



## INTERNATIONAL CIVIL AVIATION ORGANIZATION

## THE THIRD MEETING OF THE AERODROMES OPERATIONS AND PLANNING – WORKING GROUP (AOP/WG/3)

Putrajaya, Malaysia, 2 – 4 June 2015

**Agenda Item 4: Provision of AOP in the Asia/Pacific Region****WILDLIFE HAZARD MITIGATION**

(Presented by the United States of America)

**SUMMARY**

With an increase in bird and wildlife populations and aircraft operations, wildlife hazards and bird strikes are increasing at an alarming rate. Part 139 certificated airports are required to maintain a wildlife management plan and general aviation airports are encouraged maintain one by doing hazard assessments. The U.S. government and industry have been collaborating to improve wildlife management strategy. There are various tools and methods for managing habitats, and detecting and deterring hazardous species from airport on and near airport property.

This paper relates to –

**Strategic Objectives:**

*A: Safety – Enhance global civil aviation safety*

**1. INTRODUCTION**

1.1 Wildlife management continues to be a major challenge in the aviation industry. Many populations of large bird species, including bald eagles, turkey vultures and geese are increasing. Canada Geese (popular in the U.S. and Canada) have increased from about 0.5 million to 3.8 million 1980 to 2013 and 13 of 14 species over 8 pounds have significantly increased. Birds also continue to heavily populate urban areas.

1.2 Additionally, commercial aircraft movements within the U.S. are increasing. They have gone from 18 million in 1980, to 28 million in 2008, and are estimated to reach 35 million in 2025. And because of the increase in both bird populations and aircraft movements, the number of bird strikes has quadrupled since 1990. It is also important to note that although the highest strike was recorded at 32,500 feet, 59% of strikes happen below 100 feet, 92% of strikes happen below 3,000 feet and less than 2% of strikes happen above 10,000 feet. Understanding this data has allowed the FAA to work with industry to develop and build on mitigation strategies for wildlife control.

**2. DISCUSSION**

2.1 *Wildlife Management at Part 139 Certificated Airports:* All certificate holding airports must take immediate action to alleviate wildlife hazards whenever they are detected. And they must conduct a wildlife hazard assessment when there is evidence of hazardous wildlife presence. The certificate holder must then develop a wildlife management plan to be documented in the certification manual.

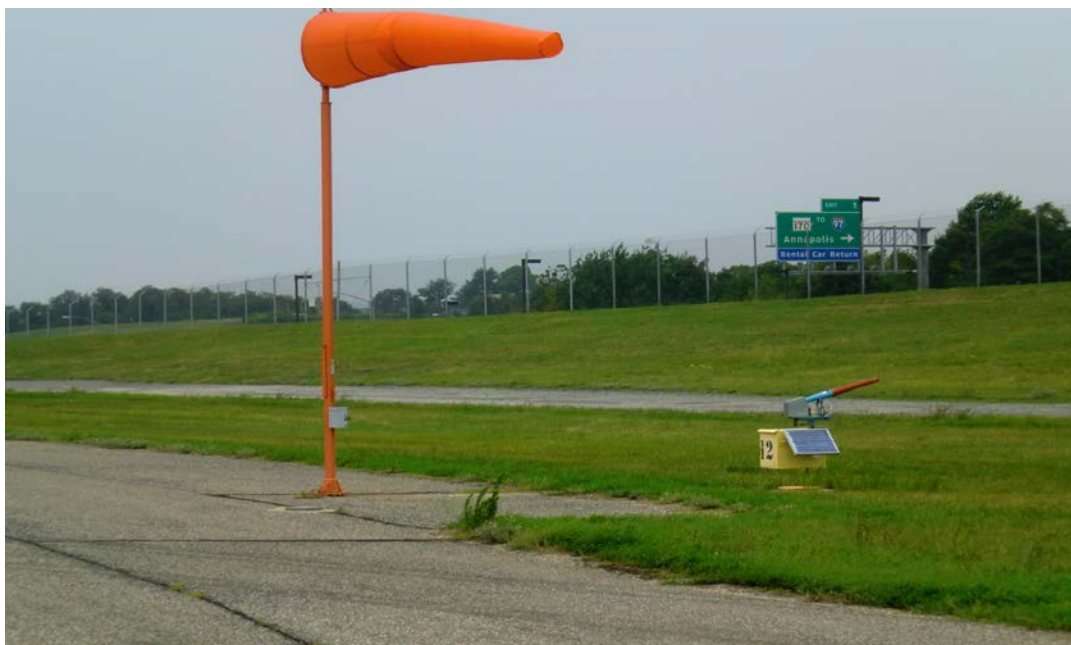
2.2 *Wildlife Management at General Aviation Airports:* While wildlife management is required at certificated airports, the FAA is encouraging all General Aviation (GA), or non-certificated airports to conduct a Wildlife Hazard Assessment (WHA) or Wildlife Hazard Site Visit (WHSV). The FAA is focusing on the approximately 2,800 non-certificated airports in the U.S. National Plan of Integrated Airport Systems (NPIAS) by conducting outreach and education for these airports to report wildlife strikes to the FAA National Wildlife Strike Database in addition to conducting WHAs and WHSVs.

2.3 *Wildlife Hazard Assessments:* A WHA is a 12-month study that identifies wildlife and potential wildlife hazards at an airport and provides recommended actions to minimize these hazards. Airports then develop a Wildlife Hazard Management Plan (WHMP) to mitigate those hazards. The FAA may provide financial grant assistance to help with the cost of a WHA or a WHMP. Of the airport in the NPIAS, the FAA would like those with at least 75,000 operations and/or 100+ based jets to conduct a WHA.

2.4 *Wildlife Hazard Site Visits:* A WHSV is a 2-3 day site visit for smaller non-certificated airports. It can also provide mitigation recommendations.

2.5 *Outreach and Education:* The FAA has distributed 24,000 wildlife strike awareness posters to promote strike reporting at non-certificated and Part 139 airports, as well as aviation training facilities across the country. Copies of the latest, relevant Airport Cooperative Research Program reports have also been sent to the 2,800 GA airports. The reports were ACRP Synthesis 23: *Bird Harassment, Repellent, and Deterrent Techniques for Use on and Near Airports* and ACRP Report 32: *Guidebook for Addressing Aircraft/Wildlife Hazards at General Aviation Airports*.

2.6 *Addressing Wildlife Hazards:* There are many tools, used to mitigate for wildlife present on airports. The most important mitigation method is habitat management to reduce the wildlife attractants (food, water and shelter) on and near the airport. It is impossible to remove all wildlife attractants, so other methods of wildlife mitigation are necessary. Detering wildlife from using the airport can be accomplished in many ways and usually requires a combination of several methods. One common auditory repellent is the use of bird compressed air powered cannons that emit loud noise:



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[http://www.faa.gov/airports/airport\\_safety/wildlife/resources/](http://www.faa.gov/airports/airport_safety/wildlife/resources/).

2.6.1 The most effective wildlife mitigation programs are those that have had a Wildlife Hazard Assessment to determine what the hazards are and what times of year they occur in conjunction with a combination of proactive and reactive wildlife mitigation measures.

2.7 *Industry-Government Wildlife Collaboration Initiative:* Civil Aviation Authorities (CAAs) and industry must work together to address hazardous wildlife issues in a regional, cooperative, and prioritized manner. The Industry-Government Wildlife Collaboration Initiative is such an effort between the FAA, the United States Department of Agriculture (USDA), the International Air Transport Association (IATA), the Latin American and Caribbean Air Transport Association (ALTA), their partner air carriers, and the Airports Council International (ACI). These organizations have teamed up to work collaboratively with airports authorities, CAAs and ICAO to address hazardous wildlife issues in the Caribbean and Pan-American regions.

2.7.1 The partners developed a steering committee made up of members from each of the team's organizations. The steering committee worked with regional air carriers and regional airports authorities to identify priority locations for initial participation in specific pilot projects. Panama and Ecuador were selected as locations for the pilot projects. The first assessment (initial pilot project) was conducted at Panama's Tocumen Airport between June 2012 and July 2013. Comprehensive reports and recommendations were provided to the airport throughout the assessment. The steering committee has been working with the ICAO Regional Aviation Safety Group-Pan-America (RASG-PA) Executive Steering Committee, and the regional wildlife group (CARSAMPAF) throughout the program to gather additional data and recommend mitigation actions. The Committee met in Mexico City in January, where they agreed to the essential characteristics of the program and future steps to move it forward. Brazil has shown an interest in working with the steering committee for the next group of airport wildlife hazard workshops.

2.8 *Avian Radar and Sensors:* The FAA Airport Technology Research and Development Branch, located at the William J. Hughes Technical Center in Atlantic City International Airport, New Jersey, launched an effort in 1999 to identify sensors that could detect and track birds in the critical airspace of airports (below 3000 feet above ground level for distances out to 6 nautical miles). Before this effort, many radar types had been used successfully for bird research, including the NEXRAD, modified military radars, and marine band radars with advanced digital processing. The FAA focused its research on using radar to increase airport safety from a wildlife hazard mitigation perspective. Bird radars were not a new technology, but their application at civil airports was new.

2.8.1 Through a grant to the University Of Illinois Center Of Excellence for Airport Technology (CEAT), a multiyear program was established to assess new safety technologies for commercial airports. In 2001, the FAA joined forces with radar experts in the U.S. Air Force's (USAF) Air Force Research Laboratory in a Dual Use Science and Technology Program to develop an avian radar system. In 2002, WaveBand Corporation was selected through a competitive process to develop a 94-GHz radar for this program. CEAT assessed the WaveBand radar throughout its development and in field tests in 2004 and 2005 at the Dallas/Fort Worth International Airport (DFW) and the Fermi National Accelerator Laboratory in Illinois. CEAT determined that the radar could effectively detect and track birds.

2.8.2 At the same time, other private companies were advancing radar technology for bird detection. As bird radars became commercially available, the FAA shifted its focus from developing bird radars to assessing the performance of existing bird radars and their potential use at civil airports.

2.8.3 Three radar systems have been studied (Accipiter Radars, DeTect MERLIN Radars and SRC BSTAR Radars). Issues of deployment such as siting and installing radars and the compatible integration of into daily operations still remain. The FAA is currently working closely with Dallas - Fort Worth International Airport (DFW), Seattle – Tacoma International Airport (SEA) and most recently, Boston Logan International Airport (BOS) to determine the best ways to use bird radars in daily operations.

2.8.4 The first Advisory Circular was published in November, 2010. The FAA continues to study the BSTAR Radars at DFW with the introduction of a second radar at the airport to observe the ability to better understand how two or more radars can offer expanded coverage at a large airport. The covered portions of the sky have been determined with this type of radar, along with nearby NEXRAD radars, and this has enabled the FAA to develop methods for tracking migrations on a regional and local scale.

2.8.5 A formal agreement has been established between the FAA Office of Airports and the FAA NextGen Organization to help explore the feasibility of integrating bird radar information into the Air Traffic Control environment. The two organizations are in the second phase of work in which they are examining concepts of operation. The program is referred to as the Wildlife Surveillance Concept (WiSC).

2.8.6 As the FAA continues to study these technologies, there is rapid movement to address market potential. There are often new challenges identified along the way that were not clearly evident early on. The FAA is engaged in one such challenge right now with respect to frequency authorizations for operating these systems at airports. So the FAA will be looking into the different systems from a spectrum’s perspective in hopes of developing spectrum process guidance for airports that may pursue using federal grants to acquire bird radars.

2.8.7 Beyond radar, the FAA is also embarking on the assessment of non-radar based sensors such as electro-optical and infrared sensors to detect wildlife activity on airports and supplement surveillance methods already in place.

### **3. ACTION BY THE MEETING**

- 3.1 The meeting is invited to:
- a) note the information contained in this paper; and
  - b) discuss any relevant matters as appropriate.

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