

Natural Selections

Department of Defense Natural Resources Program



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IN THE NEWS: PROPOSED CHANGES TO ESA

The U.S. Fish and Wildlife Service (FWS) and National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) are proposing changes intended to improve implementation of the Endangered Species Act (ESA). Guided by Executive Order 13563 (*Improving Regulation and Regulatory Review*), which tasked federal agencies to make their regulations as clear as possible, the proposed changes are designed to increase the predictability of FWS and NMFS actions related to critical habitat under the ESA.

- The **first proposed rule** (79 Federal Register [FR] 27060) revises the definition of adverse modification, since the current regulatory definition has been invalidated by the courts. The

proposed revision focuses on the FWS's review of federal actions and how their actions would affect the designated critical habitat's ability to support recovery of the listed species.

- The **second proposed rule** (79 FR 27066) clarifies the procedures and standards used for designating critical habitat. These changes should enhance the overall clarity and efficiency of the critical habitat designation process.
- The **third proposal** (79 FR 27052) is a policy designed to provide greater predictability, transparency, and consistency regarding how FWS and NMFS consider exclusions from critical habitat designations.

For comprehensive information on the proposed rules, including the notices submitted to the *Federal Register*, please visit www.fws.gov/endangered/improving_esa/reg_reform.html.

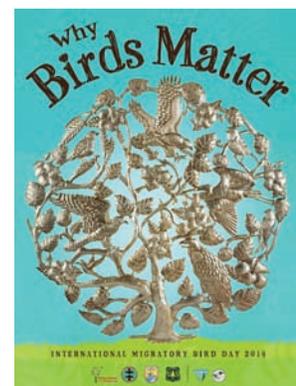
SPOTLIGHT: IMBD 2014: WHY BIRDS MATTER

By Susan Bonfield, *Environment for the Americas*

With its featherless red head and propensity for eating dead animals, the Turkey Vulture is an unlikely bird species to be featured in a celebration of birds. Yet in 2014, this vulture was a popular candidate for a place in the 2014 International Migratory Bird Day (IMBD) conservation theme, *Why Birds Matter*.

IMBD was created in 1993 by the Smithsonian Migratory Bird Center, and today it is the largest hemispheric celebration of birds. Coordinated by the non-profit organization, Environment for the Americas, and hosted at over 600 sites from Canada to Argentina, IMBD is a celebration of birds that focuses on the birds we share across borders, the factors that threaten them, and their conservation. Zoos, wildlife refuges, federal and state parks, Department of Defense (DoD) lands, museums, schools, and other organizations offer bird walks,

presentations, art programs, and much more that engage youth and adults in learning about birds, their incredible long-distance journeys, and their conservation.



Though the official date of IMBD is the second Saturday in May (May 10 in 2014), migratory birds do not follow such a rigid schedule, and IMBD events occur almost year-round, highlighting every stage of a bird's journey. Each year, IMBD sponsors, host organizations, educators, and an advisory committee select a theme that addresses a pertinent conservation

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NATURALLY SPEAKING

From the Desk of L. Peter Boice, DoD Deputy Director, Natural Resources and Director, Legacy Program



We who promote long-term stewardship of DoD's natural resources are a community - a community bound together by a common vision, by a love for the natural world, and by the friendships that we develop over years and even decades of working together.

I doubt I'm alone in having mixed emotions about the significant and seemingly increasing number

of departures we're experiencing. But rather than tend towards the maudlin, I'd like to celebrate the enduring accomplishments of three members of our community as they move on to new opportunities. All three are exemplars of the many dedicated individuals across DoD who have made, and who continue to make, lasting contributions to our nation's conservation goals.

Fred Pease, Pete Egan, and Chris Eberly came to DoD's natural resources community from widely different backgrounds, and they focused on different issues and served different constituencies. Yet, all have shared a passion for the irreplaceable resources found on our 28 million acres, and all have contributed to increasing our flexibility to use these resources sustainably.

Fred Pease was a fighter pilot before he began working to solve the complexities and conflicting interests that are common to DC politics. Like General Thomas D. White, BG Mike Lehnert, and other great leaders, Fred recognized the importance of sustaining DoD's natural resources for future generations. And, like many of us, he was informed by a life-long passion for nature.

For both Air Force-specific and broader DoD concerns, Fred repeatedly was able to identify and implement innovative compromises that met the core needs of different stakeholders. His enthusiasm and his willingness to solicit ideas from both other leaders and from junior staff, from within DoD and beyond, were hallmarks that directly contributed to his success.

Pete Egan has been synonymous with the Armed Forces Pest Management Board's natural resources program for more than 20 years. His academic training as an entomologist provided him with the skillset to evaluate complex invasive species issues ranging from brown treesnakes to feral pigs, and from cheatgrass to coconut rhinoceros beetles.

But Pete has not been an ivory tower dweller. Instead, he has focused on communicating the latest information on all things invasive throughout the DoD community, and to anyone else interested in this pervasive, costly, mission-impacting problem. Pete has been highly successful at bringing those who have pesky needs together with those who have solutions.

Chris Eberly represents the incredible value that contractors add to our community. Chris flew from the computer science world to his true passion, birds. Since then, he has been instrumental in helping DoD Partners in Flight efforts mature and grow, and has helped forge and strengthen dozens of partnerships enabling DoD to become an acknowledged leader in bird conservation. Chris also has been a forceful advocate for long-term monitoring projects across the United States and beyond. He has spearheaded DoD's participation in the President's Council for the Conservation of Migratory Birds, and has given some of the more colorful slide presentations that I've seen.

Working through a series of 17 one-year contracts, Chris has brought remarkable continuity to our bird conservation efforts. The Gulf Coast Bird Observatory is fortunate to gain Chris' expertise and enthusiasm. As their new Associate Director, he'll be able to bring his passion, energy, and enthusiasm to bear in a way that will surely make a difference.

In the end, we at DoD have been fortunate to have had these men as part of our community. Their departures - and those of other colleagues - leave huge gaps. Yet, change is inevitable and, collectively, we must continually reevaluate our needs and how best to meet them. As always, I invite you to send your thoughts on how to meet those challenges, and how to sustain the legacies left by recent departures from our installations.

It has been my great pleasure to work with Fred, Pete, and Chris. I consider them both professional colleagues and friends. On behalf of our entire community, I wish them clear skies and smooth sailing, and trust that as lifetime members of our Natural Resources community that our paths will cross again.

A sad postscript - As we were going to press, I learned of the recent passing of Doc Bailey, long-time natural resources stalwart at Aberdeen Proving Ground. I first met Doc in the late 80s - APG was one of the first Chesapeake Bay installations that I visited. I learned a lot over the years from Doc - he was quiet spoken, but someone from whom I always learned something new. I had hoped to see him again in a few months - he will be missed.

SPOTLIGHT (CONTINUED)

issue. *Why Birds Matter* recognizes the many services that birds provide to humans and nature, from pollination and the dispersal of seeds, to the control of small mammals and insects, to the Turkey Vulture's role as nature's clean-up crew.

IMBD's annual theme is shared through art, which spotlights the birds selected to represent the theme and highlights IMBD's conservation issues and messages. The 2014 IMBD artwork was the first to be created by a Caribbean artist and the first sculpture. Haitian artist Elias St. Louis of the Haiti Gallery in Port-au-Prince designed a 34-inch sculpture from a steel drum, hammering by hand the details of the nine bird species selected to represent the theme, *Why Birds Matter*. The Yellow Warbler, American Robin, Turkey Vulture, Peregrine Falcon, Red-tailed Hawk, Great Egret, Barn Swallow, and Broad-tailed and Ruby-throated hummingbirds are featured in a traditional Haitian "Tree of Life" design. Once shipped to the U.S., the art was photographed and its image used to embellish the annual poster, education materials, and t-shirt, as well as web-based information and social media.

If you are not involved in IMBD now, we invite you to join us and to motivate others in your organization to become active partners. For more information, please visit our website at www.birdday.org, or contact us at 866-334-3330 or sbonfield@birdday.org.

AVIAN CONSERVATION PROGRAMS AT PMRF NET AWARDS

By Stefan Alford, Public Affairs Officer, Pacific Missile Range Facility

The annual Secretary of the Navy's Environmental Award for Natural Resources Conservation Program recently selected the Pacific Missile Range Facility (PMRF) on Kauai, Hawaii, as the winner in the small installation category for fiscal year (FY) 2013, in large part for two avian conservation programs.

The award comes on the heels of the Chief of Naval Operations Award in the same category, a certificate recognizing the base's avian conservation efforts from the Kauai County Council, and the National Military Fish and Wildlife Association's (NMFWA's) Natural Resource Conservation Management Award for Model Programs/Projects in avian conservation.



Tom Savre, PMRF Natural Resources Biologist with NAVFAC Hawaii, and Stacy VenderPol, National Institute of Standards and Technology researcher from South Carolina, examine Laysan Albatross eggs during an "egg swap" in January 2014 on Kauai's north shore. The annual egg relocation places viable eggs collected at PMRF with albatross that are nesting on eggs determined to be non-hatchable. PMRF donates approximately 40 viable eggs per year to various private properties participating in the program, such as Na Aina Kai Botanical Gardens, which received the latest batch. Source: US Navy Photo by Stefan Alford/Released

The two avian programs contributing to the installation's overall success in the environmental arena are the Laysan albatross relocation and egg swap initiative for these large sea birds protected under the Migratory Bird Treaty Act and for efforts to modify exterior lighting to reduce the fallout of nocturnal fledging migratory seabirds protected under the Endangered Species Act (ESA).

"(These are) two extraordinary avian conservation programs that truly enhance the mission and lead the way within the conservation community on Kauai," said Cory Campora, Naval Facilities Hawaii and Navy Region Hawaii Natural Resources Manager.

John Burger, PMRF's range complex sustainment coordinator, was recognized by NMFWA for spearheading both initiatives, but feels they are more of a reflection of PMRF's efforts than his own. "Considering the strong conservation ethic on Kauai, being able to show the community that PMRF and the Navy share that commitment in deeds, not just words, helps establish that PMRF is 'our' base and not just 'the' base," said Burger.

Laysan Albatross Relocation and Egg Swap

One of Burger's efforts has led to significant benefits for the Laysan albatross. During their breeding season, the Laysan frequently choose areas near the PMRF airfield as nesting sites, creating a Bird Aircraft Strike Hazard (BASH) risk.



Lindsay Young, Pacific Rim Conservation Biologist, places a "good" egg donated from PMRF under an adult Laysan albatross nesting at Na Aina Kai Botanical Garden's fenced albatross nesting area. Source: US Navy Photo by Stefan Alford/Released

"Just removing adult birds is ineffective because they quickly return to the base, so the only effective solution is to prevent new birds from hatching and imprinting on the base as a breeding location," explained Campora.

Burger worked with various wildlife services agencies and initiated a project to relocate the Laysan eggs laid on the base to the north shore, thereby discouraging nesters and reducing the number of albatross imprinted on the base for breeding. The albatross project is now in its ninth year and has so far saved hundreds of Laysan eggs from being destroyed, as well as increasing the species' overall productivity on the island and allowing PMRF to maintain its mission capabilities.

Nocturnal Fledging Seabird Program

The other avian program benefits federally listed endangered nocturnal fledging Newell's shearwater during night-time base operations. Some species of endangered ESA-listed seabirds fly over PMRF at night during their breeding season and may

become disoriented by lighting on the base. Fledglings of these species are at risk due to their lack of navigation experience. As they leave their nests and pass over the base toward the Pacific Ocean for the first time, they can easily become confused by artificial lighting and fallout either from exhaustion or from collision with a base structure, sometimes with lethal consequences.



Example of the energy-efficient green lights used to help nocturnal fledgling seabirds. Source: Courtesy photo

PMRF's dark-sky philosophy minimizes the number of nocturnal-fledging seabird "takes" resulting from fall-out, with energy-efficient green lighting and recessed lighting. In fact, the 2013 season resulted in zero bird fall-outs for the first time at PMRF.

EGLIN AFB DEVELOPS FIRST-EVER PROGRAMMATIC CONSULTATION FOR THE RED-COCKADED WOODPECKER

By Mike Spaits, Team Eglin Public Affairs

In 2013, Eglin Air Force Base (AFB)'s Natural Resources Team, winner of the 2014 Secretary of Defense Environmental Award for Natural Resources Conservation, completed the first-ever programmatic consultation with the U.S. Fish and Wildlife Service for the Red-Cockaded woodpecker (RCW). The ground breaking, one-of-a-kind programmatic consultation covers all actions taken on Eglin AFB property that may affect RCWs now and in the future.

This programmatic consultation resulted in a "blanket take" being assigned to the installation based on the RCW population size. This means that no further consultation will be required as long as the population remains above the recovery goal of 350 potential breeding groups (PBGs) on Base. The current RCW population is 432 PBGs, which represents an increase of more than 10% since 2010 and a 134% increase since the baseline population was established in 1994. The current population is only 18 groups away from the Eglin AFB ultimate mission flexibility goal of 450 PBGs. Based on previous years' numbers of proposed actions/consultations on RCWs, Eglin AFB's Natural Resources Team estimates the programmatic agreement will save 405 days of potential mission/construction delays annually.

VALIDATION AND INTEGRATION OF NETWORKED AVIAN RADARS

By Marissa Brand, Space and Naval Warfare Systems Command

Background and Objective

Military bases and ranges have become refuges for birds and other wildlife as encroachment has turned once-rural military facilities into islands of habitat diversity surrounded by seas of urbanization. This trend has increased the military's already significant role as stewards of its environment, and is straining the ability of natural resource managers to protect the wildlife while ensuring that the military can prepare and train for its primary missions. In parallel, the hazards and costs from bird strikes have increased markedly along with public awareness since the crash of U.S. Airways Flight #1549 into the Hudson River on January 15, 2009. Consequently, resource managers need better tools, such as digital avian radars, to aid them in their efforts. The Environmental Security Technology Certification Program (ESTCP) funded the Integration and Validation of Avian Radars (IVAR) project to determine whether commercial off-the-shelf digital avian radar technology can provide useful and accurate data on bird movements in real-world operational environments at military facilities.

Method

The IVAR team established six performance objectives with 38 metrics and criteria to test digital avian radar systems built by Accipiter Radar Technologies, Inc. (ARTI). They conducted demonstration and validation studies at seven DoD military locations (Marine Corps Air Station Cherry Point, NC; Naval Air Station [NAS] Patuxent River, MD; NAS Whidbey Island, WA; Elmendorf Air Force Base, AK; Seattle-Tacoma International Airport, WA; Edisto Island, SC; and ARTI, Ontario, CAN). More than 1,500 targets were tracked automatically and confirmed as birds by on-the-ground observers. Thermal imaging was also used to confirm that the targets tracked by the radar at night were birds.

Results

The systems can stream these target data in real time across both local- and wide-area networks with a high degree of reliability for storage and/or redistribution to other sites. The demonstration proved that the avian radar systems could track birds, unattended:

- in real time,
- in 3 dimensions (3-D),
- over a range of 0-11 kilometers (km),
- up to altitudes of 1 km,
- through a complete 360° field-of-view, and
- continuously: 24 hours a day, 7 days a week for years.

Additionally, the radar systems were able to track more than 100 targets simultaneously, detect 50 times more birds than human observers using conventional visual methods, and record many parameters (e.g., time, location, speed, heading) for each tracked target.

Application

This data can be displayed on maps, used to generate graphs of bird activity patterns in both time and space, and used



Radar record showing flocks of Black-bellied plovers (*Pluvialis squatarola*) and close call with EA-6B Prowler aircraft at NAS Whidbey Island, WA. Source: Brand, et al. 2011

to activate user-defined alerts to resource managers and air operations personnel when birds enter a critical airspace in specified densities, altitudes, or directions of flight. The avian radar systems can combine the tracks from two or more radars into an integrated display that increases situational awareness for the operators, and can fuse the tracks of targets in those areas where the radar beams overlap into common tracks that increase continuity across the common operational picture.

Benefit

Project results are extremely valuable to the scientific community at large, and to the natural resources, conservation, and Bird/Wildlife Aircraft Strike Hazard communities in particular. A record of the validation protocols used, the methods employed, and the scientific results obtained from these validation activities will be one of the most important contributions of the project, once published in open, peer-reviewed literature. This research will help to justify more widespread use of these radars, which will result in safer flying conditions and reduced damage to Navy and Marine Corps aircraft. The final report along with the cost and proposal report and function specifications report are located on the [ESTCP website](#).

WHAT'S HOPPIN' IN DOD PARC

By Chris E. Petersen, DoD PARC Program Manager

Robert E. Lovich, PhD, DoD PARC Program Director



Over the last four years, DoD has enhanced its amphibian and reptile conservation efforts, collectively known as DoD Partners in Amphibian and Reptile Conservation (PARC). Modeled on the highly successful DoD Partners in Flight (PIF) structure, DoD PARC has actively collaborated with internal and

external partners to help ensure that DoD manages its herpetofauna to the best of its abilities, and in ways that enable and sustain mission flexibility. Below is a brief look back at some of the more memorable milestones in collaboration. We are thankful to all of you who have contributed to the success of DoD PARC, and ask that you take a moment to thank DoD's PIF

participants for forging the path to vital partnerships, and helping serve as a role model for DoD's conservation leadership.

- In 2010, DoD PARC held the first of two workshops to develop a draft Strategic Plan. These workshops involved DoD's bird conservation program senior leadership, without whom DoD PARC would have never come to fruition.
- In 2011, DoD PARC was invited to present at The Wildlife Society's meeting in Portland, Oregon, at a symposium organized by the Military Lands Working Group. DoD's herpetofauna and bird conservation efforts figured prominently in the talks given, and the overall success of the national symposium. Together, these presentations enhanced the audience's understanding of natural resource management and conservation on military lands, and how those efforts are crucial to supporting military readiness.
- In 2013, DoD PARC developed a photo website (<http://dodparcphotolibrary.shutterfly.com>). This site proved successful enough that, thanks to the Navy and its site manager, Paul Block, the DoD Natural Resources Program developed its own photo website (<https://dodnaturalresourceslibrary.shutterfly.com>), which has links to the herpetofauna site and a newly-established bird site as well.
- Also in 2013, DoD PARC teamed with DoD PIF to update their quantitative review criteria, and developed a common set of evaluation criteria for reviewing DoD Legacy Program pre-proposals and full proposals. Providing objective, quantitatively based subject matter expert inputs is a huge benefit to the Legacy Review Committees, which rely on these evaluations to understand the broader context for proposed project needs, expenditures, and outputs.
- Lastly, and also in 2013, DoD PARC began sponsoring online lectures using Defense Connect Online (DCO). The purpose of the online lectures is to learn about ongoing research, monitoring, and management projects being conducted on military lands. The webinars were so successful that they've also been adopted by other DoD conservation groups. The bird community has begun its own series of DoD PIF webinars.



Common Garter Snake observed on Naval Radio Station Jim Creek, WA. Source: Paul Block

In looking ahead, those of us who participate in the DoD PARC network recognize the significance and importance of partnerships. We recognize the important contributions of ornithologists in establishing one of the most successful natural resource hobbies in the world, birding. The sheer numbers of people who take part in this hobby have created an interest in the natural world that is without precedent in society. Herpetologists and those other biological sub-disciplines have been the indirect benefactors of this interest. We look forward to many more years of collaborative efforts with our partners at all levels of DoD, from headquarters to field level; from birders to pest managers. Together, we will achieve great things!

MULTIFACETED GOLDEN EAGLE RESEARCH IN UTAH'S WEST DESERT HELPS CLOSE KNOWLEDGE GAPS

By Steve Slater, PhD, HawkWatch International Conservation Science Director and Robert Knight, USAG Dugway Natural Resources Program Manager

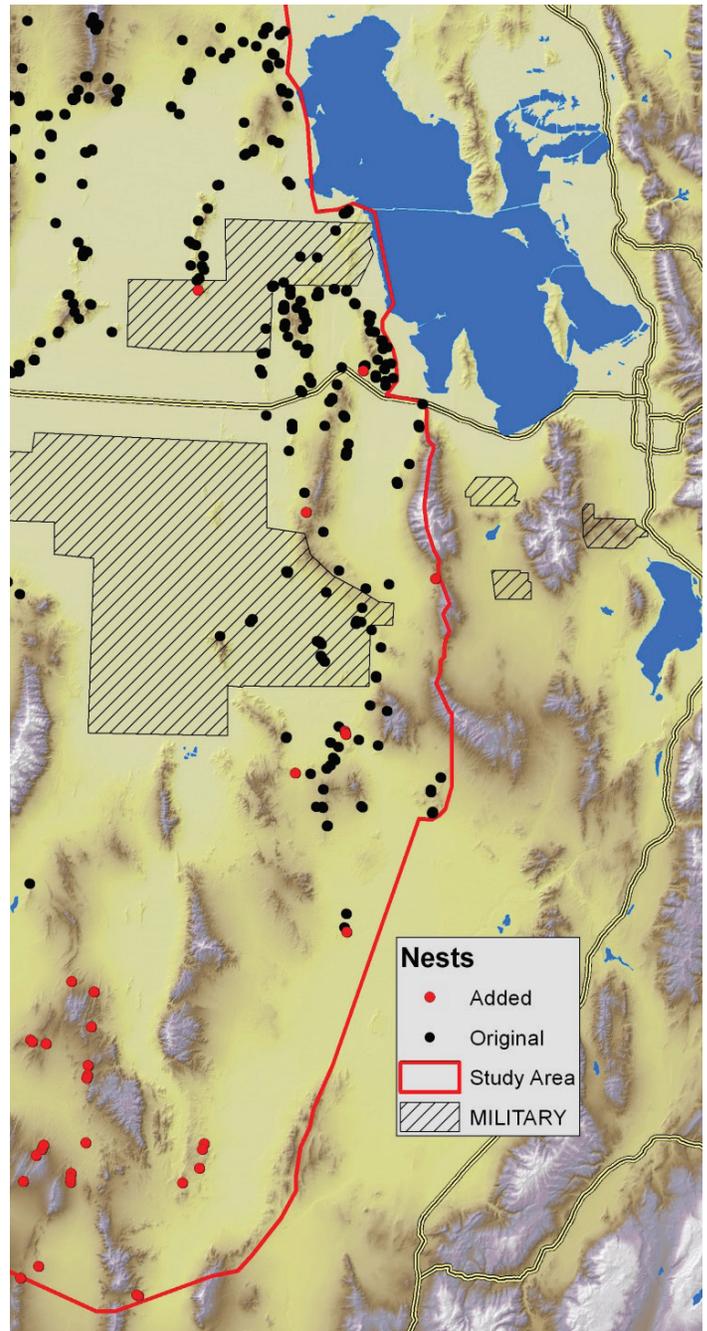
U.S. Army Dugway Proving Ground, Hill Air Force Base Utah Test and Training Range, and large swaths of public land managed by the Bureau of Land Management (BLM) are in the rugged and harsh Great Basin landscape of Utah's West Desert. Unfortunately, like much of the Great Basin, invasive cheatgrass has led to regular fires and shrub loss, "cheating" local wildlife out of the native habitats upon which they depend. With funding from the DoD Legacy Program, in 2010 DoD, BLM, U.S. Fish and Wildlife Service (FWS), Utah Division of Wildlife Resources, raptor non-profit organizations HawkWatch and Raptor Inventory Nest Survey (RINS), and renowned local eagle expert/citizen scientist Kent Keller formed a partnership ("the Partnership") to investigate the status of West Desert golden eagles. Specifically, the Partnership was interested in determining the golden eagles' response to habitat changes and to mitigate any negative impacts from the regular fires, if possible.

The project has evolved over the past four years as the partners collected and analyzed new data. Initially, the Partnership set out to relate historic nest data collected by each of the partners to past fire and cheatgrass expansion. The Partnership collected data on golden eagle nest attendance, feathers from nests for genetic analysis, and data on small mammal and rabbit prey abundance in areas of varying cheatgrass cover. The data revealed:

- Golden eagle nesting activity has declined by 50% since 2007, coinciding with widespread fire and shrub loss and remains depressed.

- Long-term nest activity decreased as the number of fires increased and shrub cover decreased within territories.
- Small mammal abundance (prey) was negatively impacted by the wildfire and loss of cheatgrass cover. For example, few jackrabbits, in remnant greasewood patches, were observed during the study period.
- Eagle nestling band recoveries and genetic data suggested there was low gene flow out of the area, or little eagle migration.

Using this data, the Partnership created models that identified sites within the study area considered "low risk" for cheatgrass invasion and with high nesting potential. Also, they identified golden eagle territories, dubbed "super producers," that



Known golden eagle nests in western Utah study area, showing historic and newly found occupied nests in predicted under-surveyed habitat. Source: HawkWatch

appeared to fledge young regularly across years, despite being near other territories that were not as productive. These territories are held by more experienced adult birds that have found a way to adapt in the difficult landscape. The partners are working to garner additional protections for these critical sites. Additionally, the partners created an improved nest survey manual, citizen science cookbook, and a set of management recommendations for West Desert golden eagles. One of the recommendations—the formation of a Utah eagle working group—has already been realized.



Eagle nestling being fitted with a GPS unit in Utah's West Desert. Source: Mike Shaw, HawkWatch Board

The last phase of the Partnership's research is using global positioning system (GPS) units on golden eagles to collect hourly location data to help assess nestling eagle survival and movement ecology. Although past research has yielded a better understanding of adult breeding activity in the area, post-fledgling recruitment to breeding age (i.e., year four or five) remains a missing piece of the local demographic puzzle.

To gather this information, in 2013, the Partnership deployed 19 GPS units on golden eagle nestlings a few weeks prior to

fledging. First year survival has been low (37%) and is apparently related to earlier dispersal from the natal area (movement of the young after they leave the nest). The story will continue to unfold over the more than three-year lifespan of the GPS units, but

these birds have already generated 30,000 location "fixes" and are contributing to a multi-partner survival analysis led by the FWS. This is a Legacy project with a legacy that will continue well beyond the project's lifespan!

STEPPINGSTONES CORNER: VIEW FROM THE EYRIE ADAPTIVE MANAGEMENT IN ACTION

By Chris Eberly, DoD Bird Conservation and Partners in Flight Technical Representative, and Rich Fischer, US Army ERDC and DoD PIF Research and Monitoring Working Group



The DoD Partners in Flight (PIF) program has many partners and moving pieces that require significant coordination. After almost 17 years of coordinating DoD PIF activities, Chris Eberly is migrating to Texas to take the helm at the Gulf Coast Bird Observatory, effective September 1, 2014. In the spirit of

adaptive management, Rich Fischer, U.S. Army Engineer Research and Development Center, Environmental Lab (ERDC-EL), will be taking on coordination of several key DoD PIF tasks. This will help ensure a seamless transition.

Rich has been a part of the DoD PIF network almost as long as Chris. As a research wildlife biologist for ERDC-EL, he is well-versed in avian conservation, research, and monitoring. Rich has collaborated with other prominent bird researchers within and outside of DoD on projects funded through Strategic Environmental Research and Development Program/ Environmental Security Technology Certification Program (SERDP/ ESTCP) (see <http://dodpif.org/involved/webinars.php> for Rich's



ARE YOU LOOKING FOR NATURAL RESOURCES PHOTOS FOR YOUR REPORTS OR PRESENTATIONS?

Look no further because there are now THREE photo libraries for your use! All of the sites are designed to share pictures, news, information, and ideas with the DoD Natural Resources, DoD PARC, and DoD PIF communities. We have created a freely accessible archive of photographs for DoD biologists and environmental planners for Integrated Natural Resources Management Plans (INRMPs), reports, publications, informational posters and brochures. It also provides an avenue for information sharing and connecting with other DoD biologists and planners.

Established in 2013, the **DoD PARC** photo website (<http://dodparcphotolibrary.shutterfly.com>) has 200 members, contains more than 1,000 amphibian and reptile photographs, documents, and links to useful sites.



Due to its overwhelming success, **DoD Natural Resources** has created a website called *DoD Natural Resources Photo Library*. We invite you to become a member of the site. Please check it out at [http://](http://dodnaturalresourceslibrary.shutterfly.com)

dodnaturalresourceslibrary.shutterfly.com. If you would like to join, send an email to the website administrator, Paul Block (paul.block@navy.mil), or to Chris Petersen (chris.petersen@navy.mil).

Also, recently established, is the **DoD PIF photo library** (<https://dodpifphotosite.shutterfly.com/>). If you would like to join this site, please send an email to Paul.

Join all three!

If you would like to contribute materials, please email them to Paul (note there is a 12 MB size limit), and please be sure to follow the photo submission guidelines and policies located on each site's Home page under the Library tab.

presentation in the first in DoD PIF's webinar series), DoD Legacy, and U.S. Army Corps of Engineers, Rich has been instrumental in developing our avian monitoring strategy.

DoD PIF has developed many excellent tools and resources. Peter Boice and the Office of Secretary of Defense (OSD) are committed to maintaining those tools and resources to help ensure that DoD natural resources personnel have what they need to develop and inform Integrated Natural Resource Management Plans (INRMPs) and National Environmental Policy Act (NEPA) documents. Here are a few of those resources:

- **DoD PIF website** – www.dodpif.org has a wealth of information and links.
- **Listserve** – recent email address format changes resulted in many subscribers to the list being “bounced.” If you no longer receive messages, or you want to subscribe, please go to the DoD PIF website and sign up with your current email address.
- **Webinar series** – past presentations are at <http://dodpif.org/involved/webinars.php>. We are always looking for new topics to present, so send us your ideas.
- **Photo Library** – find pictures for presentations and reports, and submit your own photos. <https://dodpifphotosite.shutterstock.com>.
- **Birds of North America online species accounts** – access codes are available for each military installation for this excellent resource. Contact Rich for more information.
- **Bird Conservation on DoD Lands map** – contact your regional DoD PIF representative for hard copies.

For more information, contact Chris (ceberly@dodpif.org) or Rich (Richard.A.Fischer@usace.army.mil).

We all know that change can be difficult and that adaptive management is an iterative process that involves putting a plan into action, reviewing progress, and making the necessary adjustments. So, while we go through this adaptive process, we ask for your help and patience. Together, we can ensure that the tools and resources you need to incorporate bird conservation actions into your planning documents will always be available. After all, that is what a good partnership is all about.



The female Black-capped Vireo is the only endangered species that calls Fort Sill home. It lives in the ranges and mountains of the installation's West Range. Source: www.army.mil/article/32958/fort-sill-home-to-small-endangered-species



From Chris: One of the benefits of being in one place and doing the same job for so many years is the friendships that are formed. You – the DoD natural resources community – are among the most informed, well-educated, and fiercely dedicated people

with whom I have ever worked. You are truly the backbone for protecting the DoD training and testing missions. Without your dedication to conserving our natural resources, many of the mission activities so important to national defense could not persist. Without your humor and infectious positive attitude, this job would not have been as fun and rewarding as it has been for me. I will miss the daily interactions and time spent reconnecting during the National Military Fish and Wildlife Association (NMFWA) annual meeting. I expect to see many of you in the future and I look forward to showing you the wonders of birding the Texas coast!

THREATENED & ENDANGERED BIRDS ON DOD LANDS

By Valerie Leone, DoD Legacy Resource Management Program Support Team

The DoD manages approximately 28 million acres of military land, air, and water resources across the United States. These lands are made up of natural resources that are home to 420 federally-listed threatened and endangered species (TES). Of the 420 federally-listed TES, DoD actively invests funds to protect at least 39 TES bird species (KBCRS, 2013). Below are some success story highlights from DoD Components to show the impacts of DoD investments.

Controlled burns, cowbird trapping, and annual monitoring promoted the rebound of the endangered Black-capped Vireo (*Vireo atricapilla*) population at the Army's Fort Sill in Oklahoma (Grzybowski & Tazik, 1993). Fort Sill also established a biological agreement with the U.S. Fish and Wildlife Service (FWS) that helps the Vireo without impacting the Army's training mission. The installation uses Brown-Headed Cowbird traps to remove Cowbirds, doesn't train with heavy equipment in the mountains where the Vireo nests, and works to suppress excessive fires in the nesting area. With the Army's recovery efforts, the population rose from 17 adult birds in the 1980s to over 600 in 2010 (Lacey, 2010).

The FWS listed the San Clemente Loggerhead Shrike (*Lanius ludovicianus mearnsi*) as an endangered species in 1977. Agricultural practices, pesticides, vehicles, wildfires, invasive plants, and cowbird parasitism contributed to the decline of this bird. With only 14 birds on California's San Clemente Island in 1998, the U.S. Navy developed a program for captive breeding and controlling predators (FWS, 2009a). The Navy's effort, complemented by surveys, monitoring, and adjusting firing targets, has increased the population to 70 breeding pairs in by 2013 (Woledge, 2013).

Vandenberg Air Force Base (AFB), California, contains the largest continuous stretch (12 miles) of breeding habitat for the threatened Western Snowy Plover (*Charadrius alexandrinus nivosus*) (Vandenberg AFB, 2011). Surveillance and banding of at least half of the chicks hatched on the base began in 1994 to determine the effectiveness of Vandenberg AFB's Beach Management Plan. The Plan promotes multiple use land management by allowing for public beach use five months per year. However, predators remain the biggest threat to the Western Snowy Plover's success. Over the 20 years Vandenberg AFB has monitored the Plover, 17 to 52% of nests are lost each year to predators (specifically coyotes and crows). Vandenberg AFB's Beach Management Plan and new Predator Management Plan reduced losses from more than 50 breeding locations on the Pacific coast before 1970 to just 28 in 2013 (Robinette, Ball, Miller, & Howar, 2013).

Vandenberg AFB also includes one of three major colonies of endangered California Least Terns (*Sterna antillarum brownii*). The California Least Tern has been impacted by habitat alteration and nest site destruction by invasive plants and predation. Management in support of recovery has focused on providing secure breeding habitat and predator control. This has proven successful as the population has increased from less than 700 pairs prior to its federal listing in 1970 to more than 7,000 pairs during the 2006 breeding season. The population has remained steady, mostly due to the recovery efforts of DoD (Vandenberg AFB, Naval Base Coronado, and Marine Corps Base Camp Pendleton) where California Least Tern habitat has been protected from development and the species is actively managed (Robinette, Ball, Miller, & Howar, 2013).



Florida scrub jay. Source: Mitchell, 1997, photo by Dan Polin

The Florida Scrub Jay (*Aphelocoma coerulescens*) was listed as threatened in 1987 due to coastal habitat loss from urban development in conjunction with agriculture and silviculture. The recovery plan for this bird includes protecting, managing, and enhancing existing populations, establishing protected scrub preserves, implementing habitat management guidelines, conducting research on the species' needs, and reestablishing populations (FWS, 2009b). Some of these activities

are taking place on the conservation easement portion of the Coastal Jewel Sanctuary (funded by the DoD Readiness and Environmental Protection Integration Program) near Patrick AFB and Cape Canaveral Air Force Station.

As illustrated by these success stories, DoD is making great progress towards developing strategies and partnerships to help recover federally-listed threatened and endangered bird species.



Three young Hawaiian stilts stand in a mass of invasive pickleweed plants near Nu'upia Ponds at MCB Hawaii. Source: Todd Russell

NEW! INVASIVE SPECIES CORNER

Marine Corps Base (MCB) Hawaii, winner of the 2014 Secretary of Defense Environmental, Natural Resources Conservation, Small Installation Award, has been successfully combining Marine Corps training, invasive species control, and conservation efforts since 1982. As home to 10% of the State's population of federally endangered Hawaiian stilts (*Himantopus mexicanus knudsenii*), MCB Hawaii's Marines actively ensure aeo, or infant offspring of Hawaiian stilt, have room to grow by removing invasive pest plants (mangroves and pickleweed) that push out the birds and their food supply. Each year, just before birds begin to pair, the Combat Assault Company from 3rd Marine Regiment and the base environmental department host MudOps.

Deployed in amphibious assault vehicles (AAVs), the Marines train in the mudflats, and while they perform supervised maneuvers, clear away the invasive mangrove and pickleweed. The 26-ton vehicles open thick mats of pickleweed, improving stilt nesting and feeding opportunities while giving drivers valuable practice in unusual terrain. Their plowing action creates a checkerboard pattern of moats and islands that inhibits predator (e.g., the non-native mongoose) access to stilt eggs. It also helps newly-hatched stilts find aquatic food, such as flies, larvae, crustaceans. Stilt chicks must feed themselves from birth. MCB Hawaii's management activities and volunteer efforts have more than doubled the number of stilts counted on base from 60 to 130 during the past 20 years.



Annual MudOps training continues the legacy started by Diane Drigot, Natural Resources Manager at MCB Hawaii for more than 30 years. Source: 2014 Secretary of Defense Environmental Awards DENIX page

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Loggerhead Shrike in Armendaris, NM. Source: DoD PIF shutterfly site- Paul Block.

NATURAL RESOURCES DOCUMENTS REPORTS, FACT SHEETS, & PRESENTATIONS

Highlighted here are documents that will soon be uploaded to the Legacy Tracker or on the DENIX site. For Legacy-related products, visit https://www.dodlegacy.org/Legacy/intro/ProductsList_NU.aspx. All Legacy products are available at www.denix.osd.mil/nr.

Improved wildfire prediction using remote sensing technology on military grasslands in Hawaii (Project 11-112) – Final Report & Fact Sheet

Using freely available Terra-MODIS Enhanced Vegetation Index data, this project developed a simple method to predict real-time, site- and time-specific fuel moisture. More accurate fuel moisture prediction has the potential to greatly improve management of wildfires on DoD installations in Hawaii, as well as other tropical installations dominated by nonnative grasses.

Cultural Resource Manager's Guide to the Engineer's Energy Toolkit (Project 11-360) – Toolkit and Fact Sheet

The guidebook produced by this project provides Cultural Resource Managers with an understanding of engineers' tools and vocabulary to better communicate about historic buildings on base and during State Historic Preservation Office consultation.

Grassland Bird Productivity on Military Airfields in the Mid-Atlantic and Northeast Regions (Project 11-408) – Final Report & Fact Sheet

Military airfields have long been known to contain breeding grassland birds, but data on reproductive survival in these habitats has been limited. This is a first step in understanding whether these habitats are supporting viable self-sustaining populations or are acting as population sinks.

Habitat Use at Multiple Scales by Pinyon-Juniper Birds on Department of Defense Lands III: Landscape, Territory/Colony, and Nest Scales (Project 12-425) – Fact Sheet

This three-year study examined pinyon-juniper habitat use by two Species At Risk, Pinyon Jay and Gray Vireo, at three scales (landscape, territory/colony, nest) on three installations. Project results included GIS habitat models and management recommendations for both species with consideration to military activities and infrastructure.

Monitoring Amphibian and Reptile Populations Using Environmental DNA (Project 12-616) – Final Report & Fact Sheet

In collaboration with the Arizona Game and Fish Department, researchers developed and applied a novel and efficient method for detecting the presence of at-risk aquatic species and their aquatic invasive threats using environmental DNA collected from water samples.

DoD Early Detection Rapid Response (EDRR) Invasive Species Strike Teams-A Pilot Demonstration Year 2 (Project 13-622) – Final Report & Fact Sheet

In 2012, Legacy funded the EDRR Invasive Species Strike Team Pilot Project to begin the control of invasive species at four installations: Cherry Point, Patuxent River, Arnold Air Force Base, and Fort Detrick. This project provides evidence that EDRR is applicable beyond the installations chosen for the pilot project.

UPCOMING EVENTS CONFERENCES, WORKSHOPS, AND TRAINING

CHECK IT OUT! Most of the National Military Fish & Wildlife Association (NMFWA) 2014 Conference Workshop presentations are now available on the NMFWA website. Please visit the website to view the presentations.

North America Congress for Conservation Biology Meeting

July 13-16, Missoula, MT

Challenging Conservation Boundaries is the theme for the 2014 meeting of the North America Congress for Conservation Biology (NACCB). The biennial NACCB provides a forum for presenting and discussing new research and developments in conservation science and practice for addressing today's conservation challenges. In addition, these conferences connect our regional community of conservation professionals, and serve as a major networking outlet for people interested in North American conservation. For more information, visit the [website](#).

Accessibility for Outdoor Recreation Programs & Facilities on Military Installations

July 22-24, Fort Drum, NY

Ideal for staff responsible for outdoor recreation, this three-day training provides an overview on how to increase accessibility to all people visiting military installations. For more information, visit the [National Center on Accessibility website](#).

Conference on Ecological and Ecosystem Restoration

July 28-August 1, 2014, New Orleans, LA

The conference provides an opportunity for ecological and ecosystem restoration scientists and practitioners to address challenges and share information about restoration projects, programs, and research from across North America. For more information and to register online, visit the [conference website](#).

99th Annual Ecological Society of America Meeting

August 10-15, Sacramento, CA

The 99th annual meeting of the Ecological Society of America (ESA) has a broad focus on ecology in 2014, with the theme of From Oceans to Mountains: It's all Ecology. Keynote speakers and guest lecturers come from the Woods Hole Institute for the Environment, Dartmouth College, and the University of California. For more information and to register online, visit the ESA annual [meeting website](#).

Midwest Partners in Amphibian and Reptile Conservation Annual Meeting

August 22-24, 2014, Loretta, MN

The Midwest Partners in Amphibian and Reptile Conservation (PARC)'s annual meeting focuses on survey and monitoring of amphibians and reptiles with an emphasis on restored habitats. Partnering organizations for this meeting include the Three Rivers Park District, Minnesota Department of Natural Resources, and the University of St. Thomas. For more information, please visit the [meeting website](#).

Association of Fish & Wildlife Agencies 104th Annual Meeting

September 21, St. Louis, MO

As a forum for conservation leadership, this annual event brings together more than 700 leaders from fish and wildlife agencies and conservation groups from all 50 states, U.S. Territories, Canada and Mexico to discuss conservation policy and management issues and accomplishments. For more information, visit the Association of Fish & Wildlife Agencies [meeting website](#).

Raptor Research Foundation 2014 Conference

September 24-28, Corpus Christi, TX

Meeting on the Texas Gulf Coast, one of the top birding locations in the U.S., this international gathering of top raptor researchers and educators features plenary speakers, paper and poster sessions, and workshops. The conference includes three days of scientific paper presentations, and field trips during the peak of hawk migration. Visit the [Raptor Research Foundation](#) for more information.

National Public Lands Day, 21st Anniversary

September 27, Public Lands, Nationwide

National Public Lands Day is the nation's largest, single-day volunteer event for public lands. This day educates the public about the value of the environment and natural resources, builds partnerships, and improves public lands. In 2013, 175,000 people volunteered at 2,237 parks, community gardens, schools, refuges, and forests. Find a volunteer site near you on the [National Public Lands Day website](#).

Northeast and Southeast Partners in Flight Conference

October 6-9, Virginia Beach, VA

The conference unites the bird community across the eastern U.S. to improve linkages, enhance coordination and collaboration among individual partner efforts, and provide more unified approaches for guiding conservation at landscape scales. A conference website is in development, but for immediate questions contact Randy_Dettmers@fws.gov or Troy_Wilson@fws.gov.

LINKS OF INTEREST

AFPMB

The Armed Forces Pest Management Board (AFPMB) recommends policy, provides guidance, and coordinates the exchange of information on pest management throughout DoD. Their mission is to ensure that environmentally sound and effective programs are in place to prevent pests and disease vectors from adversely affecting DoD operations.

CESU Network

The Cooperative Ecosystem Studies Unit (CESU) Network is a national consortium of federal agencies, tribes, academic institutions, state and local governments, and nongovernmental conservation organizations working together to support research, technical assistance, education, and capacity building. There are 17 CESUs which link DoD and other federal agencies, a host university, and partner institutions. One of the benefits of joining a CESU is a reduced, Network-wide Finance and Administration (i.e., overhead) rate of 17.5% for federal agencies.

DENIX

The DENIX Natural Resources home page is an electronic environmental network and information exchange that provides access to natural resources information, such as Executive Orders, policies, guidance, INRMPs, fact sheets, and reports.

DoD Biodiversity Handbook

On this website you will find a thorough introduction to biodiversity and how it applies to the military mission; the scientific, legal, policy, and natural resources management contexts for biodiversity conservation on DoD lands; and practical advice from DoD natural resources managers through 17 case studies. A Commander's Guide, Conservation Toolbox, and additional biodiversity outreach tools are available on the site.

DoD Invasive Species Outreach Toolkit

This site provides education and outreach materials to help DoD land managers communicate about invasive species. It contains modifiable outreach materials such as posters, brochures, reference cards, and a PowerPoint presentation. A list of resources to help identify information and funding sources also is included.

DoD Legacy Resource Management Program Tracker

The DoD Natural Resources (NR) Program funds high priority natural and cultural resources projects that have regional, national, and/or multi-Service benefits through the DoD Legacy Program. The Legacy Tracker lets users download fact sheets and reports for completed Legacy-funded projects.

DoD Natural Resources Conservation Program

DoD's NR Program provides policy, guidance, and oversight for management of natural resources on all land, air, and water resources owned or operated by DoD. The website offers information on DoD's natural resources initiatives, programs, presentations, and links to other DoD conservation and natural resources sites.

DoD PARC

DoD Partners in Amphibian and Reptile Conservation (PARC) is an inclusive partnership dedicated to the conservation and management of herpetofauna--reptiles and amphibians--and their habitats on military lands. DoD PARC membership includes natural resource specialists and wildlife biologists from the military Services and individuals from state and federal agencies, museums, universities, and environmental consultants.

DoD Partners in Flight

The DoD Partners in Flight Program supports and enhances the military mission while it works to develop cooperative relationships to ensure a focused and coordinated approach for the conservation of resident and migratory birds and their habitats.

DoD Pollinator Initiatives

This website provides an overview of pollinators and the reasons they are important to DoD. It contains fact sheets and technical reports, how-to guides, resource lists, and more describing some of the simple ways that people can help pollinators and their habitats.

REPI

Under Readiness and Environmental Protection Integration (REPI), DoD partners with conservation organizations and state and local governments to preserve buffer land and habitat around military installations and ranges as a key tool for combating encroachment. By promoting innovative land conservation solutions, REPI supports the military's ability to train and test at its lands now and into the future.

SERDP and ESTCP

Strategic Environmental Research and Development Program (SERDP) and Environmental Security Technology Certification Program (ESTCP) harness the latest science and technology to improve environmental performance, reduce costs, and enhance and sustain mission capabilities. They are independent DoD programs managed from a joint office to coordinate the full spectrum of efforts, from basic and applied research to field demonstration. SERDP and ESTCP, in conjunction with the Legacy Program, support readiness, quality of life, adherence to legal mandates, and responsible environmental stewardship of natural and cultural resources.

New! National Migratory Bird Joint Venture Website

Migratory Bird Joint Ventures are cooperative, regional partnerships that work to conserve habitat for the benefit of birds, other wildlife, and people. The 22 Joint Ventures (JVs) are inspired by a shared vision of a North American landscape where diverse populations of native birds thrive, and believe the well-being of our nations depends upon the health of our landscapes and our wildlife.

In March 2014, a new [National Migratory Bird Joint Venture website](#) launched to highlight the conservation work of all habitat and species JVs throughout North America. Site visitors will find a detailed overview and history of JVs, stories about how they are enhancing habitat for birds and strengthening partnerships, and their science-based approach to conservation, as well as each JV's location and contact information. Visit the site today!



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