CSI: Airport

The Smithsonian Institution's Carla Dove, Marcy Heacker, and Nancy Rotzel (right to left) are striking a blow for airliner safety by identifying the types of birds that collide with aircraft.

>>> WHEN CARLA DOVE checks her mail each day, she finds a dozen packages from airport managers, pilots, and wildlife biologists around the world. The contents: mangled bird carcasses. These birds have been on the losing end of a collision with an aircraft. As the head of the Smithsonian Institution's Feather Identification Laboratory, it is Dove's job to identify the bird species from their remains.

About 25,000 birdstrikes occur each year in the United States alone, costing the civil aviation industry about $500 million. More importantly, strikes create the potential for human injury—or worse. Biologists, researchers, and those involved in airport safety hope that by identifying the species that are colliding with aircraft, bird strikes can be avoided.

Dove's team of three use microscopes to examine feather characteristics such as size, shape, pattern, color, and texture; comparing the findings to the 620,000 bird specimens in the Smithsonian's collection enables them to make matches. Recently, Dove and her colleagues have been turning to DNA "barcoding" as a means of species identification—especially when only what the researchers call "snarge"—small bits of blood and bird tissue—can be recovered.

Dove's team, in collaboration with colleagues at the University of Guelph in Canada, has recently completed a library of DNA sequences of bird species in the United States and Canada. Thanks to a five-year grant from the Federal Aviation Administration, 96 percent of U.S. and Canadian bird species (approximately 645) can now be identified from DNA.

Dove admits that identifying bird remains using DNA "is not easier, it's not cheaper, and it's not faster." However, "it has enabled us to improve our species-level identifications by about 30 percent," she says. "In the past we identified nearly 100 percent of the strikes, but some were only identified to the major group of birds, like order or family. Now we can get all the way down to the species level—like song sparrow."

But DNA sequencing was never expected to replace feather identification. Dove and her team still count on whole feathers and circumstantial evidence to identify birds.

JENNIFER A. LYNCH

UPDATE

"It's...ALIVE!"

ROBERT PLEMING, HEAD of the Vulcan to the Sky Trust, credits the "British bulldog spirit" for restoring Avro Vulcan XH558 to airworthy status (see "God Save the Vulcan!" Dec. 2003/Jan. 2004). The iconic cold war delta-wing bomber made a 20-minute flight last October at Bruntingthorpe Airfield in Leicestershire, after a $12 million overhaul, the vast majority of which was donated by Vulcan fans. The government's Heritage Lottery Fund had jump-started the restoration by awarding the project some $5 million in 2004. Pleming hopes the Vulcan will spend 15 years as an airshow star before retiring to a museum.

A Star Is Airborne: Vulcan XH558 flies again.

LEFT: VULCAN TO THE SKY; TOP: JAMES DILORETO, SMITHSONIAN INSTITUTION

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On the cover: The F-117A Nighthawk in Bob Wickley's photo seems to have been chiseled from the mountains beneath it. In his retrospective on the first stealth fighter as it heads for retirement (p. 42), Bill Sweetman notes that the technology that made the aircraft look so freakish at birth matured quickly. We'll never see another like it.

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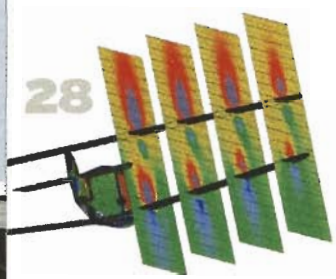

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