



Steppingstones



NEWSLETTER OF THE DEPARTMENT OF DEFENSE PARTNERS IN FLIGHT PROGRAM

Reducing the Risk of Osprey Strikes with Military Aircraft

Osprey (*Pandion haliaetus*), also known as ‘fish hawks’, are large fish-eating birds of prey. A true conservation success story, North America Osprey have staged a dramatic recovery during the past few decades due to the banning of harmful pesticides (most notably *dichlorodiphenyltrichloroethane*, or DDT), conservation efforts that provided nesting structures, and successful translocation and hacking programs.

However, with conservation success comes new challenges. Osprey exhibit a remarkable tolerance to humans and adapt well to urban environments. Breeding populations of osprey adjacent to military airbases and civil airports increase the risk of collisions between osprey and aircraft. As North American Osprey migrate to their wintering areas in Central and South America, they traverse numerous military airspace use areas. The risks to human safety and damage to aircraft associated with osprey-aircraft collisions are a serious flight safety concern, highlighting the need for research and management efforts designed to mitigate such risk.

nesting in the Back River of the Chesapeake Bay adjacent to Langley Air Force Base (AFB) in Virginia. During the 2006 and 2007 nesting seasons, we captured 13 adult osprey (5 males and 8 females) using carpet-noose traps at their nests. Within this group, we successfully captured and satellite-tagged three breeding pairs.

We fitted each osprey with unique color and U.S. Fish and Wildlife Service leg bands, a GPS-capable satellite transmitter, and released it at the nest site. We programmed the satellite transmitters to collect location and movement information 10 times each day at 2-hour intervals.



*Osprey in flight over the Chesapeake Bay.
Photo courtesy of: Tom Olexa*

Using the fine-scale location and movement information provided by the satellite-tagged osprey, we gained new insights into osprey breeding ecology. This information provided a better understanding of the movements, activity patterns, and habitat use of male and female adult osprey. Also, we gained a detailed understanding of osprey space use and selection of resources within their breeding territories.

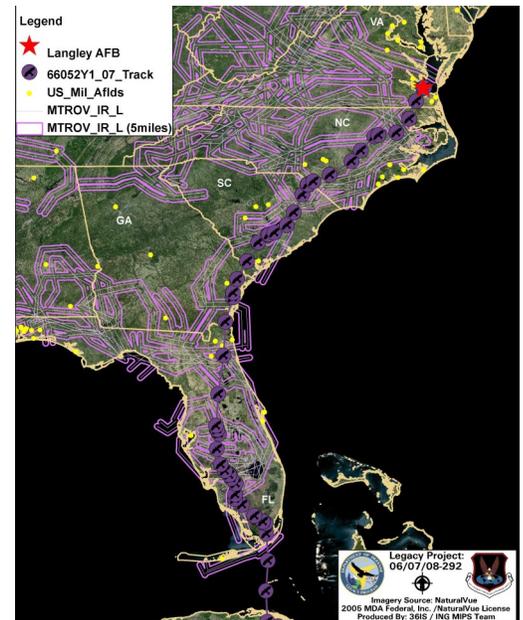
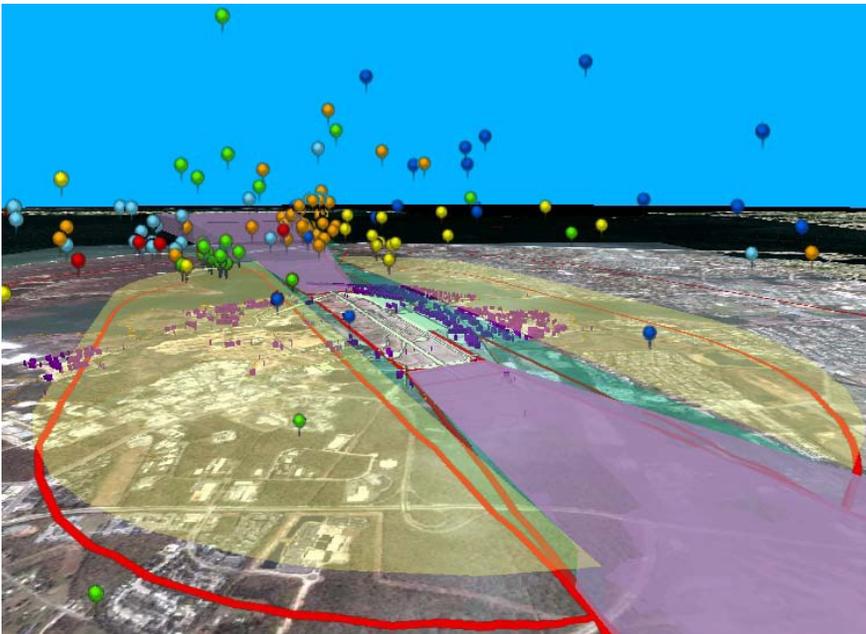
INSIDE:

Reducing the Risk of Osprey Strikes with Military Aircraft.....	1
The Management for Birds on Public Lands.....	3
Balloons, Bombs, and Birds.....	3
Swifts, Swifts, and More Swifts!.....	5
View from the Eyrie.....	7
Policy Perch: The Need for Enhanced Program Oversight.....	8
The Flight of the Chimney Swift.....	9
Call for Examples.....	9
Cross-Bird Puzzle.....	10
Answer Key.....	11

Supported by the U.S. Department of Defense Legacy Resource Management Program, I led a multi-agency research effort from 2006 to 2010. The goal of our work was to incorporate satellite telemetry technologies and geo-spatial referencing to quantify the bird-strike risk of breeding and migrating osprey. We studied osprey

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Reducing the Risk of Osprey Strikes with Military Aircraft (cont.)



Three-dimensional osprey-strike risk models, such as the one shown here, allow for effective management to reduce osprey collisions with military aircraft operations at Langley Air Force Base.

During this fall migration, osprey M52 passed by several military airfields (represented by yellow dots) and through numerous military training routes (presented by lines and 5-mile buffers).

During fall migration, osprey traveled an average of 4,600 km to their wintering grounds in the Caribbean and South America. Female osprey began their fall migrations in August, whereas males typically began in September. Breeding pairs of osprey do not migrate or winter together. Tracking information revealed that osprey migrated during the day and roosted at night. This information also



The author holding an adult male osprey fitted with a satellite transmitter near Langley Air Force Base, VA. Photo courtesy of: Dr. Brian Dorr

provided the identity of stopover habitats important to migrating osprey. With a better understanding of osprey migration patterns, we can enhance conservation and management efforts for these birds.

Using data provided by the satellite-tagged ospreys during the breeding season, we constructed novel time and 3-D space-specific models of

how breeding osprey use areas within their nesting territories. We then analyzed these models to determine where ospreys were most prevalent within critical airspaces used by military aircraft during flight operations, and thus within what airspace the risk of osprey strikes was greatest.

During migration, osprey traversed through numerous military training airspaces along the Atlantic seaboard. We developed novel time and 3-D space-use models to quantify the risk migrating osprey pose to military flight operations. Using the information provided by this research effort, the timing and routing of military training flights can be scheduled to reduce the risk of osprey-aircraft collisions.

Only through science-based research can we identify specific hazards and evaluate the risk breeding and migrating birds pose to military flight operations. This research also has applications for measuring the effectiveness of current osprey-conflict management practices and for developing long-term management strategies to allow osprey and military aircraft to co-exist in a safer flying environment.

- Dr. Brian E. Washburn, USDA/APHIS/Wildlife Services, National Wildlife Research Center, Sandusky, Ohio

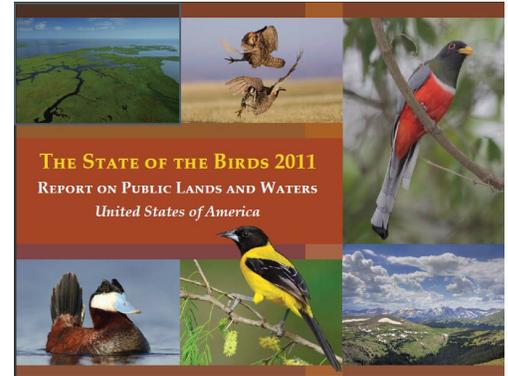
The Management for Birds on Public Lands

The U.S. Committee of the North American Bird Conservation Initiative (NABCI) is launching an effort with its federal and state agency partners to coordinate and assist with the management for birds on public lands. In May 2011, NABCI partners released the 2011 *State of the Birds* report on Public Lands and Waters.

This year's report provides the nation's first assessment of the distribution of birds on public lands and helps public agencies identify which species have the significant potential for conservation in each habitat. The Department of Defense (DoD) manages approximately 29 million acres of land, air, and water resources and manages more endangered and imperiled species per acre than any other federal agency. Because most DoD lands were acquired before modern urban growth, these lands now represent the largest blocks of remaining bird habitats in many rapidly developing landscapes.

In habitats such as southwestern pine-oak forests, where DoD lands are disproportionately important to species including the Buff-breasted and Sulfur-bellied Flycatchers, Elegant Trogon, and Berylline Hummingbird, the U.S. NABCI committee will work with DoD staff, State Fish and Wildlife Agencies, U.S. Forest Service, Bureau of Land

Management, and other federal agencies to foster improved regional collaboration for the conservation of these birds and their habitats.



Guided by successes such as the efforts on DoD lands to restore populations of the endangered Red-cockaded Woodpecker in the Southeastern U.S., the NABCI Committee hopes to highlight the shared responsibility of federal and state land managers for bird conservation across public lands. As the saying goes, many hands make light work. Through improved coordination of on-the-ground management efforts within particular habitats, an agency like DoD can gain valuable partners in their efforts to conserve and restore birds and their habitats.

- Allison Vogt, Bird Conservation and US NABCI Coordinator
Association of Fish & Wildlife Agencies

Balloons, Bombs, and Birds...

In 2002, Dr. Kirt Fristrup and his crew from the Cornell Laboratory of Ornithology | conducted some pioneering work with acoustics at Fort Hood, Texas. This group successfully affixed recording devices as a payload to helium-filled weather balloons and flew these vehicles over Fort Hood to collect data on vocalizing birds in impact areas where human access is very limited. The balloon system, which included lightweight microphones highly sensitive to birdsongs, digital audio recorders, and an onboard GPS system (along with on-the-ground GPS track logging, altitude control, and bidirectional wireless communications), was developed with the ultimate objective of automating the collection and analyses of bird song data from remote or inaccessible sites.



Fast-forward nine years to Fort Riley, Kansas and Big Oaks National Wildlife Refuge, Indiana (the former Jefferson Proving Ground). Dr. David Buehler and his team (the Team) from the University of Tennessee, along with assistance from the U.S. Army Engineer Research and Development Center, Environmental Laboratory, are taking this work a few steps further. With funding from the DoD Environmental Security Technology Certification Program (ESTCP), the team is working to validate the flight performance of the balloon platform system (termed the Autonomous Aerial Acoustic Monitoring System [AAARS]), and assess detection and correct classification rates of target avian vocalizations, all under the range of environmental and operational conditions present on three eastern U.S. military installations.

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Balloons, Bombs, and Birds... (cont.)

The specific objectives the team is addressing include:

- ✦ demonstrating the ability of the AAARS to collect data on avian vocalizations for threatened, endangered, and at-risk species (TER-S) over accessible training areas (as a proxy for performance over non-accessible impact areas) on military installations;
- ✦ demonstrating the value of the data collected for supplementing and enhancing avian monitoring data already collected on military installations that supports regulatory and legislative compliance (e.g., National Environmental Policy Act, Executive Order 13186, Migratory Bird Treaty Act [MBTA]), and the conservation and stewardship of TER-S birds;
- ✦ training DoD natural resources staff on select military installations on the use of this technology;
- ✦ evaluating the ability of trained DoD staff to deploy the technology and analyze and use the data collected; and
- ✦ comparing the accuracy, precision, and cost of monitoring data collected by AAARS to data collected by conventional means across a range of DoD installations.

The Team has worked diligently to improve the technology of the AAARS by implementing significant technological upgrades to nearly all its components, including onboard GPS and altitude control. During summer 2011, the Team redeployed the upgraded systems at two mid-western installations with great success. The system recorded target bird vocalizations and provided tracking telemetry to spatially correlate the audio data and track the system flight path. The Team also gained exceptional control of the flight system and safely and reliably recovered the system during more than 300 test flights.

Additional technologies used in the study include MP3 audio devices containing amplifiers and speakers that simulate a breeding avian community by playing back recorded vocalizations on demand. Bird song simulators have proven to be very useful in evaluating the performance of AAARS and human observers because it provides exact control over which species recording is playing, where it is located, and when it is playing.

The actual flight trials occur in training areas with varying terrain and vegetation communities. Dr. Buehler, the technical lead on the project, stated:

This is part of the demonstration and validation component of the project. We want to show that the system is able to detect a variety of different vocalizing birds across a range

of habitats and terrain. We also need to show that the system is both deployable and recoverable in these different landscape settings.

Ultimately, the AAARS will prove useful in detecting presence as well as density of vocalizing birds in inaccessible impact areas where it is very difficult for humans to conduct ground-based surveys.



*Team members holding an AAARS in Fort Riley, KS.
Photo Courtesy of: Rich Fischer*

The DoD has an excellent track record of integrating natural resources management with the military mission. Up to this point, however, DoD natural resources staff have been unable to fully assess the significance of inaccessible areas to TER-S bird populations. This project will provide critical information that will significantly improve DoD's ability to comply with a variety of legislative mandates, including the MBTA and the Endangered Species Act. Furthermore, monitoring TER-S in formerly inaccessible areas will directly support the objectives of the DoD Coordinated Bird Monitoring Plan that recommends focused monitoring on species that have the potential for future impacts to the military mission. Implementing the AAARS will enable natural resources staff for the first time to inventory which species are present in inaccessible areas, estimate relative abundance and density of these species, and track status of the populations over time. Documentation of TER-S bird distribution, relative abundance, and density in inaccessible areas, in conjunction with existing data from outside these areas, will improve understanding of the role DoD lands play in providing important habitat for a variety of at-risk species.

For more information on this project, visit <http://www.serdp.org/Program-Areas/Resource-Conservation-and-Climate-Change/Natural-Resources/Species-Ecology-and-Management/RC-201112>.

*- Rich Fischer, Research Wildlife Biologist
U.S. Army Engineer Research and Development Center*

Swifts, Swifts, and More Swifts!

As the fall season fades, the migration of Vaux's Swifts (*Chaetura vauxi*) through Washington State, and specifically Joint Base Lewis-McChord (JBLM), comes to an end. This past September was exciting for the many people who had the opportunity to view the phenomena of thousands of small birds entering a chimney on the base.



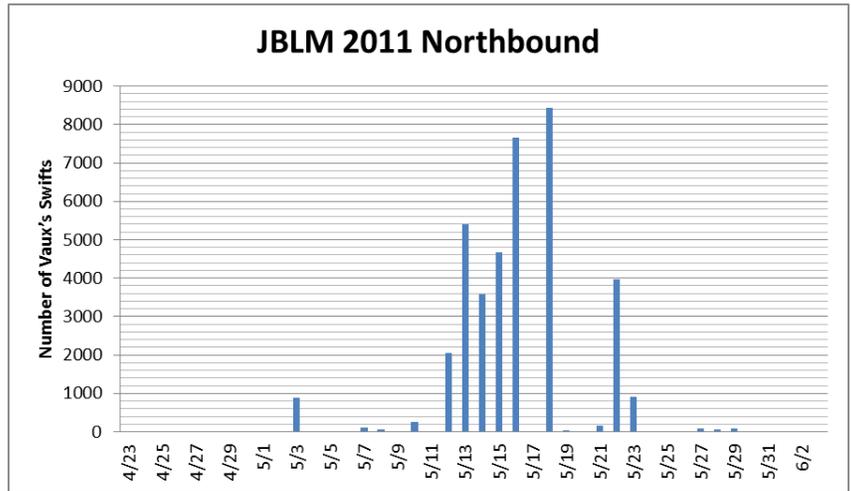
Author and other interested swift observers.
Photo: Mary Kun

The swifts migrate each spring from Mexico and southern California to breed in southeast Alaska, British Columbia, Washington, Oregon, and California, and return south in the fall. Migration numbers are greater in the fall due, in part, to the juveniles born in the summer, joining the adults.

Vaux's Swifts recently started using brick chimneys because their preferred nesting and roosting habitat – hollow, often broken-top trees large enough for them to fly inside – are difficult to find. However, these old-fashioned brick chimneys are no longer being built and the existing ones are being torn down or sealed. This is producing a serious nesting and roosting site shortage for Vaux's Swifts.

The Vaux's Swifts were first found at the JBLM chimney on September 24, 2009, following a report that bats were entering a building in the early morning hours. The bats turned out to be Vaux's Swifts – hundreds of them. This chimney is 70 feet tall with square inside measurements of 36 inches. It is located in the Lewis Main area of JBLM. The building and its chimney were built around 1946 as a heating plant for three adjacent warehouse buildings. The building and its chimney are not scheduled for any alterations.

From September 2009 through September 2010, only sporadic observations and counts were made at the JBLM chimney. Observers estimated 3,000 swifts for the fall 2009 migration. The northbound (spring) migration in 2010 had 6 observations, totaling 400 swifts in the chimney. The southbound (fall) migration had 3 observations, totaling 10,600 swifts. Burney Huff, a volunteer, conducted a more concentrated observation effort in the spring of 2011; he provided his findings in the following table and graphs. The spring migration totaled 38,500 swifts roosting in the JBLM chimney.

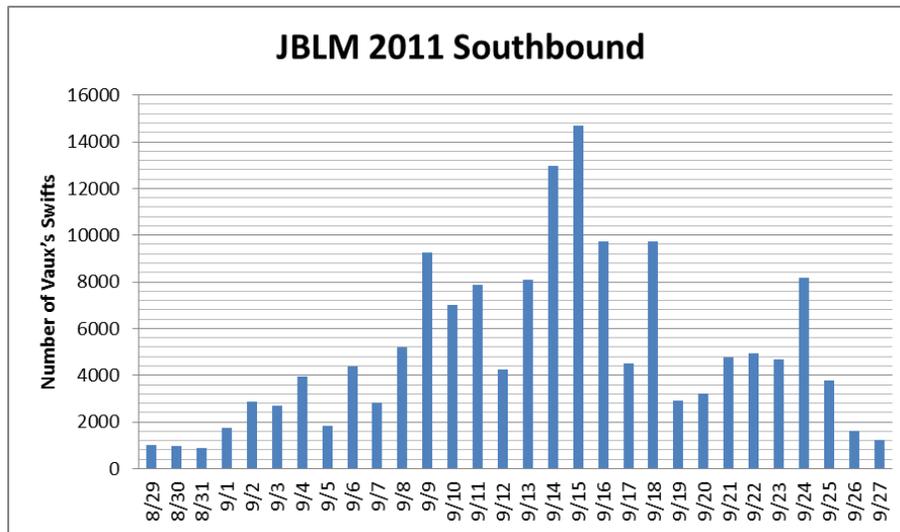


FORT LEWIS BIG STACK												
0	4/23/11	B. Huff	20:25	21:00					Calm/ Scattered clouds	20:10	58	
18	4/30/11	B. Huff	19:45	21:10	20:03	20:46	20:53		Clear	Coopers	20:19	50
890	5/3/11	B. Huff	20:11	20:50	20:11	20:40	20:46		Clear/Calm	Cooper's	20:23	47
6	5/6/11	B. Huff	20:03	21:07	20:05	20:32	20:52		Clear/Calm	Cooper's	20:23	48
116	5/7/11	B. Huff	19:58	20:50	19:58	20:44	20:50		Scattered clouds	Coop/crows	20:30	45
72	5/8/11	B. Huff	19:57	20:48	19:57	20:24	20:46		Heavy clouds/Light rain	Cooper's	20:31	49
0	5/9/11	B. Huff	19:51	20:51	19:51	20:35	20:51		Heavy clouds	Cooper's	20:33	55
256	5/10/11	B. Huff	20:00	20:57	20:04	20:47	20:56		Overcast	Cooper's	20:34	53
2055	5/12/11	B. Huff	19:38	21:08	19:38	19:48	21:05		Clear/Calm	Cooper's	20:37	44
5400	5/13/11	B. Huff	20:03	21:02	20:03	20:28	21:01		Calm//Heavy clouds	Cooper's	20:38	57
3586	5/14/11	B. Huff	19:15	20:40	19:15	19:21	20:28		Steady heavy rain	Cooper's	20:39	52
4684	5/15/11	B. Huff	18:53	21:01	19:16	19:16	21:00		Heavy clouds/Light rain	Cooper's	20:40	48
7645	5/16/11	B. Huff	19:49	21:00	19:49	20:24	20:56		Scattered clouds	Cooper's	20:42	54
8440	5/18/11	B. Huff	19:56	21:14	20:07	21:03	21:11		Clear/Calm	Cooper's	20:44	51
44	5/19/11	B. Huff	20:05	21:11	20:05	20:06	20:10		Clear/Calm	Cooper's	20:45	56
160	5/21/11	B. Huff	20:10	21:13	20:13	20:56	21:12		Rain Coming	Cooper's	20:47	53
3957	5/22/11	B. Huff	19:47	21:01	20:04	20:54	21:00		Calm/ Scattered clouds	Cooper's	20:49	49
914	5/23/11	B. Huff	20:07	21:05	20:11	20:59	21:03		Rain Coming		20:50	51
97	5/27/11	B. Huff	18:35	21:03	18:42	19:02	21:02		Windy/heavy rain		20:53	46
67	5/28/11	B. Huff	19:51	21:10	20:06	20:35	21:08		Heavy clouds		20:55	48
93	5/29/11	B. Huff	17:53	21:10	20:00	20:16	21:03		Clear/windy		20:56	52
0	6/3/11	B. Huff	19:49	21:30					Light rain		21:01	60
38500												

Top and Left: Burney Huff's findings from a more concentrated observation effort from April 23—June 2, 2011. The spring migration (traveling from the south to the north) totaled 38,500 swifts roosting in the JBLM chimney. Photo Courtesy of: Barney Huff and Valerie Elliott

Swifts, Swifts, and More Swifts! (cont.)

Burney Huff, along with several other volunteers he recruited, continued counting for the fall 2011 migration. At the time this article was written, the southbound migration was not quite finished, but it was definitely winding down. Observations of the southbound migration began on August 29th and continued as of September 28th.



Burney Huff's findings from August 29—September 27, 2011. The fall migration (from north to south) totaled over 150,000 swifts roosting in the JBLM chimney. Photo Courtesy of: Burney Huff and Valerie Elliott

During this time, the year's highest total of birds was observed on September 15, and amounted to 14,695. The total number of swifts counted during this fall migration period was over 150,000, as seen on the graph.

Currently, observers have identified four of Washington State's Vaux's Swift migratory communal roost sites that they believe to shelter over 90% of the species in both migrations. These roost sites are located in Old Northern State Hospital (Sedro Woolley, Skagit County, WA), Monroe Wagner Elementary School (Monroe, Snohomish County, WA), Selleck Old School House (Selleck, King County, WA), and JBLM. It appears that the Old Northern State Hospital site is presently attracting large numbers of migrating Vaux's Swifts. As these swifts migrate south, they do not stop at Monroe Elementary School or Selleck Old School House, whose totals were one third of those recorded last year. The data suggest that a lot of the swifts are stopping at JBLM. For the fall 2011 migration, JBLM is the second most significant site in Washington State. Researchers currently estimate that the world's population of migratory Vaux's Swifts is as low as 200,000. If this is a valid figure and the average length of stay at any one roost site is three days, that would mean that during this migration JBLM sheltered 50,000 of these swifts, or 25% of the world's population. Pretty amazing for a 70 foot chimney!

Additional information about the Vaux's Swifts and their migrations can be found at www.vauxhappening.org.

- Valerie R. Elliott, Natural Resource Planner,
Joint Base Lewis-McChord (WA), DPW,
Environmental Division, Fish & Wildlife Branch



*Top: Thousands of Vaux's Swifts inside a chimney.
Photo: Brad Benson*

*Right: Vaux's Swifts flying around the chimney at JMLB.
Photo: Miriam Villacian*



View From the Eyrie

It's hard to believe that 2011 is almost over. As this 20th anniversary year of DoD Partners in Flight (PIF) comes to an end, the Program continues to improve its role to support and enhance the military training, testing, and safety mission. However, many challenges still remain. Budget issues will play a significant role in shaping everyone's ability to manage resources on DoD lands and natural resources personnel will be reminded to "work smarter" throughout 2012. What this often means is that one person must perform the tasks of two or three. In my opinion, the DoD natural resources community works hard and is already smart; how can we work smarter?

The Partners in Flight mission has three basic priorities: helping species at risk; keeping common birds common; and establishing and maintaining voluntary partnerships for birds, habitats, and people. The power of PIF lies in the synergy that builds when diverse, committed groups who care about birds work together for a common goal. DoD PIF applies these principles within the DoD natural resources communities. Most of us know that partnerships involve working "outside the fence" with other agencies and groups. However, inside-the-fence partnerships are becoming just as critical with the increase of work, less money available, and fewer personnel. DoD PIF is working with the newly formed DoD Partners in Amphibian and Reptile Conservation (PARC) program to expand this concept to build a synergy within and throughout DoD. DoD PARC's mission is to conserve amphibians, reptiles, and their habitats as integral parts of our ecosystem and culture through proactive and coordinated public/private partnerships. While birds and herps (reptiles and amphibians) may not seem to be natural partners (herps can be good bird food!), conservation is all about habitat management. Birds and herps share habitats on DoD lands that provide an ideal environment for DoD biologists to work collaboratively to support and enhance the military mission through habitat and ecosystem conservation and management while leveraging public and private partnerships.



Effective tools help us work more efficiently (smarter). Through the Strategic Environmental Research and Development Program (SERDP), Environmental Security Technology Certification Program (ESTCP), and Legacy Resource Management Program (Legacy), DoD funds projects that develop, demonstrate, and apply the latest science and technology to improve DoD's environmental performance, reduce costs, and enhance and sustain mission capabilities. DoD PIF reviews all bird-related Legacy proposals to ensure funded projects meet bird conservation priorities. Monitoring birds and other biodiversity elements is crucial to understanding what species exist on DoD lands and whether training activities impact these populations. DoD PIF works with the U.S. Geological Survey and the American Bird Conservancy to develop a strategy for monitoring birds that will help identify species with the highest potential to negatively impact the mission, as well as identify tools and guidance on how and where to most effectively monitor those species. DoD faces unusual monitoring challenges due to unexploded ordnance and other hazards that prevent human access to certain areas. As a result, Legacy has funded several acoustic monitoring projects. As technology improves, new methods enhance these existing approaches. For example, ESTCP is currently funding an autonomous aerial acoustic recording system (AAARS) project (see *Balloons, Bombs, and Birds* article on page 3). Monitoring tools such as AAARS improve DoD's ability to comply with the Migratory Bird Treaty Act, National Environmental Protection Act, Executive Order 13186, the Endangered Species Act and, where applicable, the Migratory Bird ("Readiness") Rule.

Partners in Flight, the North American Bird Conservation Initiative, the Council for the Conservation of Migratory Birds, and conservation initiatives for shorebirds, waterbirds, waterfowl, and upland game birds all contribute to improving our conservation efficacy. Engaging non-bird partnerships focusing on herps, bats, pollinators, and invasive species will be the norm for DoD PIF in the next 20 years.

- Chris Eberly,
DoD PIF Program Coordinator



Policy Perch: The Need for Enhanced Program Oversight

President Obama's Executive Order (E.O.) on *Promoting Efficient Spending*, signed November 9, 2011, reinforces that we are in the midst of very challenging fiscal times. Yet, environmental pressures from climate change, invasive species, wildlife disease, alternative energy development, and a host of other challenges continue unabated. As a result, we are again being forced to make do with fewer resources – not just for environmental programs, but across DoD.

In response to the E.O., the Office of the Secretary of Defense (OSD) leadership has called on me and other senior program managers to increase our oversight of environmental programs. My charge for the Natural Resources (NR) Program is to determine:

- ✦ What did DoD get for the money and time spent (return on investment)?
- ✦ How did the Military Services move the NR Program forward (e.g., management initiatives, investments, policy changes, behavior changes, different outcomes)?
- ✦ What trends can we glean from EQ data call inputs?
- ✦ What is the overall health of the NR Program?

DoD has embarked on three parallel and complementary natural resources-focused efforts to respond to these questions, and to demonstrate clearly the ongoing essential value that natural resources management provides to mission sustainment and long-term resource stewardship. Specifically, we are taking steps to:

1. Improve and expand upon existing natural resources metrics;
2. Enhance information presented at our annual OSD Environmental Management Reviews (EMRs); and
3. Revise existing Conservation program budget elements.

Improve and Expand NR Metrics

My office now has three years' worth of data reported on the seven Focus Areas. Our next step is to evaluate that information in detail to identify key trends, determine what the metrics are telling us, and learn what we can do to improve measurement accuracy.

Enhanced EMRs

Each Military Service must demonstrate during annual EMRs how its NR Program enables the military's testing and training mission. That is, how do their natural resources programs ensure that military personnel have



continued access to a realistic training environment, while simultaneously maintaining the long-term sustainability of our nation's priceless natural heritage? This requires not only improved metrics, but also enhanced program narratives to demonstrate our return on investment.

Hence, I am asking for more detailed and illustrative examples of program-wide accomplishments to use wherever it's important that the audience understand the impact of our program investments (see the callout box on the next page).

Revised program budget elements

Our office also is working to revise the Presidential Budget (PB-28) exhibit for most Environmental Management program areas. The effort's stated goal is to develop a single commonly agreed upon format that aligns Program and Budget funding submissions with the DoD Components' Execution reporting. The new format must answer some key questions:

- ✦ What is DoD's money buying in terms of physical effects at the installation level?
- ✦ What impacts will 5%, 10%, and 15% decreases in funding have at the installation level?
- ✦ What have we done in the past (Execution reporting)?
- ✦ What do we want to do in the future (Budget and POM submissions)?

Summary

Our enhanced program oversight, as represented by these three parallel efforts, is one of the most important initiatives that our office has undertaken. To defend our essential NR Program resources from what are sure to be increased pressures from all who allocate fiscal and manpower resources, we need to jointly put forth the most complete and compelling story possible. I firmly believe that each of these initiatives will help us achieve that overall goal.



During this time of thanksgiving and holiday celebration, my warm wishes to each of you, your families and your friends.

- Peter Boice,
Deputy Director,
DoD Natural
Resources

The Flight of the Chimney Swift

The Chimney Swift (*Chaetura pelagica*) is one of four regularly occurring species of swifts (Chimney, Vaux's, Black, White-throated) found in North America, and the most common one found east of the Rocky Mountains. Chimney Swifts historically nested and roosted in hollow trees. As American pioneers moved westward across the continent, they cleared forests and removed the swifts' natural habitat. The birds that Audubon called American Swifts became known as Chimney Swifts as they readily adapted to the masonry chimneys erected by those same pioneers. Chimney Swifts winter in the upper Amazon Basin of Ecuador, Chile, Peru, and Brazil. They arrive in the continental United States in late March and return to their wintering grounds by early November.

We most commonly see adult Chimney Swifts when they are in flight - usually in groups. When soaring, their long, scythe-shaped wings span about 12.5 inches and support a proportionally short body with a squared-off tail, reminiscent of a "flying cigar." The flickering, bat-like flight is due to short, massive wing bones, and a sharp "chipping" or "ticking" call accompanies their flight. Chimney Swifts use their claws and tail bristles to cling to rough vertical surfaces since swifts are unable to perch or stand upright in passerine fashion.

Nesting begins in May, and can continue into August. Chimney Swifts are usually single-brooded, and there will be only one active nest in any structure regardless of the size of the site. The female normally lays three to five white eggs in a nest of twigs broken from the tips of tree branches, glued together with saliva, and attached to a vertical surface, such as a chimney. Both sexes are involved in nest construction, and alternate incubating the eggs for 18 to 19 days. Chimney Swifts catch flying insects on their



*A Chimney Swift watching over its young in the nest.
Photo: National Park Service*

wings, and both parents feed the young. The feeding continues until the birds fledge from the chimney, about 30 days after hatching. Hatchlings have sharp claws, enabling them to cling to textured surfaces. By the time Chimney Swifts are 21 days old, they will cling tightly to the nest or chimney

wall, rear back and flap their wings furiously until they are panting and out of breath. Twenty-eight to 30 days after hatching, young Chimney Swifts will leave the safety of the chimney for their first flight. Once an entire brood has fledged, they will fly with their parents in slow, noisy parades in areas around the nest site. The young will return frequently to the roost during the first few days, but may soon begin to visit other roosts in the area. At the end of the breeding season, the swifts' communal instincts peak prior to fall migration. They congregate in flocks of hundreds, sometimes thousands, at suitable roost sites, forming a flying vortex around the chimney at dusk. Although Chimney Swifts can withstand a few early cool snaps, they will usually ride south on the first major cold-front that blows through in the fall.

A Swift Night Out is a continent-wide effort to raise awareness about and encourage interest in Chimney Swifts and Vaux's Swifts. As summer draws to a close and the swifts finish raising their young, these fascinating aerial acrobats begin to congregate in communal roosts prior to their migration in the fall. Keep your eyes to the skies at dusk in late July and watch for areas where swifts are feeding. Look for a tall shaft, chimney, or similar structure to locate where Chimney Swifts (central to the east coast) or Vaux's Swift (Pacific coast) go to roost in your area. One night during the first weekend of August and/or the weekend after Labor Day in September, observe the roost starting about 30 minutes before sunset and estimate the number of swifts that enter local chimneys. You will be amazed at these fascinating species!

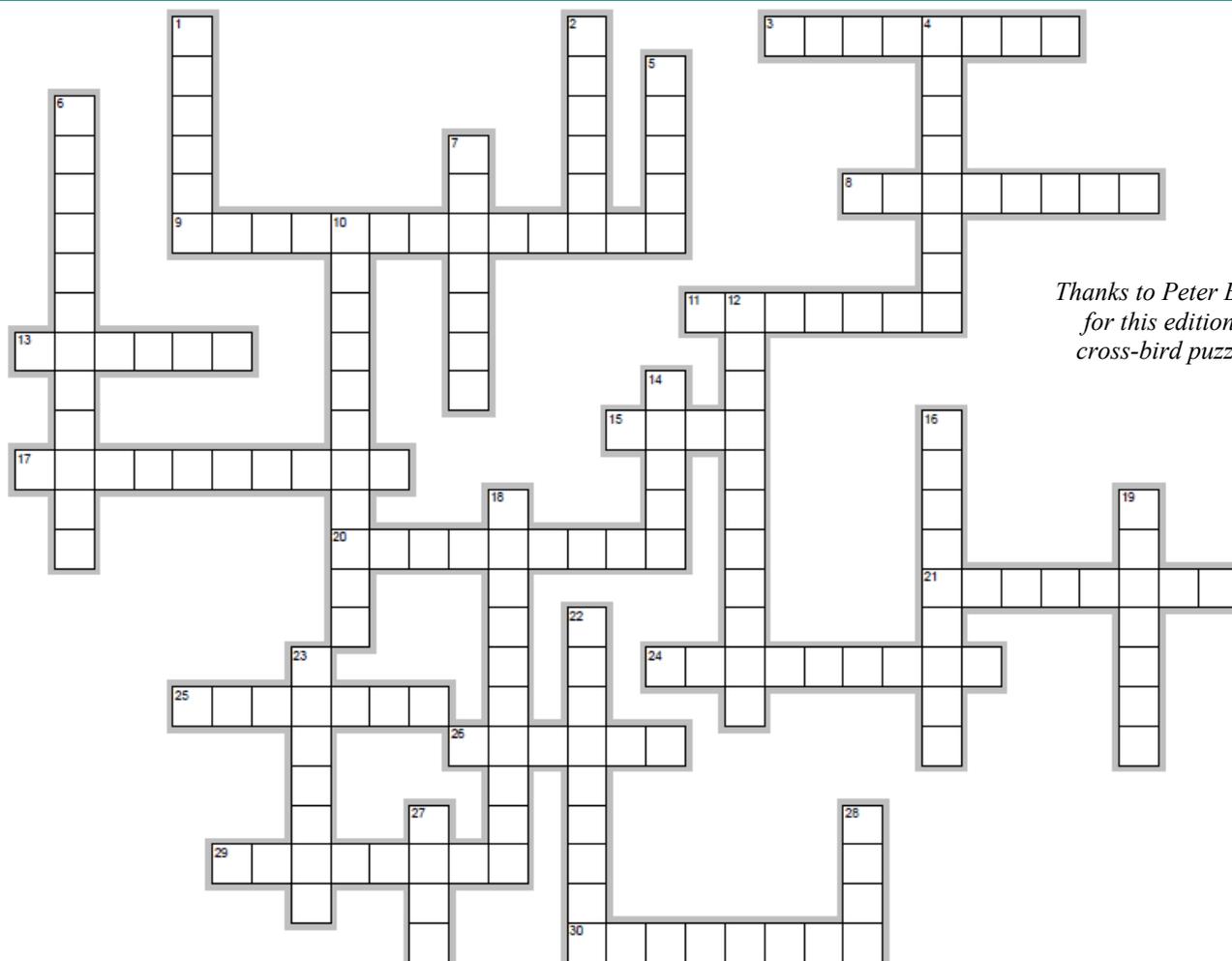
- Chris Eberly, DoD PIF Program Coordinator

Call for Examples!

Send *program-wide accomplishments* to use in testimonies, speeches, interviews, etc. to DoDNRConservation@BAH.com.

- ✦ Provides and protects access to land, sea, and air assets through regulatory compliance;
- ✦ Meets missionscape requirements for military use;
- ✦ Protects endangered and threatened species, and avoids critical habitat designation through effective management;
- ✦ Avoids or minimizes adverse regulatory actions;
- ✦ Seeks to minimize restrictions/encroachment to testing and training;
- ✦ Ensures sustainable use of lands and no net loss of wetlands;
- ✦ Promotes enhanced public awareness of DoD's mission, its requirements and its accomplishments; and
- ✦ Provides recreational opportunities for soldiers, their families and the public.

Cross-Bird Puzzle: Sporty Birds



*Thanks to Peter Boice
for this edition's
cross-bird puzzle!*

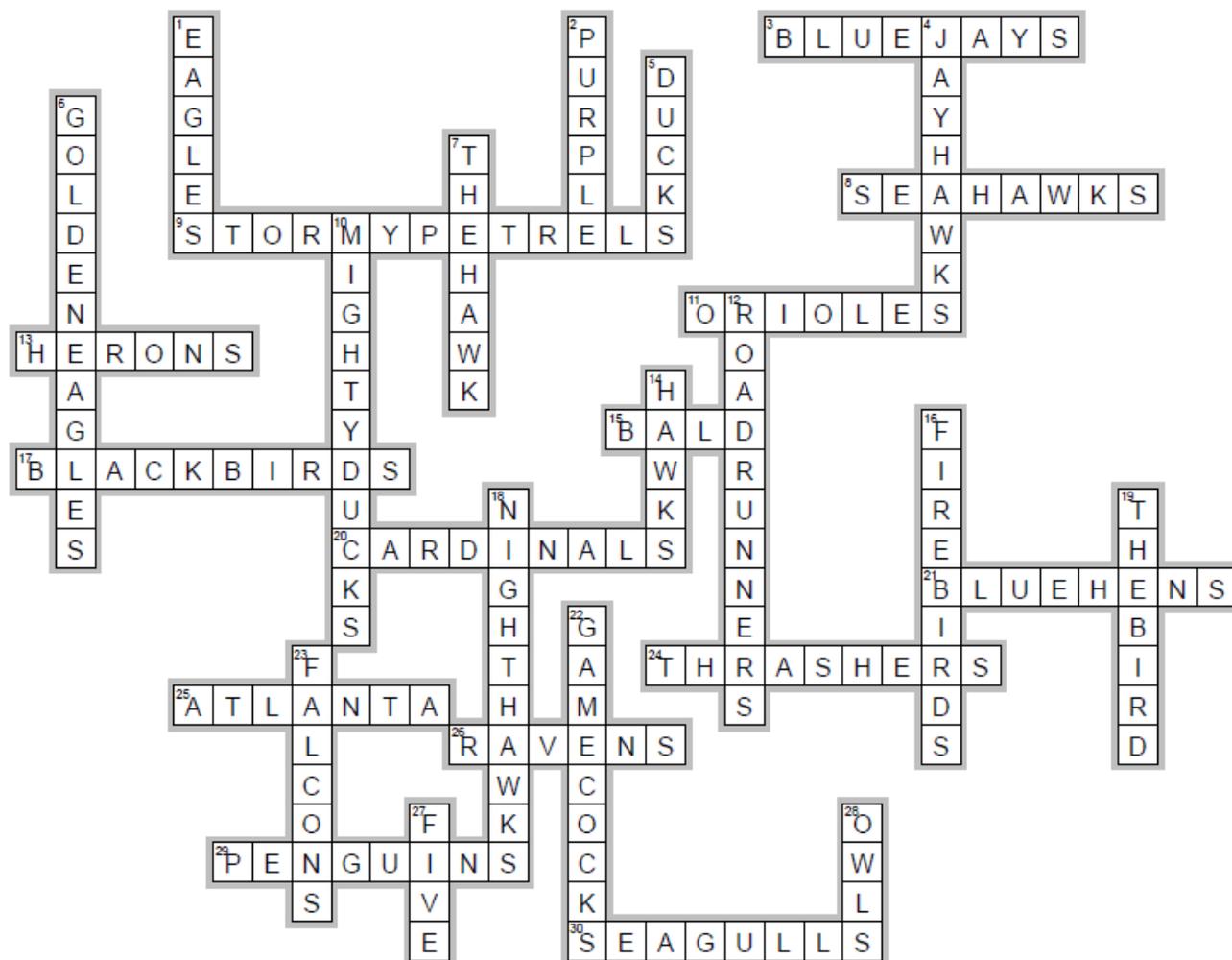
Across

3. Only Canadian World Series winner
8. Shared by St. Mary's College of Maryland and a Seattle pro team
9. Oglethorpe University's pelagic
11. One is a Hall of Fame Iron Man
13. Wading birds found at William Smith College
15. A hairless bird?
17. Long Island University's symbol doesn't have the red wings you'll see on males in the marsh
20. 2011 World Series participant
21. You won't often find this color in the chicken coop
24. A different kind of 'bird' now that they're in Winnipeg
25. This city had three pro bird teams - Falcons, Hawks and Thrashers
26. Baltimore's sports homage to native son Edgar Allen Poe
29. Led by Sidney Crosby now, Mario Lemieux previously
30. Salisbury University is close enough to the Atlantic to have several of these species as frequent visitors

Down

1. This pro team takes flight in the City of Brotherly Love
2. Many colleges have plain or golden ones; only Niagara has this color
4. The 2008 NCAA champ, their first coach was basketball's originator
5. Oregon's may be less mighty than Anaheim's?
6. Marquette's are perhaps the best known
7. Ken Harrelson's sobriquet
10. Mallards on steroids?
12. A runner's favorite
14. St. Joseph is one of Philly's Big Five
16. Stravinsky's fave? Found in ballets, and on the University of District of Columbia's campus
18. Will o' the Wisps are only in uniform at Thomas College (GA)
19. This former Tiger pitcher's nickname came from a Sesame Street character
22. These SE birds have game
23. This Academy's mascot soars above its counterparts
27. Number of NFL teams with birds names
28. Temple is another of Philly's Big Five

Cross-Bird Puzzle Answer Key



CONTRIBUTING TO THE DoD PIF NEWSLETTER IS EASY!

*Want to highlight bird conservation efforts on your installation?
Have a great bird image you just have to share?
Send your ideas and images to Chris or Erica.*



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