km west of Los Angeles. SNI is home to three federally listed threatened and endangered species and upwards of 170,000 marine mammals during the breeding season, and consists of 5,411 ha, 132 ha of improved lands and 5,638 ha of unimproved lands.

Point Mugu, including Laguna Peak, and is bordered by parkland, duck hunting clubs, and intensively farmed agricultural lands. Approximately 890 ha of Point Mugu are jurisdictional delineated wetlands, representing the largest remaining coastal salt marsh estuary in Southern California.

Mugu Lagoon is the coastal termination point of the Calleguas Creek Watershed, which drains approximately 88 800 ha of Ventura County. The estuary provides a habitat for thousands of migrating and wintering birds, as well as numerous invertebrate, fish, and plant species.



Salt Marsh Bird's-Beak

Five federally listed species occur on site and are dependent upon this habitat, including one of the largest populations of the federally endangered salt marsh bird's-beak (*Chloropyron maritimum maritimum*).

NBVC also supports a large number of activities including waterfowl hunting, bird watching, and 1.6 km of coastline for fishing. Recognizing the aesthetic value and ecologically significant biodiversity of the estuary, NBVC has embraced as an integral part of our mission the responsibility for stewardship and maintenance of these areas with continual management support for the protection of coastal wetlands.

Organization and Background

The NRCP is part of the Environmental Division, which is made up of over 20 civilian and contractor personnel. The Environmental Division is part of Public Works Department, Ventura County of the Naval Facilities Engineering Command Southwest (NAVFAC SW). The NRCP focuses on recovery of listed and sensitive species, and protects migratory birds and marine mammals in support of the Navy mission. Special program areas

include wetlands monitoring, which entails preparation and acquisition of permits required for projects affecting the wetlands and coastal zones, and the Bird Aircraft Strike Hazard (BASH) program, which provide field support to control and manage wildlife that presents a strike hazard to aircraft. A wide variety of actions are carried out to ensure protection and enhancement of the numerous wildlife species found at NBVC.

Integration with EMS

The Environmental Management System (EMS) is a fundamental component to NBVC, with the Environmental Division continuing to structure standardized methods and processes at NBVC and tenant commands regarding their practices that exhibit significant impacts to the environment. In addition, the Environmental Division is actively integrating standardized procedures into the management of the NRCP. In FY09 and FY10, progress was made in the following areas:

- Standardized record-keeping for nest surveys
- Documented procedures for surveys and nest monitoring
- Enhanced NRCP maps to improve data visualization
- Improved metrics for reporting procedures

To further support EMS, the NRCP has completed an outstanding number of objectives from the INRMP in FY09 and FY10, including the following programs:

- Endangered Species Monitoring Program
- Migratory Bird Monitoring and Mist Netting Program
- Marsh Plants Restoration Program
- Raptor Relocation Program for BASH and Endangered Species Management
- Southwest Pond Turtle Monitoring Program
- Native Oyster Restoration Program
- Fish and Insect Survey Program
- Wetland Management Program
- Bird Aircraft Strike Hazard Program
- Island Fox Monitoring Program
- Invasive Plant Control Program

- Eelgrass restoration

In addition, NBVC revised the INRMP for SNI in FY10 to include up-to-date information on mission, resources, and to develop new and innovative projects to help restore and protect flora, fauna and ecosystem.

Fish and Wildlife

The NRCP has focused the majority of its management activities on the effective oversight of threatened and endangered species, marine mammals and other protected species and their associated habitats. Specific objectives were carried out in the last two years to ensure appropriate controls are in place to oversee and monitor natural resources at NBVC.

Federally and State Listed Species

NBVC is home to seven federally listed species including Salt Marsh Bird's-Beak, Western Snowy Plovers (*Charadrius alexandrinus nivosus*), California Least Terns (*Sterna albifrons browni*), Light-Footed Clapper Rails (*Rallus longirostris levipes*), Least Bell's Vireo (*Vireo bellii pusillus*), black abalone (*Haliotis cracherodii*), and Island Night Lizards (*Xantusia riversiana*). State listed species include the San Nicolas Island Fox (*Urocyon littoralis dickey*) and Belding's Savannah Sparrows (*Passerculus sandwichensis beldingi*).

Federally and State Endangered California Least Tern and Federally Threatened Western Snowy Plover

- Monitored least tern and snowy plover nest success on Point Mugu and snowy plovers on SNI
- In FY10, recorded the highest number of nest attempts by both species since monitoring began in mid-1990s
- Restricted access to nesting areas during breeding season
- Performed analysis to determine impacts to nest success from projects occurring in tern and plover nesting areas.

- First implemented a predator management plan in FY02; continued integration of proactive management of predators as part of species recovery in FY09 and FY10
- Continued participation in yearly regional snowy plover and least tern recovery group meetings to discuss status, management objectives, and their successes in FY09 and FY10



Western Snowy Plover Chick



Least Bell's Vireo

Federally and State Endangered

Least Bell's Vireo

- Small potentially breeding population discovered at Point Mugu in FY09
- Drawn to willow patches, their preferred habitat, which occur in small patches at Point Mugu
- Passive surveys for calls conducted in FY10
- Planned protocol surveys for FY12

Federally Endangered

Black Abalone

- SNI hosts the only known population of black abalone in California that has been increasing over the past 10 years
- Hosted scientists conducting annual monitoring of long-term study sites and reproductive success surveys

- Continued to maintain area closures in prime abalone habitats along SNI's south shore

Federally Threatened

Island Night Lizard

- Found on only three of the California Channel Islands, including SNI
- Conducted site-specific surveys in known/suitable habitats prior to potentially disturbing activities
- Relocated lizards in accordance with the Terms and Conditions listed in NBVC's Biological Opinions (BO)
- Identified work areas during road maintenance and other activities to prevent lizard mortality

Federally and State Endangered

Light-Footed Clapper Rail

- Point Mugu is home to the only known established Clapper Rail population in Ventura County
- Since 2001, 107 captive-reared clapper rails have been released on-site, including 5 in FY09
- Annual monitoring of rail population including breeding pairs, occupied sites, and nesting areas in support of project planning, species recovery, and to determine nesting success, status, and trends
- Continued participation in yearly regional Light-Footed Clapper Rail group meetings to discuss status, management objectives, and their successes in FY09 and FY10
- Continued proactive management of predators as part of species recovery in FY09 and FY10

Federally and State Endangered

Salt Marsh Bird's-Beak

- Sub-species persists in only 7 coastal salt marshes
- Survey and GIS map the population annually
- Continued implementation of habitat restoration in adjacent areas previously covered by invasive plants in FY09 and FY10
- Use maps of distribution to alert waterfowl hunters of sensitive areas to avoid

State Endangered

Belding's Savannah Sparrow

- In FY10 estimated population status and abundance of Savannah Sparrows in 728 ha of wetlands at

Point Mugu as part of a range wide survey completed every five years

- Point Mugu is home to approximately 1/3 of the entire state's population of Savannah Sparrows

State Threatened

San Nicolas Island Fox

The island fox was listed as endangered by the U.S. Fish and Wildlife Service (USFWS) on four of the six Channel Islands on which they occur, but no listing was required on SNI due to their robust population. Several proactive management strategies have been implemented to maintain a healthy population and prevent catastrophic population decline that would result in restrictions that would impact the military mission. These programs include:

- Annual monitoring of the San Nicolas island fox population to determine population size and demography.
- Vaccinating a subset of foxes against rabies and distemper to protect them from a potentially devastating disease outbreak
- Maintaining and mapping records of known fox mortalities
- Mowing of roadsides to reduce the possibility of vehicle-related fox mortalities
- Continuing use of signage and pamphlets to educate SNI visitors and staff members on the best strategies for safely co-existing with foxes

Additional Species and Accomplishments

Over the past two years, in addition to threatened and endangered species monitoring, an extensive number of objectives were accomplished by NBVC's NRCP. Some of the most noteworthy features include:

Fisheries Survey – In FY09, Point Mugu completed a fisheries survey of Mugu estuary to maintain a current species list, with a report delivered February 2009. Supporting data collection is used to provide relevant information for consultations with federal and state wildlife agencies, maintain current species list for INRMP, and to support mission requirements at NBVC

Insect Survey – In FY09, an insect survey of the installation was completed. Insect surveys were also

conducted in the course of monitoring key wetland restoration sites. The data was used to provide relevant information for consultations with federal and state wildlife agencies, maintain current species list for INRMP, and to support mission requirements at NBVC.

Oyster Restoration Program – Due to past declines in native oyster populations, an oyster restoration research pilot program was launched at Point Mugu and completed in early FY09. The report, received in October FY09, demonstrated the feasibility of creating oyster beds at Point Mugu. Through a partnership with Channel Island Marine Research Institute, a grant from the Nature Conservancy was received to implement a restoration program. Planned for FY11, the project will create new oyster beds, which will help remove contaminants from water and provide habitat for diverse assemblages of fish and invertebrate species.

Bird Surveys to support Wind Turbine Environmental Assessment – In FY10, the proposed wind turbine development sites and other areas on San Nicolas Island were surveyed for bird abundance and diversity. These data were utilized in the Environmental Assessment and were also incorporated into the updated SNI INRMP.

Migratory Bird Monitoring and Mist Netting Program – Beginning in FY07, the NRCP implemented a migratory bird banding program which was continued in FY09 and FY10. In FY09, a total of 107 individuals of 35 species were captured. Three species previously undocumented on base were captured including the federally and state endangered Least Bell's Vireo. Additionally since FY01, 6 to 12 basewide shorebird surveys have been conducted per year. The baseline data documented in these ongoing programs provide the Navy with current information on declining and sensitive bird species that utilize the installation and may help provide species specific data for future military operations.

Seabird Restoration – Through funding provided by the Montrose Settlements Restoration Program (MSRP), feral cats were removed from San Nicolas Island during FY09 and FY10 in order to restore seabird nesting colonies. Beginning in FY08, NBVC worked closely with partners

including The Humane Society of the United States (The HSUS). From November 2008-January 2009, trapping methods and the feasibility of removing the feral cats from the island were tested. The project officially kicked-off in late June 2009. From June 2009-June 2010, 52 cats and 10 kittens were transferred to The HSUS and relocated to a feral cat sanctuary at The Fund for Animals Wildlife Center in Ramona, California. The cats will live out the remainder of their lives at the sanctuary and the kittens will be adopted. In 2010, monitoring efforts continued via surveys and camera traps. It is believed that very few, if any, feral cats remain on the island. The program is now ahead of schedule and in the monitoring phase to ensure all cats have been captured.

Eelgrass Restoration Program – After being extirpated 25 years ago from Mugu Lagoon in the mid-1980s, an attempt was made to re-establish an eelgrass population. In FY10, five sites in the estuary were re-planted with eelgrass. Once established, the eelgrass will not only restore a missing piece of the lagoon’s ecology but also provide valuable habitat for a diverse assemblage of fish and invertebrate species.

Southwest Pond Turtles Monitoring Program – Since very little was known about the Southwest pond turtle (*Emys marmorata*), a state species of concern, at Point Mugu, a capture, mark, and release monitoring program was implemented in FY07, which continued during FY09 and FY10. Captured turtles are marked and released in order to evaluate population size and demographics. The information will be used to determine management strategies to increase the population of this sensitive species.

Brandt’s Cormorant monitoring – NBVC Port Hueneme is home to a small nesting colony of Brandt’s Cormorants, which is the one of the few mainland colonies in southern California. The cormorants began nesting on site in FY08. The NRCP monitors this colony for population and breeding success and also aims to reduce disturbance to the cormorants. The colony has increased in size each year. A peak of 90 adults and 71 chicks were documented in FY09. In FY10, the numbers rose to a peak of 150 adults and 108 chicks.

Bird Aircraft Strike Hazard and Raptor Relocation Program – In FY09, NBVC finalized an Environmental Assessment (EA) for the Bird Air Strike Hazard (BASH) Program for Point Mugu. By promoting a positive working relationship with the various air operation tenant commands and squadrons, the US Department of Agriculture works for the Navy to carry out a proactive BASH program to minimize potential aircraft interactions with wildlife, specifically birds. Such efforts benefit aircrew safety and reduce the potential for loss of aircraft. In support of the BASH program, the Point Mugu Raptor Relocation Program coordinates with the Endangered Species Management Program to capture and relocate falcons, hawks, and owls. Raptors are released over varying distances and their return rates are monitored. At this time, 41 hawks have been relocated, and only three have been confirmed returned to NBVC.

Marine Mammals – One of only a few mainland haul outs for Pacific harbor seals (*Phoca vitulina*) in Southern California, Point Mugu offers a unique refuge for a resident population ranging from 250-500 individuals. Regular survey and monitoring of the haul-out site and pup production are conducted in order to monitor population and reduce any disturbance to the seals. SNI serves as an important refuge for three species of marine mammals and one of the top breeding sites in the world. Annually, more than 81,000 adult elephant seals (*Mirounga angustirostris*), California sea lions (*Zalophus californianus*), and harbor seals haul out on the island’s beaches and rocky outcrops to rest, breed, and give birth to up to 40,000 pups.



Juvenile elephant seal on road on San Nicolas Island

During FY09 and FY10, the NRCP managed military activities and projects in accordance with the Marine Mammal Protection Act by:

- Conducting annual aerial breeding season surveys for elephant seals, sea lions and harbor seals of SNI in cooperation with the National Marine Fisheries Service
- Gathering data on distribution, abundance, age structure, pup production, and reproductive phenology
- Supporting quarterly surveys performed by US Geological Survey of sea otters occurring in the nearshore waters around SNI
- Successfully demolishing a building adjacent to the Mugu Lagoon haul-out without disturbing harbor seals and eliminating the need for Incidental Harassment Authorization (IHA)
- With IHA, successfully performing spill response exercises in Mugu Lagoon near a sensitive haul out area, with minimal disturbance to harbor seals

Land Use and Wetlands Management

The NRCP at NBVC has focused on wetland restoration as an essential component of conservation management in line with the enhancement of the Navy's mission. Although impacts to wetland resources from military operations and

base development are sometimes unavoidable, the NRCP strives for continuous habitat improvement:



Mugu Lagoon

- To date, approximately 14 ha of wetlands have been restored at Point Mugu and applied to a wetland mitigation bank to support Navy projects.
- In cooperation with various regulatory agencies the NRCP initiated preparations for a wetland mitigation bank, which will contain current and future restored wetlands. The bank will be used to offset future impacts to wetland resources.

Dispensary Road Wetland Restoration - In FY10, NBVC's Seabees assisted in removing a road and restoring it to wetland and upland habitat. Approximately 0.4 ha of wetland was created and another 0.8 ha of transitional wetland / upland habitat was restored. This area will be added to NBVC's wetland bank to help offset any impacts to wetlands from base development.

Perimeter Road Wetland Enhancement - 0.16 ha of transitional wetland habitat which had been invaded by the non-native sea fig (*Carpobrotus spp*) were enhanced. Initial restoration included the removal of 83 metric tons (t) of sea fig and the excavation of a portion of a 8-foot-wide dirt berm to restore flow. Native salt marsh plant species were transplanted to add diversity to the pickleweed (*Salicornia virginica*) community dominating much of the adjacent natural area wetland habitats. In FY09 and FY10, to assess the success of the restoration and native plant establishment, regular monitoring of site progression was conducted including soil analysis, vegetation plots, insect, and bird surveys.

Erosion control - Recent heavy erosion at several sites on Point Mugu were resulting in adverse impacts to wetland habitats as well as infrastructure. Bio-swailes and drop inlets were successfully used to rectify the situation, reduce impacts from erosion, and protect the estuary and infrastructure.

Community Involvement

NBVC continually coordinates with local community members by involving them in conservation and educational efforts. The NRCP has developed partnerships with academic institutions, which benefits the Navy by raising awareness of managing environmental aspects of the missions that are conducted at NBVC. During the award period, NBVC has actively coordinated efforts with the following committees and groups:

- Calleguas Creek Watershed Task Force
- Ormond Beach Task Force
- Southern California Wetland Recovery Ventura Task Force
- Western Snowy Plover working group
- California Least Tern working group
- Light-footed Clapper Rail working group

Furthermore, NBVC participated in a myriad of community activities to increase community awareness of its NRCP in FY09 and FY10 including:

Nature Trail – A ribbon cutting ceremony for the new Nature Trail at Point Mugu was held during the NBVC Earth Day Celebration and Annual 5K Run hosted by Morale, Welfare, and Recreation (MWR) on April 17, 2009. The self-guided 1.6 km trail consists of five educational stations providing information and facts about Point Mugu’s natural resources such as wetlands, shorebirds, marine mammals, beach nesting birds, and the Calleguas Creek watershed. This trail was a partnership between the MWR Department and the Environmental Division at NBVC, to provide a recreational opportunity for residents and visitors of Point Mugu.

Photo and Specimen Display Booth – In FY09, an updated photo display featuring NBVC’s natural resources and threatened and endangered species was developed. In FY10, the NRCP added a specimen display and activities for children, including a memory game featuring endangered species. The displays were an integral part of an information booth set up and staffed at various events in both FY09 and FY10 to engage the local community by raising awareness and highlighting the success of integrating environmental stewardship with the Navy mission at NBVC. Events included:



Natural Resources Program’s Specimen Display at Community Engagement Events

- City of Oxnard Earth Day Celebration
- NBVC Earth Day Celebration
- Bard Elementary School Earth Day Presentation
- Annual Point Mugu Surf Contest presented by Quiksilver

The surf contest was an exciting opportunity for NBVC to showcase its troops, their varied missions, and its award-winning stewardship of the environmentally

sensitive beach and wetlands area inside its gates, while allowing the public and the surfing community to access some of the best waves in Southern California.

Beach Clean-up – NRCP coordinated with the NBVC Navy Chaplain to organize Beach Cleanup Day in FY09 in conjunction with California coastal clean-up activities. In one morning, approximately 80 volunteers picked up 360 kg of trash, 300 kg of recycling, and 29 tires.

Volunteer Opportunities – The abundant natural resources at NBVC offer a unique experience for volunteers to assist on special projects and supplement staff efforts. In FY10, volunteers assisted in the removal of Sahara mustard and other invasive plants in sensitive areas at SNI.

In both FY09 and FY10, local university students were trained to serve as volunteer observers of the endangered California Least Tern nesting colony.



California Least Tern

In FY10, a more comprehensive volunteer and training program was implemented. Student volunteers spent over 130 hours monitoring least terns from blinds during the peak breeding season. This mutually beneficial arrangement allowed students to gain valuable experience while freeing NRCP staff to work on other assignments.

Nature Tour and Lectures - Annually, the NRCP conducts between 6 and 12 tours of Mugu Lagoon for local community groups such as the Audubon Society and Girl Scout troops. Such tours showcase work of the NRCP as well as the abundance of wintering waterfowl or migrating shorebirds that depend on this critical habitat. Additionally, 4 – 6 in-depth field lectures are conducted annually for students in the California State University – Channel Islands environmental science programs. These programs serve to provide students with examples of conservation in action, as well as encouraging the formation of partnerships to assist in research and information gathering in the NRCP.