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Video: Identifying Bird Remains

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Photos: Fowl-Ups at Bagram Airfield

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BAGRAM AIRFIELD, Afghanistan -- Flying an F-15E Eagle fighter may be the sexiest job the military has to offer.

The least sexy may be bagging up the beaks, talons and feathers smeared on the jet's exterior when an Eagle hits a sparrow at 500 miles per hour.

[F-15E Strike Eagle fighter takes off from Bagram Airfield, Afghanistan.]1

Michael M. Phillips

An F-15E Strike Eagle fighter takes off from Bagram Airfield, Afghanistan.

Lt. Col. Del Johnson does both. His day job is firing up the afterburners and flying combat missions out of Bagram, the main U.S. air base in Afghanistan. But as flight safety officer, his duties also include making sure that every time war bird and regular bird collide, the latter is scraped off the former and shipped to scientists at the Smithsonian Institution.

"It's not as glamorous a job as you might imagine," says Col. Johnson, a 38-year-old Kansan with a Top Gun grin and a 9mm pistol strapped to his shoulder.

A bird, even a small one, can bring down a \$38 million F-15E fighter if it flies into the air intake and breaks the engine's turbine blades. A goose can smash through the canopy and do grievous injury to the two-man crew. Col. Johnson, for his part, once hit a vulture while flying at 500 feet above North Carolina. "I just saw a black bird," recalls the colonel, who landed safely. At 550 miles per hour, he says, "things go by pretty fast."

Bagram is on the Salang Corridor, a major Asian migration route, and the runway here is visited by raptors called black kites, as well as resident pigeons, doves, mynahs and sparrows. Since he began his combat tour in September, Col. Johnson has recorded more than 20 bird collisions involving planes from the 455th Air Expeditionary Wing.

The base has tried to persuade the birds to go elsewhere. Contractors used to burn garbage in open pits, but that attracted mice, and mice attracted birds. Now they burn trash in a towerlike structure. Sometimes, Col. Johnson shoots fireworks from a double-barreled signal pistol. He's also shopping for a laser to scare away birds. After ruling out

a \$995 Avian Dissuader model, he has his eye on a \$7,700 Desman laser with a sniper's scope and 1.5-mile-long beam. (Birds aren't harmed by the laser, its dealer says.)

But one of the most reliable ways to avoid birds is for the pilots to learn their wily ways. That's where the Smithsonian comes in. Museum researchers identify bird remains and feed a database that helps the crews determine the hours and seasons when bird conditions are riskiest. "We use this data to analyze what we're hitting, where we're hitting and when we're hitting, so we can avoid them," says Col. Johnson.

Slamming Into F-15

In late October, two birds slammed into an F-15 at Bagram. One splattered just in front of the canopy and another hit the mount for the targeting pod, a \$1 million piece of gear that allows pilots to see clear images of people and buildings tens of thousands of feet below, even in the dead of night.

The plane wasn't damaged. "There were no injuries," says Col. Johnson. "Well, there are two dead birds."

With a blue rag normally used to clean canopy windows, a ground crewman wiped tiny bits of bird off the plane and turned it over to Col. Johnson. He donned blue latex gloves and, as a precaution, poured alcohol over the sample to kill any avian flu virus. He double-bagged the remains, marked the specimen with the place, time and date of impact and packed it in a padded envelope with a series of documents, including proof of origin and a U.S. Department of Agriculture form allowing him to ship bird parts out of Afghanistan.

One of the less glamorous parts of being a jet pilot in Afghanistan is dealing with bird carcasses. Michael Phillips reports on efforts to protect birds -- and pilots -- from head-on collisions.

Birds downed by U.S. Air Force planes everywhere in the world end up in the morning mail of Carla Dove. Ms. Dove -- yes, it's her real name and, yes, she gets the joke -- is the program manager of the Feather Identification Lab at the National Museum of Natural History in Washington. A 45-year-old with feathered blond hair and a soft accent from her native Fulks Run, Va., Ms. Dove calls the morning delivery "snarge," a term of art that combines snot and garbage.

Smithsonian researchers have identified head-dress feathers for museum anthropologists and the contents of rattlesnake stomachs for naturalists. But most of their work is identifying birds killed by military planes. The lab team even ordered up its own souvenir coins, adopting a military tradition. "Got cherpies?" says one coin. "We'll tweet it."

Ms. Dove and her staff have three methods of identifying dead birds, which they do about 4,000 times a year. Marcy Heacker, a 44-year-old research assistant from Dayton, Ohio, specializes in matching whole feathers with those found on more than 620,000 bird specimens in the museum's back rooms. Red-tailed hawks, scarlet tanagers, blackpoll

warblers and more are lined up in drawers stacked floor to ceiling, their bodies lifelike except for the white cotton where their eyes once were.

Sack of Feathers

Last month, Ms. Heacker plucked a sack of feathers and a claw out of the morning mail, the remnants of a collision between a bird and a KC-135R, an airborne refueler, out of Altus Air Force Base in Oklahoma. The fluffy, peachy-beige breast feather immediately suggested a mourning dove. She climbed a ladder and pulled a stuffed one from a high drawer, holding it next to a white-tipped tail feather that looked as if it might have passed through a jet engine.

"Remember, this is a little chewed up," she said. "But it looks like a pretty good match."

When feather remains are too severely damaged to make a naked-eye identification, Ms. Dove steps in. In wooden filing drawers in her office, amid pictures of birds and jets, she keeps 2,400 microscope slides of fluffy feather barbs. Up close, she can see nodes that distinguish, say, a wren from a Muscovy duck. "Not many people do this," says Ms. Dove, who has worked at the lab for 19 years. "Nobody wants to go through the snarge."

Last year, a grateful pilot took Ms. Dove on a ride in an F-15. She proudly reports that, despite the flier's best efforts, she got through the flight without vomiting. She was alarmed, however, when someone told her afterward that a big red-tailed hawk had been perched on a nearby building as the plane took off. "Lucky I didn't see it or I would have told him to stop," she says.

In the case of Col. Johnson's two-bird specimen, however, there wasn't enough feather to do microscopic comparison. So the blue, blood-stained rag ended up with Nancy Rotzel, a 28-year-old molecular specialist from Appleton, Wis. Using an expensive machine provided by the Federal Aviation Administration, Ms. Rotzel extracted DNA from the sample and matched it to records from the Barcode of Life Data Systems, a collection of DNA from 35,105 plant and animal species.

The snarge revealed a 99.5% match with a skylark, and a 98.5% match with a great egret.

The Smithsonian team entered its findings into a global bird-avoidance database, which calculates the odds of a plane hitting a given species of bird at a given moment. Back at Bagram, the data help Col. Johnson set takeoff and landing schedules, at least within the constraints imposed by war.

"You have to go to the fight when the fight exists," he says. "So there's only so much you can do."

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