ACRP WebResource 21: Environmental Stewardship and Compliance Training for Airport Employees

Wildlife Habitat Management and Control for Part 139 Airports Training Course

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Course Objectives and Overview

This course will provide a high-level overview of wildlife hazards at airports and how FAA wildlife requirements apply to airport management and operations

In this course, you will learn:

- Requirements for airports in relation to wildlife hazard management

- Wildlife hazard identification

- The recommended techniques for wildlife control

Links to federal references may be modified over time. Please search FAA and other federal websites to find the most current reference material.

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Key Definitions and Terms

- **Biological Assessment** – assesses the impacts of the Wildlife Hazard Management Plan on the federally listed species present on or near the airport (Cleary and Dickey 2010)

- **Depredation Permit** – nearly all wildlife are protected by state or federal laws. This is a legal document authorizing the take (capture or kill) of specified wildlife to help reduce damage to agricultural crops/livestock, private property, human health and safety (including airports), and protected wildlife (U.S. Fish and Wildlife Service n.d.).

- **Qualified Airport Wildlife Biologist (QAWB)** – a biologist with specific experience and training in understanding wildlife hazards to aviation that meet the FAA's specific requirements to be considered a "qualified biologist" (DeFusco et al. 2015)

Key Definitions and Terms (cont'd)

- **Wildlife Hazard Assessment (WHA)** – a precursor to and basis for a Wildlife Hazard Management Plan, this one-year assessment is conducted by a QAWB and results in a document providing a baseline of data and understanding of hazardous wildlife and the features that attract them to or near an airport

- **Wildlife Hazard Management Plan (WHMP)** – identifies the specific actions the airport will take, and who is responsible for those actions, to mitigate the risk of hazardous wildlife on or near the airport

- **Wildlife Hazard Site Visit (WHSV)** – an abbreviated analysis of an airport's wildlife hazards that is conducted by a QAWB to determine if a full WHA is warranted and, if necessary, to provide actionable information that allows the airport to expedite the mitigation of wildlife hazards

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Part 139 Airport Requirements

1. For Part 139 airports, the FAA requires that a Wildlife Hazard Assessment (WHA) or a Wildlife Hazard Management Plan (WHMP) be completed and maintained

2. The FAA does not fund direct wildlife control projects. Airports are responsible for managing hazardous wildlife.

Why is Wildlife Control Important at Airports?

Wildlife strikes impact aviation safety and safe airport operations.

- More than 301 people have been killed because of wildlife strikes from 1988-2021

- 298 civil and military aircraft have been destroyed from 1988-2021

- Economic losses are in the billions of dollars

Birds are not the only animals to cause problems at airports. Between 1990 and 2007, mammal strikes accounted for 14% of all reported strikes occurring at GA airports.
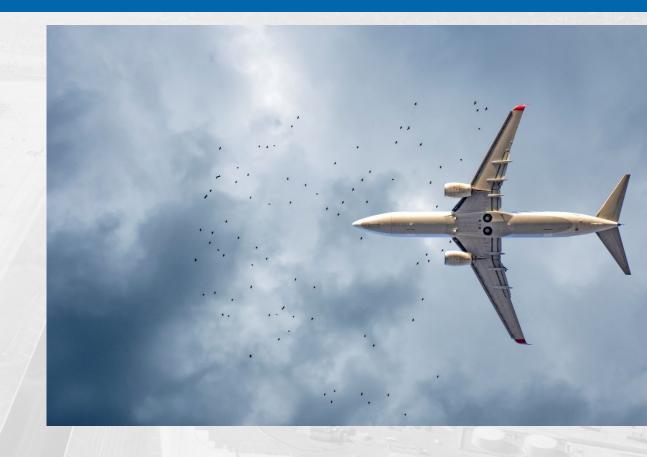
Source: FAA. Wildlife Strikes to Civil Aircraft in the United States, 1990–2021

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Wildlife Strikes

The number of wildlife strike reports have been increasing due to the following:

- The populations of most large-bird species in North America have increased over the last three decades and have adapted to urban environments

- Improvements in engine designs have resulted in quieter engines that birds cannot detect and avoid

- Pilots and airport personnel recognize the importance of strike data, which has resulted in a significant increase in reporting

Text Source: FAA. Wildlife Strikes to Civil Aircraft in the United States, 1990–2021

What is Bringing Wildlife to Your Airport?

Wildlife's primary goals in life are to survive and reproduce.

Bird migration may seasonally increase bird populations in your area.

- Wildlife habitats

- Wildlife attractants – food, water, and shelter

- Increases in local and migratory wildlife populations

- Changes in seasonal migratory patterns

- Lack of perimeter fence

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Wildlife Habitats

Knowing what habitats are present around the airport will help you determine how to manage wildlife hazards.

- Natural habitats (e.g., vegetation for nesting habitat)

- Artificial habitats (e.g., building rooftops for roosting habitat)

It is important to understand how the land on your airport is being used; for example, standing water may serve as a wildlife attractant.

Source: FAA. 2020. Hazardous Wildlife Attractants on or near Airports. https://www.faa.gov/airports/resources/advisory_circulars/index.cfm/go/document.current/documentNumber/150_5200-33

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Land-Use Wildlife Attractants

Knowing what attractants are present around the airport will help you determine how to manage wildlife hazards.

- Common land-use attractants are:
    - Solid waste landfills
    - Water management facilities
    - Water resources (e.g., wetlands)
    - Agriculture fields
    - Golf courses
    - Landscaping
    - Wildlife preserves or refuges

Text Source: Cleary, E.C. and A. Dickey. 2010. *ACRP Report 32: Guidebook for Addressing Aircraft/Wildlife Hazards at General Aviation Airports.* Transportation Research Board of the National Academies, Washington, D.C. https://doi.org/10.17226/22949

Wildlife Attractants During Construction

Construction projects can introduce wildlife attractants at your airport.

- Common construction project attractants are:
    - Staging and stockpile areas that attract rodents
    - Pits and depressions that fill with water after a rain
    - Clogged drainage ditches causing standing water
    - Food trash and other wastes attracting insects, rodents, and birds
- Monitor construction sites, staging areas, and haul routes daily for potential wildlife hazards
- Provide guidance to construction crews regarding the importance of minimizing wildlife attractants (e.g., reducing trash related to lunch breaks)

Source: ICAO. 2020. *Airport Services Manual, Wildlife Control and Reduction.* https://store.icao.int/en/airport-services-manual-part-iii-wildlife-hazard-management-doc-9137p3

Wildlife Control Training

A comprehensive airport wildlife control training program should include the following elements:

- Bird identification
- Mammal identification
- Basic life history of common species
- Habitat preferences
- Feeding behaviors and food preferences

- Daily movement patterns
- Breeding and migration schedules
- Wildlife environmental laws and regulations
- Control techniques
- Recordkeeping and strike reporting

Wildlife Control Strategies

Four basic control strategies are available to mitigate wildlife problems on airports (strategies may need to account for threatened and endangered species):

- Aircraft flight schedule modification
- Habitat modification and exclusion
- Repellent and harassment techniques
- Wildlife removal – federal and state depredation permits may be required

Off-airport control strategies can be influenced by airport overlays, airport perimeter limits of separation, and zoning restrictions in vicinity of the airport.

Staff members conducting repellent and harassment techniques should obtain training by a QAWB.

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Wildlife Control Methods and Techniques

The following wildlife control methods and techniques can be implemented to deter wildlife:

- Install wildlife fencing, sometimes with underground skirting to keep mammals off aircraft movement areas. Fencing must be maintained so agile mammals, such as coyotes and deer, that take full advantage of poorly maintained fences are kept out.

- Daily wildlife patrols conducted by airport staff

- Clear fields of bird nests (depending on species and time of year), small-animal carcasses, and debris

- Use runway sweeps in vehicles

- Propane cannons, pyrotechnics, and falconers to scare away wildlife

- Trapping and translocating and limited lethal reinforcement to eliminate stubborn wildlife that habituate to nonlethal methods

Wildlife Hazard Site Visit

A Wildlife Hazard Site Visit (WHSV) is used to evaluate potential hazards on and near airports.

- The WHSV:
    - Provides mitigation recommendations
    - Determines whether a full Wildlife Hazard Assessment (WHA) is necessary
    - Lasts one to three days for data collection and field observations
    - Includes a final report with recommendations to the airport
- The WHSV should be completed by a QAWB
- FAA makes Airport Improvement Program (AIP) grants available for WHSV surveys and select wildlife-related capital improvement projects (e.g., wildlife fencing and wetlands mitigation)

Text Source: FAA. 2018. *Advisory Circular 150/5200-38: Protocol for the Conduct and Review of Wildlife Hazard Site Visits, Wildlife Hazard Assessments, and Wildlife Hazard Management Plans.* https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentid/1020779

Reasons for Conducting a Wildlife Hazard Site Visit

Reasons for conducting a Wildlife Hazard Site Visit (WHSV) include:

- Any airport trying to quickly evaluate and mitigate potential hazards on and near airports

- Non-certified airports wanting to establish a basic Wildlife Hazard Management Plan (WHMP)

- Airports trying to decide if a proposed land use in the vicinity of the airport would increase the potential for wildlife hazards at the airport

- Any airport applying for Part 139 certification or any existing Part 139 airport

U.S. Department of Agriculture (USDA) Wildlife Services sponsors the Airport Wildlife Hazards Program, which consists of a nationwide network of more than 400 biologists trained and certified in wildlife hazard management, to assist airports with site visits and wildlife consultations.

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Wildlife Hazard Assessment

A Wildlife Hazard Assessment (WHA) is an intensive airport study that identifies hazardous wildlife and attractants and serves as the basis for the WHMP, if one is needed. The WHA includes the following:

- A minimum 12-month hazardous wildlife study

- A minimum of two data-collection trips per month, with surveys during morning, afternoon, and evening daylight hours

- A minimum of one offsite avian survey each quarter

- A minimum of one mammal survey each quarter

- Identification of attractants

- Identification of trends in wildlife numbers, locations, species and strikes

- Recommendation of mitigation methods

Source: FAA. 2018. *Advisory Circular 150/5200-38: Protocol for the Conduct and Review of Wildlife Hazard Site Visits, Wildlife Hazard Assessments, and Wildlife Hazard Management Plans*. https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentid/1020779

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Wildlife Hazard Management Plan

The Wildlife Hazard Management Plan (WHMP) is established to minimize the risk to aviation safety, airport structures or equipment, or human health posed by populations of hazardous wildlife on and around the airport. At a minimum, a WHMP:

- Includes measures to decrease wildlife hazards

- Prioritizes and determines a target schedule for implementing measures

- Identifies resources that the certificate holder will use to implement the plan

- Documents wildlife control permits needed

- Provides effective communication to implement the plan and training

- Outlines procedures to review and evaluate the plan

- Must be approved by the FAA

- Is required for Part 139 airport certification

Source: FAA. 2018. *Advisory Circular 150/5200-38: Protocol for the Conduct and Review of Wildlife Hazard Site Visits, Wildlife Hazard Assessments, and Wildlife Hazard Management Plans.* https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentid/1020779

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Wildlife Strike Report

Reporting wildlife strikes is a critical component in determining wildlife hazards and mitigation methods. The FAA's wildlife strike report is used to capture the important elements related to wildlife strikes.

- Report a strike through the [FAA Wildlife Strike Database](#) website

- The critical information to include on a strike report includes date and time, location (airport), phase of flight—or AGL at a minimum—and species

- Other useful information includes operator, aircraft make/model, engine make/model, aircraft registration, what part of the aircraft was struck, and damage and estimated costs

Tips on Identifying a Species

Knowing the exact species provides guidance to the size, behavior, and ecology of the bird in question and is key to tracking species trends as well as focusing preventative measures.

- The Smithsonian Institution's Feather Identification Lab can be used to identify species

- The lab is funded by the FAA, U.S. Air Force, U.S. Navy, and the Smithsonian Institution

- The Smithsonian Institution's Feather Identification Lab provides microscopic structure, feather matching, and DNA analysis

Contact the Smithsonian Institution's Feather Identification Lab at 202-633-0801.

Source: FAA. 2005. *Wildlife Hazard Management at Airports, second edition*.
https://www.faa.gov/sites/faa.gov/files/airports/environmental/policy_guidance/2005_FAA_Manual_complete.pdf

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Wildlife Hazard Management Under Part 139 Certification

Part 139 certificated airports have specific requirements:

- The FAA's wildlife regulations are contained in Chapter 14 of the Code of Federal Regulations Part 139 and requires that each certificate holder take immediate action to alleviate wildlife hazards whenever they are detected

- Airports that hold Part 139 certificates may use the standards, practices, and recommendations in FAA's *AC 150/5200-33C: Hazardous Wildlife Attractants on or near Airports* for one means of compliance with the wildlife hazard management requirement of Part 139
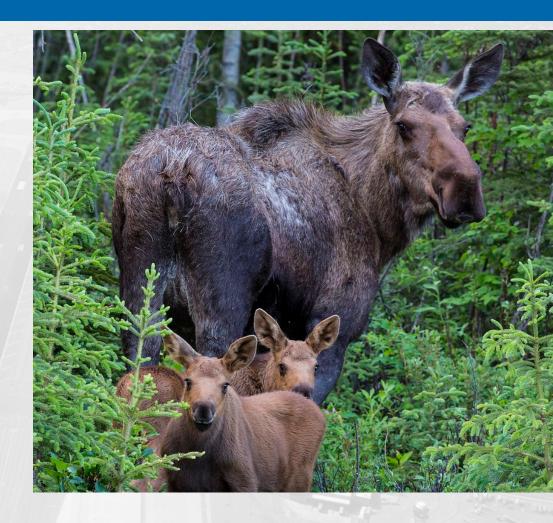
WHA Requirement Under Part 139 Certification

A Wildlife Hazard Assessment (WHA) is required for a Part 139 airport when a triggering event occurs, and it must contain at least an evaluation of:

- Analysis of circumstances that prompted the assessment
- Wildlife species
- Attractants/Habitat
- Wildlife hazards to aircraft
- Recommendations to reduce hazards

Text Source: FAA. 2005. *Wildlife Hazard Management at Airports, second edition.*
https://www.faa.gov/sites/faa.gov/files/airports/environmental/policy_guidance/2005_FAA_Manual_complete.pdf

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WHA Triggering Events

Under Part 139, a WHA is required for the following triggering events:

- An air carrier aircraft experiences multiple wildlife strikes

- An air carrier aircraft experiences substantial damage from striking wildlife

- An air carrier aircraft experiences an engine ingestion of wildlife

- Wildlife of a size, or in numbers, capable of causing any of the events above are observed to have access to any airport flight pattern or aircraft movement area

Text Source: FAA. 2005. *Wildlife Hazard Management at Airports, second edition.*
https://www.faa.gov/sites/faa.gov/files/airports/environmental/policy_guidance/2005_FAA_Manual_complete.pdf

Wildlife Hazard Management Plan Requirements

Under Part 139, based on the WHA, the FAA may determine that a Wildlife Hazard Management Plan (WHMP) is needed.

- The airport operator is responsible for developing the WHMP

- FAA will contact the U.S. Fish and Wildlife Service to verify the presence of federally listed or proposed endangered or threatened species and designated or proposed critical habitats

- If federally listed species or critical habitats are present, a Biological Assessment must be submitted to the FAA with the WHMP for review and approval

For a full list of WHMP requirements, see this FAA Advisory Circular: _AC 150/5200-38_.

The National Environmental Policy Act (NEPA) applies to WHMP approval, which may be categorically excluded under FAA Order 1050.1.

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FAA Wildlife Regulations and Guidance

For further guidance from the FAA, refer to:

- *AC 150/5200-33C: Hazardous Wildlife Attractants on or near Airports*

- *AC 150/5200-32C: Reporting Wildlife Aircraft Strikes* (replaces *AC 150/5200-32B*)

- *AC 150/5200-38: Protocol for the Conduct and Review of Wildlife Hazard Site Visits, Wildlife Hazard Assessments, and Wildlife Hazard Management Plans*

Source: FAA. 2005. *Wildlife Hazard Management at Airports, second edition.*
https://www.faa.gov/sites/faa.gov/files/airports/environmental/policy_guidance/2005_FAA_Manual_complete.pdf

What Does this Mean to Your Airport?

What wildlife has been spotted around your airport?

- o Provide any site visit or assessment results

What are potential wildlife attractants and habitats identified around your airport?

- o Provide maps showing location "hotspots," structures, landscaping, and other land-uses

How is your airport protected from wildlife?

- o Provide information on wildlife fences, design of drainage basins, depredation permits, etc.

What are the wildlife hazards on and around your airport?

- o Consider providing links to the most current WHSV, WHA, and WHMP, as applicable
- o Consider providing a Part 139 requirements review and Part 139 certificate information

Does your airport have a relationship with a QAWB?

- o Provide contact information
- o Consider providing specific training opportunities for operations staff with your QAWB

Course Wrap-Up

Some key takeaways include:

- Wildlife hazards can be present at all airports, regardless of size or number of operations

- Airports are required to take appropriate action to mitigate wildlife hazards

- The management of wildlife hazards is an ongoing process

- A wildlife hazard management program does not have to be overly complex or time-consuming

- The simple steps outlined in this training can and do help reduce the number and severity of wildlife strikes at airports

References

Cleary, E.C. and A. Dickey. 2010. *ACRP Report 32: Guidebook for Addressing Aircraft/Wildlife Hazards at General Aviation Airports.* Transportation Research Board of the National Academies, Washington, D.C. https://doi.org/10.17226/22949

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