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Dover AFB sets trend with bird radar, prevents strikes

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MERLIN XS2530m system operating at Dover AFB

10/26/2006 - **DOVER AIR FORCE BASE, Del.** -- An F-16 Fighting Falcon pilot is preparing for a routine training mission in South Korea. Shortly after taking off, the pilot sees a grayish object flash in front of him, followed by a loud bang and an apparent fire in front of his aircraft. The pilot experiences severe deceleration, causing him to be thrown forward in the cockpit. He initiates emergency procedures for an engine fire by raising the nose of his aircraft and releasing his external fuel tanks. However, the jet engine does not respond properly to his throttle inputs, so he ejects safely approximately 12 seconds after liftoff.

This crash occurred near the end of a runway at Osan Air Base May 29, 2003, and was caused by one spot-billed duck being ingested into the aircraft's engine, resulting in a catastrophic engine failure that endangered lives, affected the Air Force mission and cost millions of taxpayer dollars. The pilot and a Korean civilian on the ground were slightly injured in the crash, and the aircraft was destroyed on impact.

Since 1985, the Air Force has documented more than 71,000 bird strikes, costing hundreds of millions of dollars, according to the Air Force Safety Center at Kirtland AFB, N.M. Since 1973, the Air Force has lost 35 Airmen and 41 aircraft due to bird strikes.

In an effort to prevent future bird-strike scenarios from occurring, the Air Force Safety Center BASH chose Dover Air Force Base as a test site for a radar that will help prevent bird strikes.

"The bird radar is a state of the art risk management tool that is designed to identify biological targets (such as birds) in and around the airfield," said Ron Merritt, president of DeTect Inc. in Panama City, Fla., and former Air Force BASH Team chief.

Dover AFB recently received the 2006 Merlin XS2530 bird radar from DeTect Inc., which scans both vertically and horizontally more than six nautical miles and costs approximately $300,000.

The bird radar serves two purposes. It will collect data to help compile information on bird movement patterns and will provide real-time bird detection to locate large flocks.

"Due to the location of the base along the Mid-Atlantic coast, (Dover AFB) is in the middle of a major migration route for birds and is at the center of the wintering grounds for greater snow geese and large numbers of migratory Canada geese, as well as many gull species," said Dr. Karen Voltura, Dover AFB's Bird and Wildlife Aircraft Strike Hazard chief of operations for Flyaway Farm and Kennels Wildlife Management, the BASH contractor for Dover AFB.

While Dover does not usually have a large number of bird strikes, it has had several damaging strikes in past years.

"Currently, we average about 25 strikes per year," said Doctor Voltura. "During the last four years, the Dover BASH program has been able to decrease bird strikes here by over 55 percent."

The bird radar is expected to reduce these Dover statistics even more.

"The information collected (by the radar) will help the BASH program refine the scheduling restrictions that are part of the Dover BASH plan, and eventually it will allow the immediate detection of birds that are a direct risk to aircraft flying in and out of Dover Air Force Base," said Doctor Voltura.

According to Mr. Merritt, a Merlin radar system at Dare County Bombing Range, N.C., has almost completely eliminated serious bird strikes.

"The bird radar should dramatically improve understanding of how birds use the landscape around Dover Air Force Base both in time and space," he said. "The displays should allow the bird control staff to more efficiently deploy control efforts as well as provide air traffic controllers with real-time advisories for aircrew."

Such real-time detection enhances risk management, particularly at night or foggy, low-visibility days when Airmen cannot visually locate flocks entering flight paths.

The birds are displayed by the radar onto a radar screen as a target track, which is displayed over a map. Other objects such as trees, buildings or large, fast moving aircraft are rejected by the radar software, leaving only the targets of interest on the display, said Mr. Merritt.

The radar is located on the flightline here, and the radar picture it provides can be displayed on any computer with Internet access. Eventually, the goal is for air traffic control to observe the presentation and pass bird location information to aircrews via radio communications.

The radar is expected to be operational by next month, and the concept of operations will be developed over the next six-to-nine months with coordination between flight safety, bird control, air traffic control and base operations.

Similar radars are being used at Dare County Bombing Range, Grand Bay Bombing Range, Moody AFB, Offutt AFB, Tyndall AFB, and radars will soon be deployed to Whiteman AFB and Langley AFB.

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