



Department of Defense  
Legacy Resource Management Program

# Natural Selections

Volume 5, Issue 2

March 2009

## Legacy Program Update

### Now Accepting National Public Lands Day (NPLD) Applications!

Applications! Applications for NPLD Legacy funds are available for base-level projects on any Department of Defense site that supports the goals of National Public Lands Day (NPLD) and emphasizes natural and cultural resource management. The deadline for submitting applications is June 1, 2009. For more information visit NPLD website at <http://www.publiclandsday.org> or contact Claudia Kessel, at [claudia@neef.org](mailto:claudia@neef.org), Robb Hampton, [rhampton@neef.org](mailto:rhampton@neef.org) or Jane Mallory, with the Legacy Program at [Jane.Mallory.ctr@osd.mil](mailto:Jane.Mallory.ctr@osd.mil).

Natural Selections announces its 2009 theme and schedule for article submission: The Legacy Program has transitioned your favorite newsletter to a themed newsletter. Because many of you have indicated how much you liked our previous themed issues we have decided to base future issues on a common theme. The list of themes and article submission deadlines, provided in our Call for Articles section (Page 12) will help you plan in advance an article of interest to the DoD conservation community. Members of academia, contractors, and especially installation managers are encouraged to submit articles or news following our newsletter theme schedule. And don't forget, Photo of the Month is going on every month and we might publish your photo next month!

## Legacy Project Highlight of the Month

### Legacy Project 06-214: Central Shortgrass Prairie Ecoregional Partnership Implementation

DoD has sought for years to establish partnerships with other agencies, organizations, institutions, and individuals to share expertise, information, worker hours, and other resources. Establishing and maintaining partnerships provides a means of combining resources to implement large-scale

*See Legacy, page 4*



## In The News

### U.S. Army Garrison - Hawaii's Natural Resources Program Takes Home Award

By Candace Russo  
Environmental Outreach Specialist  
O'ahu Army Natural Resources Program  
PCSU / RCUH

Environmental conservation often happens "behind the scenes," in remote areas like cliff faces, mountain tops, and thick forests. Bringing this work to the forefront, the U.S. Fish and Wildlife Service (USFWS) annually recognizes exemplary contributions to environmental conservation specifically made by military installations with the "Military Conservation Partner Award."

The 2008 award recipient is the U.S. Army Garrison, Hawaii's Oahu Army Natural Resources Program (OANRP) at Schofield Barracks. Michelle Mansker, chief of the Natural Resources Section, and Alvin Char, Environmental Division chief, will represent the program and accept the award at the North American Wildlife and Natural Resources Conference in Arlington, Va., March 19.

*Schofield Barracks, page 8*

## INSIDE THIS ISSUE

- 1** [Legacy Program Update](#)
- 1** [Legacy Project Highlight of the Month](#)
- 1** [In The News](#)
- 2** [Naturally Speaking](#)
- 3** [Training, Announcements and Events of Interest](#)
- 6** [Recent Natural Resources Documents On DENIX](#)
- 13** [Photo of the Month](#)
- 14** [Did You Know?](#)
- 15** [Contact Us](#)

# Naturally Speaking

From the Desk of L. Peter Boice,  
DoD Conservation Team Leader and Director, Legacy Program



## Communicating our Natural Resources Successes

Communicating effectively is the single most important part of my job – as it is for most DoD natural resources managers. We must know which message to convey, in which format, to which audience, and for which purposes. Being proficient with our communications, and devoting sufficient thought and energy to our messages will maximize the probability of achieving our objectives.

Those of us who work conservation issues on military lands face a particular challenge, but one we can use to our advantage – by demonstrating that our efforts to protect natural resources for future generations also sustains realistic training environments and long-term mission readiness, we can win valuable and powerful allies. We have a proven, demonstrable track record of successfully juggling mission support and natural resources stewardship. This is the core message that we can all return to when given the opportunity to describe – or defend – our programs. It is a theme we emphasize in this issue of Natural Selections, but also a message that I hope is apparent in every issue.

We also have other compelling messages to convey. Among those we can use effectively under many circumstances are:

- ❖ We save resources, especially time and money. Proactive natural resources management avoids more costly and complex actions in the future, and prevents unexpected delays.
- ❖ We provide enhanced quality of life for our military families, veterans and surrounding neighbors. Hunting and fishing programs often are self-sustaining. On military lands, in addition to “traditional” sportsmen, these programs can provide unique recreational opportunities for disabled veterans. Wildlife viewing, hiking, and planting of native gardens are other popular options.
- ❖ We build effective partnerships. Nonprofit groups can provide invaluable technical expertise. Volunteers can enhance professional staff and can be among our strongest program advocates.

How we communicate our message demands equal consideration to message content. A format that works for one intended audience may not work for others. What worked in the past may be ineffective now. And even a powerful message, poorly presented, may not be heard, or worse, could even be counterproductive.

We all need to be aware of, and proficient in, the ever expanding suite of communications techniques. Information papers may still be the best way to gain the attention of high level decision-makers – if the message is direct and compelling. PowerPoint slides can still be the best choice for larger or more “traditional” audiences – if one avoids their many potential pitfalls. Web sites might be the best means of providing a shopping list of informational materials to those unfamiliar with our programs – if they are attractive, user friendly and up-to-date. New “Web 2.0” techniques such as blogs, podcasts, and social network pages such as LinkedIn and Facebook can provide the best means of reaching younger or technologically more proficient individuals – but might be tuned out if done poorly.

I urge all of you to commit to three important exercises this month. First, consider the specific messages you want to convey. Second, evaluate and modify as necessary the exact wording you use for each message. Third, determine the most relevant means of communicating each message to each target audience.

Even though the benefits of embracing these exercises, and of using their outcomes, might not be as immediate or obvious as “real” natural resources work, these benefits can and will be real and long-term if done properly.



# Training, Announcements & Events of Interest

Workshops, Interagency Training Announcements and Future Events of Interest to the Conservation Community



**NEW! The Sixth International IPM Symposium, "Transcending Boundaries:** March 24-26, 2009 at the Oregon Convention Center, Portland, Oregon. Symposium sessions will address Integrated Pest Management across disciplines internationally, in agriculture, the market place, urban settings, greenhouses, and more. To register and for further details visit: <http://www.ipmcenters.org/ipmsymposium09/>.

**2009 NMFWA Training Workshop:** March 16-21, 2009 in Crystal City, Virginia. This workshop provides an excellent opportunity for DoD personnel specializing in fish and wildlife management to meet and discuss challenges and solutions to managing these resources. It also affords an opportunity for DoD natural resource managers to meet with counterparts from the U.S. Fish and Wildlife Service (USFWS) and State fish and wildlife agencies who work on Sikes Act issues and many other areas of common concern. For details visit the National Military Fish and Wildlife Agencies announcement at [http://www.nmfwa.org/2009\\_Meeting/index.cfm](http://www.nmfwa.org/2009_Meeting/index.cfm)

**Pollinator Workshop: What's a Land Manager to Do!** Pollinator Habitat Restoration for DoD Land Managers. Join fellow natural resource managers for an informative and interactive workshop on pollinators... their status, their plight, and what you can do to make a difference on the ground! For information and registration, please visit the NMFWA Conference website ([http://www.nmfwa.org/2009\\_Meeting/index.cfm](http://www.nmfwa.org/2009_Meeting/index.cfm)). Space is limited, so register soon. Sponsored by the DoD Legacy Resource Management Program.

---

***Legacy, continued from page 1***

programs and prevent duplicative efforts. Such partnerships and volunteer networks are vital to the success of many of DoD's conservation efforts. Partnering is one more of the many tools the Department of Defense has at its disposition for the better management of the natural resources entrusted to them, while not losing track of their primary mission: military readiness.

The Central Shortgrass Prairie ecoregional assessment provided an understanding of what must be conserved if the representative natural diversity of the ecoregion is to survive in the future – including where the most efficient and effective places are to focus limited resources to achieve those goals. At least as important as the assessment results was the emergence of the Shortgrass Prairie Partnership – a group of dedicated and committed people from the public and private sectors who seek to conserve the representative wildlife of the region while sustaining the human communities that inhabit it. For the military, the ecoregional assessment allows the military to foresee potential threats to the training mission, and the partnership serves as the platform for engaging those same issues.

The Shortgrass Prairie Partnership's vision is to provide landowners and managers, public agencies and private organizations the opportunity to work together collaboratively to ensure the long-term viability of the native species, natural communities and ecosystems of the Central Shortgrass Prairie ecoregion while promoting the continued existence of economically productive landscapes that sustain local communities. The Partnership completed and signed a memorandum of understanding (MOU) that formalizes the commitment of its members to work together to achieve the shared goal of the conservation of the Central Shortgrass Prairie ecoregion.



Smith Ranch © Renee Rondeau. This project was a collaborative partnership effort to conserve a 50,000 acre ranch in Lincoln County, Colorado.

The plan identifies key audiences, messages, materials for reaching those audiences, and indicators of success. The plan also includes an identity for the Partnership (logo) and a website map that will provide partners and external audiences with access to the Partnership's science analysis and data, plans and tools for conservation success.

As part of the DoD Resource Legacy Program funded implementation project the Colorado Natural Heritage Program developed two reports -- "Relationships among Species at Risk, Military Training and Potential Federal Listing on Fort Carson and the Piñon Canyon Maneuver Site" and "Fish and Macro-invertebrate Sampling at the U.S. Army Piñon Canyon Maneuver Site." The reports summarize species status and habitats, modeling methods and results, and the degree to which potential federal listing of these species may 1) be influenced by future DoD training activities, or 2) potentially constrain future DoD training and installation management if off-site factors result in federal listing.

The Central Shortgrass Prairie Partnership benefits the Department of Defense (DoD) in numerous ways, including: 1) providing important ecological data and analysis to help the DoD and its installations understand the ecological

The Partnership completed a strategic plan that details its vision, goals, and strategies and who will work to achieve them. It has identified six priority themes that now have standing teams to ensure that the work detailed in the strategic plan is completed. They include: Conservation and Restoration; Science and Adaptive Management; Policy; Working Landscapes; Communication and Outreach; and Partnership Health and Internal Coordination. An outgrowth of the strategic planning effort was the creation of the Working Landscapes Advisory Group, which will provide the Partnership with information and perspective on how best to work with land owners, producers (both ranchers and farmers) and communities of the Western High Plains to simultaneously promote conservation, economic production and sustainability.

A communication and outreach plan has been completed for the Partnership.

context in which they operate in the Central Shortgrass Prairie ecoregion; 2) increasing the resources available for conservation success by pooling public and private resources (e.g. funding, staff time and experience, strategic planning.) to achieve the missions and objectives of all Partnership members, including the DoD; and 3) sustaining the mission of DoD through on-the-ground conservation success, which in turns helps reduce the management responsibilities of the DoD for species-at-risk, species of concern, and other natural communities and ecosystems that might compromise the missions of DoD services and installations in the ecoregion.

A significant milestone was achieved in 2007 with the purchase by The Nature Conservancy of the 23,300 acre Smith Ranch in eastern Colorado. Those acres will be combined with approximately 25,000 adjacent acres owned by the Colorado State Land Board to create a single 48,300 acre working cattle ranch that will conserve some of the most remarkable grasslands, springs and streams, riparian areas and playa lakes on the Western High Plains.

The Partnership is now moving into its third phase of work with Legacy Program support, namely the development of conservation tools and programs (e.g. that will facilitate the conservation of species-at-risk (SAR) and species of concern on private lands within the ecoregion to better support the DoD missions at installations throughout the ecoregion (both USAF and US Army). The Shortgrass Prairie Partnership has been approached by private landowners and producers in Colorado about working together to facilitate conservation on private lands of species-at-risk and species of concern using DoD funding.

The Shortgrass Prairie Partnership hopes to expand its cooperative conservation efforts to other states in the ecoregion. One idea is to create state level “nodes” of conservation planning and implementation that are loosely coordinated across state lines. In some instances, such as grasslands conservation policy work, the network will work together more formally to achieve shared objectives.



# Recent Natural Resources Documents On DENIX

Reports, Fact Sheets, Photos, Videos



## [Fact Sheet: Assessing the value of Department of Defense lands in Alaska to a declining species, the Rusty Blackbird:](#)

(Legacy 07-337). The goals of the project were to evaluate the value of military installations in Alaska to breeding Rusty Blackbirds by determining habitats with high breeding occurrence, nest abundance, and reproductive success. Also evaluated were the incidence of disease, parasites, and contaminants within the population. Visit <https://www.denix.osd.mil/portal/page/portal/denix/environment/NR/conservation/Wildlife>.

**Poster: Assessing BASH Risk of Breeding and Migrating Osprey:** (Legacy 06-292): this poster summarizes the purpose, methods and first year's result of this project which tracks osprey from Langley AFB, VA with the ultimate goal to reduce Bird Air Strike Hazard (BASH). This poster was presented at the 2007 SMR Conference in Orlando, Florida. Visit <https://www.denix.osd.mil/portal/page/portal/denix/environment/NR/conservation/Wildlife> for download.

**Presentation: Breeding habitat use and reproductive ecology of Rusty Blackbirds in New England and Alaska:** (Legacy 07-337): This presentation details the goals methods and findings of a study on the decline of the Rusty Blackbird. Visit <https://www.denix.osd.mil/portal/page/portal/denix/environment/NR/conservation/Wildlife>.

**Quantifying impacts of ground water withdrawal on avian communities in desert riparian woodlands of the southwestern U.S.:** (Legacy 07-290): Assess the value of riparian woodlands to the health and persistence of avian communities in the desert southwest. Quantify the extent to which both surface water and the health of riparian vegetation influence the abundance and diversity of riparian birds, and develop models to allow resource managers on military lands to better predict the effects of future ground water withdrawal and surface water depletion on riparian bird communities along the San Pedro River and elsewhere in the southwestern U.S. For the fact sheet and report visit <https://www.denix.osd.mil/portal/page/portal/denix/environment/NR/conservation/Wildlife>

**PowerPoint Presentation: Migratory Linkages of Burrowing Owls on DoD installations and adjacent lands:** (Legacy 5-243): This 13 slide presentation presents the hypothesis that this species is redistributing populations in the southwest rather than declining and outlines the methods that will be employed during the course of the project to gather data to corroborate or disprove this hypothesis. <https://www.denix.osd.mil/portal/page/portal/denix/environment/NR/conservation/Wildlife>

**Migratory linkages of Burrowing Owls on DoD installations and adjacent lands, April 2006 Report:** (Legacy 05-243 & 06-243): this report details progress during 2005-2006 on project that seeks to locate Burrowing Owl nests on Department of Defense installations throughout the western U.S., determine the migratory linkages and connectivity of Burrowing Owl populations on DoD installations and adjacent lands, Determine where Burrowing Owls nesting on DoD installations and adjacent lands spend the winter, and estimate the extent to which individual owls move among populations, both among DoD installations and between DoD installations and lands managed by other entities. Visit <https://www.denix.osd.mil/portal/page/portal/denix/environment/NR/conservation/Wildlife>

**Multi-species Management Using Modeling and Decision Theory Applications to Integrated Natural Resources Management Planning:** (Legacy 5-263): This report aims to familiarize DoD natural resource managers with the potential of a decision theoretic approach using population models to address competing demands and consequent trade-offs in natural resources management and to provide recommendations as to how to go about it. Includes a very user friendly and useful appendix. For a copy of the report or the fact sheet visit: <https://www.denix.osd.mil/portal/page/portal/denix/environment/NR/conservation/PlanningToolsHandbooksGuidelines>

**A Rapid Assessment of the Non-native Plant Sericea Lespedeza (*Lespedeza cuneata*) for U.S. Department of Defense Legacy Resource Management Program:** (Legacy 03-179): This project's goal was to identify the best management practices to reduce the invasion and potential for invasion of native, high quality plant communities by the pervasive non-native plant Sericea lespedeza. This report details the infestation assessments made in and adjacent to high quality natural areas at the Cherokee Prairie – Fort Chaffee conservation site in the Ouachita

ecoregion of Arkansas. A control methodology was developed and tested and recommendations were formulated. Posted at: <https://www.denix.osd.mil/portal/page/portal/denix/environment/NR/conservation/invasives>

**Keys in Controlling the Non-native Plant Sericea Lespedeza (*Lespedeza cuneata*) Mini poster:** (Legacy 03-179): this handy poster details the most effective steps to take to combat this invasive species depending on the differing levels of infestation. Visit <https://www.denix.osd.mil/portal/page/portal/denix/environment/NR/conservation/invasives>.

**Fact Sheet: The North Carolina Sandhills Weed Management Area: Sharing DoD Invasive Plant Species Management Strategies with Installation Neighbors:** (Legacy 07-334): Summarizes the objectives and accomplishments of this project to assist NCSWMA implementing regional invasive plant management strategies at Fort Bragg and Camp Mackall, North Carolina. **NC Sandhills Weed Management Area's LEAST WANTED:** (Legacy 07-334): outreach poster depicting and describing the top 5 least wanted invasive plant species for the WMA. And **Bad Neighbors: Invasive Species: Impacts on the Environment Invasive Species?:** (Legacy 07-334) outreach flyer that explains the impact of invasive species, gives some examples and what the general public can do to help control the spread of problematic non-native invasive plants. Find this Legacy project related reports and fact sheets posted at: <https://www.denix.osd.mil/portal/page/portal/denix/environment/NR/conservation/invasives>.

**Prairie and Oak Woodland Habitats and Associated Rare Species on Whidbey Island :** (Legacy 06-213) In support of Legacy Project: Strategy for the Cooperative Recovery of Rare Species Affecting Training Ranges (with the primary objective to preclude the need for listing of species under the ESA of federal candidate species that occur on the grasslands of Fort Lewis and McChord Air Force Base by promoting cooperative ecosystem recovery) this report identifies several sites that have restoration potential, either as prairie ecosystems or as habitat for rare plant and animal species on Whidbey Island. Located in western Washington State about thirty miles north of Seattle, this is the largest island in Puget Sound, which extends in a north-south direction for nearly 40 miles and ranges from 1 to 10 miles wide. Each site is placed in category that is ranked as high, middle or low priority for conservation actions. And **Conservation Resources for Prairie and Oak Woodland Landowners Brochure:** In support of Legacy Project: Strategy for the Cooperative Recovery of Rare Species Affecting Training Ranges (with the primary objective to preclude the need for listing of species under the ESA of federal candidate species that occur on the grasslands of Fort Lewis and McChord Air Force Base by promoting cooperative ecosystem recovery) this brochure gives valuable information to the public regarding conservation of prairies in the pacific northwest and incentives available for conservation efforts. Find this Legacy project related reports and brochure posted at: <https://www.denix.osd.mil/portal/page/portal/denix/environment/NR/conservation/VegetationHabitat>

**Fact Sheet: Strategy for the Cooperative Recovery of Rare Species Affecting Training Ranges:** (Legacy 06-213) Posted at: <https://www.denix.osd.mil/portal/page/portal/denix/environment/NR/conservation/EndangeredSpecies>

**Department of Defense Strategy to Support a Multi-Agency Bat Conservation Initiative within the State of Utah-2007:** Report (7-346): This report details how this project has consolidated the majority of known collected bat data in the state of Utah. A web-based geodatabase has been created to allow entry, storage, and queries of old, new and future data for any and all contributing partners and land managers. U.S. Army Dugway Proving Ground (DPG) and the UDWR led this effort – coordinating with the Utah Bat Conservation Cooperative (UBCC) that consists of 14 other federal, state and private stakeholders – to expand the current bat knowledge in the state from just over 2,300 records to over 21,000 bat records, a 900% increase. Includes a numerous appendices including a Bat key, maps, inventory, and more. And **Fact Sheet: DoD Strategy to Support A Multi-Agency Bat Conservation Initiative Within the State of Utah:** (Legacy 7-346) Find this Legacy project related reports and fact sheets posted at: <https://www.denix.osd.mil/portal/page/portal/denix/environment/NR/conservation/Wildlife>

**Schofield Barracks, continued from page 1**

The 53-person OANRP staff works to conserve 73 federally-listed endangered species on the Island of Oahu. To accomplish this, field crews are often transported by helicopter to access remote work sites. They rely on spiked boots, rappelling gear and an arsenal of hand tools to control threats to the species they have been hired to protect, such as invasive weeds, feral pigs and rats.

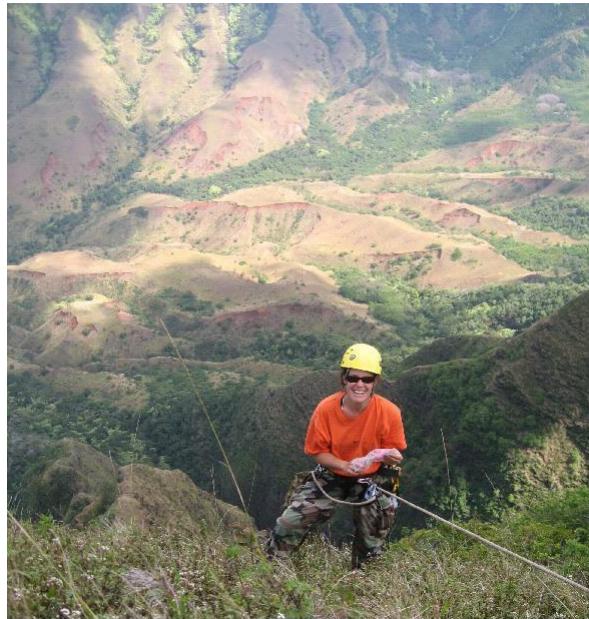
Of the 73 endangered species managed by OANRP, 63 are plant species, the majority found only on the Island of Oahu. Field crews often return to base with propagules (any part of a plant that can be used to grow a new plant, such as seeds or cuttings) from these plants in tow.

The OANRP horticulture staff maintains three greenhouses where these propagules are nurtured into new plants, which will be returned to the wild to help bolster population numbers, or are stored to preserve genetic material.

By preserving genetic material, such as seeds, the OANRP has been able to save two endangered plants – a lobelia and a mint – from extinction. Rat and pig damage to these plants eliminated them from the wild; however, using stored seeds, both plants have been successfully re-introduced in the wild.



Matt Keir (right), OANRP Rare Plant Program Manager, and Mike Walker (left), OANRP Natural Resource Management Coordinator, visit Loulu palms in Makua Military Reservation to monitor their health.



Kapua Kawelo, OANRP Biologist, rappels into Makua Valley to collect seeds from endangered cliff-dwelling plants.

Fences constructed by the OANRP on the spines of narrow mountain ridges keep pigs and goats from destroying native plants. The endangered Loulu, Oahu's only native palm, grows along these ridgelines and is managed by the OANRP. In 1999, the Loulu was on the brink of extinction, with only one fruit and no seedlings found at the Army's Makua Military Reservation. With the help of fence construction and management, there are now more than 600 Loulu seedlings growing on Makua's mountain ridges.

In addition to the extreme mountain work, the OANRP collaborates with others to stabilize the 73 listed species by providing funds to partners, researchers and graduate students. These partnerships span from local to federal levels, including the State of Hawaii Division of Forestry and Wildlife, the University of Hawaii, The Nature Conservancy, Lyon Arboretum, Natural Resources Conservation Service, Oahu Fire Council, and private landowners.

Through such cooperative efforts, the OANRP has helped fund and pioneer new techniques for endangered plant propagation; has rediscovered a rare tree snail thought to be extinct for 20 years; and has helped respond when wildfire threatened endangered plant populations.

Work doesn't end on the weekends, though. Outreach staff hosts weekly volunteer service trips at accessible work sites where the general public, local school groups, or clubs can give back to the land by helping weed invasive plants

or out-planting native plants. Locally, OANRP shares natural resource information with the community through monthly school presentations and participation in public events.

While the USFWS's 2008 Military Conservation Partner Award brings national attention to the OANRP efforts, there's a local significance, as well.

"[We] appreciate the recognition, but more importantly we're excited to have the chance to heighten awareness about Oahu's unique endangered species," said biologist Kapua Kawelo, summing up the sentiments of the entire OANRP staff.



Achatinella bulimoides, a species of Oahu tree snail, was thought to be extinct prior to a recent OANRP-funded survey.

## Natural Resources Conservation Supports the Military Mission

By Kyra Wiens  
Booz Allan Hamilton

DoD's primary mission is to test, train, and prepare for combat and emergency actions. To achieve that mission, the military requires natural environments that reflect conditions in which warfighters may face combat operations. As a result, sustaining robust and functioning natural systems on installations is not a luxury, but rather an imperative.

DoD relies on these biodiverse ecosystems to provide many services. Biodiverse ecosystems are resilient to impacts from DoD activities and other stresses (such as drought and invasive species); to provide ecosystem services (such as water filtration and carbon sequestration); to provide high quality recreational activities (such as hunting and fishing); and to protect imperiled species (as required by federal law).

While not every initiative to manage natural assets need support the mission, no initiative should harm the mission. To protect endangered species, trainers may instruct units to pretend that restricted training areas are mine fields or holy grounds. In some cases, however, workarounds can result in significant costs and delays. The successful management of threatened and endangered species on an installation can reduce restrictions, opening up more land to military use.

Integrated Natural Resource Management Plans (INRMPs) and the Legacy Resource Management Program are important conservation tools. INRMPs, required by the Sikes Improvement Act, allow DoD installations to manage their natural resources at a landscape-level in coordination with various stakeholders, in particular states and the U.S. Fish and Wildlife Service. Legacy directly funds military installation personnel to protect, preserve, and enhance the vast natural and cultural resources with which DoD is entrusted.

The costs of not managing natural resources can be high and escalate quickly. At Fort Hunter Liggett in California, for example, the six-foot tall yellow star-thistle, replete with thorns as long as two inches, took over sections of the base used for paratrooper training. During the pre-exercise site check, the infestation was discovered and the training cancelled. An off-base landing site was identified and secured and, a few days later, the exercise proceeded. In the end, the work-around was successful but resulted in costly delays.

To maintain readiness, DoD must protect the nation's valuable, and increasingly scarce, natural resources. The impacts on habitats of training and testing, as well as high habitat restoration costs after training impacts or non-native



At Fort Hunter Liggett in California, for example, the six-foot tall yellow star-thistle, replete with thorns as long as two inches, took over sections of the base used for paratrooper training.

species invasion, can be lessened through informed decision-making based on the principles of conservation biology. In sustaining the bald eagle, the western deserts, and the Chesapeake watershed, DoD also protects the foundation of America's natural heritage.

### Case study: Camp Pendleton

Camp Pendleton, in southern California, exemplifies a base with varied terrain that, with strategic planning, is meeting both its military and conservation missions.

Camp Pendleton covers 125,000 acres, from beach landings to inland training ranges and airspace, and offers maximum flexibility for Service units that require a realistic combat training environment. Each year more than 40,000 active-duty and 26,000 reserve military personnel from all Services use Camp Pendleton's many ranges and training facilities to sharpen their combat skills.

Camp Pendleton spans almost 17 miles of the only undeveloped coastline between Los Angeles and San Diego. This coastline is valuable to the military mission as a location for major amphibious training exercises. And yet Marine combat units use only nine miles of the beach for training. A further six or seven miles are restricted due to endangered species, including the endangered California least tern, a bird species highly threatened by beach encroachment.

Because the rest of southern California's coastline is heavily developed, the least tern population depends on this protected beach to maintain its largest nesting colony in the State. By taking measures to protect the terns – such as closing the beach during nesting season, marking nests, and hand moving them if they are in danger of being washed out by high tide – Camp Pendleton complies with federal Endangered Species Act mandates. The mandates simultaneously ensure that Camp Pendleton's training mission can continue without the added access limitations that would result if the beach were designated as critical habitat.



Kauai, Hawaii; Marines of the 3rd amphibious assault battalion based out of Camp Pendleton, Calif. maneuver their Amphibious Assault Vehicles (AAV's) around the beach during a training exercise at the Pacific Missile Range Facility. U.S. Navy Photo by Photographers Mate 2nd Class Prince A. Hughes III.

---

## Navy's poster series highlights natural resources conservation supporting the military mission

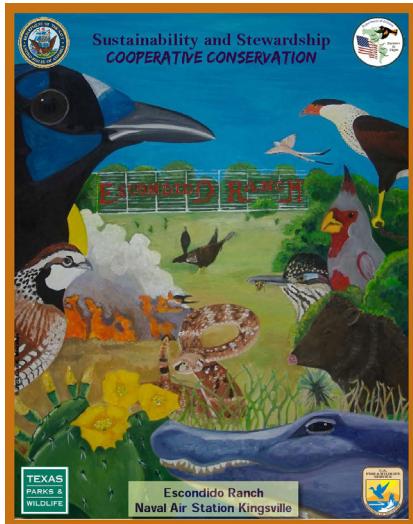
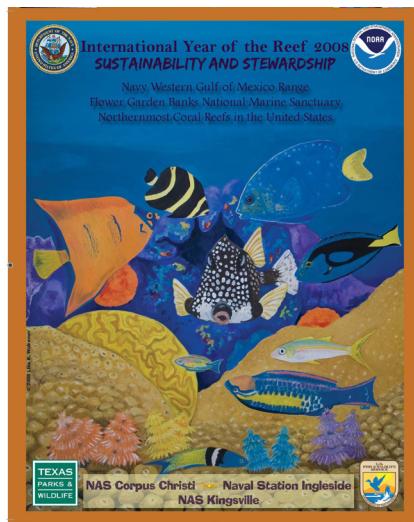
By Steve Helfert  
USFWS

### South Texas Navy Conservation Poster Project

NAS Corpus Christi and NAS Kingsville are two of the nation's busiest naval aviation training facilities. These installations are located in the highly diverse ecoregion of the South Texas Gulf Coast. Additionally, the Navy conducts surface fleet operations in the nearby waters of the Gulf at its Western Gulf of Mexico Training Range. These 4 posters highlight the diverse natural resources conservation mission of the Navy from the western Gulf of Mexico seascape to the near shore barrier islands, bay and estuary, coastal marshes, and inland wetlands, streams, grasslands, woodlands, and further interior south Texas shrub-scrublands. The Navy's South Texas Natural Resources Partnering Team commissioned these four posters as part of a public outreach message on the Navy's sustaining its mission and providing stewardship of natural resources. The first poster celebrates the 2008 International Year of the Reef, depicted by the Flower Garden Mounds coral reefs off the Texas coast. The Navy was a principal sponsor of the Year of the Reef and this poster was used nationally.

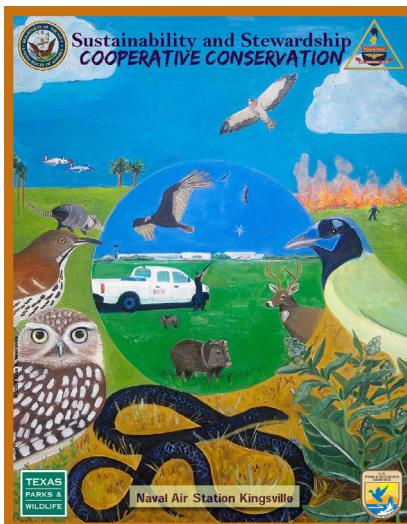
## 2008 International Year of the Reef Poster

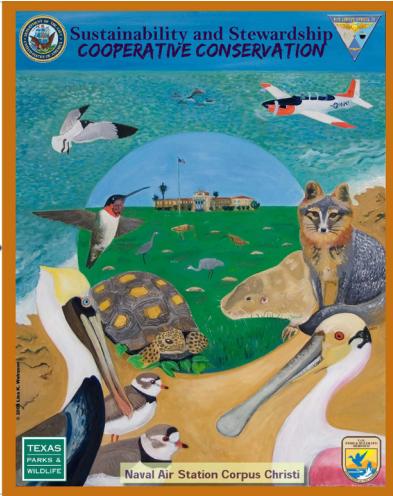
The Flower Garden Banks National Marine Sanctuary is located approximately 110 miles off the Texas and Louisiana coasts and within the Navy's Western Gulf of Mexico Range. It consists of three unique underwater communities that occur atop underwater mountains called salt domes. The East Flower Garden Bank, West Flower Garden Bank and Stetson Bank are the northernmost coral reefs in the continental U.S. and are managed by NOAA for research, education, resource protection, and recreation. Over 20 species of coral provide the basis for a complex, highly diverse ecosystem consisting of over 250 invertebrate species, 175 fish species and 80 species of marine algae. Massive boulder-shaped Star and Brain coral dominate the Flower Garden Banks while Stetson Bank consists of a more diverse sponge community. These communities are highlighted by colorful sponges, algae, Christmas tree worms and Caribbean reef fish, including the Mardi Gras wrasse.



## NAS Kingsville Poster

NAS Kingsville and NALF Orange Grove serve as jet training facilities for young Naval and Marine Corps aviators. However, it is also home to many different species of animals and the South Texas ambrosia, a federally endangered plant. Prescribed burning is often used to manage vegetation and wildlife habitat at these installations. The Bird/Animal Aircraft Strike Hazard (BASH) program plays an active role in the management of raptors and large mammals on these busy airfields. The program is based on the harassment of birds and other wildlife with pyrotechnics to discourage them from using areas adjacent to active runways.





### NAS Corpus Christi Poster

NAS Corpus Christi includes approximately 4,711 acres within the corporate city limits of Corpus Christi, Texas. The main installation lies along the southern edge of Corpus Christi Bay and is at the northern entrance to the Laguna Madre. The primary mission of NAS Corpus Christi is to serve as a center for training Navy and other service pilots. The mild climate of the area allows for good flying conditions, but also promotes a resource-rich environment, especially for avian species. With more than 240 bird species spotted in the city limits in April 2008, Corpus Christi was honored as America's Birdiest City for the fifth straight year. A federally listed species, the piping plover, utilizes the unvegetated sand flats surrounding the station, and rare species such as the Maritime pocket gopher and the state listed Texas tortoise share the largely urban habitat of NAS Corpus Christi.

## Call for Articles and Success Stories

Submit your articles and interesting stuff to *Natural Selections*



Interested in seeing your name or your installation name in print? *Natural Selections* has started two new features. First, we'd like to know what's been working well for you – other readers might find some timely hints! Send us your Success Stories, large or small. Second, we invite your contributions to our Themed Issues. This month, we are focusing on how natural resources conservation supports the mission. The themes and deadlines for the remainder of 2009 are:

Month Issue	Theme	Submission Deadline
April	Special Legacy "How To" Issue	March 30
May	Birds	April 27
June	Integrated Natural and Cultural Resources	May 26
July	Wet and Wild – Our Aquatic Resources (Freshwater)	June 29
August	SMR 2009	July 27
September	Wildlife	August 24
October	Bats	September 28
November	Plants	October 26
December	Marine Resources	November 30

## Photo of the Month

Capturing the beauty of our natural resources



February 2009 Photo of the Month Winner!  
White Sands National Monument, NM  
Submitted by *Natural Selections* reader: Paul DuBowy  
Vicksburg, MS

# Did You Know?

Little Did You Know Conservation Could Be So Much Fun!



**It's like a big wildlife opera out there! Animals can communicate with each other**— Unlike human language, animal language is not dominated by vocal signals. Animals use combinations of behavior to talk to one another. Some animals communicate using high- and low- frequency sounds, which humans cannot hear, while others communicate using light that is invisible to people. Some animals use smell to communicate with one another.

Many male insects produce sound by rubbing together certain hard parts of their bodies. Grasshoppers and crickets produce chirping sounds called stridulation to attract females. Some grasshoppers rub their hind legs across their forewings. Crickets rub the top part of their hind legs against their abdomen.

Wolves live in social groups called packs, consisting of a dominant male and female and their offspring. They communicate using body language, sounds, and scent. They use their ears, tails, and facial expressions to convey dominance and submission depending on their position in the pack. Wolves whine to greet one another, and howl to let others know they are there.

Chimpanzees greet each other by touching hands. Closely related to humans, chimps open their lips when they are afraid but keep their teeth together, rather like a forced smile. Chimps use this expression when they are approached by a chimp of higher rank. When chimps pout with their mouths slightly open, they are indicating submission to a higher-ranking chimp, possibly after a dispute of some kind. They may whimper at the same time. Young chimps open their mouth when they are playing, suggesting excitement. It is accompanied by grunts and screams. The more excited the chimps, the louder the grunts.

Many animals in the deep ocean, ranging from squid to plankton, produce shimmering light to communicate. This light is referred to as bioluminescence. Some animals produce it themselves in organs called photophores. Others have sacs of bacteria in their skin that produce light. Animals use light to find mates and food, for defense, and camouflage.

Capybaras of South America live in family groups. The dominant male has a large scent gland on the top of his nose, called a *murillo*. He rubs it on objects to mark the boundaries of his territory and to warn off intruders. The scent message remains until he returns to remark. The capybara has a unique way of communicating his mating intentions to the female. The male attracts the female by rubbing a white material he produces with his glands on a plant. The smell of the white material is what attracts the female capybara.

Elephants produce many sounds, including some that humans cannot hear. These low-frequency rumbles travel over long distances through the air and under the ground. Elephants detect the vibrations with their feet and the tip of their trunks. These sounds may explain how lone male elephants find females and how family members communicate when they are a long way from each other.

No matter where you look, body language is used everywhere! Elephants show affection by entwining their trunks, giraffes press their necks together when they are attracted to each other and gorillas stick out their tongues to show anger. So next time you are enjoying the wilderness, take a look at the sounds and visuals nature has to offer, just like if it was an opera.



Capybaras, *Hydrochoerus hydrochaeris*, is the largest living rodent in the world. It is related to agouti, chinchillas, coypillas, and guinea pigs. Its common name, derived from Kapiýva in the Guarani language, means "master of the grasses". A large scent gland on top of his nose plays a major role in this species communication.

For more information visit [www.factmonster.com](http://www.factmonster.com).

# Contact Us

Who we are and where to find us!



For further information about the Legacy Resource Management Program please contact:

L. Peter Boice  
Conservation Team Leader

Jane Mallory  
Natural Resource Management Specialist  
703-604-1774

Pedro Morales  
Natural Resource Management Specialist  
703-604-1933  
Hillori Schenker  
Cultural Resource Management Specialist  
703-604-1724

## Disclaimer

Every effort is made to provide accurate and complete information. However, with the hundreds of documents available online, often uploaded within short deadlines, we cannot guarantee that there will be no errors. With respect to documents and information referenced by means of hyperlinks on this publication, neither the U.S. Government, the U.S. Department of Defense (DoD), Plexus Scientific (website contractor) nor their employees and contractors make any warranty, expressed or implied, including the warranties of merchantability and fitness for a particular purpose with respect to documents available from Department of Defense websites, or from independent parties outside of DoD. Additionally, the U.S. Government, DoD, nor Plexus Scientific assume no legal liability for the accuracy, completeness, or usefulness of any information, product, or process disclosed herein and do not represent that use of such information, product, or process would not infringe on privately owned rights.

---

Requests to be added or removed to the *Natural Selections* distribution list may be sent to [Pedro.Morales.ctr@osd.mil](mailto:Pedro.Morales.ctr@osd.mil).

---