



2024 Secretary of Defense Environmental Award Natural Resources Conservation – Team Marine Corps Installations West-Marine Corps Base Camp Pendleton



INTRODUCTION

Marine Corps Installations West-Marine Corps Base Camp Pendleton (MCIWEST-MCB CAMPEN) serves as the Marine Corps' premier amphibious training base providing comprehensive air, sea, and ground assault training to 42,000 active duty service members, 25,000 reserve service members, and over 17,000 entry level Marines (recruits) from Marine Corps Recruit Depot San Diego. Combined with civilian personnel that work on the base, MCB CAMPEN serves an average daytime population of 85,000. Through efficient range and training facility scheduling, timely de-confliction of live-fire training events, and effective special use airspace management, nearly 70,000 training events are conducted annually aboard MCB CAMPEN.

As the busiest training Marine Corps training base on the West Coast, MCB CAMPEN is home to the First Marine Expeditionary Force (I MEF) supporting the day-to-day training requirements as they prepare for regular deployments with specialized units such as Marine Expeditionary Units and Special Purpose Marine Air Ground Task Forces. In addition to hosting I MEF and the major subordinate commands of 1st Marine Division and 1st Marine Logistics Group, MCB CAMPEN also supports the integral mission to provide formal schooling for newly minted Marines in basic warfighting techniques at the School of Infantry (West) and Fleet Marine Force Navy Corpsmen training at the Field Medical Training Battalion.

BACKGROUND

Located within the Peninsular Ranges topographic region of California, MCB CAMPEN's 17 miles of coastline and adjoining training areas are one of the last remaining undeveloped areas on the southern California coast. The Base's western boundary is the Pacific Ocean with a shoreline composed of Pleistocene marine terraces that includes long stretches of open sandy beaches. The eastern boundary is



The compatible interface of native grasslands, sensitive species habitat, and military training is demonstrated during an artillery firing exercise in Camp Pendleton's upland training areas.

10 to 12 miles inland with uplifted terraces forming a broad coastal plain in the southern portion of the base with steep rising mountains providing only a narrow corridor of flat land in the northern portion. The 125,000 acres of MCB CAMPEN encompass a wide diversity of native plant communities and fish and wildlife habitats, including native grasslands, coastal sage scrub, chaparral, oak woodlands,

ephemeral wetlands (vernal pools), woodland, arroyos, coastal lagoons and estuaries, coastal dunes, salt and freshwater marsh, riparian scrubland and streams, rivers, ponds, and lakes. Developed cantonment areas aboard MCB CAMPEN represent approximately 10,000 acres and roughly 5,000 acres of leased property including land leased to the State of California for use as a state park. The remaining acreage is training land and dedicated impact areas that support live-fire training and exercises. Notably, training areas are available for outdoor recreation, primarily hunting and fishing on a non-interference basis.

The mission of MCB CAMPEN's Environmental Security Department is to ensure environmental compliance and promote land use availability for military training. The Environmental Security Department promotes the long-term management of the Base's natural resources through multiple avenues including restoration of listed-species habitat and severely impacted habitats (by erosion, flooding and fire), predator control, and aquatic and terrestrial non-native species removal.

While Southern California is one of the most biologically diverse regions within the continental United States, the heavily developed urban landscape surrounding the Base makes MCB CAMPEN an island of biodiversity. Serving this island of biodiversity across the base's landscape are four major watersheds that support extensive grass and woodlands, eight coastal lagoons, and estuaries. Over 1,000 species of wildlife, including 19 federally listed as threatened or endangered species, occupy MCB CAMPEN during all or part of the year. Listed species managed in upland ecosystems on Base include Stephens' Kangaroo Rat (*Dipodomys stephensi*), Gnatcatcher (*Polioptila californica californica*), and listed species in vernal pools include Thread-leaved Brodiaea (*Brodiaea filifolia*), Encinitas Baccharis (*Baccharis vanessae*), San Diego Button-Celery (*Eryngium aristulatum* var. *parishii*), Spreading Navarretia (*Navarretia fossalis*), California Orcutt Grass, San Diego Fairy Shrimp (*Branchinecta sandiegonensis*), Riverside Fairy Shrimp (*Streptocephalus woottoni*), and Coastal California Gnatcatcher (*Polioptila californica californica*). For many of these species there is a long-detailed story that accompanies the sustainability of the species aboard MCB CAMPEN. Management of these species is accomplished via a holistic approach centered on overall ecosystem health and continuing actions to improve habitat.

PROGRAM SUMMARY

By using an ecosystem approach to natural resources management, MCB CAMPEN has a proven record of accomplishment of supporting the military mission with no net loss of military capability while managing, conserving and rehabilitating natural resources. Since 2001, the MCB CAMPEN Environmental Security Department has actively managed the 19 listed threatened and endangered species under the Endangered Species Act (ESA) found on the base, protected waters of the United States, protected migratory birds, and oversaw a robust fish and game program, all while military training activities steadily increased. Internal to MCB CAMPEN's Environmental Security Department, is a robust Environmental Conservation Division (ECD) comprised of 36 civil servant employees committed to the management of the base's natural resources. Within ECD, the five person Uplands Management Section (UPL) is the team that is responsible for ten of the 19 ESA listed species found on the base and a vast majority of the training areas and open spaces. The UPL team, comprised of a Natural Resource Manager, a Wildlife Biologist, and Ecologists that collaboratively balance the Base's training mission with proactive management of species and ecosystems services across the varied upland habitats and landscapes on the Base. In addition to supporting overall program requirements for the Environmental Conservation Division such as reporting conservations metrics, environmental compliance evaluations, National Environmental Policy Act and ESA review, compliance and consultation, and Integrated Natural Resources Management Plan (INRMP) implementation, the UPL team has major program elements that are unique to their charter. Key program elements of the UPL

team include: (1) prevent and suppress forest pest and disease outbreaks; (2) advise fire management and fuel suppression actions; (3) prevent spread of or introduction of exotic, invasive, and noxious plants species; and (4) monitor and manage for non-ESA listed species as practicable.

Guided by a 2018 Joint MCB CAMPEN-Marine Corps Air Station Camp Pendleton INRMP, the UPL team regularly revisits goals and objectives of the INRMP to focus species and ecosystem management and action items. Throughout 2022 and 2023, and the UPL collaborated with an interdisciplinary team of Environmental Security Department Staff and other instrumental base staff sections such as Range Operations and Maintenance Departments to conduct an internal review and update to the 2018 INRMP.

This award nomination will not detail all actions that are accomplished on an annual basis by the UPL team but will focus on the team's most significant planning actions, highest visibility activities, and provide an overview of ecosystem sustainability and management.

SUMMARY OF ACCOMPLISHMENTS

ECOSYSTEM SUSTAINABILITY

The high volume of activities aboard MCB CAMPEN requires the ability to dynamically anticipate, monitor, and respond to myriad tasks and requirements that require comprehensive and interdisciplinary project life-cycle management. The UPL Team is integral to these efforts through continuous engagement with numerous stakeholders on the Base, to include Public Works Department, Range Operations and Maintenance Departments, and major tenant commands. Via innovative methods, and flexible project phasing, the UPL team effectively manages on an annual basis numerous sites totaling thousands of acres to promote ecosystem health and services across the Base. During FY-22 to FY-23, major sustainability projects on the Base addressed management of invasive and exotic species, erosion control in conjunction with carbon sequestration pilot projects, post-wildfire restoration, and restoration of sensitive species habitat that had been degraded for over ten years.

INVASIVE AND EXOTIC MANAGEMENT

Invasive species is the one the greatest threats and biggest challenges to MCB CAMPEN ecosystems.

The base operates several aggressive invasive species management programs that through adaptive management have resulted in significant habitat improvements. The Base's initiative to address invasive and exotic plants in the upland ecosystems is a proactive program that incorporates mapping and monitoring that ultimately realizes cost savings by stopping



In an area previously disturbed by military training over a decade ago, long-term planning efforts came to fruition with the initiation of restoration of a 59-acre complex of vernal pools. Initial steps were taken to protect the area by emplacing boulders along roads to limit unnecessary off-road driving.



Preventative erosion control projects provided multiple benefits, to include protection of ESA listed species, carbon sequestration, and mitigating future damage to built infrastructure. Alex Whalen, a Fire Ecologist on the UPL team, installs initial elements of a head-gully erosion control project.

invasive beetles continue to spread in the Southern California region, ensuring that infestations are not a threat to MCB CAMPEN's habitat is a high priority as infestations have been linked to increased wildfire potential in the region.

VERNAL POOL GROUP 68 RESTORATION AREA

Much of the success of the UPL team is the ability to address long-term issues that from decades prior have resulted in degraded habitat. In FY-22, staff began a multi-phased effort to restore a 59-acre site previously characterized with thriving vernal pool hydrology. This area, referred to as Vernal Pool Group 68 is home to two endangered fairy shrimp species (San Diego Fairy Shrimp and Riverside Fairy Shrimp) and multiple endangered plants. Faced with the challenge of multiple drought years resulting in vernal pools remaining dry, staff developed a comprehensive plan to reduce site access and remove non-native vegetation impacting the natural ponding of the pools. Restoration work will ultimately ensure vernal pool hydrology supports fairy shrimp growth and reproduction during typical rain years. In FY-22, phase 1 of the restoration began with the installation of boulders along road edges to prevent off-road driving and the removal of discarded materials. In 2023, phase 2 of this multi-year effort conducted intensive weed control throughout the site to effectively reduce thatch and suppress non-native grasses to prepare for the next phase of work. Future work will include re-contouring of vernal pools, planting native plants, and continuing invasive weed control. Throughout all efforts, environmental staff work closely with Range and Training Area planners to ensure that military training continues in designated areas without conflicts from restoration work.



Prescribed burning of coastal sage scrub habitat to remove vegetation.

EROSION CONTROL AND CARBON SEQUESTRATION

Recognizing opportunities reduce erosion potential in areas with sensitive species, while also increasing carbon uptake, the UPL team developed multiple projects for the Base that could support this dual benefit. Via a project that could be tailored to varied funding levels, the UPL team oversaw executed repairs to large head-cutting gullies at the San Onofre Management Area (SOMA) and Cocklebur Mesa. Both sites are conservation areas for many vernal pools, listed fairy shrimp, and listed plants. These sites are also integral to the successful implementation of the Vernal Pool and Fairy Shrimp Conservation Plan that will ultimately support long range training relief on Base and ESA compliance. Additionally, the erosion repair work is preventing the substantial loss of carbon stored in soils at the sites, protecting restored vernal pools that provided compensation for military construction projects, and protected built infrastructure adjacent to the repairs. This work is a typical example of how the UPL team plans conservation projects to support the needs of other stakeholders because the erosion repairs protected the access for users of adjacent sites including San Onofre State Park and the Navy's Assault Craft Unit-5 facility.

WILDLAND FIRE PROTECTION AND RESTORATION

Uplands staff coordinate the collection and sharing of fire-related data to support wildfire response and related conservation work. Uplands maintains six Remote Automatic Weather Stations (RAWS) on Base that provide local, daily weather information for fire conditions monitoring and the collected information is available online to the public. Similarly, live fuel moisture monitoring managed by the UPL team and performed by partners at Naval Information Warfare Center Pacific collect ongoing measurements of wildland fuel conditions and provide that information to the Base's Fire Department to inform their assessment of the Fire Danger Rating. Aerial mapping of recent wildfires provides an ongoing record of wildfire effects, behavior, and causes. The culmination and analysis of these complimentary efforts also enables the UPL team to prioritize ongoing efforts to repair disturbance from fire suppression activities and to restore burned vegetation communities such as coastal sage scrub that provides habitat for California gnatcatcher.

LISTED SPECIES MANAGEMENT

STEPHENS' KANGAROO RAT RECOVERY PROGRAM

The threatened Stephens' Kangaroo Rat (SKR) occupies a significant portion of training areas for artillery and mortar firing points, and mounted vehicle gunnery ranges on MCB CAMPEN, presenting a unique challenge given the high intensity and frequency of use at these specific training sites. The UPL team adjusted annual monitoring for SKR to support environmental review of planning for maintenance work at high priority multi-purpose machine gun range. To further support possible impacts from work on this same range, UPL staff collaborated with Base Fire Department staff to expand an existing prescribed fire boundary to include adjacent areas that were historically too thatchy to provide habitat to SKR. Expansion of this fire boundary will provide suitable habitat for SKR to disperse into and away from disturbance caused by live fire training on the range.

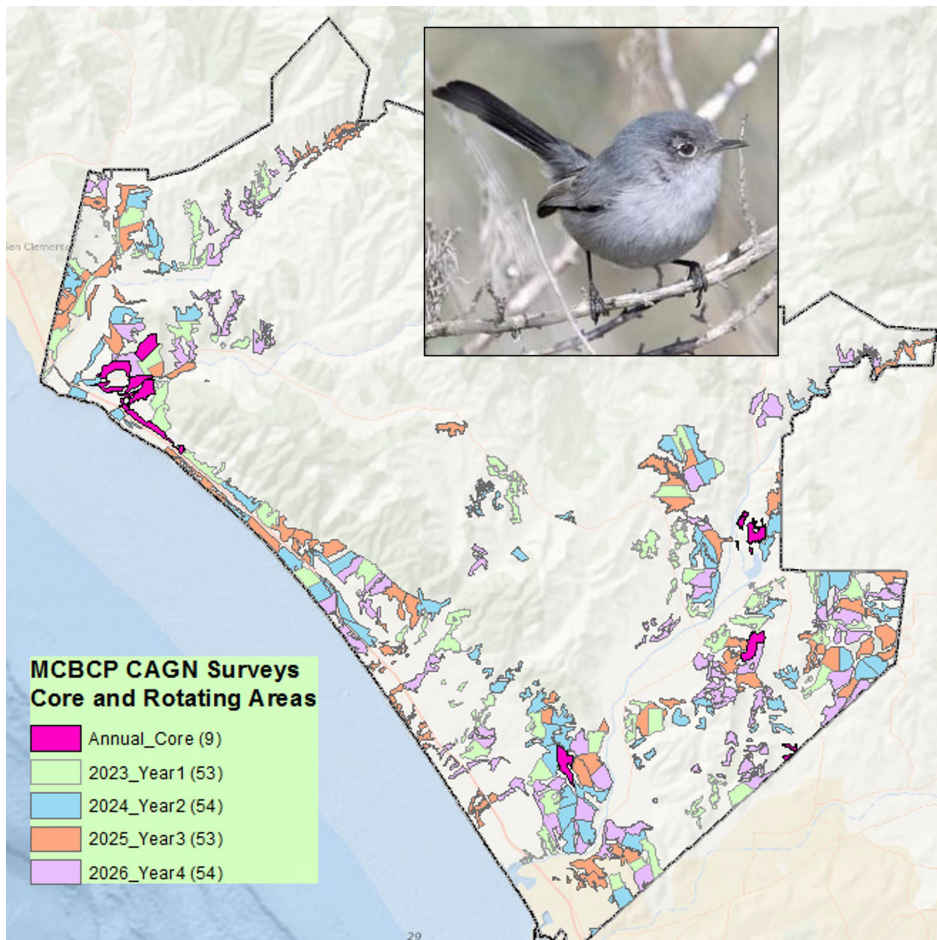
THREAD-LEAVED BRODIAEA

Thread-leaved Brodiaea (TLB) is one of five ESA listed plants that occur on MCB CAMPEN. As a result of years of active management, the Base currently accounts for over half of the known occurrences of this species. While the Base accounts for the majority of the species, it has effectively

managed to make sure that the occurrences don't significantly impact training capabilities on the base. Regular coordination between UPL staff and Range and Training Area Managers ensures that management and conservation of listed and rare plants occurs. In 2023, the UPL team's plant ecologist organized numerous surveys for TLB to support multiple proposed projects occurring in the proximity to TLB occurrences. These surveys were planned and conducted quickly to prevent unnecessary delay of important projects and ensure the Base's compliance with ESA. For example, TLB surveys supporting repair of a critical access road discovered three new populations of TLB that were as large as two thousand previously undiscovered plants. This new information allowed other Environmental Planning Staff to help the project proponents to adjust plans for the needed work. The successful result of these proactive measures included avoiding unauthorized take of listed plants and meeting the project timeline to repair a vital entrance road to MCB CAMPEN.

COASTAL CALIFORNIA GNATCATCHER

In an overarching effort to optimize funding for effective monitoring and management of a species demonstrating recovery on the Base, the UPL team revised the methods for basewide Coastal California Gnatcatcher (CAGN) surveys. This also provided an improved way of tracking changes in the population of CAGN on Base. Additionally, surveys on MCB Camp Pendleton are coordinating with a



regional survey of CAGN to avoid duplicating survey effort and to collect comparable data, which will improve the results of both surveys. Information collected from fire mapping is compared to CAGN distribution data on Base to plan appropriate restoration sites for coastal sage scrub habitat such as the sites adjacent to recent burn areas. This level of integration and adaptation allows the UPL staff to demonstrate to USFWS partners that above and beyond the objectives of the current INRMP, the base is committed to effective management of ESA listed species.

Surveying of the Coastal California Gnatcatcher have been adapted to optimize budget and provide more valuable data by identifying an annual core location and four-year cycle of rotating survey areas.

SUMMARY

The accomplishments of MCB CAMPEN natural resource programs greatly benefit its Marines, Sailors, tenant organizations, and civilians who work and live on the Base. While the Environmental Conservation Division at MCB CAMPEN is a relatively large team of over 30 professionals, the significant impacts of the five person UPL team are emblematic of the versatile, innovative, and cost saving measures sought. The accomplishments of the UPL team to reduce constraints and sustain an ever-expanding military training mission have an enduring impact and benefit to the Base-at-large. Both base personnel and surrounding communities continue to benefit from the hard work that improves or maintains several ecosystems supporting a large biodiversity and core Southern California species populations that reside on- and off-base. Through comprehensive and forward leaning environmental planning efforts, focused action on high value species, restoration of habitat, and continuous action against non-native species, the UPL team strives to set the standard for natural resource management and conservation in the DoD. Across all internal and external stakeholders, MCIWEST-MCB CAMPEN is proud of the UPL team and its continuous commitment to the management of the natural resources entrusted to the Base as they find solutions to address and balance the demanding requirements of military training and natural resources stewardship.



The UPL team is comprised of (left to right) Gwen Kenney (Rare Plant Ecologist), Bill Raitter (Vernal Pool Ecologist), Nate Redetzke (Wildlife Biologist), Jim Asmus (Section Head). Alex Whalen (Fire Ecologist) is not pictured due to extended leave period.