



2020 Secretary of Defense

Environmental Awards

Natural Resources Conservation – Individual/Team
Vandenberg Air Force Base Natural Resources Team

Background

The Vandenberg Air Force Base (AFB) Natural Resources Team (Team) consists of seven full-time Natural Resource Managers supporting the 30th Space Wing with expertise in the management and conservation of endangered species, wetlands, rangelands, invasive species, marine mammals, and wildlife conflicts with aircraft.

The Team includes:

- Tracy Curry-Bumpass, B.S., National Environmental Policy Act (NEPA) Planner/Biologist
- Rhys Evans, B.S., Biologist
- Samantha Kaisersatt, B.S., NEPA Planner/Biologist
- Luanne Lum, M.S., Botanist
- Brian Vandelist, M.S., Rangeland Manager
- Tiffany Whitsitt-Odell, M.S., Biologist (Colorado State University)
- Darryl York, M.S., Conservation Branch Chief



Vandenberg AFB Natural Resources Team

Vandenberg AFB's Natural Resources Team are environmental professionals working in the 30th Civil Engineer Squadron. The Team oversees Vandenberg's natural resources management efforts.

Position Description

The 30th Space Wing supports West Coast launch activities for the United States Air Force, Department of Defense (DoD), National Aeronautics and Space Administration (NASA), National Reconnaissance Office, and commercial space launch providers. Vandenberg is the third largest AFB and

occupies 99,578 acres of some of the highest quality coastal habitat in central California. The Installation's launch mission inherently enables natural resources protection—large safety buffers demand undeveloped property providing undisturbed habitat for ecologically significant, biologically diverse, and aesthetically valuable flora and fauna. The Team is responsible for protecting and preserving 42 miles of pristine coastline, 9,000 acres of sand dunes, 5,000 acres of wetlands, and 17 endangered or threatened species. Vandenberg AFB is home to 2,892 military personnel, 3,785 family members, 1,143 DoD civilians, and 2,822 contractors, and serves approximately 8,000 military retirees living in the area.



Vandenberg's Pristine Coastline

The Team manages 42 miles of pristine coastline on Vandenberg AFB. Vandenberg's coastline provides habitat for five species of marine mammals, numerous sea and shore birds, and endangered species.

California is under extreme development pressure and regulatory agencies often perceive Vandenberg AFB as the last refuge of diminishing habitats, creating many conservation and management challenges. The Team meets these conservation challenges with an extremely high level of expertise and experience, understanding their responsibility in supporting the Endangered Species Act (ESA) to conserve and manage the 17 Federally endangered and threatened species found across the Installation.

Summary of Accomplishments

Overall Natural Resources Conservation

All AFBs with significant natural resources are required to have an Integrated Natural Resources Management Plan (INRMP) and the Team continues to maintain one of the most extensive and complex Plans in the Air Force. Natural resources management on military lands is required by the Sikes Act of 1960, as amended, and implemented by Air Force policy. Vandenberg's INRMP integrates all management activities in a manner that sustains, promotes, and restores the health and integrity of Vandenberg's ecosystems. The Team manages 11 miles of beaches for the Federally threatened western snowy plover. Over 20% of the remaining population of this shorebird breeds annually on Vandenberg AFB beaches, and the Team is restoring over 1,200 acres of coastal dune breeding habitat and using innovative techniques for invasive plant control. Additionally, the Team implements an ecosystem-based predator control program targeting individual predators only while still maintaining a functioning ecosystem. Monitoring this species' recovery for over 20 years, the Team maintains the most extensive database on the West Coast and initial data indicates a 30% increase in breeding success in restored areas.

The California least tern breeding colony occurring near Space Launch Complex 2 is critical for the long-term recovery of this endangered seabird, as this is one of two remaining breeding colonies on the Central California coast. The Team conducts habitat restoration, and avian and mammalian predator control activities.

Over the past two years, the Team coordinated an agreement with the United States Fish and Wildlife Service (USFWS) to adaptively manage the Federally endangered California red-legged frog. However, the USFWS used data for distances the frog traveled to breeding

areas from a study conducted over 300 miles to the north in different climatic conditions. This resulted in frequent and unnecessary consultations that consumed limited time and financial resources for both agencies. The Team worked with local researchers to gather data from movement studies on base proving that the California red-legged frog dispersal distance was a fraction of that being used by the USFWS. This data led to a negotiated agreement with USFWS, resulting in over \$200,000 in savings in the past two years and expedited over 10 mission related projects throughout the Installation.

In response to local community concerns, the Team engaged with the USFWS, California Coastal Commission, California Department of Fish and Wildlife, and nearby residents on recreational beach access to develop an equitable solution that provided additional access for the local community, while continuing conservation and recovery of the western snowy plover. Ultimately, Vandenberg's Beach Management Plan was amended to provide year-round recreational access for the first time in 20 years while successfully managing the species in compliance with all regulations.

Mission Enhancement

As Vandenberg AFB plans to become the "Spaceport of the Future," the Team proactively navigates this mission transition using an adaptive management approach providing fast moving and dynamic changes in natural resources management throughout the Installation. The Team engaged the USFWS last year to modify and renew its long standing and groundbreaking Programmatic Biological Opinion (PBO) to provide regulatory coverage for an increased launch tempo. The PBO analyzed the effects of 26 reoccurring mission activities on the 17 Federally listed ESA species found on base for everything from roadside mowing to rocket launches. The PBO saves

Vandenberg AFB approximately \$250,000 in annual consultation costs, and along with the INRMP, serves as the centerpiece of the Installation's conservation efforts.

The Team also adhered to various provisions of the Marine Mammal Protection Act. Polar launch trajectories from Vandenberg AFB travel over the Channel Islands National Park, creating sonic booms that potentially result in harassment of five species of marine mammals. The Team worked with the National Marine Fisheries Service (NMFS) for the past several decades to monitor the effects of launch noise and sonic booms on marine mammals along Vandenberg's coast and the Channel Islands. The Team analyzed 25 years of data to demonstrate that sonic boom impacts were significantly less than previously suspected and not resulting in disruption of breeding or behavioral patterns. Subsequent negotiations with NMFS reduced monitoring requirements and saved the Air Force more than \$100,000 over the past two years.



Managing Natural Resources During Increased Launch Tempo

Vandenberg AFB supports West Coast launch activities for the Air Force, Department of Defense, National Aeronautics and Space Administration, national programs, and various private industry contractors. The Team proactively supports Natural Resources Management considering increased launch tempo.

Land Use Management

In compliance with the Taylor Grazing Act, the Team manages approximately 23,500 acres of land for cattle grazing through an agricultural outleasing program. Vandenberg leased land to the Federal Correctional Complex adjacent to the Installation resulting in a productive prison trustee labor force saving the Air Force over \$650,000 annually in facility maintenance costs and fulfilling several INRMP goals.

The Team focused ecosystem management principles by assessing status of suitable rangeland areas for grazing while protecting the ecological integrity of native species and watersheds. To accomplish this task, the Team worked with the Natural Resource Conservation Service conducting Installation-wide soil surveys to determine appropriate locations for grazing based on ecologically and soil science management sound principles.

Forest Management

Vandenberg AFB does not have typical wildland stands of trees that would be considered “commercial.” However, the Installation has several hundred acres of Bishop pine forest and 3,500 acres of coast live oak woodland. These forests provide unique habitats for base species and are managed to support their continued health and contribution to ecological diversity.

Native oaks provide multiple ecosystem benefits; however, they also have financial value as firewood. Vandenberg AFB’s native oaks were damaged by poachers illegally cutting trees on the fringes of the Installation. The Team initiated an Installation-wide oak tree survey for valuing oak woodlands with the University of California-Berkley. Using this data, the Team and university researchers were able to calculate the individual value of each tree (\$1,000 per oak tree) and Air Force lawyers used the value of trees in court proceedings to obtain stiffer penalties for convicted poachers.

Fish and Wildlife

The Team manages one of the most diverse assemblages of wildlife in central California. Vandenberg is in a transitional zone between central and southern California. This area has unique habitats where the population of many plants and animals overlap at the northern or southern limits of their distribution. The Team documented more than 850 plant species and numerous land and nearshore animals, including 53 species of mammals, 315 species of birds (115 of which have been known to breed on base), 17 species of reptiles, and 10 species of amphibians.

The Vandenberg AFB INRMP allows the Team to effectively manage this ecologically significant area by ensuring full compliance with all applicable environmental laws and regulations while still supporting the military mission. Through decades of excellent management, the Team facilitated delisting of three ESA-listed species, including the brown pelican, the peregrine falcon, and the Steller sea lion. The Team continues to monitor these permanent residents.



Western Snowy Plover

The Federally threatened western snowy plover breeds on 11 miles of Vandenberg AFB’s beaches. Due to the Team’s outstanding conservation efforts, over 20% of the remaining population of this rare shorebird breeds on Vandenberg’s beaches. The Team has diligently worked to restore over 500 acres of dune habitat for this species.

In fact, the peregrine creates a unique management challenge because they are significant predators of the endangered snowy plover nests. Controlling plover predation is a non-discretionary requirement of launch biological opinions. To ensure uninterrupted launches, the Team cooperates with the only permitted biologist in the state that can translocate peregrines. The Team translocated four peregrines to new territories while managing three peregrine nesting pairs on Vandenberg AFB in balance with a growing snowy plover population.

The iconic California condor is making a recovery throughout its historic range and was recently observed, for the first time in many decades, over the coast of Vandenberg AFB. In response, the Team proactively coordinated with the USFWS for continued compliance with the ESA while ensuring mission critical operations, such as rocket and missile launches, were accomplished as planned. The Team collaborated with the Ventana Wildlife Society

to track condor locations in real time during the first ever West Coast boostback (i.e., a booster rocket returning to launch site) event satisfying all ESA requirements. This information was relayed to the USFWS prior to any launches or boostbacks for USFWS documentation of potential impacts to California condors.

To determine any detrimental effects from launch noise, NMFS requires pre- and post-marine mammal haul-out monitoring. Monitoring results demonstrate the California sea lion population is rapidly expanding on base. Historically, 100-200 sea lions were observed during past 15-20 years, but during recent monitoring, sea lion numbers exceeding 900 were observed. Further indication of how positive land stewardship benefits the mission is evidenced by the Team using marine mammal monitoring data to negotiate a substantial \$10,000 reduction in monitoring costs per launch.



Marine Mammal Surveys

Monthly marine mammal counts on Vandenberg AFB's 17 known haul-out locations are a regulatory requirement of the NMFS Letter of Authorization. The Team invites active duty military personnel and their families to participate in these counts so they can appreciate the variety of natural resources found throughout the installation.

Invasive Species Control and Pest Management

Invasive, non-native species are major threats to Vandenberg AFB's native plants and animals. They degrade native habitats by enabling frequent wildfires and often exclude native species, including threatened or endangered species, or replace them as they spread. The Team developed a \$1 million Installation-wide invasive species management plan including habitat modeling for assessing treatment success and guiding adaptive management approaches. The plan addresses the need to manage invasive plant species while protecting crucial natural resources across Vandenberg AFB to prevent the establishment or expansion of new invasive plants. It also helps guide general enhancement of native plant and wildlife habitats across the installation. Success probabilities were calculated for each of the five management units to optimize the expenditure of invasive species control budgets.

To date, the Team successfully eradicated invasive plant species on 23,000 acres, resulting in a substantial reduction in wildfire risk and ultimately saving millions in lost infrastructure. In addition, this invasive control effort successfully increased forage production for livestock and controlled weed spread in Vandenberg AFB's crop fields.

The Team responded to the introduction of new weed species with a proactive rapid response program (RRP) that directed resources to identified outbreaks and coordinated immediate eradication programs. The RRP was developed with the Invasion Curve Concept in mind, which illustrates how eradication of an invasive plant species becomes less likely and control costs become greater over time as the species spreads. In other words, at the incipient stage of invasion (early stage, low density) it is relatively easy and low-cost to control invasive species for zero density by using spot treatments as soon as they are detected and

before they become a wide-spread problem. At the opposite end of the curve, species are well established and so widespread in the ecosystem that zero-density goals are unrealistic. In those cases, grazing, burning, or other more costly, landscape-scale treatments may be necessary to keep populations suppressed.

To assess the nature and extent of invasive threats on Vandenberg AFB, an intensive, installation-wide aerial survey was conducted to develop the subsequent prioritization of sensitive habitats in the RRP and guide future control efforts. The RRP recommends biosecurity measures reducing the risk of new invasive species establishing or spreading from site to site. Roadside mowing was identified as a primary spreading source of established weeds as well as new invasive species. The Team worked diligently with service contractors to establish protocols for frequent mower washing to avoid "infected" equipment introducing new weed species.

The Team worked with the United States Department of Agriculture's National Wildlife Research Center to conduct an installation-wide assessment of feral hog populations. This multi-year research effort culminated in a management plan to target control efforts in the most sensitive habitats. The Team also included cultural resources in the research effort ensuring an integrated approach to management of this invasive species. This study helped preservation and recovery of 350 acres of riparian habitat. These riparian areas are critical for the conservation of four Federally listed endangered species.

Education and Outreach

Vandenberg AFB provides the only coastal access for thousands of people in communities adjacent to the Installation. Besides providing recreational opportunities, beaches, and waters are also home to threatened and endangered species. The Team developed a beach docent program where Airmen, Air Force civilians,

retirees, and members of the community volunteer their time to help keep beaches open for recreation. These volunteers serve as a force multiplier, augmenting the duties of Conservation Law Enforcement Officers and Vandenberg AFB beach patrol personnel. Over 50 volunteers donate approximately 1,250 hours annually educating beach users on rules to protect breeding western snowy plovers and California least terns, five species of marine mammals, a variety of seabirds, and endangered plants.

Annually, the Team develops and organizes a beach clean-up event involving large numbers of installation personnel. Over 2.5 tons of plastic debris were collected from 14 miles of Installation beaches. This event serves as a productive way to educate a wide range of Air Force personnel on Natural Resources Program efforts.

The Team presents at Newcomer Orientations and Earth Day events where attendees are educated on Natural Resources Management with hands-on displays and exhibits. Mentoring opportunities are also provided to over 100 high school students throughout the year on numerous field trips.



Outreach and Education

The Team provides presentations at Newcomer orientations and Earth Day events where they provide interactive displays to engage the Vandenberg AFB population on the importance of Natural Resources Management. The Team also provides frequent mentoring opportunities to high school and college/university students.

Environmental Enhancement

Ideally, a balanced natural environment requires minimal manipulation by humans and is the most cost-effective way to manage natural systems. For this reason, the Team minimizes intervention into a natural, self-regulating system whenever possible. Not only has this approach benefited the flora and fauna on Vandenberg AFB; it resulted in financial benefits.

Historically, wildland fire played a significant role in shaping the natural ecosystems in California. Many species and communities evolved with, and are dependent upon, periodic fire for its many beneficial effects. However, wildfires on Vandenberg AFB have the potential to damage or destroy structures and harm personnel. Large fires of more than 500 acres occur, on average, every two to three years. With this understanding, the Team developed a comprehensive installation-wide Wildfire Management Plan with Vandenberg Fire and Safety. This plan provides a detailed roadmap to implement a fuels management and prescribed fire program to protect infrastructure, while providing the beneficial effects to natural resources. The Vandenberg AFB Wildfire Management Plan is an example of outstanding management that is practical and consistent with the military mission while also providing conservation, protection, and responsible management strategies for fish and wildlife resources.