

NAVAL BASE VENTURA COUNTY

2018 SECDEF ENVIRONMENTAL AWARD: NATURAL RESOURCES CONSERVATION—TEAM

INTRODUCTION



Naval Base Ventura County [NBVC] has an impressive environmental record supported by its Natural Resources Conservation

Team. The dedicated staff expertly balances environmental stewardship with the critical mission as a major aviation shore command and Naval Construction Force mobilization base.

NBVC is located in Ventura County, California and is comprised of three primary operating facilities: Port Hueneme, Point Mugu, and San Nicolas Island [SNI]. Point Mugu and Port Hueneme are both located along the Pacific coastline in southwestern Ventura County, California, while SNI is one of eight Channel Islands and lies 60 miles west of the coast. NBVC also maintains operations at remote sites including: Laguna Peak, Fort Hunter Liggett, Santa Rosa Island, and Santa Cruz Island.

NBVC provides airfield, seaport, and base support services to fleet operating forces and shore activities. Employing more than 20,060 military and civilian personnel, over 80 tenant commands and departments located at NBVC support the diverse missions of the Department of Defense. These tenant commands support both Fleet and

Fighter, including three warfare centers: Naval Air Warfare Center Weapons Division, Naval Surface Warfare Center Port Hueneme Division, and Naval Facilities Engineering and Expeditionary Warfare Center [EXWC].

NBVC is also home to the Pacific Seabees and the West Coast E-2C Hawkeyes. Combat and weapon systems testing takes place on the 36,000 square mile Point Mugu Sea Test Range, MQ-8B/C (Fire Scout) and MQ-4C (Triton) unmanned platform operations occur at Point Mugu, and Littoral Combat Ship missions are supported at Port Hueneme.



TEAM MEMBERS

The NBVC Natural Resources Conservation Team consists of 6 key members (pictured left to right):

FRANCESCA FERRARA

Natural Resource Specialist

WILLIAM HOYER

Natural Resource Specialist

MARTIN RUANE

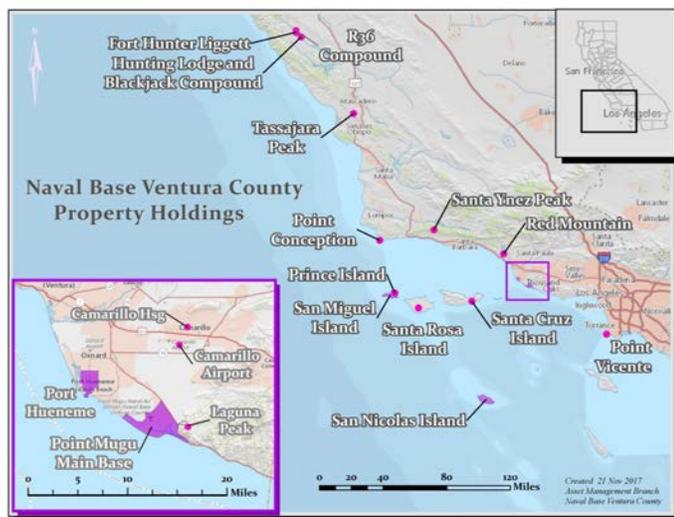
Ecologist

JOSEPH MONTOYA

Supervisory Physical Scientist

VALERIE VARTANIAN

Natural Resource Specialist





The first MQ-4C Triton Unmanned Aerial Vehicle assigned to NBVC Point Mugu coming in for a landing over the wetlands.

POSITION DESCRIPTION

The NBVC Natural Resources Conservation Team [NRCT] has a record of excellence and outstanding achievement. These accomplishments support the mission by:

- ◆ Leveraging partnerships to fulfill Integrated Natural Resource Management Plan [INRMP] requirements by collaborating with outside researchers to address data gaps;
- ◆ Creating a substantial time and cost savings to the Navy by maintaining excellent working relationships with Federal and State regulators, other agencies and land managers, Sikes Act partners, and community groups; and
- ◆ Capitalizing on new and innovative methods to accomplish more efficient and effective species management.

NATURAL RESOURCE MANAGEMENT AND PROJECT EXECUTION

The NRCT implements three INRMPs as the basis for managing natural resources while accomplishing NBVC's military mission in a sustainable manner. In addition, they oversee 21 Environmental Program Requirements, or individual programs supporting the goals and objectives described in the INRMP, with a combined average annual operating budget of approximately \$1.7 million.

During the award period, nearly half of this amount was the result of plus-ups approved for the NRCT

because they were prepared to immediately execute mission essential projects when additional funds became available. In FY17 alone, \$790K of \$1.7 million in total funding was the result of this process.

The NRCT also ensures compliance with two Programmatic Biological Opinions covering ongoing naval operations at NBVC, as well as a number of project specific BOs such as Bird/Animal Aircraft Strike Hazard Program [BASH], Countermeasures Testing and Training, and Directed Energy Testing.

Point Mugu

INRMP revised in 2013, currently under revision

NBVC Point Mugu is comprised of 1820 hectares [ha] on the coast, 890 ha of which are jurisdictional delineated wetlands, the largest remaining coastal salt marsh estuary in Southern California. The Calleguas Creek Watershed, which drains approximately 88,800 ha of Ventura County empties into the Mugu Lagoon. The estuary's varied habitats provides for thousands of migrating and wintering birds, as well as numerous invertebrate, fish, and plant species.

Six federally listed species are present year-round or seasonally, including salt marsh bird's-beak (*Chloropyron maritimum* subsp. *maritimum*), light-footed Ridgway's rail (*Rallus obsoletus levipes*), western snowy plover (*Charadrius alexandrinus nivosus*), California least tern (*Sterna antillarum browni*), least Bell's vireo (*Vireo bellii pusillus*), and tidewater goby (*Eucyclogobius newberryi*). State listed species and species of special concern include Belding's savannah sparrows (*Passerculus sandwichensis beldingi*) and southwestern pond turtles (*Actinemys pallida*).

Port Hueneme

INRMP revised in 2012, re-signed in 2017

Port Hueneme is home to one of a few mainland rookeries of Brandt's cormorants (*Phalacrocorax penicillatus*) and experiences casual use by two federally listed species, the western snowy plover and the California least tern. Port Hueneme covers 668 ha, including the only deep water port between Los Angeles and the San Francisco Bay area.



San Nicolas Island Fox

San Nicolas Island

INRMP updated in 2015, currently under revision

San Nicolas Island lies 68 miles south-southwest of Ventura and consists of 5,411 ha with a topography dominated by a broad central mesa which drops off as gullied steep slopes around the islands coastline. SNI is home to three federally listed species including the western snowy plover, black abalone (*Haliotis cracherodii*), and southern sea otters (*Enhydra lutris*). State-listed species include the SNI island fox (*Urocyon littoralis dickeyi*), SNI buckwheat (*Eriogonum grande*), and beach spectacle-pod (*Dithyrea maritima*). The second most dense seal and sea lion rookery in North America, the island is hosts upwards of 170,000 California sea lions (*Zalophus californianus*), northern elephant seals (*Mirounga angustirostris*), and Pacific harbor seals (*Phoca vitulina*) during the breeding season.

ENVIRONMENTAL PLANNING

Incorporating Natural Resources conservation into project execution begins in the planning stages. In order to sustain mission readiness, NBVC Environmental Division leads a Project Review Board [PRB] to ensure proposed projects:

- (1) Are in compliance with environmental (e.g. National Environmental Policy Act [NEPA], Endangered Species Act [ESA], Marine Mammal Protection Act [MMPA], Migratory Bird Treaty Act [MBTA], Clean Water Act [CWA]), health and safety, and security regulations and requirements; and
- (2) Include stewardship of natural and cultural resources and promote sustainability practices.

In FY16/FY17, the NRCT aided the review of more than 1000 projects requiring over 400 Categorical Exclusions. They contributed to five Findings of No Significant Impact signed for Final Environmental Assessments with significant natural resource components including mission essential Directed Energy Test Facilities, Shoreline Protection, and Photovoltaic projects.

At least 182 of these projects required follow-up or site visits by the NRCT to discuss modifying project actions to avoid impacts to wetlands or other resources. As a result of working within the PRB framework, proposed actions ultimately progressed more quickly as the NRCT was able to provide guidance in the planning phase, resulting in fewer CWA permits and ESA consultations.



NBVC Point Mugu provides operational support for the E2-C Advanced Hawk Eye and is home to a state-of-the art flight simulation facility

SUMMARY OF ACCOMPLISHMENTS

SALT MARSH BIRD'S-BEAK

The salt marsh bird's-beak [SMBB] population at Point Mugu is one of only seven persisting in its historic range. A multi-agency approach was taken to study the habitat needs of this plant and best identify the most accurate long-term monitoring protocol. In FY16, the NRCT utilized their expertise to revise and update a standardized long-term monitoring protocol first developed in San Diego to be more accurate for rare plant populations which

are small and scattered. This new protocol will result in more uniform data comparable across landscapes and can be adapted by other land managers monitoring similar plant species.

A United States Fish and Wildlife [USFWS] grant supported work to characterize SMBB habitat including soil/water salinity, soil moisture, and plant species composition and density, in order to understand the habitat parameters required for maintaining healthy populations. This will pinpoint the best locations for establishing new populations to protect this species from sea level rise.

The Santa Barbara Botanical Garden [SBBG] collected seeds from multiple populations to be analyzed as part of a cutting-edge genomic sequencing project being conducted by the US Geological Survey [USGS]. The results will help determine the appropriate balance between retaining local adaptation and maximizing overall diversity to avoid negative inbreeding effects and to retain the ability to respond to future environmental change.

LIGHT-FOOTED RIDGWAY'S RAIL NESTING PLATFORMS

Light-footed Ridgway's rails are year-round residents at Point Mugu. Dependent upon coastal salt marshes, Mugu Lagoon represents more than 25% of potential rail habitat in California. Grant funding was received from the USFWS Coastal Partner's program to deploy fifteen supplemental nesting platforms during the 2016 breeding season. These were built in cooperation with the Girl Scouts of America, USFWS, and the NRCT. Each platform contained a motion-activated camera to monitor rails activity. Each team of Girl Scouts uniquely named the platform they constructed, allowing receipt of specific updates on usage of their rafts. Since their installation, rail visitation has been documented in six rafts, and rare species, such as the California salt marsh shrew (*Sorex ornatus salicornicus*) and the south coast marsh vole (*Microtus californicus stephensi*) have also been observed.

The NRCT is particularly proud to engage in community partnerships mentoring and inspiring young girls in science and the environment, while also providing valuable benefits to the installation.



Trail camera photo of a light-footed Ridgway's rail investigating an artificial nesting platform.

CALIFORNIA LEAST TERN UNMANNED AIRCRAFT PILOT STUDY

Point Mugu is home to one of the five largest California least tern colonies in the state. Monitoring the breeding success is a challenge because in order to minimize disturbance, the colony is not entered once eggs begin to hatch. Since some nests cannot be seen from the periphery of the colony, a data gap on their fates can result. A pilot study in FY16/FY17 investigated the use of unmanned aircraft systems [UAS] to supplement NRCT efforts by collecting aerial imagery of the tern colony. Preliminary findings include:

- (1) Confirmation that nesting terns were not disturbed by the UAS and continued to incubate while it was overhead;
- (2) Different life stages of least terns were identifiable from aerial imagery. Adults incubating eggs and/or brooding chicks were easiest to locate, followed by fledglings, eggs, and lastly chicks; and
- (3) With continued refinement, this method has the potential to assist the NRCT in filling the current data gaps.

This project was possible via a partnership between the NRCT, EXWC (funded the project and reviewed imagery), and Ventura County Department of Education (provided and flew the UAS at no cost to the Navy). Students from the Pacifica High School



A photo mosaic of a California least tern testing colony captured during an Unmanned Aircraft System (UAS) pilot program.

(Oxnard, CA) Code Developer Academy also helped review the imagery. Seeking outside partnerships and funding has allowed the Natural Resources Conservation team to explore technology with the potential to improve conservation and management.

COASTAL RESILIENCE

The DoD has identified climate change as a national security issue and a significant challenge to its ability to accomplish its mission. NBVC recognizes that protection of mission critical coastal infrastructure and resources requires innovative solutions and partnerships with experts in coastal science and engineering.

In a first-of-its-kind project, the NRCT partnered with The Nature Conservancy [TNC] to facilitate future planning and protect NBVC assets from sea level rise through the Coastal Resilience Program. This is the first time the DoD has entered into a public-private partnership via a Memorandum of Agreement [MOA], which was signed in FY16. This MOA addresses Point Mugu and Port Hueneme, and is expected to serve as a model agreement for other DoD installations in the future.

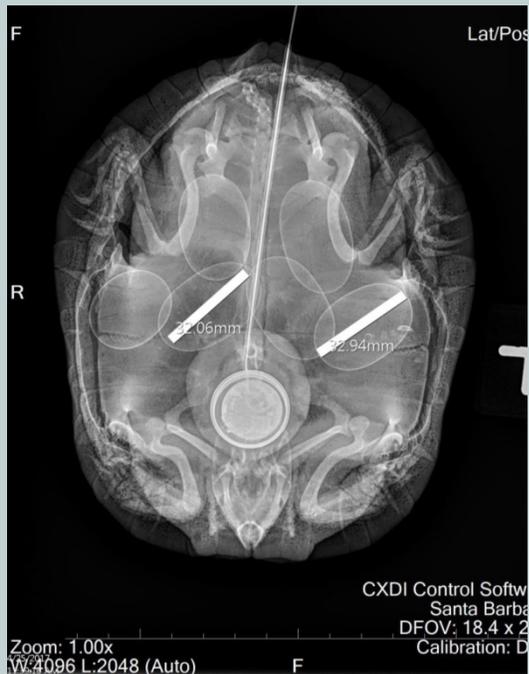
Accurate mapping of coastal processes over time is critical for long-term planning. The data entered into the TNC's Coastal Resiliency Model will enable the NRCT to visualize the impacts on infrastructure and coastal features from various future climate change scenarios. This will allow planning for the protection and long-term management of coastal infrastructure, dunes and wetlands. The resilience project can potentially be replicated at other coastal DoD installations globally. In FY16, the National Public Radio program Marketplace interviewed the NRCT and TNC to highlight this innovative program.

SOUTHWESTERN POND TURTLES

Southwestern pond turtles are in decline range-wide and are currently under review to be federally listed under ESA. The strong tidal influence at Point Mugu results in a range from freshwater to saltwater habitat throughout the day, which is unique for this species. Preliminary mark-recapture work suggested that the population was potentially small, aging, or not reproducing successfully. In 2017, the NRCT began a new partnership with the Santa Barbara Zoo under the Saving Animals from Extinction program. The pond turtle is one of only fourteen species targeted by this American Zoological Association program. Zoo staff donated their time and expertise by collecting and analyzing blood samples for baseline health data and x-raying females to determine breeding condition. Each female was affixed with a VHF radio-transmitter to allow them to be closely monitored during the breeding season.

The x-rays provided the first accurate, site-specific assessments of clutch size, timing of nesting, and the documentation of a female producing two clutches over the breeding season. This is strong evidence of a robust population of actively breeding adults, but the rate of juvenile survival and population recruitment remains unclear. Future plans include use of GPS transmitters and specially trained detection dogs to locate nests and to determine what factors may be limiting recruitment.

Proactive monitoring of southwestern pond turtles at Point Mugu by the NRCT demonstrates their commitment and foresight in establishing baseline population data in advance of a potential ESA listing.



X-ray image of a female southwestern pond turtle captured at NBVC Point Mugu. A clutch of six eggs and an external VHF radio-transmitter are visible.

SNI RARE PLANT PROGRAM

Beach spectacle pod, which only occurs on two Channel Islands and has a very limited mainland distribution, is currently a state-listed species that has been considered for federal ESA listing. Populations on SNI have been struggling due to invasive plants and pinniped impacts.

The NRCT has partnered with an extensive network of collaborators including government stakeholders (USFWS, USGS, National Park Service [NPS], and California Department of Fish and Wildlife [CDFW]) and non-governmental organizations [NGOs] (TNC, SBBG, and Catalina Island Conservancy [CIC]) to fund surveys, genetic analysis, and restoration plantings across the range of the species.

To date, the CDFW has contributed \$90k to fund work that supports the SNI INRMP by re-establishing populations in non-operational areas on SNI and as well re-introductions on non-DoD lands. This collaborative approach reduces pressure on the SNI population, provides a measured perspective on the status of the species for regulators, and allows other agencies and NGOs to assist in funding efforts.

This partnership will help the species remain off the federal ESA list, while minimizing potential impacts to the mission, and improving and solidifying working relationships numerous partners including state and federal regulators.



Beach spectacle pod, a rare endemic plant on NBVC San Nicolas Island.

SNI RESTORATION PROGRAM

San Nicolas Island has an erodible terrain and high winds leading to very erosive conditions that place infrastructure, water quality, and rare species habitat at risk. The restoration program supports the mission by:

- (1) stabilizing erosion near critical infrastructure and re-planting after construction;
- (2) improving water quality and storm water runoff to meet state standards; and
- (3) creating improved habitat for endemic species such as the island fox and island night lizard.

During the award period, over 30,000 native plants were propagated in an onsite nursery and planted in six restoration areas. This work would not have been possible without a close partnership with Channel Islands Restoration [CIR], a local NGO. CIR worked with the NRCT to coordinate the efforts of over 150 individual volunteers from the local community. In total, these individuals volunteered 7,120 hours of their time in 890 8-hour sessions on behalf of the restoration program, saving the Navy nearly \$285,000. The success of this program demonstrates



An example of a restoration site on SNI which filters storm-water, limits erosion, and prevents runoff from reaching the ocean.

how the public can meaningfully contribute to the responsible stewardship of DoD lands while supporting military mission requirements.

SAN NICOLAS ISLAND FOX

The California Channel Islands fox is a diminutive, charismatic species found nowhere else on Earth. Due to their high profile with the public and potential to impede mission operations if it were ESA listed, the SNI island fox is carefully monitored via a combination of annual population survey and weekly tracking of radio-collared sentinel foxes. A subset of foxes are vaccinated annually for rabies and distemper to protect them from potentially devastating disease outbreaks; regular roadside mowing reduces the possibility of vehicle-related fox mortalities; and signage and pamphlets educate SNI personnel on the best strategies for safely co-existing with foxes.

Following a drought-related population decline, the NRCT partnered with regulators [USFWS, CDFW], researchers, and other population managers [NPS, TNC, CIC] in FY17 to hold a Structured Decision-Making workshop with the goal of refining and prioritizing management efforts. A reanalysis of four decades of population data is currently underway and will result in an island-specific Population Viability Analysis. This will provide detailed information to the NRCT on the carrying capacity and target island fox population size, thereby allowing the NRCT to better ensure the

long-term stability of the species and minimize the potential for ESA listing and mission impacts by using the thresholds developed to enact adaptive management actions.

BIOSECURITY PROGRAM

The iconic Channel Islands are home to a variety of species found nowhere else on the planet. Invasive species are a primary threat to the persistence of native species worldwide and are particularly problematic for islands. The NRCT entered into a tripartite agreement with the TNC and NPS to jointly fund and hire a biologist solely focused on monitoring each of the member islands for biosecurity impacts, saving the DoD 60% of the cost of a full-time employee. Uncontrolled invasive species have the potential to negatively impact the NBVC mission, particularly if they crowd out native species causing them to be ESA listed.

By coordinating with other island managers, the upfront costs of preventing the establishment of invasive species on SNI are minimal. Eradicating species that have already established themselves is a significantly more costly endeavor. In conjunction with the California Islands Biosecurity Working Group, the NRCT works to:

- 1) enhance communication and collaboration between islands;
- 2) standardize surveillance and prevention protocols to minimize invasive species transport; and
- 3) collaborate on rapid response, compliance, and educational materials.

SUMMARY

NRCT proudly upholds its natural resource management responsibility as an integral part of the NBVC mission. They continually strive to:

- ◆ Successfully avoid-impacts from Navy mission requirements;
- ◆ Continue proactive management to reduce disturbance to natural resources and ensure mission essential projects are not delayed; and
- ◆ Seek out partnerships, funding sources, and novel technologies and ideas to provide long-term benefits to NBVC.