

BASH



By Matthew W. Klope

I have been a civilian wildlife biologist for the Navy for the past 24 years. Most of that time was spent protecting wildlife and habitats on Navy lands. I am currently the Navy and Marine Corps BASH program manager. Since taking over the Naval Facilities Engineering Command's BASH program in February 2000, I have grown to appreciate the relationship between wildlife, habitat, and the naval aviator.

Managing wildlife and natural resources on Navy and Marine Corps lands is a complex, full-time job for natural-resources managers. We must be aware of the environment but must stay focused on supporting the military mission. Doing both is not always easy, since most naval facilities are located near coastal areas associated with wetlands and other habitats. These areas attract various wildlife species, migratory and non-migratory. Many facilities were built in the early 1940s and were located in areas considered out of the way and low-cost, such as coastal wetlands, woodlands, and habitats not desirable for industry.

Today, many of our facilities are now islands of pristine, natural habitats, surrounded by human encroachment. As more and more wetlands and coastal estuaries become developed for human habitation, these islands of natural habitats—naval facilities—become more important to wildlife.

Unfortunately, this situation presents a big problem. Since the 1970s, many species of birds have increased their numbers dramatically. Combine this growth with shrinking habitats, and you're on a collision course with naval aviation. Since 1980, the Naval Safety Center has recorded over 12,000 wildlife strikes. I say "wildlife strikes" because BASH events have occurred with many species, including birds, deer, moose, cows, coyotes,

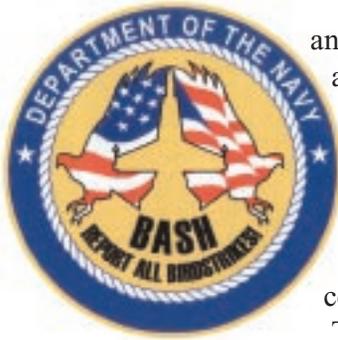
dogs, cats, bats, snakes, and fish. Only 20 to 25 percent of all damaging and non-damaging strikes are reported.

Aviation-mishap reports show strike events have caused the death of two naval aviators, 14 crashed aircraft, 17 ejections, 36 injured aircrew, and 243 Class A, B, and C FODed engines. These reports also indicate the top four wildlife species involved in mishap events are gulls, vultures, waterfowl, and deer. The cost to the Navy because of these mishaps is over \$313 million. This expense does not accurately reflect the total cost, since it doesn't include the damage estimates found in the thousands of hazard reports.

What can be done to prevent future wildlife-strike events? First, and foremost, is awareness and communication. All players in the aviation and natural-resources communities need to communicate with each other. The installation's natural-resources manager is one set of eyes and ears monitoring the wildlife populations around an airfield. The second set of eyes and ears are the operations personnel and aviators using the airfield environment. The natural-resources manager can discuss wildlife issues, identify peak movement periods, offer migration information, and help identify strike remains.

Aircrews and airfield workers should report wildlife activity to the tower and other aircraft. Wildlife sightings reported by aircrew could save the lives of aviators on later flights.

BASH should be a topic at all safety standdowns and aviation-safety-council meetings because of the seasonality of wildlife populations and migrating habits. There is a BASH interactive multimedia-training module available through the Distance Learning Program of the Civil Engineering Corps, Officers School (CECOS), Port Hueneme, Calif. This training program is in a CD format



and covers all aspects of the Navy and Marine Corps BASH program. It is available, at no cost, through CECOS. The point of contact is Ms. Jacqueline Francis, (805) 982-2822 (DSN 551), or e-mail francisjr@cecos.navy.mil.

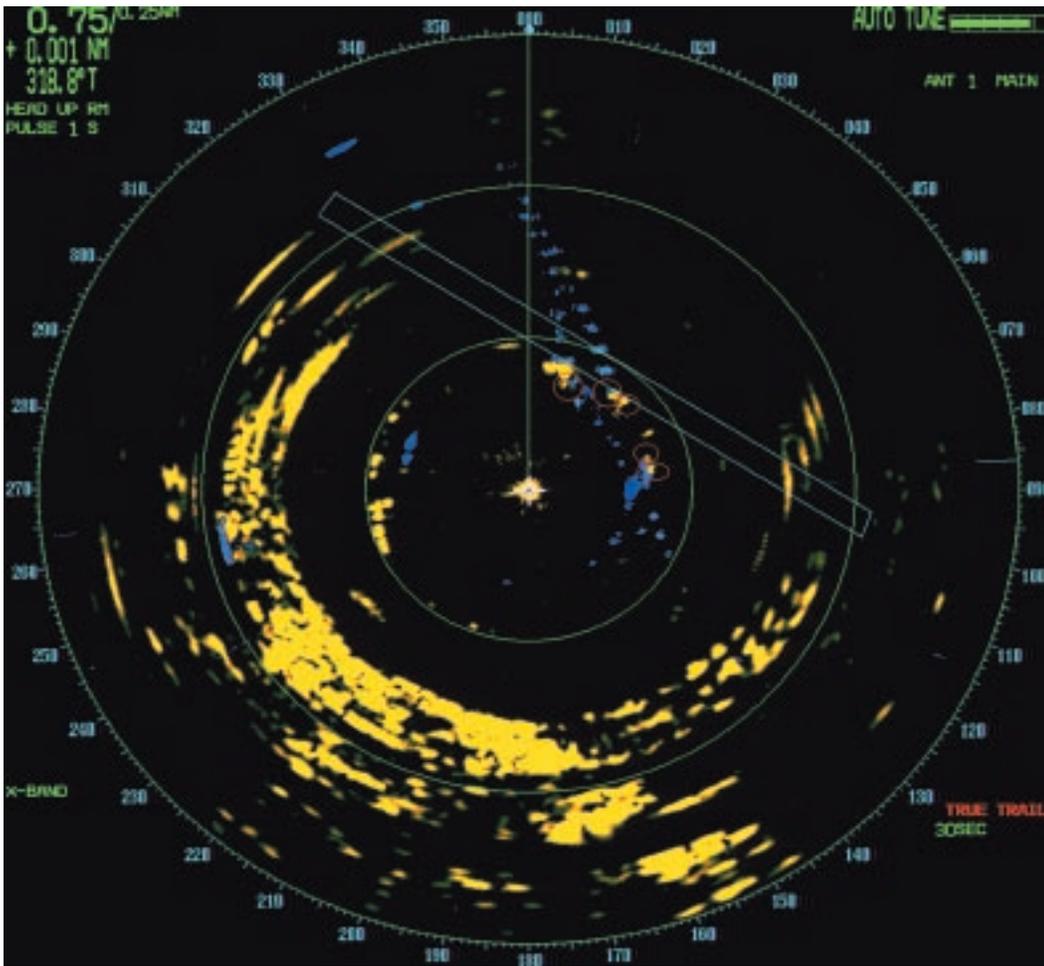
The most important component of the BASH program is reporting wildlife-strike events and identifying the species involved in each event. It is not realistic to control or to eliminate all wildlife on an installation. In fact, many wildlife species associated with an installation do not pose a threat to aviation. It's

the few problem species that need close attention and management. The only way to determine which species are creating the problem is to document strikes.

All damaging and non-damaging strikes must be reported to the Naval Safety Center. The Safety Center recently upgraded their website (see page 7) for reporting wildlife strikes. The revised website includes a query capability for squadrons and natural-resource managers to obtain data for management purposes. This new site also allows you to report non-damaging strike events. The number of "Oh&^%\$*! How did we miss that one?" far outnumber actual strike events. If these types of events are reported, imagine the database that could be used to manage an installation's BASH program.

Strike data also can be used to locate problem areas around the airfield and training areas. If a group of strike events and the species are identified at a specific location on an installation, then measures can be taken to modify the habitat. It might be a wetland, ponded water from a rainstorm, an agricultural outlease, a bird-roost area, or a coastline. Problem areas can be avoided by modifying flight operations. For example, if a known flight of birds cross the airfield in the evening just after sunset, then flight operations might be delayed. Another possible option would be to use another runway, away from the local migration.

Through the Natural Resources Division of the Naval Facilities Engineering Command, a process has been established with the Smithsonian Institution to identify bird-strike remains. The Navy's procedure is for the installation's natural-resources manager, university, museum, or birding group to locally identify strike-event remains. If this procedure is



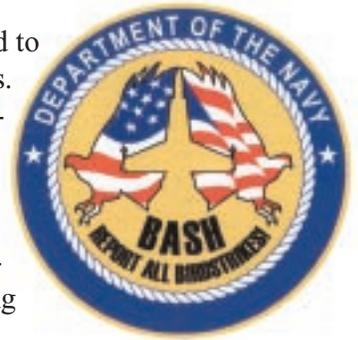
This BIRDRAD image shows five flocks of mallard ducks that flew into a ponded area on the infield of NAS Whidbey Island, WA. The ducks had arrived just after dusk and their activity lasted for 15 minutes. The flocks are indicated by yellow dots and circled in red. The blue dots are the 30-second echo trails of where the birds came from. This image was sent to the NAS operations officer and air wing safety officers at Whidbey and then to all squadrons with a bird advisory for the following evenings.

not possible, or if the remains are too small or fragmented, then they should be sent to the Navy's BASH program coordinator for cataloging and forwarding to the Smithsonian for identification. All identification information and remains will be returned to the squadron after they are identified. It is important to collect and turn in for identification the smears on the canopy that look like a big bug splat. A splat will contain feather fragments that can be identified. When more strike events are identified, the installation's program will improve.

Research and study of bird movements within the local vicinity of an installation and across the nation is progressing. Technology is advancing in the area of radar ornithology through the funding of the Department of Defense Legacy Program. The Navy's BIRD RAD (bird radar) program, through the Clemson University Radar Ornithology Laboratory, is developing a modified marine radar to document bird activity at local airports.

Five BIRD RAD mobile units are deployed around the country at Navy, Marine Corps, and Air Force installations. Five more units will be built with FY03 Legacy funds. Once all 10 units are deployed and oper-

ating, a website will be created to centrally locate activity images. Pilots can view the avian activity at their local installation or their destination during pre-flight planning. The Legacy Program also is funding Clemson University to research using the National Weather Service's Weather-Surveillance Doppler Radar images to study national bird activity associated with weather patterns. This data will be used to predict national movements of birds. Current information available for



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national movements and concentrations of birds is available through the U.S. Air Force's Bird-Avoidance Model (BAM) website (see page 2). A website tool for



This white pelican is one of 17 pelicans hit by a single FA-18 flying over the California desert.



flight planning is the Avian-Hazard-Advisory System (AHAS), www.ahas.com.

Another research tool being looked into is partnership between the Navy and the Partners-In-Flight Initiative. This program is dedicated to preserving migratory birds on Department of Defense lands. Research is ongoing to determine the habitat requirements for avian species that do not pose a threat to military aviation. This program will assist installation managers in directing their limited funding away from the species that do not pose a threat to those that do.

A comprehensive BASH program requires communication between all players in the installation's aviation

and natural-resources programs. Information regarding problem species or problem areas must be related to the aviators in a real-time scenario to provide the safest possible flying environment. 🦅

If you have any questions or comments on the Navy's BASH program, contact:

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Collecting and identifying strike-event remains provides important information for BASH program coordinators.