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Federal Aviation Administration  
Western-Pacific Region  
Airports Division - AWP-600

# **Sacramento International Airport Wildlife Hazard Management Plan**

**Approved April 2013**

**Updated April 2015**



FEDERAL AVIATION ADMINISTRATION

MAY 28 2015

CLJ  
INSPECTOR

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APR 8 2012

Federal Aviation Administration  
Western-Pacific Region  
Airports Division - AWP-600

Request for Information (RFI)

White Horse Island Management Plan

Approved April 2012

Updated April 2012





U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Western Pacific Region

Airports Division (AWP-620)  
P.O. Box 92007  
Los Angeles, CA 90009-2007

May 28, 2015

Mr. Joe Conklin  
Sacramento International  
6900 Aviation Blvd.  
Sacramento, CA 95837

Sacramento International  
Sacramento, California  
Wildlife Hazard Management Plan

Dear Mr. Conklin:

The revision to your Wildlife Hazard Management Plan (WHMP) has been reviewed and approved. We are aware that the Migratory Bird Permit Office is experiencing delays in processing renewal requests. Since you submitted your written request for renewal and it was received in their office by the deadline specified on the renewal letter and the conditions set forth in 50 CFR 13.22( c) were met, maintain a copy of the receipt letter with your WHMP until you receive a renewed permit.

Please distribute copies of the revision to the holders of your Airport Certification Manual (ACM) listed on the Distribution List. Each existing ACM should be updated in accordance with this revision.

Sincerely,

Charlotte Jones  
Airport Certification Safety Inspector  
FAA Western-Pacific Region

Enclosure





**Department of Airports**  
John Wheat  
Director of Airports



**County Executive**  
Bradley J. Hudson

## **County of Sacramento**

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April 28, 2015

Charlotte Jones  
Airport Certification Safety Inspector  
FAA Western-Pacific Region  
15000 Aviation Blvd.  
Lawndale, CA 90261

**Subject: 2015 Sacramento International Airport Wildlife Hazard Management Plan  
Annual Report**

Dear Charlotte,

In compliance with Federal Aviation Administration (FAA) Code of Federal Regulations (CFR) Title 14 Federal Aviation Regulation (FAR) Part 139.337(f)(6), the Sacramento County Department of Airports (Airports) submits this annual report for the FAA approved Sacramento International Airport (SMF) Wildlife Hazard Management Plan (WHMP, Plan)<sup>1</sup> for your review. The report highlights the updated sections of the WHMP and provides a brief narrative on the reasoning behind additions and deletions organized by chapter. A revision log is also included that provides a more detailed list of changes. The Executive Summary reflects the changes made in all chapters and is not included in the summary below.

This is the second revision to the WHMP approved by the FAA in April 2013. It reflects minor changes, updated wildlife management and airport information, and enhanced descriptions of issues unique to SMF.

Chapter 1 – Annual passenger, aircraft operations, and airline numbers were updated with 2014 information.

Chapter 2 – On April 16, 2014 the Cooperative Services Agreement with United States Department of Agriculture Wildlife Services (USDA-WS) expired and the contract wildlife biologist is no longer providing services at SMF. Responsibilities and future references of the USDA-WS biologist have been removed.

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<sup>1</sup> Approved April 8, 2013

Chapter 3 – Table 3 was updated to reflect tasks scheduled to continue and/or occur within the next twelve months. Table 3.1 was revised to include species observed by the Wildlife Team in 2014.

Chapter 4 – No changes to laws and regulations.

Chapter 5 – No changes to resources.

Chapter 6 – Section 6.2 was updated to include practice of receiving strike reports from the Regional FAA Airport Certification Safety Inspector.

As a result of recent incidences of passengers feeding feral cats on airport property, a discussion of on-airport wildlife feeding activities and management procedures was inserted in Section 6.1. It has always been Airports' practice to prohibit feeding of any wildlife, and signs prohibiting wildlife feeding, including birds and cats, have been posted on the airport since 2010. The Planning and Environment Section provides information regarding the Airports' practices and associated reasoning to other airport sections and tenants, and assists the Airports Communication Media Officer with responses to the general public, as needed.

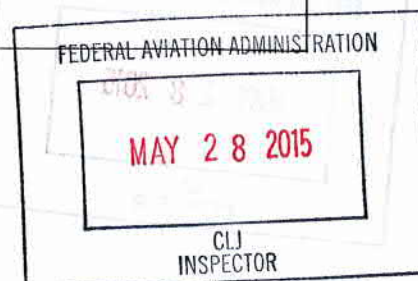
Chapter 7 – No changes to plan review and evaluation.

Chapter 8 – No changes to training program.

Appendix C – Due to staffing reductions within the U.S. Fish and Wildlife Service, issuances of depredation permits have been severely backlogged. An email from the Region 8 Migratory Bird Permit Office was inserted and states that the permit for the Sacramento County Department of Airports was still being worked on, and the Airports' Wildlife Team could continue to operate under the existing permit.

### 2015 SMF WHMP REVISION LOG

Page#	Change	Reason
Table of Contents	Reflects changes in page numbers	
1 – 2	Updated Executive Summary	Changes made throughout document
3	Adjusted Airport Information	Updated passenger, operations and airline numbers with 2014 information
5	Adjusted Wildlife Hazard Management Group (WHMG) and Wildlife Team (Team) participants	Removed Cooperative Services Agreement (CSA) with USDA-Wildlife Services (USDA WS) and USDA WS Biologist, due to cancellation of CSA April 16, 2014
6	Removed USDA WS Biologist	Deleted USDA WS Biologist responsibilities
7 – 9	Updated subsection numbers	Deleted USDA WS Biologist responsibilities
10	Updated year of species observation	Changed from 2013 to 2014
11 – 12	Revised Table 3	Removed completed tasks and added current and future management actions
13 – 15	Revised Table 3.1	Changed from species observed during 2013 to species observed in 2014
18	Improved grammar	
23	Updated Wildlife Control Activities – Section 6.1	Inserted discussion of prohibition of on-airport feeding of wildlife and Team efforts to reduce
24	Updated Section 6.2 – Wildlife Strike Reporting	FAA Airport Certification and Safety Inspector (Western Pacific Region) sends strike reports received to Wildlife Team
Appendix C	Inserted email from U.S. Fish and Wildlife Service Region 8 Migratory Bird Permit Office	Staffing reductions have created severe backlog in processing of federal depredation permits; Airports can still legally operate under existing permit





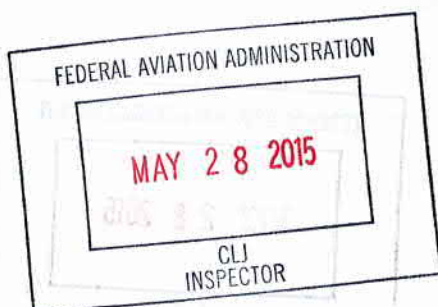
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SMF 2015 WHMP Annual Report  
April 28, 2015

If you have any questions regarding the updated WHMP or Airports' Hazardous Wildlife Management Program as a whole, please contact me at [carj@saccounty.net](mailto:carj@saccounty.net) or (916) 874-0754.

Thank you,

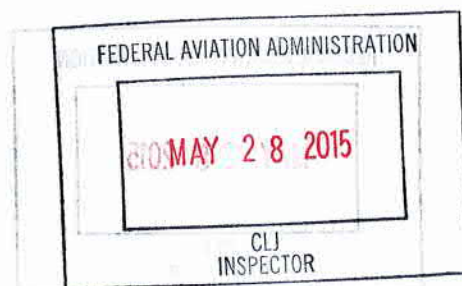


Julie A. Car  
Airport Wildlife Biologist  
Planning and Environment  
Sacramento County Department of Airports



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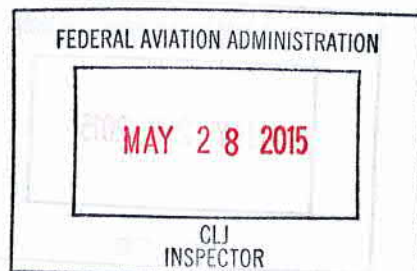
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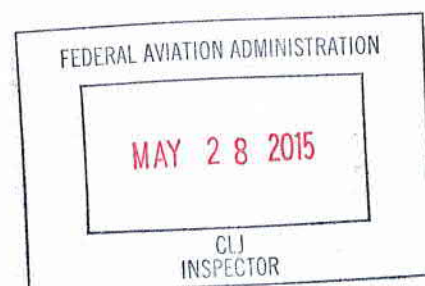
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Appendix C	Depredation Permit
Appendix D	FAA Advisory Circular 150/5200-33B, Hazardous Wildlife Attractants on or near Airports
Appendix E	FAA Advisory Circular 150/5200-36A, Qualifications for Wildlife Biologist Conducting Wildlife Hazard Assessments and Training Curriculums for Airport Personnel Involved in Controlling Wildlife Hazards at Airports



## Acronyms

AC – Advisory Circular  
ARFF – Aircraft Rescue and Fire Fighting  
ATCT – Air Traffic Control Tower  
BAR – Biological Assessment Request  
CDFW – California Department of Fish and Wildlife  
CESA – California Endangered Species Act  
CFR – Code of Federal Regulations  
Corps – United States Army Corps of Engineers  
CWA – Federal Clean Water Act  
ESA – Federal Endangered Species Act  
FAA – Federal Aviation Administration  
FAR – Federal Aviation Regulations  
MBTA – Migratory Bird Treaty Act of 1918  
SMF – Sacramento International Airport  
USDA – United States Department of Agriculture  
USFWS – United States Fish and Wildlife Service  
WHMG – Wildlife Hazard Management Group  
WHA – Wildlife Hazard Assessment  
WHMP – Wildlife Hazard Management Plan  
WS – Wildlife Services





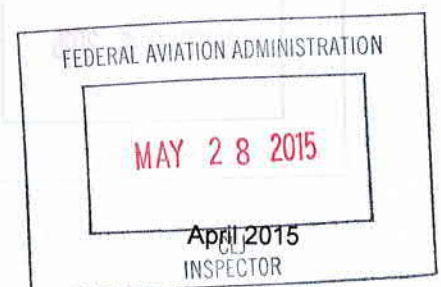
## Executive Summary

Sacramento International Airport (SMF) is a medium hub, primary commercial service airport located approximately ten miles northwest of the City of Sacramento in Sacramento County, California. It is operated by the Sacramento County Department of Airports (Airports). Land located due south and due north of the airfield proper functions as Airport Management Areas (AMA) for purposes of operational land use compatibility. The AMAs are managed to minimize attractiveness to wildlife and left idle. The SMF Air Operations Area (AOA) and AMAs are patrolled regularly for the presence of hazardous wildlife.

SMF is a certificated airport as established by the Federal Aviation Administration (FAA) under Code of Federal Regulations (CFR) Title 14 Federal Aviation Regulation (FAR) Part 139—Certification of Airports. As such, Airports must comply with specific regulations. FAR Part 139.337: Wildlife Hazard Management establishes criteria that when met require an airport to conduct a Wildlife Hazard Assessment (WHA). SMF last completed a WHA and submitted it to the FAA in November 2011. In February 2012, the FAA approved the SMF WHA, with no changes requested. Based on the findings and recommendations of the approved SMF WHA and observed wildlife activity, Airports prepared this update of the SMF Wildlife Hazard Management Plan (WHMP). It was approved by the FAA, without changes, on April 8, 2013.

The WHMP is primarily implemented by the Wildlife Team, which consists of three Airports wildlife biologists. Airport Operations assists the Wildlife Team in managing hazardous wildlife, though it is secondary to other Operations specific duties. The Wildlife Hazard Management Group (WHMG) is responsible for reviewing the WHMP and providing input for the annual update of the plan. Not all members of the WHMG have a direct responsibility in the implementation of the WHMP; however, their presence ensures an airport wide understanding of the SMF Wildlife Hazard Management Program and its associated activities.

A number of federal, state, and local environmental regulations protect special status species and habitats on SMF property. All permits necessary for successful implementation of the SMF WHMP have been acquired. Five avian species, one mammal, and one reptile with special environmental status have been observed on or near SMF. Their presence is considered when conducting wildlife control activities. All Wildlife Team biologists are trained in wildlife identification and conduct control activities in a manner to avoid any potential negative impacts to special status species.





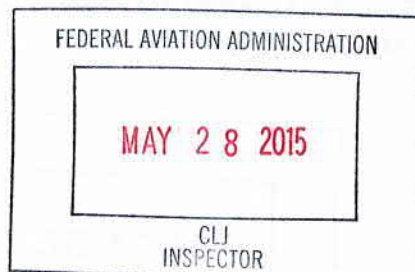
Hazardous wildlife management activities are performed daily, either by members of the Wildlife Team or Airport Operations personnel. Additionally, an automated wildlife hazard support line is available 24 hours/day, 7 days/week. In order to conduct patrols effectively, Wildlife Team vehicles are stocked with the supplies necessary to facilitate an immediate response to wildlife hazards. These vehicles are used for daily patrol and wildlife harassment activities, as well as responding to emergency calls from Airport Operations or the SMF Air Traffic Control Tower (ATCT) to disperse animals from the runways and taxiways.

To ensure that the wildlife program is effective and action is being taken to alleviate wildlife-aircraft interactions to the maximum extent practicable, the SMF WHMP is annually reviewed by the Wildlife Team with input from the WHWG and revised as necessary. The annual report documenting changes is submitted to the FAA certification inspector. The 2014 update was approved by the FAA June 19, 2014. In addition to the annual review process, the SMF WHMP is reviewed throughout the year by the Wildlife Team and revised as necessary so it accurately reflects current practices and ensures that it continues to support Airports and FAA safety requirements.

As airport personnel actively involved in the implementation of the WHMP, Airport Operations receives annual hazardous wildlife management training from a member of the Wildlife Team. Both the Wildlife Team and Airport Operations receive annual training in radio communication procedures and maintain contact with the ATCT when operating on active taxiways and runways.

Additionally, the Wildlife Team provides semi-annual environmental training to the Airfield and Park Maintenance personnel. The training covers the avoidance and minimization measures taken regarding special status species found on or near the airport, the Biological Assessment Request (BAR) system, and an overview of the Wildlife Program. The role of Airfield and Park Maintenance in wildlife hazard management at SMF is also discussed.

It is the intent of Airports to reduce hazardous wildlife and associated attractants to the maximum extent possible to ensure the safety of the airport, aircraft, and the traveling public. This WHMP succinctly outlines the overall structure and function of the Airport's wildlife program and will be incorporated into the Airport Certification Manual.





## 1.0 Introduction

Sacramento International Airport (SMF) is a medium hub, primary commercial service airport located approximately ten miles northwest of the City of Sacramento in Sacramento County, California. It occupies approximately 5,888 acres and is operated by the Sacramento County Department of Airports (Airports). Approximately half of this land is located due south and due north of the airfield proper, and functions as Airport Management Areas (AMA) for purposes of operational land use compatibility. The AMAs are managed to minimize attractiveness to wildlife and are left idle. SMF consists of the Air Operations Area (AOA) and adjacent terminals, parking lots, and landscaped areas. It has two approximately 8,600 foot, parallel runways: 16R/34L on the west side and 16L/34R on the east side. Runways 16L, 34R and 16R are each instrumented for inclement weather operations. There are two airline terminals, Terminal A and Central Terminal B, and Concourse B, as well as additional buildings associated with various airport operations.

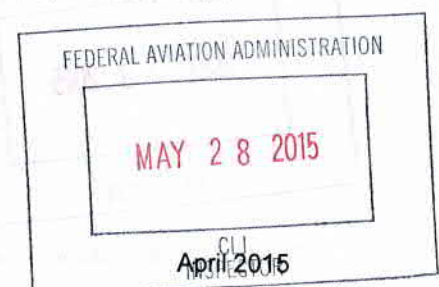
In 2014, SMF had 9 million passengers with 108,039 annual aircraft operations. There are twelve carriers providing commercial service along with one all-cargo carrier and general aviation activity. No military aircraft are based at SMF and no military installations are located on the airport property; however, military aircraft do use SMF for training purposes.<sup>1</sup>

SMF is a certificated airport as established by the Federal Aviation Administration (FAA) under Code of Federal Regulations (CFR) Title 14 Federal Aviation Regulation (FAR) Part 139—Certification of Airports. As such, Airports must comply with specific regulations. FAR Part 139.337: Wildlife Hazard Management establishes criteria that when met require an airport to conduct a Wildlife Hazard Assessment (WHA). SMF last completed a WHA and submitted it to the FAA in November 2011. In February 2012, the FAA approved the SMF WHA, with no changes requested. Based on the findings and recommendations of the approved SMF WHA and observed wildlife activity April 2014 – April 2015, Airports prepared this update of the SMF Wildlife Hazard Management Plan (WHMP).

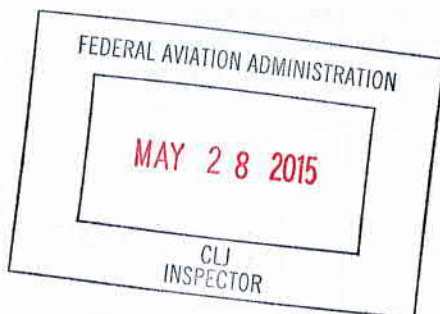
The format of this Plan corresponds with the seven components outlined in FAR Part 139.337—Wildlife Hazard Management:

- f) The plan must include at least the following:
  - 1) A list of the individuals having authority and responsibility for implementing each aspect of the plan.

<sup>1</sup> Pursuant to the March 2005 update to the FAA's required Assurances for airport grant sponsors, Assurance 27 requires SMF and similar airports to make all facilities developed with federal financial assistance available to the aircraft of the United States in common with other aircraft, without charge.



- 2) A list prioritizing the following actions identified in the wildlife hazard assessment and target dates for their initiation and completion:
  - i. Wildlife population management;
  - ii. Habitat modification; and
  - iii. Land use changes
- 3) Requirements for and, where applicable, copies of the local, State, and Federal wildlife control permits.
- 4) Identification of resources that the certificate holder will provide to implement the plan.
- 5) Procedures to be followed during air carrier operations that at a minimum includes—
  - i. Designation of personnel responsible for implementing the procedures;
  - ii. Provisions to conduct physical inspections of the aircraft movement areas and other areas critical to successfully manage known wildlife hazards before air carrier operations begin;
  - iii. Wildlife hazard control measures; and
  - iv. Ways to communicate effectively between personnel conducting wildlife control or observing wildlife hazards and the air traffic control tower (ATCT).
- 6) Procedures to review and evaluate the wildlife hazard management plan every 12 consecutive months or following an event described in paragraphs (b)(1), (b)(2), and (b)(3) of this section, including:
  - i. The plan's effectiveness in dealing with known wildlife hazards on and in the airport's vicinity; and
  - ii. Aspects of the wildlife hazards described in the wildlife hazard assessment that should be reevaluated.
- 7) A training program conducted by a qualified wildlife damage management biologist to provide airport personnel with the knowledge and skill needed to successfully carry out the wildlife hazard management plan required by paragraph (d) of this section.





## 2.0 Roles and Responsibilities

*A list of the individuals having authority and responsibility for implementing each aspect of the plan*

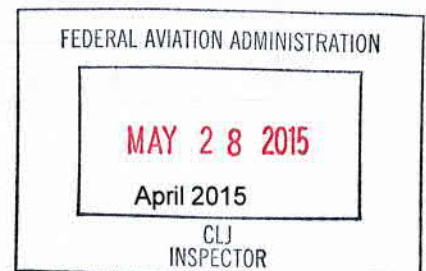
### 2.1 Wildlife Hazard Management Group

The Wildlife Hazard Management Group (WHMG) is responsible for reviewing the WHMP and providing input on Airports' wildlife program overall. Not all members of the WHMG have a direct responsibility in the implementation of the WHMP; however, their presence ensures an airport wide understanding of the SMF Wildlife Hazard Management Program and its associated activities. The WHMG meets biannually and is represented by:

- Airport Wildlife Biologists
- Airport Operations
- Airport Planning and Environment
- Airport Design and Development
- Airport Maintenance Division
- Airport Communications Center
- Airport Media Relations
- Airport Facilities
- Airport Properties and Commercial Development
- Airport Safety
- Airport Aircraft Rescue and Fire Fighting (ARFF)
- Sacramento County Sheriff – Airport Division
- Sacramento County Department of General Services – Airport Division
- FAA Manager, SMF ATCT
- FAA Airport Certification Safety Inspector, Western Pacific Region, as available

The WHMP is primarily implemented by the Wildlife Team, which consists of three Airports wildlife biologists. All of the members of the Team meet the qualifications for a GS-0486 series wildlife biologist as defined by the U.S. Office of Personnel Management. Two of the three biologists also meet the educational and experience qualifications cited in FAA Advisory Circular 150/5200-36A, *Qualifications for Wildlife Biologist Conducting Wildlife Hazard Assessments and Training Curriculums for Airport Personnel Involved in Controlling Wildlife Hazards at Airports*, January 1, 2012<sup>2</sup>. Airport Operations assists the Wildlife Team in managing hazardous wildlife, though it is secondary to other Operations specific duties. Both are actively involved in the

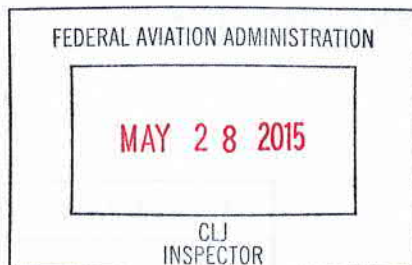
<sup>2</sup> The third wildlife biologist is working toward meeting the qualifications



implementation of the WHMP; therefore, Operations personnel receive the required annual wildlife hazard management training. Specific responsibilities are listed below.

### **2.1.1 Biologist Responsibilities**

- Monitor and control wildlife activity and attractants on and near the airport
- Conduct and record daily control activities on airfield and airport property
- Minimize wildlife attractants on the airport to the maximum extent practicable
- Submit monthly reports to Planning and Environment Manager summarizing wildlife observations and suggesting actions that may be taken to mitigate any identified issues
- Provide annual training for maintenance staff and airport personnel actively involved in implementing the WHMP
- Maintain records of control activities and submit to federal, state, and local regulatory agencies, as necessary
- Ensure all necessary local, state, and federal permits are obtained and up to date
- Provide support for public relations regarding wildlife, as necessary
- Promote awareness and understanding of SMF wildlife program via presentations, memos, and reports to internal and external stakeholders
- Ensure compliance with all applicable federal, state, and local environmental regulations for airport projects and maintenance activities
- Convene Wildlife Hazard Management Group at least once a year to review WHMP and overall wildlife program
- Meet with California Department of Fish and Wildlife (CDFW) annually to review wildlife control data
- Update WHMP on an annual basis to reflect current wildlife management activities
- Submit Bird/Other Wildlife Strike Reports (FAA Form 5200-7) to FAA Strike Database and, if applicable, Smithsonian Feather Identification Lab
- Attend trainings and conferences necessary to meet and/or maintain §139.337(c) and (f)(7) requirements for qualified airport wildlife biologist





### **2.1.2 Airport Operations Responsibilities**

- Conduct airfield sweeps each shift and report wildlife issues to airport and/or USDA wildlife biologists
- Respond to bird/aircraft strikes, gather information for FAA Form 5200-7, collect samples (as available), and submit to airport wildlife biologist
- Assist with dispersal of wildlife on the airport
- Conduct runway/taxiway sweeps and deliver any wildlife remains collected to designated storage location
- Attend annual wildlife hazard management training provided by airport wildlife biologist

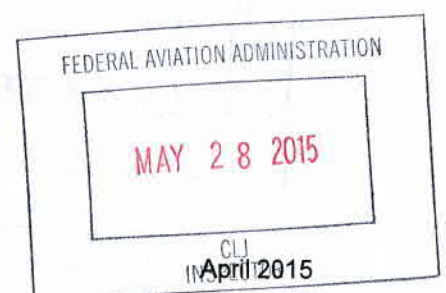
Below are the remaining representatives of the WHMG who, while not actively involved in implementing the WHMP, provide the support necessary for the above-mentioned personnel to successfully manage wildlife hazards at SMF. They do not receive the annual wildlife hazard management training, but are kept informed about the program through day-to-day communications and/or periodic meetings.

### **2.1.3 Planning and Environment Responsibilities**

- Manage the Wildlife Hazard Management Program
- Review all proposed projects and changes in land use within five miles of the airport for potential hazardous wildlife attractants and provide comments, as needed
- Ensure compliance with all applicable federal, state, and local environmental regulations for all airport projects/activities
- Act as subject matter expert for public relations issues regarding the Wildlife Hazard Management Program
- Promote understanding of hazardous wildlife management by other airport departments

### **2.1.4 Design and Development Responsibilities**

- Work with Planning and Environment to ensure compliance with all federal, state, and local environmental regulations
- Consider potential wildlife attractants when reviewing and designing projects, as practicable





#### **2.1.5 Maintenance Division Responsibilities**

- Maintain airport property to reduce the number of wildlife attractants to the maximum extent practicable
- Report observed hazardous wildlife activity to airport wildlife biologists
- Develop Annual Airfield Maintenance Work Plan and review with Planning and Environment
- Assist in the implementation of the WHMP through installation and maintenance of wildlife deterrents

#### **2.1.6 Airport Communications Center Responsibilities**

- Disseminate information regarding hazardous wildlife management activities to all necessary airport personnel, ATCT, and law enforcement agencies
- Report observations of wildlife activity received from airport personnel and the general public to the Wildlife Team

#### **2.1.7 Media Relations Responsibilities**

- Consult with Planning and Environment when responding to inquiries regarding hazardous wildlife management

#### **2.1.8 Facilities and Department of General Services Responsibilities**

- Assist in the implementation of the WHMP through installation of wildlife deterrents
- Inform airport/USDA wildlife biologists of observed hazardous wildlife activity

#### **2.1.9 Properties and Business Development Responsibilities**

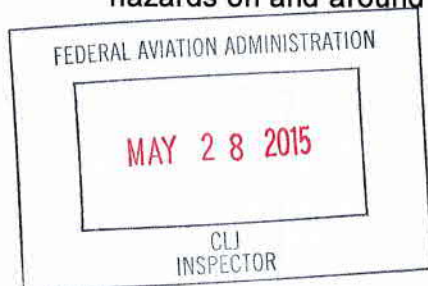
- Ensure tenants comply with airport hazardous wildlife management policies
- Assist in the development of language for County contracts regarding remedial actions which may be taken to address problematic tenant activities

#### **2.1.10 Airport Safety, ARFF, and Sacramento County Sheriff – Airport Division**

- Provide occasional services to wildlife biologists on an as needed basis

#### **2.1.11 FAA Manager/ATCT Responsibilities**

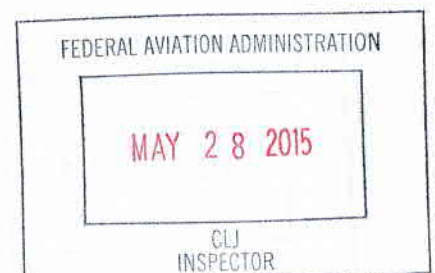
- Submit copies of wildlife strike forms reported directly to the ATCT to airport wildlife biologists
- Notify pilots and airport Operations staff or wildlife biologists of wildlife hazards on and around the airfield



While Airline/Air Cargo Tenants do not always participate in the Wildlife Hazard Management Group, informational meetings regarding the SMF Wildlife Hazard Management Program are held on an as needed basis. Communication often occurs regarding the presence of wildlife near the terminals and concourse. To ensure a successful management program, Airline/Air Cargo Tenants share the following responsibilities.

**2.1.12 Airline/Air Cargo Tenants**

- Ensure employees are aware of the wildlife program at SMF
- Enforce airport regulations regarding the feeding of wildlife, as well as any future regulations related to the management of hazardous wildlife



### 3.0 Wildlife Hazard Assessment Actions: FAR 139.337 (f)(2)

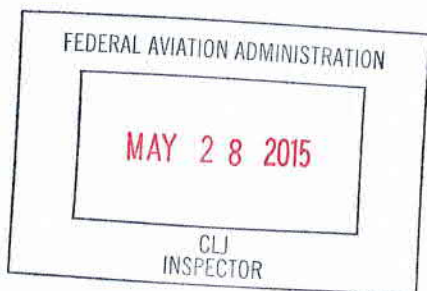
*A list prioritizing the following actions identified in the wildlife hazard assessment and target dates for their initiation and completion:*

- (i) *Wildlife population management;*
- (ii) *Habitat modification; and*
- (iii) *Land use changes*

Extensive land use changes on and around SMF (i.e. new terminal and concourse, and Natomas Basin levee improvement project) prompted the Planning and Environment section to initiate a Wildlife Hazard Assessment (WHA) in 2010. The WHA surveyed wildlife activities on and around the airport from August 2010 – August 2011. The final report was submitted to the FAA in December 2011, and received FAA approval (without changes) in February 2012.

The WHA identified wildlife hazard attractants and species behavior patterns, and provided recommendations to address them. Table 3 summarized the main WHA recommendations and provides an estimated timeframe for completion. As the recommendations are completed, this table will be revised to reflect the current tasks and timelines to address actions i – iii listed above. It is a key component of the WHMP annual report submitted to the FAA.

Wildlife management techniques often target specific species; therefore, it is essential to be able to identify and have knowledge of the species present. Table 3.1 provides a list of all species observed by the Wildlife Team in 2014. It also identifies the legal status of each species according to state and federal fish and wildlife agencies. This table will be updated annually to accurately reflect the species on and around SMF.





**Table 3: Wildlife Hazard Management Actions**

Category	Task	Date Initiated/ Scheduled	Date Completed
Habitat modification	Allow northern Airport Management Areas to go idle after levee improvement project grading activity	Jan. 2013	ongoing
Wildlife population management	Address gaps in perimeter fence and culverts as potential access points – gaps closed as soon as identified	Feb. 2012	ongoing
Wildlife population management	Initiating use of permitted insecticides to control insect population on airport lands	Oct. 2014	May-June 2015
Land use change	Remove stockpiled soil from north side of airfield	Estimated Spring 2016	
Wildlife population management; Habitat modification	Increase deterrent activities for waterfowl and large flocking birds	Feb. 2012	ongoing
Habitat modification	Decrease amount of open water on airport lands, especially on airfield – work with local water company and monitor adjacent irrigation ditches to ensure water does not back up into airport ditches	May 2013	ongoing

FEDERAL AVIATION ADMINISTRATION

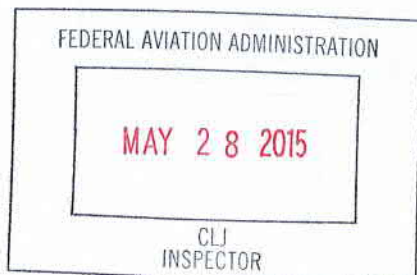
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CLJ  
INSPECTOR

April 2015

**Table 3: Wildlife Hazard Management Actions**

<b>Category</b>	<b>Task</b>	<b>Date Initiated/ Scheduled</b>	<b>Date Completed</b>
<b>Land use Change</b>	Decrease the amount of open water on airport lands, especially on airfield – fill in drained wastewater treatment ponds	Estimated Fall 2014	End of 2015
<b>Wildlife population management/Habitat Modification</b>	Increase deterrent efforts for large flocks of blackbirds and starlings. Assist other airport sections in determining the proper exclusionary devices to install.		ongoing
<b>Wildlife population management</b>	Actively trap and remove pigeons to prevent roosting on airport buildings and flight over active runways and taxiways		ongoing
<b>Habitat Modification</b>	Work with local water district and replace leaky slide gate to prevent irrigation water from backing up into Airport West Ditch	Aug. 2014	Sept. 2014
<b>Habitat Modification</b>	Removal of irrigation wells from Airport Management Areas – area is left idle to reduce wildlife attraction, water supply no longer needed	April 2013	June 2014





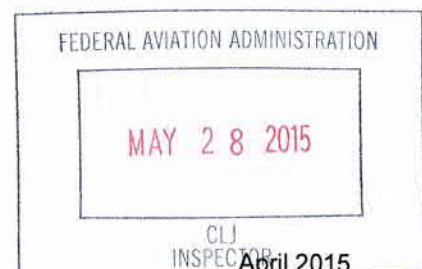
**Table 3.1: Species and Groups Observed at SMF by The Wildlife Team – 2014**

				Legal status <sup>3</sup>	
Common Name	Species Name	Code	Group	CDFW <sup>4</sup>	USFWS <sup>5</sup>
Birds					
American Coot	<i>Fulica americana</i>	AMCO	wading bird		
American Crow	<i>Corvus brachyrhynchos</i>	AMCR	corvid		
American Goldfinch	<i>Spinus tristis</i>	AMGO	passerine		
American Kestrel	<i>Falco sparverius</i>	AMKE	raptor		
American Pipit	<i>Anthus rubescens</i>	AMPI	passerine		
American Wigeon	<i>Anas americana</i>	AMWI	waterfowl		
Barn Owl	<i>Tyto alba</i>	BAOW	raptor		
Barn Swallow	<i>Hirundo rustica</i>	BARS	passerine		
Belted Kingfisher	<i>Ceryle alcyon</i>	BEKI	shorebird		
Black-Crowned Night Heron	<i>Nycticorax nycticorax</i>	BCNH	wading bird		
Brewer's Blackbird	<i>Euphagus cyanocephalus</i>	BRBL	blackbird		
Brown-headed Cowbird	<i>Molothrus ater</i>	BHCO	blackbird		
Burrowing Owl	<i>Athene cunicularia hypugaea</i>	BUOW	raptor	SSC	BCC
Canada Goose	<i>Branta canadensis</i>	CANG	waterfowl		
California Gull	<i>Larus californicus</i>	CAGU	shorebird		
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	CLSW	passerine		
Common Raven	<i>Corvus corax</i>	CORA	corvid		
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	DCCO	waterfowl		
European Starling	<i>Sturnus vulgaris</i>	EUST	blackbird		
Ferruginous Hawk	<i>Buteo regalis</i>	FEHA	raptor		
Gadwall	<i>Anas strepera</i>	GADW	waterfowl		
Great Blue Heron	<i>Ardea herodias</i>	GBHE	wading bird		
Great Egret	<i>Ardea alba</i>	GREG	wading bird		

<sup>3</sup> SSC= Species of Special Concern, ST=State Threatened, BCC=Bird of Conservation Concern, FP=Fully Protected

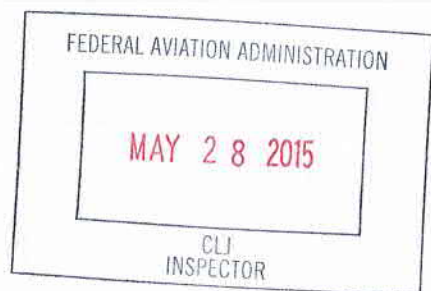
<sup>4</sup> California Department of Fish and Wildlife

<sup>5</sup> United States Fish and Wildlife Service



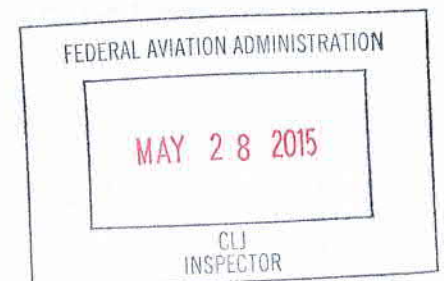
**Table 3.1: Species and Groups Observed at SMF by The Wildlife Team – 2014**

Common Name	Species Name	Code	Group	Legal status <sup>3</sup>	
				CDFW <sup>4</sup>	USFWS <sup>5</sup>
Great Horned Owl	<i>Bubo virginianus</i>	GHOW	raptor		
Greater White-fronted Goose	<i>Anser albifrons</i>	GWFG	waterfowl		
Hooded Merganser	<i>Lophodytes cucullatus</i>	HOME	waterfowl		
Horned Lark	<i>Eremophila alpestris</i>	HOLA	passerine		
House Finch	<i>Carpodacus mexicanus</i>	HOFI	passerine		
House Sparrow	<i>Passer domesticus</i>	HOSP	passerine		
Killdeer	<i>Charadrius vociferus</i>	KILL	shorebird		
Lesser Snow Goose	<i>Chen caerulescens</i>	LSGO	waterfowl		
Long-Billed Curlew	<i>Numenius americanus</i>	LBCU	shorebird		BCC
Mallard	<i>Anas platyrhynchos</i>	MALL	waterfowl		
Mourning Dove	<i>Zenaida macroura</i>	MODO	grassland bird		
Northern Harrier	<i>Circus cyaneus</i>	NOHA	raptor	SSC	
Prairie Falcon	<i>Falco mexicanus</i>	PRFA	raptor		
Red-tailed Hawk	<i>Buteo jamaicensis</i>	RTHA	raptor		
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	RWBL	blackbird		
Ring-billed Gull	<i>Larus delawarensis</i>	RBGU	shorebird		
Rock Pigeon	<i>Columba livia</i>	ROPI	grassland bird		
Sandhill Crane	<i>Grus canadensis</i>	SACR	wading bird	ST/FP	
Savannah Sparrow	<i>Passerculus sandwichensis</i>	SAVS	passerine		
Swainson's Hawk	<i>Buteo swainsoni</i>	SWHA	raptor	ST	BCC
Turkey Vulture	<i>Cathartes aura</i>	TUVU	raptor		
Western Kingbird	<i>Tyrannus verticalis</i>	WEKI	passerine		
Western Meadowlark	<i>Sturnella neglecta</i>	WEME	grassland bird		
White-crowned sparrow	<i>Zonotrichia leucophrys</i>	WCSP	passerine		
White-faced Ibis	<i>Plegadis chihi</i>	WFIB	wading bird		
White-tailed Kite	<i>Elanus caeruleus</i>	WTKI	raptor	FP	
Wild Turkey	<i>Meleagris gallopavo</i>	WITU	grassland bird		



**Table 3.1: Species and Groups Observed at SMF by The Wildlife Team – 2014**

Common Name	Species Name	Code	Group	Legal status <sup>3</sup>	
				CDFW <sup>4</sup>	USFWS <sup>5</sup>
Wood Duck	<i>Aix sponsa</i>	WODU	waterfowl		
Yellow-Billed Magpie	<i>Pica nuttalli</i>	YBMA	corvid		BCC
<b>Groups</b>					
Blackbirds (mixed)		BLACK	blackbird		
Sparrows (mixed)		SPAR	passerine		
<b>Mammals</b>					
Coyote	<i>Canis latrans</i>	n/a			
Black-tailed Jackrabbit	<i>Lepus californicus</i>	n/a			
California Ground Squirrel	<i>Otospermophilus beecheyi</i>	n/a			
Desert Cottontail	<i>Sylvilagus audubonii</i>	n/a			
Raccoon	<i>Procyon lotor</i>	n/a			
Striped Skunk	<i>Mephitis mephitis</i>	n/a			
<b>Reptiles</b>					
Gopher Snake	<i>Pituophis catenifer</i>	n/a			
Western Pond Turtle	<i>Emys marmorata</i>	n/a		SSC	





## 4.0 Laws and Regulations: FAR 139.337 (f)(3)

*Requirements for and, where applicable, copies of local, state, and federal wildlife control permits*

A number of federal, state, and local environmental regulations protect special status species and habitats. All permits necessary for successful implementation of the SMF WHMP have been acquired. Five avian species, one mammal, and one reptile with special environmental status have been observed on or near SMF. Their presence is considered when conducting wildlife control activities. Of most significance are the State threatened Swainson's hawk and the federal/State threatened giant garter snake. Regulations that directly impact wildlife control activities at SMF are discussed below.

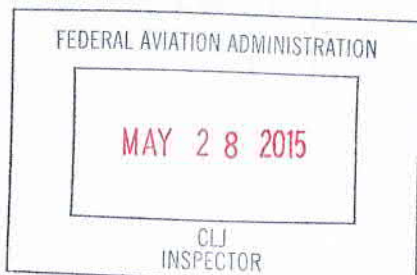
### 4.1 Federal Laws and Regulations

#### 4.1.1 Federal Endangered Species Act of 1973

This act authorizes the United States Fish and Wildlife Service (USFWS) to protect imperiled species and the associated habitat. Section 9 of the ESA prohibits any person from "taking" an endangered or threatened fish or wildlife species or removing, damaging, or destroying a listed plant species on federal land or where the taking of the plant is prohibited by state law. As defined under the ESA 'take' means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. It is further extended to include habitat modification or degradation that results in death or injury to wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.

Wildlife control activities subject to the ESA may include habitat modification if the area is designated as habitat for a federally listed species; as well as deterrent activities involving federally listed endangered/threatened species. SMF has coordinated with the local USFWS office and developed a management plan to minimize/avoid impacts to the federally threatened giant garter snake from vegetation management activities. A survey of the airfield is conducted annually by a qualified herpetologist to ensure that suitable giant garter snake habitat is correctly identified so it may be managed appropriately.

In addition to threatened and endangered species, the USFWS also has the classification "bird of conservation concern". Birds of conservation concern are those species considered at risk for qualifying for federal threatened or endangered status; however, they are not afforded protection under the ESA. Four birds of conservation concern have been observed at SMF. All Wildlife Team biologists are trained in wildlife



identification and conduct control activities in a manner to avoid any potential negative impacts to special status species.

#### **4.1.2 Migratory Bird Treaty Act of 1918**

Most avian species<sup>6</sup> on or around SMF are protected under the MBTA, which states that except as permitted by regulations, it is unlawful to, at any time or by any means, pursue, hunt, take, capture, kill, or attempt to carry out such actions on any part of a migratory bird, including eggs and nests. A federal depredation permit must be obtained before conducting any of these activities. The federal depredation permit, however, does not authorize the taking of fully protected, candidate, threatened or endangered species.

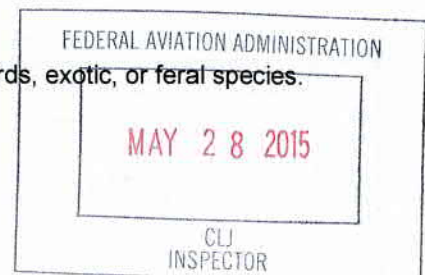
#### **4.1.3 Code of Federal Regulations Title 50, Chapter 1, Subchapter B, Part 21**

50 CFR 21.41 allows for the take, possession, or transport of migratory birds for depredation control purposes with a valid depredation permit from the USFWS. The depredation permit does not allow take, capture, or harassment of federally listed species (endangered or threatened) or bald or golden eagles. Airports maintains a federal depredation permit that covers wildlife control activities that impact migratory birds at the five airports the County manages (Sacramento International, Executive, Mather, McClellan, and Franklin). The permit authorizes depredation of migratory birds on airport property at all five airports. The Wildlife Team maintains a database of all wildlife harassed and removed from the airports, organized by species. Lethal removal numbers are reported to the USFWS on an annual basis for depredation permit renewal, and to CDFW on a biannual basis to comply with the California Fish and Game Code. In 2009, SB 481 revised the California Fish and Game Code to allow removal of migratory birds at California airports for wildlife control, if done so in compliance with a federal depredation permit and only on airport property.

50 CFR 21.43 is a standing depredation order for blackbirds, cowbirds, grackles, crows, and magpies. These birds may be lethally removed when occurring in such numbers as to constitute a health or safety hazard. A separate permit is not required for this action. Annual removal numbers are submitted to the USFWS along with the SMF depredation permit.

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<sup>6</sup> The MBTA does not apply to non-migratory game birds, introduced game birds, exotic, or feral species.





#### 4.1.4 Clean Water Act

Pursuant to Section 404 of the Clean Water Act (CWA), the United States Army Corps of Engineers (Corps) regulates discharge of dredge or fill material into "waters of the United States." Waters of the United States include navigable waters, interstate waters, and all other waters where the use or degradation or destruction of the waters could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent to any of these waters or their tributaries. Any activity resulting in the placement of dredge or fill material in waters of the United States requires a permit from the Corps.

SMF has a Corps approved preliminary wetland delineation for the entire airfield. Current wildlife management practices do not impact jurisdictional waters. However, any removal or alteration of airfield ditches considered 'waters to the U.S.' will require a permit from the Corps, as well as consultation with the USFWS per section 7 of the ESA if the ditch is also designated as suitable giant garter snake habitat.

Pursuant to Section 401 of the CWA, projects that apply for a permit to discharge dredge or fill material must also obtain a certificate from the appropriate state agency stating that the intended activity is consistent with the state's water quality standards and criteria. In California, the authority to grant water quality certification is delegated to nine Regional Water Quality Control Boards.

#### 4.1.5 Federal insecticide, Fungicide, and Rodenticide Act

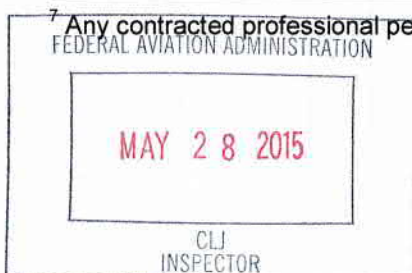
All pesticides used in the United States are subject to federal regulation under the Federal Insecticide, Fungicide, and Rodenticide Act, amended by the Federal Environmental Pesticide Control Act. These laws and other pesticide regulations also cover herbicides as, under federal regulation, an undesirable plant is considered a "pest." Currently, chemical control of wildlife hazards is not occurring at SMF. Research is being conducted regarding the use of chemicals for prey base control as recommended in the SMF WHA. All required permits and qualifications will be obtained<sup>7</sup> before use of chemical control measures.

### 4.2 State Laws and Regulations

#### 4.2.1 California Endangered Species Act

Pursuant to the California Endangered Species Act (CESA) and Section 2081 of the Fish and Game Code, a permit from the DFW is required for projects that could result in the take of a state-listed threatened and endangered species. Under CESA, the

<sup>7</sup> Any contracted professional pesticide applicator must have current required permits and qualifications





definition of take applies to an activity that would directly or indirectly kill a state listed species. The definition does not include "harm" or "harass," as does the federal ESA.

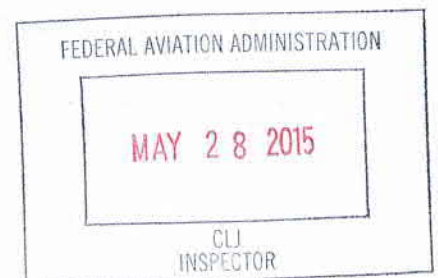
Four state threatened species have been observed on or near SMF: one mammal, one reptile, and two avian. Most notable is the Swainson's hawk. In addition to threatened and endangered species, California also has the classification "species of special concern". Species of special concern are those species considered at risk for qualifying for state threatened or endangered status; however, they are not afforded protection under the CESA. Three avian species of special concern have been observed at SMF. All Wildlife Team biologists are trained in wildlife identification and conduct control activities in a manner such as to avoid any potential negative impacts to special status species.

#### **4.2.2 California Fish and Game Code**

As previously stated, in 2009 Sections 3470-3472.2<sup>8</sup> of the Fish and Game Code were revised to state that airports certificated by the FAA and operating under a federal depredation permit are in compliance with the Code. The Code also specifies that depredation take place only on airport owned property.

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<sup>8</sup> Division 4, Part 1, Chapter 2, Article 8



## 5.0 Resources to Implement Plan: FAR 139.337 (f)(4)

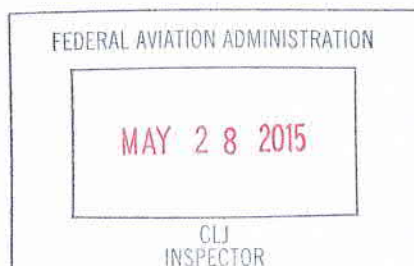
*Identification of resources that the certificate holder will provide to implement the plan*

Hazardous wildlife management techniques used by the Wildlife Team continually evolve to address the myriad of situations faced on a daily basis. Therefore, a variety of tools are required. The supplies listed below are those being utilized at the writing of this plan. To ensure the successful implementation of the WHMP, new tools are constantly researched and obtained as appropriate. Therefore, the supplies list is updated throughout the year to provide an accurate inventory of the equipment being used and submitted to the FAA as part of the annual report.

### 5.1 Wildlife Control Supplies

The following supplies are kept in stock in the Wildlife Office and used to implement the WHMP and control hazardous wildlife:

- 12 gauge shotguns
- .204 caliber rifles
- .17 caliber rifles
- 12 gauge single-shot shotgun (for pyrotechnics)
- Paintball guns
- .22 caliber air rifles
- 15 mm pyrotechnic pistol launchers
- CAPA launcher/shells (pyrotechnic)
- 37 mm single-shot flare gun (pyrotechnic)
- 12 gauge shellcrackers (pyrotechnic)
- Bird bangers and screamers (pyrotechnics)
- 6 mm blank primers
- Propane cannons
- Squawk boxes
- Personal Protective Equipment (safety glasses, hearing protection, protective gloves)
- Wildlife Transport Equipment (dog kennel, cardboard pet carrier, etc.)
- Field guides (birds, trees, insects, etc.)
- Binoculars
- Wildlife handling equipment (snake tongs, catch pole, nets, etc.)
- Personal cleaning supplies (hand sanitizer, cleaning wipes, etc.)



- Wildlife Storage Equipment (freezer, re-sealable plastic bags, 5 gallon bucket, etc.)
- Night vision equipment
- Dissection tools and supplies
- Shotgun cleaning kits
- Live and lethal trapping devices

Additionally, the Wildlife Team has two four wheel drive pickup trucks that are used on a daily basis and contain many of the supplies listed above. Firearms, ammunition, and pyrotechnics are stored in locked containers within the Wildlife Office when not in use. Only members of the Wildlife Team, all of whom are trained in firearm use and safety, use firearms for wildlife management.

To support the assistance of Airport Operations in the implementation of the WHMP, the Wildlife Team provides the following supplies:

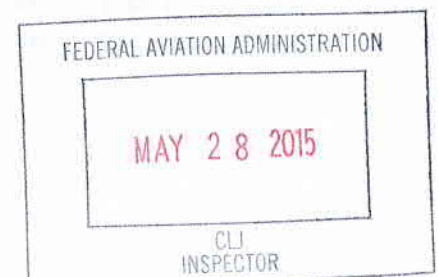
#### **5.1.1 Bird Strike Response Kit**

- Protective gloves
- FAA bird strike form
- Re-sealable plastic bags
- Pen and marker
- Hand sanitizing wipes

#### **5.1.2 Wildlife Harassment Kit**

- Single shot pyrotechnic launcher
- Bird bangers and 6mm blank primers (pyrotechnic)
- Ear protection
- Eye protection

All Airport Operations personnel receive annual pyrotechnic use and safety training.





## 6.0 Procedures During Aircraft Operations: FAR 139.337 (f)(5)

*Procedures to be followed during air carrier operations that at a minimum includes –*

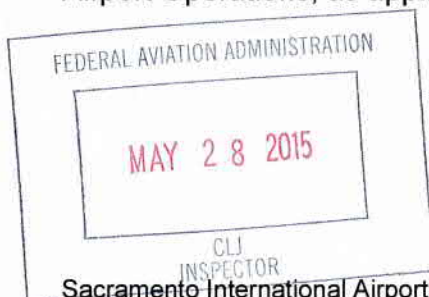
- (i) Designation of personnel responsible for implementing the procedures;*
- (ii) Provisions to conduct physical inspections of the aircraft movement areas and other areas critical to successfully manage known wildlife hazards before air carrier operations begin;*
- (iii) Wildlife hazard control measures; and*
- (iv) Ways to communicate effectively between personnel conducting wildlife control or observing wildlife hazards and the air traffic control tower*

### 6.1 Daily Wildlife Control

Hazardous wildlife management activities are performed daily, either by members of the Wildlife Team or Airport Operations personnel. Additionally, an automated wildlife support line is available 24 hours/day, 7 days/week. Callers leave a voice mail which is immediately forwarded to the Wildlife Team, a member of which then determines the level of response necessary. Messages received after hours or on weekends will be responded to on the next business day. Should a situation arise after hours or on weekends that cannot be handled by on site airport personnel, the Airport Communications Center will notify the Manager of Planning and Environment who will determine if an immediate response is required.

Daily coordination between the biologists occurs to ensure all known wildlife hazards are properly managed. A number of techniques are employed to move wildlife away from runways, taxiways, and aircraft approach and departure paths, the majority of which are non-lethal such as pyrotechnics, exclusionary devices, and habitat modification. Airports constantly strives to keep current with new practices and products designed to reduce potential impacts on passenger and aircraft safety. The Wildlife Team ensures on-site coverage is provided to the airport during times of the day and year when wildlife hazards are at the highest threat. Many times this means the entire Wildlife Team works outside of normal business hours.

In order to effectively conduct patrols, Wildlife Team vehicles are stocked with the supplies necessary to facilitate an immediate response to wildlife hazards. These vehicles are used for regular patrol and wildlife harassment and removal activities, as well as responding to emergency calls from Airport Operations or the SMF ATCT to disperse animals from the runways and taxiways. The Wildlife Team receives annual training in radio communication procedures and maintains contact with the ATCT or Airport Operations, as applicable, when operating on active taxiways and runways.





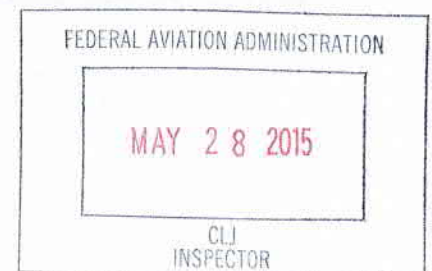
The SMF WHA identified off-airport attractants, such as agriculture and habitat preserves that surround SMF, as the airport's most significant wildlife attractant. Even though the land use practices in these areas are not under Airports' control, when the Wildlife Team observes hazardous wildlife activity they work with private landowners to attempt to reduce the attractiveness of the property. For example, pigeons roosting on the roof of Concourse B would fly across the west runway to feed on crops on the west side of the Sacramento River in Yolo County. The specific field was identified and the landowner was contacted to request permission to remove the pigeons while they were feeding. The Airports' federal depredation permit limits removal of migratory birds to airport property; therefore, only birds not protected by the Migratory Bird Treaty Act are removed (i.e. pigeons, European starlings, and house sparrows) on private property with landowner approval.

In addition to off-airport attractants, there have been incidences of wildlife feeding (i.e. birds and feral animals) on airport property by passengers and tenants. Airports' practice has always been to prohibit feeding of any species of wildlife. Signs stating wildlife poses severe hazards to aircraft and feeding is prohibited are posted airside and landside. When food or feeding activity is observed, it can be reported to the Airport Communications Center (phone number is on the signs). Operations and/or the Wildlife Team are notified and remove the food. When necessary, live traps are utilized to remove animals from the area. When the individual(s) responsible for providing the food are known, they are contacted by the Wildlife Team and informed of the reasoning for Airports' practice of prohibiting feeding of all wildlife.

## 6.2 Wildlife Strike Reporting

A relatively high number of bird strikes occur near SMF each year, most of which are the result of migratory bird patterns and available sources of food, water, and shelter. Unlike many airports in other regions of the United States, the highest number of strikes at SMF occurs during the winter months (November through February) due to migratory bird patterns, with a secondary increase during the summer reproductive season of resident bird populations. The Wildlife Team actively manages all Airport-owned property to reduce wildlife hazard attractants; however, the most significant wildlife attractant at SMF is surrounding land uses, the majority of which is devoted to agriculture, particularly rice, and managed to promote use by waterfowl and other known hazardous wildlife species. As a result, many of the damaging strikes are reported as occurring at altitudes off airport property and beyond the effective range of available wildlife hazing, harassment, or removal practices of the Wildlife Team<sup>9</sup>. Purchase of surrounding property will be contemplated, pending availability of land and funds.

<sup>9</sup> The Wildlife Team's maximum effective range is 300 feet AGL.





The Wildlife Team conducts regular patrols of the SMF airfield and the surrounding airport property (approximately 6,000 acres), harassing and removing wildlife, as necessary, to ensure safe aircraft operations to the greatest extent practicable. Additionally, the Team coordinates with the ATCT to adjust approach/departure directions, when possible, to avoid the largest concentrations of birds. Wildlife strikes, however, are inevitable, so SMF uses the following protocol to ensure timely and accurate reporting of all wildlife strikes.

Per FAA Advisory Circular 150/5200-32B, wildlife remains found within 250' of a runway centerline, 1000' from the end of a runway, on or around a taxiway, or within one mile of the final approach/departure paths are deposited into a freezer along with a label listing the date, time, and location found. The majority of these remains are collected by Operations personnel as they conduct regular runway and taxiway inspections and the Wildlife Team during patrols of the north and south AMAs. The Wildlife Team will then determine if the remains are a result of a strike. If so, the information is entered into the FAA Wildlife Strike Database. Regardless of whether or not a strike occurred, the remains provide evidence of the species currently active on and around the airport, and allows the Wildlife Team to modify management activities accordingly. In addition to the FAA Wildlife Strike Database and Airport Operations, the Wildlife Team compares strike reports with the Western Pacific Region FAA Airport Certification Safety Inspector to ensure an accurate accounting of strikes is being maintained.

In addition to the FAA Wildlife Strike Database and Airport Operations, the Wildlife Team compares strike reports with the Western Pacific Region FAA Airport Certification Safety Inspector to ensure an accurate accounting of strikes is being maintained.

### 6.3 Vegetation Management

The Wildlife Team actively works with the park and airfield maintenance departments via its Biological Assessment Request (BAR) system. A BAR notifies the Wildlife Team of the proposed management activity so a biologist may survey the site beforehand to identify any potential environmental impacts or hazardous wildlife concerns. The system began as part of an informal agreement with the USFWS in 2003 to ensure that regular airfield maintenance activities would not negatively impact the State and federally threatened giant garter snake. Initially, the system focused only on ditches, i.e. aquatic snake habitat. Over the years, however, this protocol has evolved to include all vegetation management activities on all 5,888 acres of airport property. An annual work plan is created to provide an outline for planned maintenance activities for the year. Before activities are conducted, a BAR is submitted to the wildlife team via a Microsoft Access database. Once an area proposed for maintenance activities is





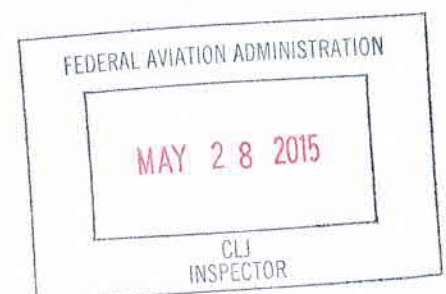
surveyed, the biologist will either approve or deny the BAR. This system allows for all departments to be aware of each other's activities and acknowledges everyone's responsibility related to hazardous wildlife. As a result, there have been times when activities were re-scheduled to avoid attracting birds during peak times, e.g. mowing/disking is done in early morning rather than mid-day.

The Airport Management Areas due north of the airfield proper have been left idle since December 2007 with only firebreaks and service roads being maintained. Regular observations have shown a significant reduction in use of the area by hazardous wildlife, especially those species most damaging to aircraft (e.g. waterfowl, raptors, etc.). One reason for this is the lack of regular mowing and other ground disturbing activities that expose seeds and prey species.

#### **6.4 After Hours Wildlife Control**

Hazardous wildlife activity occurs 24 hours a day; therefore, it is sometimes necessary to conduct wildlife control activities outside of normal business hours (i.e. before sunrise, after sunset). Due to the unpredictable nature of wildlife, it is difficult to plan when these activities will occur and the decision is often made the same day the control efforts are conducted. For that reason, communication between the Wildlife Team and other airport departments and external agencies is essential to ensure the safety of airport personnel. The communication procedure used at SMF is described below. The procedure is the same for activities conducted inside and outside of the secure perimeter fence, with a few additional precautions taken when working after hours.

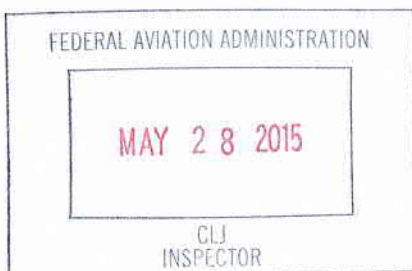
- Once coordinated, the Wildlife Team contacts the Airport Communications Center to provide notification that wildlife control activities will be conducted with vehicles, spotlights, lasers, pyrotechnics, and firearms. The location where activities will occur and an estimated timeline is provided. If a scheduled Airport Communications Center personnel shift change occurs within this timeframe, the Wildlife Team will again call the Airport Communications Center to ensure that the new shift is aware of the ongoing control activities.
- The Airport Communications Center disseminates this information to all necessary airport personnel, ATCT, and law enforcement agencies.
- When conducting wildlife control on the airfield, contact is maintained with the ATCT and ground patrol via vehicle radio unit. All FAA safety protocols for operating in active movement areas are followed.
- Vehicles and spotlights are positioned so as not to interfere with ATCT or aircraft operators' line of sight.



- Activities conducted near the terminal buildings and ground crews are done so in a manner to create the least amount of disturbance to occupants and airport personnel.
- Wildlife lethally removed is collected to the maximum extent practicable and properly disposed of on site.
- The Airport Communications Center is called upon completion of wildlife control activities.

Additionally, the following steps are taken when wildlife control activities occur outside the airport's secure perimeter fence.

- The Airport Communication Center is called to ensure that all appropriate personnel (airport and law enforcement) are aware of the location of Wildlife Team and the tools being utilized (vehicles, spotlights, lasers, pyrotechnics, and firearms).
- Wildlife control activities occur only on Airport property.
- Vehicles and spotlights are positioned so as not to disturb private residences with noise or light.
- The Airport Communications Center is called upon completion of wildlife control activities outside of the fence.





## 7.0 Plan Review and Evaluation: FAR 139.337 (f)(6)

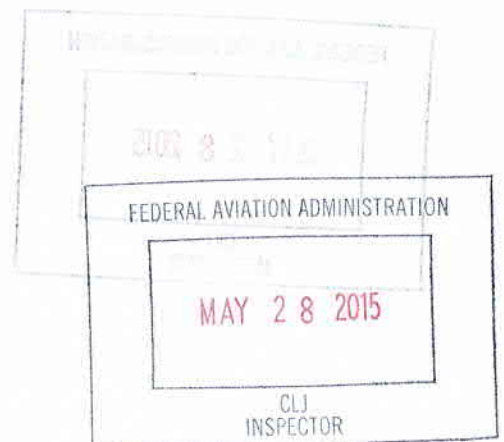
*Procedures to review and evaluate the wildlife hazard management plan every 12 consecutive months or following an event described in paragraphs (b)(1), (b)(2), and (b)(3) of this section including:*

- (i) The plan's effectiveness in dealing with known wildlife hazards on and in the airport's vicinity and*
- (ii) Aspects of the wildlife hazards described in the wildlife hazard assessment that should be reevaluated*

### 7.1 Annual Review and Reporting

To ensure that the wildlife program is effective and action is being taken to alleviate wildlife-aircraft interactions to the maximum extent practicable, the SMF WHMP is annually reviewed by the Wildlife Team with input from the WHWG and revised as necessary. The annual report documenting changes is submitted to the FAA certification inspector. In addition to the annual review process, the SMF WHMP is reviewed throughout the year by the Wildlife Team and revised as necessary so it accurately reflects current practices and ensures that it continues to support Airports and FAA safety requirements.

Additionally, the Wildlife Team continually reviews the numbers of species harassed, species removed, and reported bird strikes. Seasonal populations, weather, and management activities are also evaluated to identify any new trends or areas of the program that could be improved upon. The Wildlife Team constantly strives to reduce hazardous wildlife and associated attractants to the maximum extent possible to ensure the safety of the airport, aircraft, and the traveling public.



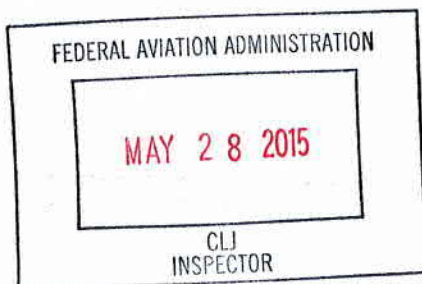


## **8.0 Hazardous Wildlife Training Program: FAR 139.337 (f)(7)**

*A training program conducted by a qualified wildlife damage management biologist to provide airport personnel with the knowledge and skills needed to successfully carry out the wildlife hazard management plan required by paragraph (d) of this section*

As airport personnel actively involved in the implementation of the WHMP, Airport Operations receives annual hazardous wildlife management training. The training is conducted by a qualified airport biologist, as specified in FAA Part 139.337 (e)(7) and covers the material referenced in the FAA AC 150/5200-36A – Qualifications for Wildlife Biologist Conducting Wildlife Hazard Assessments and Training Curriculums for Airport Personnel Involved in Controlling Wildlife Hazards on Airports. Currently, two Wildlife Team biologists are qualified; the third is in the process of meeting the qualification requirements.

Additionally, the Wildlife Team provides semi-annual environmental training to the Airfield and Park Maintenance personnel. The training covers the avoidance and minimization measures taken regarding special status species found on or near the airport, the BAR system, and an overview of the Wildlife Program. The role of Airfield and Park Maintenance in wildlife hazard management at SMF is also discussed.

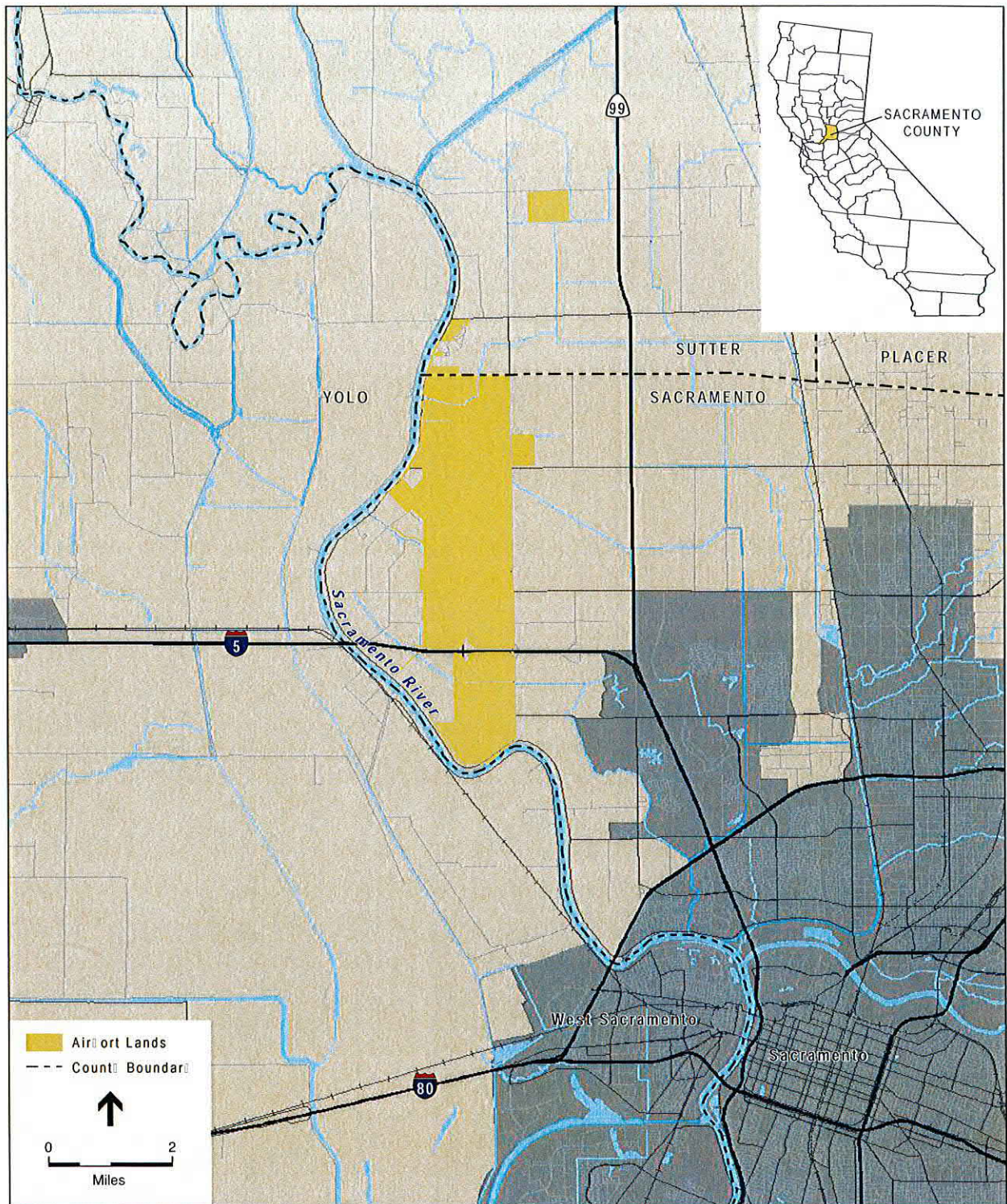


**Appendix A**  
**SMF Location Map**









SMF Location Map

SOURCE: ESRI, 2007; and ESA, 2011

SCAS SMF Wildlife Hazard Assessment







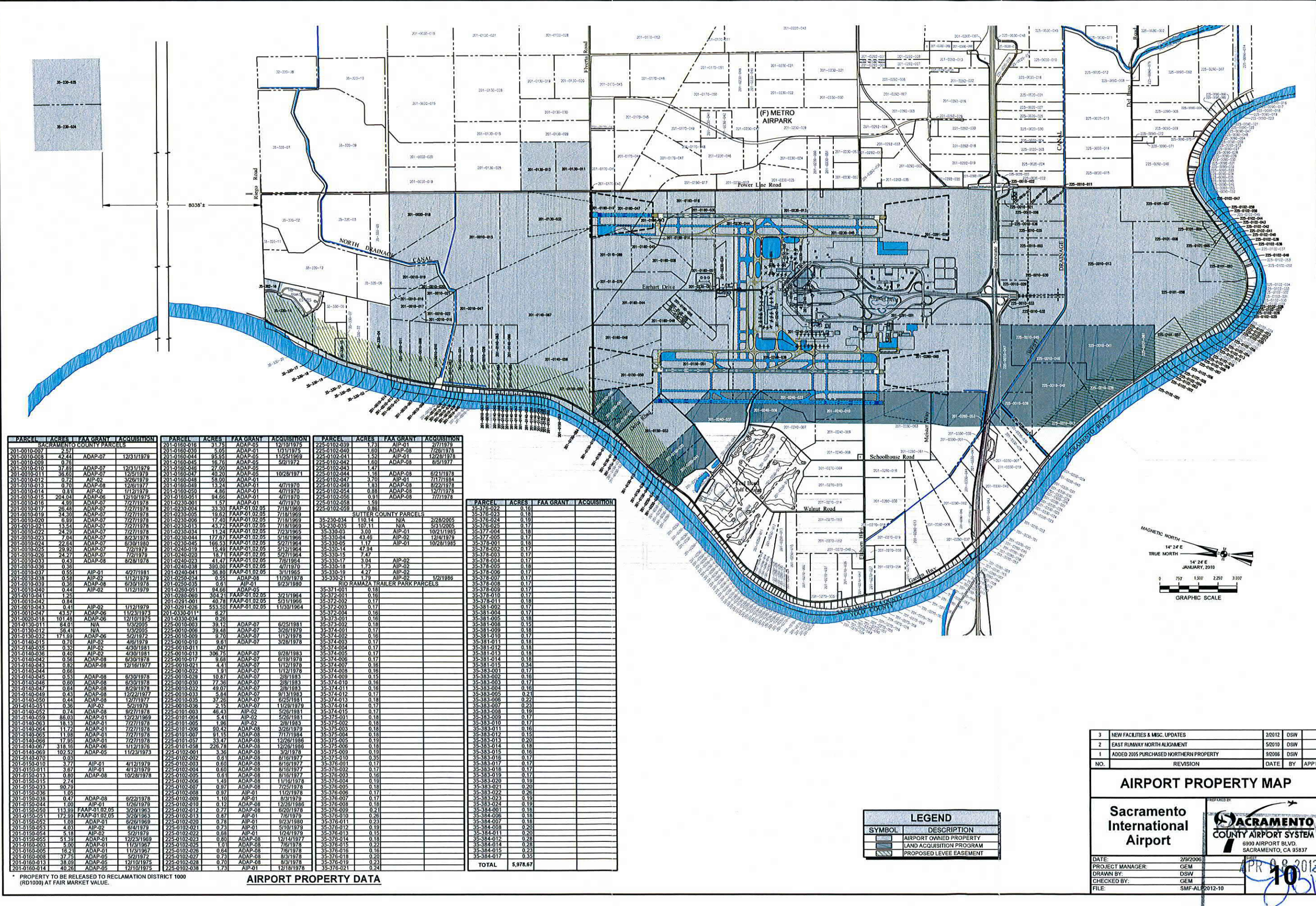
**Appendix B**  
**SMF Property Map**











PARCEL	ACRES	FAA GRANT	ACQUISITION
201-010-007	2.57	ADAP-07	12/31/1979
201-010-008	42.44	ADAP-07	12/31/1979
201-010-009	0.78	ADAP-07	12/31/1979
201-010-010	37.89	ADAP-07	12/31/1979
201-010-011	38.60	ADAP-07	12/31/1979
201-010-012	0.72	AIP-02	3/26/1979
201-010-013	0.70	ADAP-08	12/8/1977
201-010-014	0.81	AIP-02	11/21/1979
201-010-015	204.04	ADAP-08	12/10/1979
201-010-016	4.89	ADAP-07	7/27/1978
201-010-017	26.48	ADAP-07	7/27/1978
201-010-018	34.30	ADAP-07	7/27/1978
201-010-019	5.89	ADAP-07	7/27/1978
201-010-020	13.54	ADAP-07	7/27/1978
201-010-021	24.29	ADAP-07	7/27/1978
201-010-022	7.84	ADAP-07	8/23/1979
201-010-023	22.54	ADAP-07	8/23/1979
201-010-024	22.54	ADAP-07	8/23/1979
201-010-025	29.92	ADAP-07	7/27/1978
201-010-026	24.27	ADAP-07	7/27/1978
201-010-027	0.43	ADAP-08	8/28/1978
201-010-028	0.38	ADAP-08	8/28/1978
201-010-029	0.55	AIP-01	4/27/1981
201-010-030	0.58	AIP-02	11/21/1979
201-010-031	0.38	ADAP-08	8/30/1978
201-010-032	0.44	AIP-02	11/21/1979
201-010-033	1.25	AIP-02	11/21/1979
201-010-034	0.84	AIP-02	11/21/1979
201-010-035	0.41	AIP-02	11/21/1979
201-010-036	43.57	ADAP-06	11/23/1973
201-010-037	101.48	ADAP-06	12/10/1975
201-010-038	84.01	N/A	1/3/2005
201-010-039	58.41	N/A	1/3/2005
201-010-040	171.89	ADAP-06	5/2/1972
201-010-041	0.70	AIP-02	4/6/1978
201-010-042	0.32	AIP-02	4/30/1981
201-010-043	0.40	AIP-02	4/30/1981
201-010-044	0.56	ADAP-08	6/30/1978
201-010-045	0.82	ADAP-08	12/16/1977
201-010-046	0.68	ADAP-08	6/30/1978
201-010-047	0.53	ADAP-08	6/30/1978
201-010-048	0.80	ADAP-08	6/30/1978
201-010-049	0.64	ADAP-08	8/29/1978
201-010-050	0.43	ADAP-08	12/23/1977
201-010-051	0.44	ADAP-08	12/23/1977
201-010-052	0.36	AIP-02	5/2/1979
201-010-053	0.74	ADAP-08	8/27/1978
201-010-054	85.03	ADAP-01	12/23/1977
201-010-055	18.13	ADAP-01	7/27/1978
201-010-056	11.72	ADAP-01	7/27/1978
201-010-057	11.98	ADAP-01	7/27/1978
201-010-058	17.85	ADAP-01	7/27/1978
201-010-059	318.16	ADAP-06	11/21/1979
201-010-060	102.52	ADAP-05	11/23/1973
201-010-061	0.93	AIP-01	4/12/1979
201-010-062	3.77	AIP-01	4/12/1979
201-010-063	0.80	ADAP-08	10/28/1978
201-010-064	2.74	ADAP-08	10/28/1978
201-010-065	80.29	ADAP-08	10/28/1978
201-010-066	1.05	ADAP-08	10/28/1978
201-010-067	0.47	ADAP-08	6/22/1978
201-010-068	1.00	AIP-01	12/26/1979
201-010-069	113.89	FAAP-01 02 05	3/20/1963
201-010-070	172.89	FAAP-01 02 05	3/20/1963
201-010-071	1.03	ADAP-01	6/28/1969
201-010-072	4.83	AIP-02	6/4/1978
201-010-073	5.18	AIP-02	5/2/1979
201-010-074	51.39	ADAP-01	12/23/1969
201-010-075	5.00	ADAP-01	11/3/1967
201-010-076	16.21	ADAP-01	11/3/1967
201-010-077	37.75	ADAP-05	5/2/1972
201-010-078	38.09	ADAP-05	12/10/1975
201-010-079	40.26	ADAP-05	12/10/1975

PARCEL	ACRES	FAA GRANT	ACQUISITION
201-010-080	31.75	ADAP-05	12/10/1975
201-010-081	5.05	ADAP-01	12/10/1975
201-010-082	95.85	ADAP-05	11/25/1969
201-010-083	16.76	ADAP-05	5/2/1972
201-010-084	27.00	ADAP-05	5/2/1972
201-010-085	40.20	ADAP-05	10/28/1971
201-010-086	58.00	ADAP-01	4/7/1970
201-010-087	13.24	ADAP-01	4/7/1970
201-010-088	4.86	ADAP-01	4/7/1970
201-010-089	84.66	ADAP-01	4/7/1970
201-010-090	1.57	ADAP-01	4/7/1970
201-010-091	33.30	FAAP-01 02 05	7/18/1969
201-010-092	19.62	FAAP-01 02 05	7/18/1969
201-010-093	17.40	FAAP-01 02 05	7/18/1969
201-010-094	43.72	FAAP-01 02 05	7/18/1969
201-010-095	11.24	FAAP-01 02 05	7/23/1965
201-010-096	177.67	FAAP-01 02 05	5/16/1964
201-010-097	166.53	FAAP-01 02 05	5/27/1964
201-010-098	15.49	FAAP-01 02 05	5/12/1964
201-010-099	18.71	FAAP-01 02 05	5/27/1964
201-010-100	41.47	FAAP-01 02 05	7/6/1964
201-010-101	390.00	FAAP-01 02 05	4/7/1970
201-010-102	36.80	FAAP-01 02 05	3/1/1965
201-010-103	0.55	ADAP-08	11/30/1978
201-010-104	0.61	AIP-01	9/23/1980
201-010-105	94.66	ADAP-05	12/10/1975
201-010-106	304.21	FAAP-01 02 05	3/27/1964
201-010-107	40.78	FAAP-01 02 05	5/3/1966
201-010-108	553.50	FAAP-01 02 05	11/30/1964
201-010-109	8.27	ADAP-06	11/23/1973
201-010-110	0.26	ADAP-07	6/25/1981
201-010-111	39.12	ADAP-07	6/25/1981
201-010-112	39.48	ADAP-07	3/28/1978
201-010-113	9.70	ADAP-07	11/2/1978
201-010-114	9.61	ADAP-07	3/28/1978
201-010-115	8.97	ADAP-07	3/28/1978
201-010-116	306.75	ADAP-07	9/28/1983
201-010-117	9.68	ADAP-07	6/19/1978
201-010-118	4.41	ADAP-07	11/2/1978
201-010-119	1.91	ADAP-07	11/2/1978
201-010-120	10.87	ADAP-07	2/8/1983
201-010-121	77.36	ADAP-07	2/8/1983
201-010-122	49.07	ADAP-07	2/8/1983
201-010-123	5.84	ADAP-07	9/13/1983
201-010-124	37.26	ADAP-07	6/25/1981
201-010-125	2.15	ADAP-07	11/29/1979
201-010-126	46.43	AIP-02	5/26/1981
201-010-127	12.51	AIP-02	12/23/1977
201-010-128	2.41	AIP-02	12/23/1977
201-010-129	1.98	AIP-02	2/8/1983
201-010-130	80.42	ADAP-08	3/25/1979
201-010-131	91.15	ADAP-08	7/17/1984
201-010-132	33.47	ADAP-08	12/28/1986
201-010-133	226.78	ADAP-08	12/28/1986
201-010-134	3.36	ADAP-08	3/2/1978
201-010-135	0.61	ADAP-08	8/18/1977
201-010-136	0.60	ADAP-08	8/18/1977
201-010-137	0.60	ADAP-08	8/18/1977
201-010-138	0.61	ADAP-08	8/18/1977
201-010-139	2.49	ADAP-08	11/10/1978
201-010-140	0.91	ADAP-08	7/25/1978
201-010-141	0.97	AIP-01	11/2/1978
201-010-142	1.10	AIP-01	8/3/1979
201-010-143	1.12	ADAP-08	12/28/1986
201-010-144	0.77	ADAP-08	6/20/1978
201-010-145	0.87	AIP-01	7/6/1979
201-010-146	0.78	AIP-01	9/23/1980
201-010-147	0.73	AIP-01	8/10/1979
201-010-148	0.68	AIP-01	12/4/1979
201-010-149	0.80	ADAP-08	12/14/1977
201-010-150	1.01	ADAP-08	7/6/1978
201-010-151	0.84	ADAP-08	7/6/1978
201-010-152	0.73	ADAP-08	8/3/1978
201-010-153	0.70	ADAP-08	8/3/1978
201-010-154	1.73	AIP-01	12/18/1978

PARCEL	ACRES	FAA GRANT	ACQUISITION
225-0102-039	1.73	AIP-01	2/7/1979
225-0102-040	1.63	ADAP-08	7/28/1978
225-0102-041	1.52	AIP-01	12/28/1978
225-0102-042	1.60	ADAP-08	8/5/1977
225-0102-043	1.47		
225-0102-044	1.16	ADAP-08	6/21/1978
225-0102-047	3.70	AIP-01	7/17/1984
225-0102-048	1.83	ADAP-08	6/21/1978
225-0102-054	0.88	ADAP-08	12/14/1979
225-0102-056	0.91	ADAP-08	7/7/1978
225-0102-057	0.98		
225-0102-059	0.88		
SUTTER COUNTY PARCELS			
35-230-034	110.14	N/A	2/28/2005
35-230-035	107.11	N/A	5/31/2005
35-230-036	3.00	AIP-01	10/21/1985
35-230-04	43.46	AIP-02	12/4/1979
35-230-05	1.17	AIP-01	10/28/1985
35-230-14	47.94		
35-230-15	7.47		
35-230-17	3.04	AIP-02	
35-230-18	1.73	AIP-02	
35-230-19	4.27	AIP-02	
35-230-21	1.79	AIP-02	1/2/1986
RIO RAMAZA TRAILER PARK PARCELS			
35-371-001	0.18		
35-372-001	0.19		
35-372-002	0.17		
35-372-003	0.17		
35-372-004	0.18		
35-373-001	0.18		
35-373-002	0.18		
35-374-001	0.17		
35-374-002	0.16		
35-374-003	0.17		
35-374-004	0.17		
35-374-005	0.17		
35-374-006	0.17		
35-374-007	0.18		
35-374-008	0.18		
35-374-009	0.15		
35-374-010	0.18		
35-374-011	0.18		
35-374-012	0.17		
35-374-013	0.18		
35-374-014	0.17		
35-374-015	0.17		
35-375-001	0.18		
35-375-002	0.18		
35-375-003	0.18		
35-375-004	0.18		
35-375-005	0.19		
35-375-006	0.18		
35-375-009	0.18		
35-375-010	0.35		
35-376-001	0.17		
35-376-002	0.17		
35-376-003	0.16		
35-376-004	0.19		
35-376-005	0.18		
35-376-006	0.17		
35-376-007	0.17		
35-376-008	0.18		
35-376-009	0.21		
35-376-010	0.26		
35-376-011	0.23		
35-376-012	0.19		
35-376-013	0.15		
35-376-014	0.18		
35-376-015	0.22		
35-376-016	0.16		
35-376-018	0.20		
35-376-019	0.23		
35-376-021	0.24		





**Appendix C**  
**Depredation Permit**

FAA APPROVED

APR 08 2013

*JB*





**Car. Julie**

---

**To:** Brown, Jennifer  
**Subject:** RE: Sacramento County Airports Permit MB767542-2

**From:** Brown, Jennifer [mailto:[jennifer\\_c\\_brown@fws.gov](mailto:jennifer_c_brown@fws.gov)]  
**Sent:** Thursday, May 28, 2015 3:09 PM  
**To:** Car. Julie  
**Subject:** Re: Sacramento County Airports Permit MB767542-2

Thanks for the email Julie,

I didn't know that Sacramento Airport hasn't had a permit since September 30, 2013. I am currently the only permit biologist for California and Nevada, so I'm unable to keep up with the flood of permits (and emails and phone calls) that have been coming in. I do apologize on behalf of our office.

Sacramento International Airport is authorized to continue operating under the expired permit until you hear back from our office. I can't give you a timeline, but I want you to know that Sacramento International Airport's activities are covered under the expired permit.

Thank you very much for your patience.

Jen

Jennifer C. Brown

Wildlife Biologist

U.S. Fish and Wildlife Service

Migratory Bird Permit Office

2800 Cottage Way, Room W-2606

Sacramento, CA 95825

On Thu, May 28, 2015 at 2:48 PM, Car. Julie <CarJ@saccounty.net> wrote:

Jennifer,

Would you please provide an update on the status of the depredation permit for the Sacramento County Department of Airports (MB 767542-2)? We are still operating on the updated permit we received from your office June 26, 2013, which expired September 30, 2013. Our records indicate that your office received our renewal packet August 30, 2013. In February 2014, Eddie Owens said there was quite a backlog with the permit processing. I last contacted Eddie on August 15, 2014 and he responded that he was still working on our permit, but we should receive it within the next few months. I understand that Eddie has since left and wasn't sure if you were aware that we have yet to receive a 2014-2015 permit (and never received a 2013-2014 permit). I would appreciate any information you might have.

Thanks,

Julie

Julie Car

Airport Environmental Planner/Biologist  
Sacramento County Department of Airports  
916.874.0754 (office)  
916.806.5332 (cell)

[www.sacramento.aero](http://www.sacramento.aero) <<http://www.sacramento.aero/>>

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**Car. Julie**

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**From:** Owens, Edward <edward\_owens@fws.gov>  
**Sent:** Monday, August 18, 2014 4:00 PM  
**To:** Car. Julie  
**Cc:** jennifer\_c\_brown@fws.gov  
**Subject:** Re: Sacramento County Airport System Depredation Permit MB767542-2

Julie,

I am almost completely caught up on airport depredation permits but am still working on yours. You should expect to see it within the next few months. We have not sent out renewal letters; you don't need to worry about a renewal letter as we will be using the last one you sent in.

Cheers,

Eddie

-----  
Edward Owens  
Wildlife Biologist  
*FAA Qualified Airport Wildlife Biologist*

U.S. Fish and Wildlife Service, Region 8  
Migratory Bird Permit Office  
2800 Cottage Way, Suite W-2606  
Sacramento, CA 95825

(916) 978-6183  
[edward\\_owens@fws.gov](mailto:edward_owens@fws.gov)

-----  
*Teufel Hunden*

On Fri, Aug 15, 2014 at 4:20 PM, Car. Julie <[CarJ@saccounty.net](mailto:CarJ@saccounty.net)> wrote:

Hello Eddie and Jennifer,

We are preparing for our annual FAA safety inspection next Wednesday (Aug. 20), and it brought to my attention the fact that we have not received a renewed depredation permit for 2013-2014. I remember Eddie saying in February there was quite a backlog. It would be greatly appreciated if you could respond with a confirmation of this should our FAA inspector inquire about the status of the permit.

Also, we have not received our annual renewal application letter, which we usually receive in July/August. I am assuming this is also due to the backlog, but wanted to make sure you were aware in case we should have received one.

Thanks and have a great weekend,



Julie

**Julie Car**

Airport Wildlife Biologist

**Sacramento County Department of Airports**

916.874.0754 (office)

916.806.5332 (cell)

**[www.sacramento.aero](http://www.sacramento.aero)**

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DEPARTMENT OF THE INTERIOR  
U.S. FISH AND WILDLIFE SERVICE

## FEDERAL FISH AND WILDLIFE PERMIT

### I. PERMITTEE

SACRAMENTO COUNTY DEPT AIRPORTS  
ATTN HARDY ACREE  
6900 AIRPORT BLVD  
SACRAMENTO, CA 95837  
U.S.A.



2. AUTHORITY-STATUTES  
16 USD 703-712

REGULATIONS  
50 CFR Part 13  
50 CFR 21.41

3. NUMBER  
MB767542-2

AMENDMENT

4. RENEWABLE  
☒ YES  
☐ NO

5. MAY COPY  
☒ YES  
☐ NO

6. EFFECTIVE  
06/26/2013

7. EXPIRES  
09/30/2013

### 8. NAME AND TITLE OF PRINCIPAL OFFICER (If = 1 is a business)

G. HARDY ACREE  
DIRECTOR

### 9. TYPE OF PERMIT

DEPREDATION AT AIRPORTS

### 10. LOCATION WHERE AUTHORIZED ACTIVITY MAY BE CONDUCTED

Take activities may occur at the following airports:  
Sacramento International, Executive, Mather, McClellan and Franklin  
Sacramento County, California  
Records maintained at the address in Block 1 above

### 11. CONDITIONS AND AUTHORIZATIONS:

A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR 13, AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED IN BLOCK #2 ABOVE, ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CARRIED OUT IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY, OR RENEWAL, OF THIS PERMIT IS SUBJECT TO COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS, INCLUDING THE FILING OF ALL REQUIRED INFORMATION AND REPORTS.

B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL, TRIBAL, OR OTHER FEDERAL LAW.

C. VALID FOR USE BY PERMITTEE NAMED ABOVE.

**D. No more than one thousand four hundred (1400) migratory birds or active nests may be taken under this permit. Maximum take limits for specific species are described below; you may take any combination of birds and nests authorized below as long as the combined total does not exceed 1400 and the take for each species remains within the species-specific limit. (\*Please note - if you take the maximum limits authorized for all species and their nests described below, this would exceed the maximum take limit for the entire permit. We purposefully provided larger species-specific take limits so that you would have flexibility to manage unforeseen species issues that may arise.)** You are authorized to take, temporarily possess, and transport the migratory birds specified below to relieve or prevent injurious situations impacting public safety. Lethal take is limited to those individuals which cannot be dispersed by nonlethal means. All take must be done as part of an integrated wildlife damage management program that emphasizes nonlethal management techniques. You may not use this authority for situations in which migratory birds are merely causing a nuisance. This authority excludes bald eagles, golden eagles, and threatened/endangered species. *You must have State authorization prior to removing raptors, State Fully Protected Species, State Species of Special Concern and State Threatened and Endangered Species.*

**(1) The following may be lethally taken (for raptors and Birds of Conservation Concern or California Species of Special Concern - trapping and relocation must be attempted prior to implementing lethal control unless there is an immediate threat to human safety; for colonial nesting birds, every attempt must be made to prevent nesting and**

☒ ADDITIONAL CONDITIONS AND AUTHORIZATIONS ALSO APPLY

### 12. REPORTING REQUIREMENTS

ANNUAL REPORT DUE: 01/31

You must submit a report to your Regional Migratory Bird Permit Office even if you had no activity. Report form is at [www.fws.gov/forms/3-202-9.pdf](http://www.fws.gov/forms/3-202-9.pdf).

ISSUED BY

TITLE

CHIEF, MIGRATORY BIRD PERMIT OFFICE - REGION 8

CLJ  
INSPECTOR  
DATE

06/26/2013

MAY 28 2015



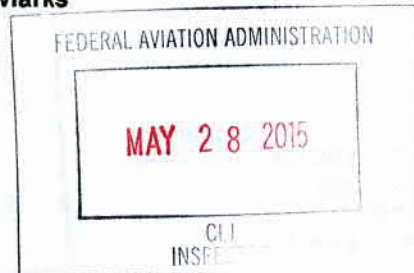
*minimize the need to lethally control large numbers of birds):*

400 Mallards  
85 Great Egrets  
60 Great Blue Herons  
60 White-faced Ibis  
200 Mourning Doves

125 Western Kingbirds  
250 Western Meadowlarks  
600 Cliff Swallows  
85 Barn Swallows

**Raptors & Vultures**

75 Turkey Vultures  
30 Red-tailed Hawks  
25 Barn Owls



**Birds of Conservation Concern & California Species of Species Concern**

**70 Long-billed Curlews (Bird of Conservation Concern)**

- (a) In addition to the specific species listed above, no more than two hundred (200) other migratory bird species (no more than 50 per species) may be lethally taken or trapped and relocated, excluding endangered/threatened species, bald eagles and golden eagles, in accordance with 50 CFR 21.41, that are found in the immediate vicinity of the runways and pose an immediate and probable threat to approaching and departing aircraft, thereby creating a human safety and health hazard:
- No more than fifty (50) Federal Birds of Conservation Concern and State Species of Special Concern (no more than 10 per species) may be lethally removed or trapped and relocated. Trapping and relocation must be attempted prior to implementing lethal control unless there is an immediate threat to human safety.
  - No more than fifty (50) raptors and owls (excluding bald eagles and golden eagles) (no more than 10 per species) may be lethally removed or trapped and relocated. Trapping and relocation must be attempted prior to implementing lethal control unless there is an immediate threat to human safety. See #2 below regarding raptor live-trap and relocation guidance.
- (b) Harassment and/or removal of endangered/threatened species and/or bald and golden eagles require additional permits from Migratory Bird Permit Office and/or Ecological Services Office.

**(2) The following may be live-trapped and relocated:**

- (a) All species with take limits described above, excluding endangered/threatened species, bald eagles and golden eagles.
- (b) Hawks, owls and Loggerhead Shrikes - refer to the recommendations in the enclosed Guidance for Avian Predator Trapping and Relocation.

**(3) The following active nests (including eggs) may be destroyed or relocated:**

- (a) In addition, a combined total of **fifty (50) nests** of any bird that is not a threatened or endangered species, bald or golden eagle, Federal Bird of Conservation Concern, or State Species of Special Concern. Nests of threatened and endangered species, bald and golden eagles, and birds of Federal or State conservation concern may be removed after written approval is obtained from the Migratory Bird Permit Office and/or Ecological Services Office, provided contents are given to a federally permitted migratory bird rehabilitator. After the contents have been removed, the nest may be destroyed. Active hazing is required after removal to prevent re-nesting.

E. You are authorized in emergency situations only to take, trap, or relocate any migratory birds, nests and eggs, including species that are not listed in Condition D (except bald eagles, golden eagles, or endangered or threatened species) when the migratory birds, nests, or eggs are posing a direct threat to human safety. A direct threat to human safety is one which involves a threat of serious bodily injury or a risk to human life.

You must report any emergency take activity to your migratory bird permit issuing office at [Jennifer.C.Brown@fws.gov](mailto:Jennifer.C.Brown@fws.gov) <<mailto:Jennifer.C.Brown@fws.gov>> or 916-978-6183 within 72 hours after the emergency take action. Your report must include the species and number of birds taken, method, and a complete description of the circumstances warranting the emergency action.



F. You are authorized to salvage and temporarily possess migratory birds found dead or taken under this permit for (1) disposal, (2) transfer to the U.S. Department of Agriculture, (3) diagnostic purposes, (4) purposes of training airport personnel, (5) donation to a public scientific or educational institution as defined in 50 CFR 10.12, (6) donation to persons authorized by permit or regulation to possess them, or (7) donation of migratory game birds only to a public charity (those suitable for human consumption). Any dead bald eagles or golden eagles salvaged must be reported within 48 hours to the National Eagle Repository at (303) 287-2110 and to the migratory bird permit issuing office at [Jennifer C Brown@fws.gov](mailto:Jennifer_C_Brown@fws.gov) or 916-978-6183. The Repository will provide directions for shipment of these specimens.

G. You may not salvage and must immediately report to U.S. Fish and Wildlife Service Office of Law Enforcement (OLE) any dead or injured migratory birds that you encounter that appear to have been poisoned, shot, electrocuted, have collided with industrial power generation equipment, or were otherwise killed or injured as the result of potential criminal activity. See USFWS OLE contact information below.

H. You may use the following methods of take: (1) firearms; (2) nets; (3) registered animal drugs (excluding ncarbazin), pesticides and repellents; (4) falconry abatement; and (5) legal lethal and live traps (excluding pole traps). Birds caught live may be euthanized or transported and relocated to another site approved by the appropriate State wildlife agency, if required. When using firearms, you may use rifles or air rifles to shoot any bird when you determine that the use of a shotgun is inadequate to resolve the injurious situation. You may use paint ball guns to haze birds or deter birds only when other methods of hazing are ineffective. The use of any of the above techniques is at your discretion for each situation.

#### *Trap Types*

Any appropriate and humane raptor trap may be used (excluding pole traps)

#### *Trap Checks*

Traps must be checked at least every 2 hours during the day and at least once at night (not including set up and take down). Under extenuating circumstances you may extend the trap-checking requirement from every 2 hours during the day to a minimum of every 4 hours during the day for Swedish Goshawk traps. Swedish Goshawk traps checked less frequently than every two hours must attempt to be placed in the shade and have water available in the trap. Traps must be closed down during inclement weather (e.g., precipitation or extreme temperatures) unless they are monitored continuously. Trap transponders may be used in lieu of checking traps.

If injured, the bird must be transferred immediately to a federally permitted migratory bird rehabilitator or licensed veterinarian for care at the permittee's expense. Any bird killed or injured during trapping must be reported within 72 hours to the issuing office at [Jennifer C Brown@fws.gov](mailto:Jennifer_C_Brown@fws.gov) or (916) 978-6183 and reported on your Annual Report.

#### *Possession/Relocation*

You may possess, transport, and release birds captured at your facility. Birds are to be released within 72 hours. Birds held longer than 72 hours must be reported on your Annual Report with length of time held and justification. All birds should be banded prior to release if possible.

You may house, transport, and release birds trapped by other facilities with federal permits for raptor trapping-and-relocation. Birds remain under the permit of the facility at which they were captured until released.

Birds captured must be relocated a distance sufficient to minimize potential for return to the capture site.

#### *Transfer to Falconers or AZA-accredited Facilities*

Raptors transferred to licensed falconers or accredited AZA facilities must be reported on your annual report. Additional State authorization may be required in order to transfer raptors to falconers or AZA facilities. The annual report should list the final disposition of transferred birds as "given to falconer" with the Federal and State Falconry Permit numbers, or "given to AZA-accredited institution" with the name of the institution. Refer to the enclosed Guidance for Avian Predator Trapping and Relocation for additional information.

Anyone who takes migratory birds under the authority of this permit must follow the American Veterinary Medical Association Guidelines on Euthanasia when euthanization of a bird is necessary ([http://www.avma.org/issues/animal\\_welfare/euthanasia.pdf](http://www.avma.org/issues/animal_welfare/euthanasia.pdf).)

I. You may temporarily possess and stabilize sick and injured migratory birds and immediately transport them to a federally licensed rehabilitator for care. Healthy birds may not be admitted to rehabilitation facilities as per regulation 50 CFR 21.31. However rehabilitation facilities may act as a subpermittee to care for healthy birds provided possession remains under the depredation permit. The permittee is ultimately responsible for healthy birds possessed under this depredation permit, even while under the care of entities which have their own federal permits.

APR 08 2013  
JCB+

J. Records to be maintained at Address in Block 1 Above. Summary of Additional Annual Report Requirements as described above:

- Any bird killed or injured during trapping (in addition to reporting within 72 hours)
- Any raptor lethally removed, including reason for lethal removal
- Any raptor held longer than 72 hours, including length of time and justification
- Band numbers of trapped raptors if you are banding
- Raptors transferred to licensed falconers or accredited AZA facilities with final disposition listed as "given to falconer" with the Federal and State Falconry Permit numbers, or "given to AZA-accredited institution" with the name of the institution

K. The following subpermittees are authorized: USDA, Wildlife Services Wildlife Specialist(s); Sacramento County Airport System Wildlife Biologists; and other Sacramento County Airport System personnel, as needed. In addition, any other person who is (1) employed by or under contract to you for the activities specified in this permit, or (2) otherwise designated a subpermittee by you in writing, may exercise the authority of this permit.

L. You and any subpermittee(s) must comply with the attached Standard Conditions for Migratory Bird Depredation Permits. **These standard conditions are a continuation of your permit conditions and must remain stapled to your permit.**

**For suspected illegal activity, immediately contact USFWS Law Enforcement at: (916) 414-6660 (Sacramento)**







## Standard Conditions Migratory Bird Depredation Permits 50 CFR 21.41

All of the provisions and conditions of the governing regulations at 50 CFR part 13 and 50 CFR part 21.41 are conditions of your permit. Failure to comply with the conditions of your permit could be cause for suspension of the permit. The standard conditions below are a continuation of your permit conditions and must remain with your permit. If you have questions regarding these conditions, refer to the regulations or, if necessary, contact your migratory bird permit issuing office. For copies of the regulations and forms, or to obtain contact information for your issuing office, visit: <http://www.fws.gov/migratorybirds/mbpermits.html>.

1. To minimize the lethal take of migratory birds, you are required to continually apply non-lethal methods of harassment in conjunction with lethal control.  
*[Note: Explosive Pest Control Devices (EPCDs) are regulated by the Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF). If you plan to use EPCDs, you require a Federal explosives permit, unless you are exempt under 27 CFR 555.141. Information and contacts may be found at <http://www.atf.gov/explosives/how-to/become-an-fel.htm>.]*

2. Shotguns used to take migratory birds can be no larger than 10-gauge and must be fired from the shoulder. You must use nontoxic shot listed in 50 CFR 20.21(j).
3. You may not use blinds, pits, or other means of concealment, decoys, duck calls, or other devices to lure or entice migratory birds into gun range.
4. You are not authorized to take, capture, harass, or disturb bald eagles or golden eagles, or species listed as threatened or endangered under the Endangered Species Act found in 50 CFR 17, without additional authorization.

For a list of threatened and endangered species in your state, visit the U.S. Fish and Wildlife Service's Threatened and Endangered Species System (TESS) at: <http://www.fws.gov/endangered>.

5. If you encounter a migratory bird with a Federal band issued by the U.S. Geological Survey Bird Banding Laboratory, Laurel, MD, report the band number to 1-800-327-BAND or <http://www.reportband.gov>.
6. This permit does not authorize take or release of any migratory birds, nests, or eggs on Federal lands without additional prior written authorization from the applicable Federal agency, or on State lands or other public or private property without prior written permission or permits from the landowner or custodian.
7. Unless otherwise specified on the face of the permit, migratory birds, nests, or eggs taken under this permit must be:
  - (a) turned over to the U.S. Department of Agriculture for official purposes, or
  - (b) donated to a public educational or scientific institution as defined by 50 CFR 10, or
  - (c) completely destroyed by burial or incineration, or
  - (d) with prior approval from the permit issuing office, donated to persons authorized by permit or regulation to possess them.





8. A subpermittee is an individual to whom you have provided written authorization to conduct some or all of the permitted activities in your absence. Subpermittees must be at least 18 years of age. As the permittee, you are legally responsible for ensuring that your subpermittees are adequately trained and adhere to the terms of your permit. You are responsible for maintaining current records of who you have designated as a subpermittee, including copies of designation letters you have provided.
9. You and any subpermittees must carry a legible copy of this permit, *including these Standard Conditions*, and display it upon request whenever you are exercising its authority.
10. You must maintain records as required in 50 CFR 13.46 and 50 CFR 21.41. All records relating to the permitted activities must be kept at the location indicated in writing by you to the migratory bird permit issuing office.
11. Acceptance of this permit authorizes the U.S. Fish and Wildlife Service to inspect any wildlife held, and to audit or copy any permits, books, or records required to be kept by the permit and governing regulations.
12. You may not conduct the activities authorized by this permit if doing so would violate the laws of the applicable State, county, municipal or tribal government or any other applicable law.

(DPRD - 12/3/2011)

(page 2 of 2)



**1 From** Please print and press hard.  
 Date 8-29-13 Sender's FedEx Account Number 1094-3288-1  
 Sr. N. JULIE CAR Phone (916) 874-0754  
 Company SACRAMENTO COUNTY AIRPORT SYSTEM  
 Address 6900 AIRPORT BLVD  
 City SACRAMENTO State CA ZIP 95837

**2 Your Internal Billing Reference** OPTIONAL  
**3 To**  
 Recipient's Name JENNIFER BROWN Phone (916) 1978-6183  
 Company U.S. FISH & WILDLIFE SERVICE  
 Recipient's Address MIGRATORY BIRD PERMIT OFFICE  
 Address 2800 COTTAGE WAY, SUITE W-2606  
 City SACRAMENTO State CA ZIP 95825-0509



**Ship and track packages at fedex.com**  
 Simplify your shipping. Manage your account. Access all the tools you need.

**4a Express Package Service** Packages up to 150 lbs.  
☐ FedEx Priority Overnight Next business morning\* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.  
☒ FedEx Standard Overnight Next business afternoon\* Saturday Delivery NOT available.  
☐ FedEx First Overnight Earliest next business morning delivery to select locations.\* Saturday Delivery NOT available.  
☐ FedEx 2Day Second business day\* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.  
☐ FedEx Express Saver Second business day\* Saturday Delivery NOT available.  
 \* To most locations.

**4b Express Freight Service** Packages over 150 lbs.  
☐ FedEx 1Day Freight\* Next business day\*\* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.  
☐ FedEx 2Day Freight Second business day\*\* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.  
☐ FedEx 3Day Freight Third business day\*\* Saturday Delivery NOT available.  
 \* Call for Confirmation: \*\* To most locations.

**5 Packaging**  
☒ FedEx Envelope\* ☐ FedEx Pak\* Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak. ☐ FedEx Box ☐ FedEx Tube ☐ Other  
 \* Declared value limit \$500.

**6 Special Handling** Include FedEx address in Section 3.  
☐ SATURDAY Delivery NOT Available for FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.  
☐ HOLD Weekday at FedEx Location NOT Available for FedEx First Overnight.  
☐ HOLD Saturday at FedEx Location Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.  
 Does this shipment contain dangerous goods?  
☒ No ☐ Yes per attached Shipper's Declaration. ☐ Yes Shipper's Declaration not required.  
☐ Dry Ice Dry Ice, 9, UN 1845 x kg  
 Dangerous goods (including dry ice) cannot be shipped in FedEx packaging. ☐ Cargo Aircraft Only

**7 Payment Bill to:** Enter FedEx Acct. No. or Credit Card No. below.  
☒ Sender Acct. No. in Section 1 will be billed. ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check  
 FedEx Acct. No. Exp. Date  
 Total Packages Total Weight Total Declared Value\*  
 \$ .00

\*Our liability is limited to \$100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

**8 Residential Delivery Signature Options** If you require a signature, check Direct or Indirect.  
☐ No Signature Required Package may be left without obtaining a signature for delivery.  
☒ Direct Signature Someone at recipient's address may sign for delivery. Fee applies.  
☐ Indirect Signature If no one is available at recipient's address, someone at a neighboring address may sign for delivery. Fee applies.  
 520  
 Rev. Date 10/06-Part #158281-©1994-2006 FedEx-PRINTED IN U.S.A. SRY

**1 From** Please print and press hard.  
 Date AUGUST 29, 2013 Sender's FedEx Account Number 1094-3288-1  
 Sender's Name JULIE CAR Phone (916) 874-0754  
 Company SACRAMENTO COUNTY AIRPORT SYSTEM  
 Address 6900 AIRPORT BLVD  
 City SACRAMENTO State CA ZIP 95837

**2 Your Internal Billing Reference** OPTIONAL  
**3 To**  
 Recipient's Name JASON HOLLEY Phone (916) 1358-2868  
 Company CA DEPT. OF FISH & WILDLIFE  
 Recipient's Address NORTH CENTRAL REGION  
 Address 1701 NIMBUS ROAD, SUITE A  
 City ANCHO CORDOVA State CA ZIP 95670



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**4a Express Package Service** Packages up to 150 lbs.  
☐ FedEx Priority Overnight Next business morning\* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.  
☒ FedEx Standard Overnight Next business afternoon\* Saturday Delivery NOT available.  
☐ FedEx First Overnight Earliest next business morning delivery to select locations.\* Saturday Delivery NOT available.  
☐ FedEx 2Day Second business day\* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.  
☐ FedEx Express Saver Second business day\* Saturday Delivery NOT available.  
 \* To most locations.

**4b Express Freight Service** Packages over 150 lbs.  
☐ FedEx 1Day Freight\* Next business day\*\* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.  
☐ FedEx 2Day Freight Second business day\*\* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.  
☐ FedEx 3Day Freight Third business day\*\* Saturday Delivery NOT available.  
 \* Call for Confirmation: \*\* To most locations.

**5 Packaging**  
☒ FedEx Envelope\* ☐ FedEx Pak\* Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak. ☐ FedEx Box ☐ FedEx Tube ☐ Other  
 \* Declared value limit \$500.

**6 Special Handling** Include FedEx address in Section 3.  
☐ SATURDAY Delivery NOT Available for FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.  
☐ HOLD Weekday at FedEx Location NOT Available for FedEx First Overnight.  
☐ HOLD Saturday at FedEx Location Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.  
 Does this shipment contain dangerous goods?  
☒ No ☐ Yes per attached Shipper's Declaration. ☐ Yes Shipper's Declaration not required.  
☐ Dry Ice Dry Ice, 9, UN 1845 x kg  
 Dangerous goods (including dry ice) cannot be shipped in FedEx packaging. ☐ Cargo Aircraft Only

**7 Payment Bill to:** Enter FedEx Acct. No. or Credit Card No. below.  
☒ Sender Acct. No. in Section 1 will be billed. ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check  
 FedEx Acct. No. Exp. Date  
 Total Packages Total Weight Total Declared Value\*  
 \$ .00

\*Our liability is limited to \$100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

**8 Residential Delivery Signature Options** If you require a signature, check Direct or Indirect.  
☐ No Signature Required Package may be left without obtaining a signature for delivery.  
☒ Direct Signature Someone at recipient's address may sign for delivery. Fee applies.  
☐ Indirect Signature If no one is available at recipient's address, someone at a neighboring address may sign for delivery. Fee applies.  
 520  
 Rev. Date 10/06-Part #158281-©1994-2006 FedEx-PRINTED IN U.S.A. SRY

**IMPORTANT!**Daily operations have resumed in Colorado. [Learn More](#)**864713221430**Ship (P/U) date:  
**Thur 8/29/2013 5:13 pm**  
SAC US**Delivered**  
*Signed for by: C.NICOLE*Actual delivery:  
**Fri 8/30/2013 10:23 am**  
CA US**Travel History**

Date/Time	Activity	Location
- 8/30/2013 - Friday		
10:23 am	Delivered	CA
8:26 am	On FedEx vehicle for delivery	RANCHO CORDOVA, CA
7:59 am	At local FedEx facility	RANCHO CORDOVA, CA
6:00 am	At destination sort facility	SACRAMENTO, CA
- 8/29/2013 - Thursday		
9:11 pm	At local FedEx facility	SACRAMENTO, CA
5:13 pm	Picked up	SACRAMENTO, CA

Local Scan Time **Shipment Facts**

Tracking number	864713221430	Service	FedEx Standard Overnight
Dimensions	1x1x1 in.	Signature services	Direct signature required
Delivered To	Receptionist/Front Desk	Total pieces	1
Packaging	FedEx Envelope	Special handling section	Deliver Weekday, Direct Signature Required



**IMPORTANT!**Daily operations have resumed in Colorado. [Learn More](#)**864713221429**

Ship (P/U) date :

**Thur 8/29/2013 5:15 pm**

SAC US:

**Delivered**

Signed for by: M.HARVEY

Actual delivery :

**Fri 8/30/2013 10:07 am**

CA US

**Travel History**

Date/Time	Activity	Location
- 8/30/2013 - Friday		
10:07 am	Delivered	CA
8:39 am	On FedEx vehicle for delivery	RANCHO CORDOVA, CA
7:59 am	At local FedEx facility	RANCHO CORDOVA, CA
6:00 am	At destination sort facility	SACRAMENTO, CA
- 8/29/2013 - Thursday		
9:11 pm	At local FedEx facility	SACRAMENTO, CA
5:15 pm	Picked up	SACRAMENTO, CA

Local Scan Time **Shipment Facts**

Tracking number	864713221429	Service	FedEx Standard Overnight
Dimensions	1x1x1 in.	Signature services	Direct signature required
Delivered To	Receptionist/Front Desk	Total pieces	1
Packaging	FedEx Envelope	Special handling section	Deliver Weekday, Direct Signature Required



**Appendix D**

**FAA Advisory Circular 150/5200-33B, *Hazardous Wildlife Attractants  
on or near Airports***









U.S. Department  
of Transportation

Federal Aviation  
Administration

# Advisory Circular

**Subject: HAZARDOUS WILDLIFE  
ATTRACTANTS ON OR NEAR  
AIRPORTS**

**Date:** 8/28/2007

**AC No:** 150/5200-33B

**Initiated by:** AAS-300

**Change:**

**1. PURPOSE.** This Advisory Circular (AC) provides guidance on certain land uses that have the potential to attract hazardous wildlife on or near public-use airports. It also discusses airport development projects (including airport construction, expansion, and renovation) affecting aircraft movement near hazardous wildlife attractants. Appendix 1 provides definitions of terms used in this AC.

**2. APPLICABILITY.** The Federal Aviation Administration (FAA) recommends that public-use airport operators implement the standards and practices contained in this AC. The holders of Airport Operating Certificates issued under Title 14, Code of Federal Regulations (CFR), Part 139, Certification of Airports, Subpart D (Part 139), may use the standards, practices, and recommendations contained in this AC to comply with the wildlife hazard management requirements of Part 139. Airports that have received Federal grant-in-aid assistance must use these standards. The FAA also recommends the guidance in this AC for land-use planners, operators of non-certificated airports, and developers of projects, facilities, and activities on or near airports.

**3. CANCELLATION.** This AC cancels AC 150/5200-33A, *Hazardous Wildlife Attractants on or near Airports*, dated July 27, 2004.

**4. PRINCIPAL CHANGES.** This AC contains the following major changes, which are marked with vertical bars in the margin:

- a. Technical changes to paragraph references.
- b. Wording on storm water detention ponds.
- c. Deleted paragraph 4-3.b, *Additional Coordination*.

**5. BACKGROUND.** Information about the risks posed to aircraft by certain wildlife species has increased a great deal in recent years. Improved reporting, studies, documentation, and statistics clearly show that aircraft collisions with birds and other wildlife are a serious economic and public safety problem. While many species of wildlife can pose a threat to aircraft safety, they are not equally hazardous.

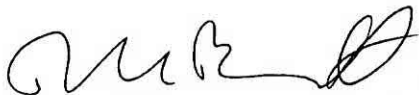


ranks the wildlife groups commonly involved in damaging strikes in the United States according to their relative hazard to aircraft. The ranking is based on the 47,212 records in the FAA National Wildlife Strike Database for the years 1990 through 2003. These hazard rankings, in conjunction with site-specific Wildlife Hazards Assessments (WHA), will help airport operators determine the relative abundance and use patterns of wildlife species and help focus hazardous wildlife management efforts on those species most likely to cause problems at an airport.

Most public-use airports have large tracts of open, undeveloped land that provide added margins of safety and noise mitigation. These areas can also present potential hazards to aviation if they encourage wildlife to enter an airport's approach or departure airspace or air operations area (AOA). Constructed or natural areas—such as poorly drained locations, detention/retention ponds, roosting habitats on buildings, landscaping, odor-causing rotting organic matter (putrescible waste) disposal operations, wastewater treatment plants, agricultural or aquaculture activities, surface mining, or wetlands—can provide wildlife with ideal locations for feeding, loafing, reproduction, and escape. Even small facilities, such as fast food restaurants, taxicab staging areas, rental car facilities, aircraft viewing areas, and public parks, can produce substantial attractions for hazardous wildlife.

During the past century, wildlife-aircraft strikes have resulted in the loss of hundreds of lives worldwide, as well as billions of dollars in aircraft damage. Hazardous wildlife attractants on and near airports can jeopardize future airport expansion, making proper community land-use planning essential. This AC provides airport operators and those parties with whom they cooperate with the guidance they need to assess and address potentially hazardous wildlife attractants when locating new facilities and implementing certain land-use practices on or near public-use airports.

**6. MEMORANDUM OF AGREEMENT BETWEEN FEDERAL RESOURCE AGENCIES.** The FAA, the U.S. Air Force, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, and the U.S. Department of Agriculture - Wildlife Services signed a Memorandum of Agreement (MOA) in July 2003 to acknowledge their respective missions in protecting aviation from wildlife hazards. Through the MOA, the agencies established procedures necessary to coordinate their missions to address more effectively existing and future environmental conditions contributing to collisions between wildlife and aircraft (wildlife strikes) throughout the United States. These efforts are intended to minimize wildlife risks to aviation and human safety while protecting the Nation's valuable environmental resources.



DAVID L. BENNETT  
Director, Office of Airport Safety  
and Standards





Table 1. Ranking of 25 species groups as to relative hazard to aircraft (1=most hazardous) based on three criteria (damage, major damage, and effect-on-flight), a composite ranking based on all three rankings, and a relative hazard score. Data were derived from the FAA National Wildlife Strike Database, January 1990–April 2003.<sup>1</sup>

Species group	Ranking by criteria			Composite ranking <sup>2</sup>	Relative hazard score <sup>3</sup>
	Damage <sup>4</sup>	Major damage <sup>5</sup>	Effect on flight <sup>6</sup>		
Deer	1	1	1	1	100
Vultures	2	2	2	2	64
Geese	3	3	6	3	55
Cormorants/pelicans	4	5	3	4	54
Cranes	7	6	4	5	47
Eagles	6	9	7	6	41
Ducks	5	8	10	7	39
Osprey	8	4	8	8	39
Turkey/pheasants	9	7	11	9	33
Hérons	11	14	9	10	27
Hawks (buteos)	10	12	12	11	25
Gulls	12	11	13	12	24
Rock pigeon	13	10	14	13	23
Owls	14	13	20	14	23
H. lark/s. bunting	18	15	15	15	17
Crows/ravens	15	16	16	16	16
Coyote	16	19	5	17	14
Mourning dove	17	17	17	18	14
Shorebirds	19	21	18	19	10
Blackbirds/starling	20	22	19	20	10
American kestrel	21	18	21	21	9
Meadowlarks	22	20	22	22	7
Swallows	24	23	24	23	4
Sparrows	25	24	23	24	4
Nighthawks	23	25	25	25	1

<sup>1</sup> Excerpted from the *Special Report for the FAA, "Ranking the Hazard Level of Wildlife Species to Civil Aviation in the USA: Update #1, July 2, 2003"*. Refer to this report for additional explanations of criteria and method of ranking.

<sup>2</sup> Relative rank of each species group was compared with every other group for the three variables, placing the species group with the greatest hazard rank for  $\geq 2$  of the 3 variables above the next highest ranked group, then proceeding down the list.

<sup>3</sup> Percentage values, from Tables 3 and 4 in Footnote 1 of the *Special Report*, for the three criteria were summed and scaled down from 100, with 100 as the score for the species group with the maximum summed values and the greatest potential hazard to aircraft.

<sup>4</sup> Aircraft incurred at least some damage (destroyed, substantial, minor, or unknown) from strike.

<sup>5</sup> Aircraft incurred damage or structural failure, which adversely affected the structure strength, performance, or flight characteristics, and which would normally require major repair or replacement of the affected component, or the damage sustained makes it inadvisable to restore aircraft to airworthy condition.

<sup>6</sup> Aborted takeoff, engine shutdown, precautionary landing, or other.

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**SECTION 1.****GENERAL SEPARATION CRITERIA FOR HAZARDOUS WILDLIFE ATTRACTANTS ON OR NEAR AIRPORTS.**

**1-1. INTRODUCTION.** When considering proposed land uses, airport operators, local planners, and developers must take into account whether the proposed land uses, including new development projects, will increase wildlife hazards. Land-use practices that attract or sustain hazardous wildlife populations on or near airports can significantly increase the potential for wildlife strikes.

The FAA recommends the minimum separation criteria outlined below for land-use practices that attract hazardous wildlife to the vicinity of airports. Please note that FAA criteria include land uses that cause movement of hazardous wildlife onto, into, or across the airport's approach or departure airspace or air operations area (AOA). (See the discussion of the synergistic effects of surrounding land uses in Section 2-8 of this AC.)

The basis for the separation criteria contained in this section can be found in existing FAA regulations. The separation distances are based on (1) flight patterns of piston-powered aircraft and turbine-powered aircraft, (2) the altitude at which most strikes happen (78 percent occur under 1,000 feet and 90 percent occur under 3,000 feet above ground level), and (3) National Transportation Safety Board (NTSB) recommendations.

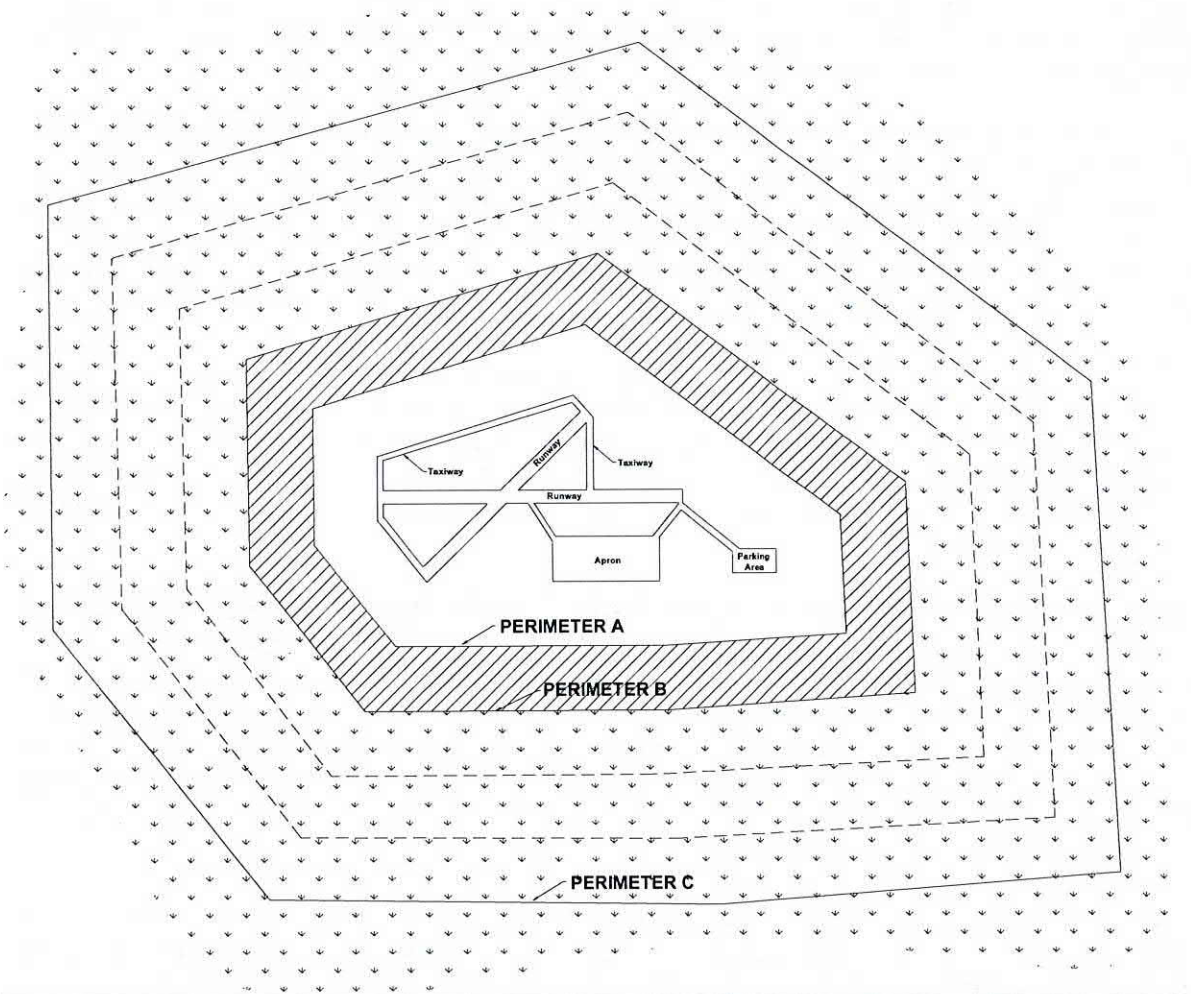
**1-2. AIRPORTS SERVING PISTON-POWERED AIRCRAFT.** Airports that do not sell Jet-A fuel normally serve piston-powered aircraft. Notwithstanding more stringent requirements for specific land uses, the FAA recommends a separation distance of 5,000 feet at these airports for any of the hazardous wildlife attractants mentioned in Section 2 or for new airport development projects meant to accommodate aircraft movement. This distance is to be maintained between an airport's AOA and the hazardous wildlife attractant. Figure 1 depicts this separation distance measured from the nearest aircraft operations areas.

**1-3. AIRPORTS SERVING TURBINE-POWERED AIRCRAFT.** Airports selling Jet-A fuel normally serve turbine-powered aircraft. Notwithstanding more stringent requirements for specific land uses, the FAA recommends a separation distance of 10,000 feet at these airports for any of the hazardous wildlife attractants mentioned in Section 2 or for new airport development projects meant to accommodate aircraft movement. This distance is to be maintained between an airport's AOA and the hazardous wildlife attractant. Figure 1 depicts this separation distance from the nearest aircraft movement areas.

**1-4. PROTECTION OF APPROACH, DEPARTURE, AND CIRCLING AIRSPACE.** For all airports, the FAA recommends a distance of 5 statute miles between the farthest edge of the airport's AOA and the hazardous wildlife attractant if the attractant could cause hazardous wildlife movement into or across the approach or departure airspace.



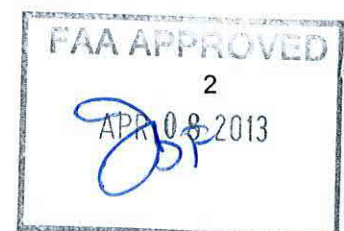
Figure 1. Separation distances within which hazardous wildlife attractants should be avoided, eliminated, or mitigated.



PERIMETER A: For airports serving piston-powered aircraft, hazardous wildlife attractants must be 5,000 feet from the nearest air operations area.

PERIMETER B: For airports serving turbine-powered aircraft, hazardous wildlife attractants must be 10,000 feet from the nearest air operations area.

PERIMETER C: 5-mile range to protect approach, departure and circling airspace.





## SECTION 2.

### LAND-USE PRACTICES ON OR NEAR AIRPORTS THAT POTENTIALLY ATTRACT HAZARDOUS WILDLIFE.

**2-1. GENERAL.** The wildlife species and the size of the populations attracted to the airport environment vary considerably, depending on several factors, including land-use practices on or near the airport. This section discusses land-use practices having the potential to attract hazardous wildlife and threaten aviation safety. In addition to the specific considerations outlined below, airport operators should refer to *Wildlife Hazard Management at Airports*, prepared by FAA and U.S. Department of Agriculture (USDA) staff. (This manual is available in English, Spanish, and French. It can be viewed and downloaded free of charge from the FAA's wildlife hazard mitigation web site: <http://wildlife-mitigation.tc.FAA.gov/>.) And, *Prevention and Control of Wildlife Damage*, compiled by the University of Nebraska Cooperative Extension Division. (This manual is available online in a periodically updated version at: [ianrwww.unl.edu/wildlife/solutions/handbook/](http://ianrwww.unl.edu/wildlife/solutions/handbook/).)

**2-2. WASTE DISPOSAL OPERATIONS.** Municipal solid waste landfills (MSWLF) are known to attract large numbers of hazardous wildlife, particularly birds. Because of this, these operations, when located within the separations identified in the siting criteria in Sections 1-2 through 1-4, are considered incompatible with safe airport operations.

- a. Siting for new municipal solid waste landfills subject to AIR 21.** Section 503 of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (Public Law 106-181) (AIR 21) prohibits the construction or establishment of a new MSWLF within 6 statute miles of certain public-use airports. Before these prohibitions apply, both the airport and the landfill must meet the very specific conditions described below. These restrictions do not apply to airports or landfills located within the state of Alaska.

The airport must (1) have received a Federal grant(s) under 49 U.S.C. § 47101, et. seq.; (2) be under control of a public agency; (3) serve some scheduled air carrier operations conducted in aircraft with less than 60 seats; and (4) have total annual enplanements consisting of at least 51 percent of scheduled air carrier enplanements conducted in aircraft with less than 60 passenger seats.

The proposed MSWLF must (1) be within 6 miles of the airport, as measured from airport property line to MSWLF property line, and (2) have started construction or establishment on or after April 5, 2001. Public Law 106-181 only limits the construction or establishment of some new MSWLF. It does not limit the expansion, either vertical or horizontal, of existing landfills.

NOTE: Consult the most recent version of AC 150/5200-34, *Construction or Establishment of Landfills Near Public Airports*, for a more detailed discussion of these restrictions.





- b. **Siting for new MSWLF not subject to AIR 21.** If an airport and MSWLF do not meet the restrictions of Public Law 106-181, the FAA recommends against locating MSWLF within the separation distances identified in Sections 1-2 through 1-4. The separation distances should be measured from the closest point of the airport's AOA to the closest planned MSWLF cell.
- c. **Considerations for existing waste disposal facilities within the limits of separation criteria.** The FAA recommends against airport development projects that would increase the number of aircraft operations or accommodate larger or faster aircraft near MSWLF operations located within the separations identified in Sections 1-2 through 1-4. In addition, in accordance with 40 CFR 258.10, owners or operators of existing MSWLF units that are located within the separations listed in Sections 1-2 through 1-4 must demonstrate that the unit is designed and operated so it does not pose a bird hazard to aircraft. (See Section 4-2(b) of this AC for a discussion of this demonstration requirement.)
- d. **Enclosed trash transfer stations.** Enclosed waste-handling facilities that receive garbage behind closed doors; process it via compaction, incineration, or similar manner; and remove all residue by enclosed vehicles generally are compatible with safe airport operations, provided they are not located on airport property or within the Runway Protection Zone (RPZ). These facilities should not handle or store putrescible waste outside or in a partially enclosed structure accessible to hazardous wildlife. Trash transfer facilities that are open on one or more sides; that store uncovered quantities of municipal solid waste outside, even if only for a short time; that use semi-trailers that leak or have trash clinging to the outside; or that do not control odors by ventilation and filtration systems (odor masking is not acceptable) do not meet the FAA's definition of fully enclosed trash transfer stations. The FAA considers these facilities incompatible with safe airport operations if they are located closer than the separation distances specified in Sections 1-2 through 1-4.
- e. **Composting operations on or near airport property.** Composting operations that accept only yard waste (e.g., leaves, lawn clippings, or branches) generally do not attract hazardous wildlife. Sewage sludge, woodchips, and similar material are not municipal solid wastes and may be used as compost bulking agents. The compost, however, must never include food or other municipal solid waste. Composting operations should not be located on airport property. Off-airport property composting operations should be located no closer than the greater of the following distances: 1,200 feet from any AOA or the distance called for by airport design requirements (see AC 150/5300-13, *Airport Design*). This spacing should prevent material, personnel, or equipment from penetrating any Object Free Area (OFA), Obstacle Free Zone (OFZ), Threshold Siting Surface (TSS), or Clearway. Airport operators should monitor composting operations located in proximity to the airport to ensure that steam or thermal rise does not adversely affect air traffic. On-airport disposal of compost by-products should not be conducted for the reasons stated in 2-3f.





- f. **Underwater waste discharges.** The FAA recommends against the underwater discharge of any food waste (e.g., fish processing offal) within the separations identified in Sections 1-2 through 1-4 because it could attract scavenging hazardous wildlife.
- g. **Recycling centers.** Recycling centers that accept previously sorted non-food items, such as glass, newspaper, cardboard, or aluminum, are, in most cases, not attractive to hazardous wildlife and are acceptable.
- h. **Construction and demolition (C&D) debris facilities.** C&D landfills do not generally attract hazardous wildlife and are acceptable if maintained in an orderly manner, admit no putrescible waste, and are not co-located with other waste disposal operations. However, C&D landfills have similar visual and operational characteristics to putrescible waste disposal sites. When co-located with putrescible waste disposal operations, C&D landfills are more likely to attract hazardous wildlife because of the similarities between these disposal facilities. Therefore, a C&D landfill co-located with another waste disposal operation should be located outside of the separations identified in Sections 1-2 through 1-4.
- i. **Fly ash disposal.** The incinerated residue from resource recovery power/heat-generating facilities that are fired by municipal solid waste, coal, or wood is generally not a wildlife attractant because it no longer contains putrescible matter. Landfills accepting only fly ash are generally not considered to be wildlife attractants and are acceptable as long as they are maintained in an orderly manner, admit no putrescible waste of any kind, and are not co-located with other disposal operations that attract hazardous wildlife.

Since varying degrees of waste consumption are associated with general incineration (not resource recovery power/heat-generating facilities), the FAA considers the ash from general incinerators a regular waste disposal by-product and, therefore, a hazardous wildlife attractant if disposed of within the separation criteria outlined in Sections 1-2 through 1-4.

**2-3. WATER MANAGEMENT FACILITIES.** Drinking water intake and treatment facilities, storm water and wastewater treatment facilities, associated retention and settling ponds, ponds built for recreational use, and ponds that result from mining activities often attract large numbers of potentially hazardous wildlife. To prevent wildlife hazards, land-use developers and airport operators may need to develop management plans, in compliance with local and state regulations, to support the operation of storm water management facilities on or near all public-use airports to ensure a safe airport environment.

- a. **Existing storm water management facilities.** On-airport storm water management facilities allow the quick removal of surface water, including discharges related to aircraft deicing, from impervious surfaces, such as pavement and terminal/hangar building roofs. Existing on-airport detention ponds collect storm water, protect water quality, and control runoff. Because they slowly release water





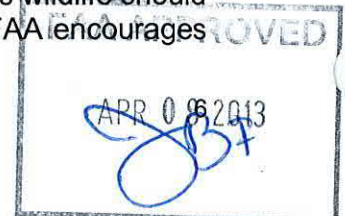
after storms, they create standing bodies of water that can attract hazardous wildlife. Where the airport has developed a Wildlife Hazard Management Plan (WHMP) in accordance with Part 139, the FAA requires immediate correction of any wildlife hazards arising from existing storm water facilities located on or near airports, using appropriate wildlife hazard mitigation techniques. Airport operators should develop measures to minimize hazardous wildlife attraction in consultation with a wildlife damage management biologist.

Where possible, airport operators should modify storm water detention ponds to allow a maximum 48-hour detention period for the design storm. The FAA recommends that airport operators avoid or remove retention ponds and detention ponds featuring dead storage to eliminate standing water. Detention basins should remain totally dry between rainfalls. Where constant flow of water is anticipated through the basin, or where any portion of the basin bottom may remain wet, the detention facility should include a concrete or paved pad and/or ditch/swale in the bottom to prevent vegetation that may provide nesting habitat.

When it is not possible to drain a large detention pond completely, airport operators may use physical barriers, such as bird balls, wires grids, pillows, or netting, to deter birds and other hazardous wildlife. When physical barriers are used, airport operators must evaluate their use and ensure they will not adversely affect water rescue. Before installing any physical barriers over detention ponds on Part 139 airports, airport operators must get approval from the appropriate FAA Regional Airports Division Office.

The FAA recommends that airport operators encourage off-airport storm water treatment facility operators to incorporate appropriate wildlife hazard mitigation techniques into storm water treatment facility operating practices when their facility is located within the separation criteria specified in Sections 1-2 through 1-4.

- b. New storm water management facilities.** The FAA strongly recommends that off-airport storm water management systems located within the separations identified in Sections 1-2 through 1-4 be designed and operated so as not to create above-ground standing water. Stormwater detention ponds should be designed, engineered, constructed, and maintained for a maximum 48-hour detention period after the design storm and remain completely dry between storms. To facilitate the control of hazardous wildlife, the FAA recommends the use of steep-sided, rip-rap lined, narrow, linearly shaped water detention basins. When it is not possible to place these ponds away from an airport's AOA, airport operators should use physical barriers, such as bird balls, wires grids, pillows, or netting, to prevent access of hazardous wildlife to open water and minimize aircraft-wildlife interactions. When physical barriers are used, airport operators must evaluate their use and ensure they will not adversely affect water rescue. Before installing any physical barriers over detention ponds on Part 139 airports, airport operators must get approval from the appropriate FAA Regional Airports Division Office. All vegetation in or around detention basins that provide food or cover for hazardous wildlife should be eliminated. If soil conditions and other requirements allow, the FAA encourages





the use of underground storm water infiltration systems, such as French drains or buried rock fields, because they are less attractive to wildlife.

- c. **Existing wastewater treatment facilities.** The FAA strongly recommends that airport operators immediately correct any wildlife hazards arising from existing wastewater treatment facilities located on or near the airport. Where required, a WHMP developed in accordance with Part 139 will outline appropriate wildlife hazard mitigation techniques. Accordingly, airport operators should encourage wastewater treatment facility operators to incorporate measures, developed in consultation with a wildlife damage management biologist, to minimize hazardous wildlife attractants. Airport operators should also encourage those wastewater treatment facility operators to incorporate these mitigation techniques into their standard operating practices. In addition, airport operators should consider the existence of wastewater treatment facilities when evaluating proposed sites for new airport development projects and avoid such sites when practicable.
- d. **New wastewater treatment facilities.** The FAA strongly recommends against the construction of new wastewater treatment facilities or associated settling ponds within the separations identified in Sections 1-2 through 1-4. Appendix 1 defines wastewater treatment facility as "any devices and/or systems used to store, treat, recycle, or reclaim municipal sewage or liquid industrial wastes." The definition includes any pretreatment involving the reduction of the amount of pollutants or the elimination of pollutants prior to introducing such pollutants into a publicly owned treatment works (wastewater treatment facility). During the site-location analysis for wastewater treatment facilities, developers should consider the potential to attract hazardous wildlife if an airport is in the vicinity of the proposed site, and airport operators should voice their opposition to such facilities if they are in proximity to the airport.
- e. **Artificial marshes.** In warmer climates, wastewater treatment facilities sometimes employ artificial marshes and use submergent and emergent aquatic vegetation as natural filters. These artificial marshes may be used by some species of flocking birds, such as blackbirds and waterfowl, for breeding or roosting activities. The FAA strongly recommends against establishing artificial marshes within the separations identified in Sections 1-2 through 1-4.
- f. **Wastewater discharge and sludge disposal.** The FAA recommends against the discharge of wastewater or sludge on airport property because it may improve soil moisture and quality on unpaved areas and lead to improved turf growth that can be an attractive food source for many species of animals. Also, the turf requires more frequent mowing, which in turn may mutilate or flush insects or small animals and produce straw, both of which can attract hazardous wildlife. In addition, the improved turf may attract grazing wildlife, such as deer and geese. Problems may also occur when discharges saturate unpaved airport areas. The resultant soft, muddy conditions can severely restrict or prevent emergency vehicles from reaching accident sites in a timely manner.





**2-4. WETLANDS.** Wetlands provide a variety of functions and can be regulated by local, state, and Federal laws. Normally, wetlands are attractive to many types of wildlife, including many which rank high on the list of hazardous wildlife species (Table 1).

**NOTE:** If questions exist as to whether an area qualifies as a wetland, contact the local division of the U.S. Army Corps of Engineers, the Natural Resources Conservation Service, or a wetland consultant qualified to delineate wetlands.

- a. Existing wetlands on or near airport property.** If wetlands are located on or near airport property, airport operators should be alert to any wildlife use or habitat changes in these areas that could affect safe aircraft operations. At public-use airports, the FAA recommends immediately correcting, in cooperation with local, state, and Federal regulatory agencies, any wildlife hazards arising from existing wetlands located on or near airports. Where required, a WHMP will outline appropriate wildlife hazard mitigation techniques. Accordingly, airport operators should develop measures to minimize hazardous wildlife attraction in consultation with a wildlife damage management biologist.
- b. New airport development.** Whenever possible, the FAA recommends locating new airports using the separations from wetlands identified in Sections 1-2 through 1-4. Where alternative sites are not practicable, or when airport operators are expanding an existing airport into or near wetlands, a wildlife damage management biologist, in consultation with the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, and the state wildlife management agency should evaluate the wildlife hazards and prepare a WHMP that indicates methods of minimizing the hazards.
- c. Mitigation for wetland impacts from airport projects.** Wetland mitigation may be necessary when unavoidable wetland disturbances result from new airport development projects or projects required to correct wildlife hazards from wetlands. Wetland mitigation must be designed so it does not create a wildlife hazard. The FAA recommends that wetland mitigation projects that may attract hazardous wildlife be sited outside of the separations identified in Sections 1-2 through 1-4.
  - (1) Onsite mitigation of wetland functions.** The FAA may consider exceptions to locating mitigation activities outside the separations identified in Sections 1-2 through 1-4 if the affected wetlands provide unique ecological functions, such as critical habitat for threatened or endangered species or ground water recharge, which cannot be replicated when moved to a different location. Using existing airport property is sometimes the only feasible way to achieve the mitigation ratios mandated in regulatory orders and/or settlement agreements with the resource agencies. Conservation easements are an additional means of providing mitigation for project impacts. Typically the airport operator continues to own the property, and an easement is created stipulating that the property will be maintained as habitat for state or Federally listed species.





Mitigation must not inhibit the airport operator's ability to effectively control hazardous wildlife on or near the mitigation site or effectively maintain other aspects of safe airport operations. Enhancing such mitigation areas to attract hazardous wildlife must be avoided. The FAA will review any onsite mitigation proposals to determine compatibility with safe airport operations. A wildlife damage management biologist should evaluate any wetland mitigation projects that are needed to protect unique wetland functions and that must be located in the separation criteria in Sections 1-2 through 1-4 before the mitigation is implemented. A WHMP should be developed to reduce the wildlife hazards.

**(2) Offsite mitigation of wetland functions.** The FAA recommends that wetland mitigation projects that may attract hazardous wildlife be sited outside of the separations identified in Sections 1-2 through 1-4 unless they provide unique functions that must remain onsite (see 2-4c(1)). Agencies that regulate impacts to or around wetlands recognize that it may be necessary to split wetland functions in mitigation schemes. Therefore, regulatory agencies may, under certain circumstances, allow portions of mitigation to take place in different locations.

**(3) Mitigation banking.** Wetland mitigation banking is the creation or restoration of wetlands in order to provide mitigation credits that can be used to offset permitted wetland losses. Mitigation banking benefits wetland resources by providing advance replacement for permitted wetland losses; consolidating small projects into larger, better-designed and managed units; and encouraging integration of wetland mitigation projects with watershed planning. This last benefit is most helpful for airport projects, as wetland impacts mitigated outside of the separations identified in Sections 1-2 through 1-4 can still be located within the same watershed. Wetland mitigation banks meeting the separation criteria offer an ecologically sound approach to mitigation in these situations. Airport operators should work with local watershed management agencies or organizations to develop mitigation banking for wetland impacts on airport property.

**2-5. DREDGE SPOIL CONTAINMENT AREAS.** The FAA recommends against locating dredge spoil containment areas (also known as Confined Disposal Facilities) within the separations identified in Sections 1-2 through 1-4 if the containment area or the spoils contain material that would attract hazardous wildlife.

**2-6. AGRICULTURAL ACTIVITIES.** Because most, if not all, agricultural crops can attract hazardous wildlife during some phase of production, the FAA recommends against the used of airport property for agricultural production, including hay crops, within the separations identified in Sections 1-2 through 1-4. . If the airport has no financial alternative to agricultural crops to produce income necessary to maintain the viability of the airport, then the airport shall follow the crop distance guidelines listed in the table titled "Minimum Distances between Certain Airport Features and Any On-Airport Agricultural Crops" found in AC 150/5300-13, *Airport Design*, Appendix 17. The cost of wildlife control and potential accidents should be weighed against the income produced by the on-airport crops when deciding whether to allow crops on the airport.





- a. **Livestock production.** Confined livestock operations (i.e., feedlots, dairy operations, hog or chicken production facilities, or egg laying operations) often attract flocking birds, such as starlings, that pose a hazard to aviation. Therefore, The FAA recommends against such facilities within the separations identified in Sections 1-2 through 1-4. Any livestock operation within these separations should have a program developed to reduce the attractiveness of the site to species that are hazardous to aviation safety. Free-ranging livestock must not be grazed on airport property because the animals may wander onto the AOA. Furthermore, livestock feed, water, and manure may attract birds.
- b. **Aquaculture.** Aquaculture activities (i.e. catfish or trout production) conducted outside of fully enclosed buildings are inherently attractive to a wide variety of birds. Existing aquaculture facilities/activities within the separations listed in Sections 1-2 through 1-4 must have a program developed to reduce the attractiveness of the sites to species that are hazardous to aviation safety. Airport operators should also oppose the establishment of new aquaculture facilities/activities within the separations listed in Sections 1-2 through 1-4.
- c. **Alternative uses of agricultural land.** Some airports are surrounded by vast areas of farmed land within the distances specified in Sections 1-2 through 1-4. Seasonal uses of agricultural land for activities such as hunting can create a hazardous wildlife situation. In some areas, farmers will rent their land for hunting purposes. Rice farmers, for example, flood their land during waterfowl hunting season and obtain additional revenue by renting out duck blinds. The duck hunters then use decoys and call in hundreds, if not thousands, of birds, creating a tremendous threat to aircraft safety. A wildlife damage management biologist should review, in coordination with local farmers and producers, these types of seasonal land uses and incorporate them into the WHMP.

## 2-7. GOLF COURSES, LANDSCAPING AND OTHER LAND-USE CONSIDERATIONS.

- a. **Golf courses.** The large grassy areas and open water found on most golf courses are attractive to hazardous wildlife, particularly Canada geese and some species of gulls. These species can pose a threat to aviation safety. The FAA recommends against construction of new golf courses within the separations identified in Sections 1-2 through 1-4. Existing golf courses located within these separations must develop a program to reduce the attractiveness of the sites to species that are hazardous to aviation safety. Airport operators should ensure these golf courses are monitored on a continuing basis for the presence of hazardous wildlife. If hazardous wildlife is detected, corrective actions should be immediately implemented.
- b. **Landscaping and landscape maintenance.** Depending on its geographic location, landscaping can attract hazardous wildlife. The FAA recommends that airport operators approach landscaping with caution and confine it to airport areas not associated with aircraft movements. A wildlife damage management biologist should review all landscaping plans. Airport operators should also monitor all landscaped areas on a continuing basis for the presence of hazardous wildlife.





hazardous wildlife is detected, corrective actions should be immediately implemented.

Turf grass areas can be highly attractive to a variety of hazardous wildlife species. Research conducted by the USDA Wildlife Services' National Wildlife Research Center has shown that no one grass management regime will deter all species of hazardous wildlife in all situations. In cooperation with wildlife damage management biologist, airport operators should develop airport turf grass management plans on a prescription basis, depending on the airport's geographic locations and the type of hazardous wildlife likely to frequent the airport

Airport operators should ensure that plant varieties attractive to hazardous wildlife are not used on the airport. Disturbed areas or areas in need of re-vegetating should not be planted with seed mixtures containing millet or any other large-seed producing grass. For airport property already planted with seed mixtures containing millet, rye grass, or other large-seed producing grasses, the FAA recommends disking, plowing, or another suitable agricultural practice to prevent plant maturation and seed head production. Plantings should follow the specific recommendations for grass management and seed and plant selection made by the State University Cooperative Extension Service, the local office of Wildlife Services, or a qualified wildlife damage management biologist. Airport operators should also consider developing and implementing a preferred/prohibited plant species list, reviewed by a wildlife damage management biologist, which has been designed for the geographic location to reduce the attractiveness to hazardous wildlife for landscaping airport property.

- c. **Airports surrounded by wildlife habitat.** The FAA recommends that operators of airports surrounded by woodlands, water, or wetlands refer to Section 2.4 of this AC. Operators of such airports should provide for a Wildlife Hazard Assessment (WHA) conducted by a wildlife damage management biologist. This WHA is the first step in preparing a WHMP, where required.
- d. **Other hazardous wildlife attractants.** Other specific land uses or activities (e.g., sport or commercial fishing, shellfish harvesting, etc.), perhaps unique to certain regions of the country, have the potential to attract hazardous wildlife. Regardless of the source of the attraction, when hazardous wildlife is noted on a public-use airport, airport operators must take prompt remedial action(s) to protect aviation safety.

**2-8. SYNERGISTIC EFFECTS OF SURROUNDING LAND USES.** There may be circumstances where two (or more) different land uses that would not, by themselves, be considered hazardous wildlife attractants or that are located outside of the separations identified in Sections 1-2 through 1-4 that are in such an alignment with the airport as to create a wildlife corridor directly through the airport and/or surrounding airspace. An example of this situation may involve a lake located outside of the separation criteria on the east side of an airport and a large hayfield on the west side of an airport, land uses that together could create a flyway for Canada geese directly across the airspace of the airport. There are numerous examples of such situations:





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therefore, airport operators and the wildlife damage management biologist must consider the entire surrounding landscape and community when developing the WHMP.



**SECTION 3.****PROCEDURES FOR WILDLIFE HAZARD MANAGEMENT BY OPERATORS OF PUBLIC-USE AIRPORTS.**

**3.1. INTRODUCTION.** In recognition of the increased risk of serious aircraft damage or the loss of human life that can result from a wildlife strike, the FAA may require the development of a Wildlife Hazard Management Plan (WHMP) when specific triggering events occur on or near the airport. Part 139.337 discusses the specific events that trigger a Wildlife Hazard Assessment (WHA) and the specific issues that a WHMP must address for FAA approval and inclusion in an Airport Certification Manual.

**3.2. COORDINATION WITH USDA WILDLIFE SERVICES OR OTHER QUALIFIED WILDLIFE DAMAGE MANAGEMENT BIOLOGISTS.** The FAA will use the Wildlife Hazard Assessment (WHA) conducted in accordance with Part 139 to determine if the airport needs a WHMP. Therefore, persons having the education, training, and expertise necessary to assess wildlife hazards must conduct the WHA. The airport operator may look to Wildlife Services or to qualified private consultants to conduct the WHA. When the services of a wildlife damage management biologist are required, the FAA recommends that land-use developers or airport operators contact a consultant specializing in wildlife damage management or the appropriate state director of Wildlife Services.

**NOTE:** Telephone numbers for the respective USDA Wildlife Services state offices can be obtained by contacting USDA Wildlife Services Operational Support Staff, 4700 River Road, Unit 87, Riverdale, MD, 20737-1234, Telephone (301) 734-7921, Fax (301) 734-5157 (<http://www.aphis.usda.gov/ws/>).

**3-3. WILDLIFE HAZARD MANAGEMENT AT AIRPORTS: A MANUAL FOR AIRPORT PERSONNEL.** This manual, prepared by FAA and USDA Wildlife Services staff, contains a compilation of information to assist airport personnel in the development, implementation, and evaluation of WHMPs at airports. The manual includes specific information on the nature of wildlife strikes, legal authority, regulations, wildlife management techniques, WHAs, WHMPs, and sources of help and information. The manual is available in three languages: English, Spanish, and French. It can be viewed and downloaded free of charge from the FAA's wildlife hazard mitigation web site: <http://wildlife-mitigation.tc.FAA.gov/>. This manual only provides a starting point for addressing wildlife hazard issues at airports. Hazardous wildlife management is a complex discipline and conditions vary widely across the United States. Therefore, qualified wildlife damage management biologists must direct the development of a WHMP and the implementation of management actions by airport personnel.

There are many other resources complementary to this manual for use in developing and implementing WHMPs. Several are listed in the manual's bibliography.

**3-4. WILDLIFE HAZARD ASSESSMENTS, TITLE 14, CODE OF FEDERAL REGULATIONS, PART 139.** Part 139.337(b) requires airport operators to conduct a Wildlife Hazard Assessment (WHA) when certain events occur on or near the airport.





Part 139.337 (c) provides specific guidance as to what facts must be addressed in a WHA.

**3-5. WILDLIFE HAZARD MANAGEMENT PLAN (WHMP).** The FAA will consider the results of the WHA, along with the aeronautical activity at the airport and the views of the airport operator and airport users, in determining whether a formal WHMP is needed, in accordance with Part 139.337. If the FAA determines that a WHMP is needed, the airport operator must formulate and implement a WHMP, using the WHA as the basis for the plan.

The goal of an airport's Wildlife Hazard Management Plan is 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.

The WHMP must identify hazardous wildlife attractants on or near the airport and the appropriate wildlife damage management techniques to minimize the wildlife hazard. It must also prioritize the management measures.

**3-6. LOCAL COORDINATION.** The establishment of a Wildlife Hazards Working Group (WHWG) will facilitate the communication, cooperation, and coordination of the airport and its surrounding community necessary to ensure the effectiveness of the WHMP. The cooperation of the airport community is also necessary when new projects are considered. Whether on or off the airport, the input from all involved parties must be considered when a potentially hazardous wildlife attractant is being proposed. Airport operators should also incorporate public education activities with the local coordination efforts because some activities in the vicinity of your airport, while harmless under normal leisure conditions, can attract wildlife and present a danger to aircraft. For example, if public trails are planned near wetlands or in parks adjoining airport property, the public should know that feeding birds and other wildlife in the area may pose a risk to aircraft.

Airport operators should work with local and regional planning and zoning boards so as to be aware of proposed land-use changes, or modification of existing land uses, that could create hazardous wildlife attractants within the separations identified in Sections 1-2 through 1-4. Pay particular attention to proposed land uses involving creation or expansion of waste water treatment facilities, development of wetland mitigation sites, or development or expansion of dredge spoil containment areas. At the very least, airport operators must ensure they are on the notification list of the local planning board or equivalent review entity for all communities located within 5 miles of the airport, so they will receive notification of any proposed project and have the opportunity to review it for attractiveness to hazardous wildlife.

**3-7 COORDINATION/NOTIFICATION OF AIRMEN OF WILDLIFE HAZARDS.** If an existing land-use practice creates a wildlife hazard and the land-use practice or wildlife hazard cannot be immediately eliminated, airport operators must issue a Notice to Airmen (NOTAM) and encourage the land-owner or manager to take steps to control the wildlife hazard and minimize further attraction.





**SECTION 4.****FAA NOTIFICATION AND REVIEW OF PROPOSED LAND-USE PRACTICE CHANGES IN THE VICINITY OF PUBLIC-USE AIRPORTS****4-1. FAA REVIEW OF PROPOSED LAND-USE PRACTICE CHANGES IN THE VICINITY OF PUBLIC-USE AIRPORTS.**

- a. The FAA discourages the development of waste disposal and other facilities, discussed in Section 2, located within the 5,000/10,000-foot criteria specified in Sections 1-2 through 1-4.
- b. For projects that are located outside the 5,000/10,000-foot criteria but within 5 statute miles of the airport's AOA, the FAA may review development plans, proposed land-use changes, operational changes, or wetland mitigation plans to determine if such changes present potential wildlife hazards to aircraft operations. The FAA considers sensitive airport areas as those that lie under or next to approach or departure airspace. This brief examination should indicate if further investigation is warranted.
- c. Where a wildlife damage management biologist has conducted a further study to evaluate a site's compatibility with airport operations, the FAA may use the study results to make a determination.

**4-2. WASTE MANAGEMENT FACILITIES.**

- a. **Notification of new/expanded project proposal.** Section 503 of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (Public Law 106-181) limits the construction or establishment of new MSWLF within 6 statute miles of certain public-use airports, when both the airport and the landfill meet very specific conditions. See Section 2-2 of this AC and AC 150/5200-34 for a more detailed discussion of these restrictions.

The Environmental Protection Agency (EPA) requires any MSWLF operator proposing a new or expanded waste disposal operation within 5 statute miles of a runway end to notify the appropriate FAA Regional Airports Division Office and the airport operator of the proposal (40 CFR 258, *Criteria for Municipal Solid Waste Landfills*, Section 258.10, *Airport Safety*). The EPA also requires owners or operators of new MSWLF units, or lateral expansions of existing MSWLF units, that are located within 10,000 feet of any airport runway end used by turbojet aircraft, or within 5,000 feet of any airport runway end used only by piston-type aircraft, to demonstrate successfully that such units are not hazards to aircraft. (See 4-2.b below.)

When new or expanded MSWLF are being proposed near airports, MSWLF operators must notify the airport operator and the FAA of the proposal as early as possible pursuant to 40 CFR 258.





**b. Waste handling facilities within separations identified in Sections 1-2 through 1-4.** To claim successfully that a waste-handling facility sited within the separations identified in Sections 1-2 through 1-4 does not attract hazardous wildlife and does not threaten aviation, the developer must establish convincingly that the facility will not handle putrescible material other than that as outlined in 2-2.d. The FAA strongly recommends against any facility other than that as outlined in 2-2.d (enclosed transfer stations). The FAA will use this information to determine if the facility will be a hazard to aviation.

**c. Putrescible-Waste Facilities.** In their effort to satisfy the EPA requirement, some putrescible-waste facility proponents may offer to undertake experimental measures to demonstrate that their proposed facility will not be a hazard to aircraft. To date, no such facility has been able to demonstrate an ability to reduce and sustain hazardous wildlife to levels that existed before the putrescible-waste landfill began operating. For this reason, demonstrations of experimental wildlife control measures may not be conducted within the separation identified in Sections 1-2 through 1-4.

**4-3. OTHER LAND-USE PRACTICE CHANGES.** As a matter of policy, the FAA encourages operators of public-use airports who become aware of proposed land use practice changes that may attract hazardous wildlife within 5 statute miles of their airports to promptly notify the FAA. The FAA also encourages proponents of such land use changes to notify the FAA as early in the planning process as possible. Advanced notice affords the FAA an opportunity (1) to evaluate the effect of a particular land-use change on aviation safety and (2) to support efforts by the airport sponsor to restrict the use of land next to or near the airport to uses that are compatible with the airport.

The airport operator, project proponent, or land-use operator may use FAA Form 7460-1, *Notice of Proposed Construction or Alteration*, or other suitable documents similar to FAA Form 7460-1 to notify the appropriate FAA Regional Airports Division Office. Project proponents can contact the appropriate FAA Regional Airports Division Office for assistance with the notification process.

It is helpful if the notification includes a 15-minute quadrangle map of the area identifying the location of the proposed activity. The land-use operator or project proponent should also forward specific details of the proposed land-use change or operational change or expansion. In the case of solid waste landfills, the information should include the type of waste to be handled, how the waste will be processed, and final disposal methods.

**a. Airports that have received Federal grant-in-aid assistance.** Airports that have received Federal grant-in-aid assistance are required by their grant assurances to take appropriate actions to restrict the use of land next to or near the airport to uses that are compatible with normal airport operations. The FAA recommends that airport operators to the extent practicable oppose off-airport land-use changes or practices within the separations identified in Sections 1-2 through 1-4 that may attract hazardous wildlife. Failure to do so may lead to noncompliance with applicable grant assurances. The FAA will not approve the placement of airport



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development projects pertaining to aircraft movement in the vicinity of hazardous wildlife attractants without appropriate mitigating measures. Increasing the intensity of wildlife control efforts is not a substitute for eliminating or reducing a proposed wildlife hazard. Airport operators should identify hazardous wildlife attractants and any associated wildlife hazards during any planning process for new airport development projects.





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**APPENDIX 1. DEFINITIONS OF TERMS USED IN THIS ADVISORY CIRCULAR.****1. GENERAL.** This appendix provides definitions of terms used throughout this AC.

1. **Air operations area.** Any area of an airport used or intended to be used for landing, takeoff, or surface maneuvering of aircraft. An air operations area includes such paved areas or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiways, or apron.
2. **Airport operator.** The operator (private or public) or sponsor of a public-use airport.
3. **Approach or departure airspace.** The airspace, within 5 statute miles of an airport, through which aircraft move during landing or takeoff.
4. **Bird balls.** High-density plastic floating balls that can be used to cover ponds and prevent birds from using the sites.
5. **Certificate holder.** The holder of an Airport Operating Certificate issued under Title 14, Code of Federal Regulations, Part 139.
6. **Construct a new MSWLF.** To begin to excavate, grade land, or raise structures to prepare a municipal solid waste landfill as permitted by the appropriate regulatory or permitting agency.
7. **Detention ponds.** Storm water management ponds that hold storm water for short periods of time, a few hours to a few days.
8. **Establish a new MSWLF.** When the first load of putrescible waste is received on-site for placement in a prepared municipal solid waste landfill.
9. **Fly ash.** The fine, sand-like residue resulting from the complete incineration of an organic fuel source. Fly ash typically results from the combustion of coal or waste used to operate a power generating plant.
10. **General aviation aircraft.** Any civil aviation aircraft not operating under 14 CFR Part 119, Certification: Air Carriers and Commercial Operators.
11. **Hazardous wildlife.** Species of wildlife (birds, mammals, reptiles), including feral animals and domesticated animals not under control, that are associated with aircraft strike problems, are capable of causing structural damage to airport facilities, or act as attractants to other wildlife that pose a strike hazard
12. **Municipal Solid Waste Landfill (MSWLF).** A publicly or privately owned discrete area of land or an excavation that receives household waste and that is not a land application unit, surface impoundment, injection well, or waste pile, as those terms are defined under 40 CFR § 257.2. An MSWLF may receive



other types wastes, such as commercial solid waste, non-hazardous sludge, small-quantity generator waste, and industrial solid waste, as defined under 40 CFR § 258.2. An MSWLF can consist of either a stand alone unit or several cells that receive household waste.

13. **New MSWLF.** A municipal solid waste landfill that was established or constructed after April 5, 2001.
14. **Piston-powered aircraft.** Fixed-wing aircraft powered by piston engines.
15. **Piston-use airport.** Any airport that does not sell Jet-A fuel for fixed-wing turbine-powered aircraft, and primarily serves fixed-wing, piston-powered aircraft. Incidental use of the airport by turbine-powered, fixed-wing aircraft would not affect this designation. However, such aircraft should not be based at the airport.
16. **Public agency.** A State or political subdivision of a State, a tax-supported organization, or an Indian tribe or pueblo (49 U.S.C. § 47102(19)).
17. **Public airport.** An airport used or intended to be used for public purposes that is under the control of a public agency; and of which the area used or intended to be used for landing, taking off, or surface maneuvering of aircraft is publicly owned (49 U.S.C. § 47102(20)).
18. **Public-use airport.** An airport used or intended to be used for public purposes, and of which the area used or intended to be used for landing, taking off, or surface maneuvering of aircraft may be under the control of a public agency or privately owned and used for public purposes (49 U.S.C. § 47102(21)).
19. **Putrescible waste.** Solid waste that contains organic matter capable of being decomposed by micro-organisms and of such a character and proportion as to be capable of attracting or providing food for birds (40 CFR §257.3-8).
20. **Putrescible-waste disposal operation.** Landfills, garbage dumps, underwater waste discharges, or similar facilities where activities include processing, burying, storing, or otherwise disposing of putrescible material, trash, and refuse.
21. **Retention ponds.** Storm water management ponds that hold water for several months.
22. **Runway protection zone (RPZ).** An area off the runway end to enhance the protection of people and property on the ground (see AC 150/5300-13). The dimensions of this zone vary with the airport design, aircraft, type of operation, and visibility minimum.
23. **Scheduled air carrier operation.** Any common carriage passenger-carrying operation for compensation or hire conducted by an air carrier or commercial





operator for which the air carrier, commercial operator, or their representative offers in advance the departure location, departure time, and arrival location. It does not include any operation that is conducted as a supplemental operation under 14 CFR Part 119 or as a public charter operation under 14 CFR Part 380 (14 CFR § 119.3).

- 24. Sewage sludge.** Any solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screenings generated during preliminary treatment of domestic sewage in a treatment works. (40 CFR 257.2)
- 25. Sludge.** Any solid, semi-solid, or liquid waste generated from a municipal, commercial or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility or any other such waste having similar characteristics and effect. (40 CFR 257.2)
- 26. Solid waste.** Any garbage, refuse, sludge, from a waste treatment plant, water supply treatment plant or air pollution control facility and other discarded material, including, solid liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage, or solid or dissolved material in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the Federal Water Pollution Control Act, as amended (86 Stat. 880), or source, special nuclear, or by product material as defined by the Atomic Energy Act of 1954, as amended, (68 Stat. 923). (40 CFR 257.2)
- 27. Turbine-powered aircraft.** Aircraft powered by turbine engines including turbojets and turboprops but excluding turbo-shaft rotary-wing aircraft.
- 28. Turbine-use airport.** Any airport that sells Jet-A fuel for fixed-wing turbine-powered aircraft.
- 29. Wastewater treatment facility.** Any devices and/or systems used to store, treat, recycle, or reclaim municipal sewage or liquid industrial wastes, including Publicly Owned Treatment Works (POTW), as defined by Section 212 of the Federal Water Pollution Control Act (P.L. 92-500) as amended by the Clean Water Act of 1977 (P.L. 95-576) and the Water Quality Act of 1987 (P.L. 100-4). This definition includes any pretreatment involving the reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a POTW. (See 40 CFR Section 403.3 (q), (r), & (s)).



- 30. Wildlife.** Any wild animal, including without limitation any wild mammal, bird, reptile, fish, amphibian, mollusk, crustacean, arthropod, coelenterate, or other invertebrate, including any part, product, egg, or offspring thereof (50 CFR 10.12, *Taking, Possession, Transportation, Sale, Purchase, Barter, Exportation, and Importation of Wildlife and Plants*). As used in this AC, wildlife includes feral animals and domestic animals out of the control of their owners (14 CFR Part 139, Certification of Airports).
- 31. Wildlife attractants.** Any human-made structure, land-use practice, or human-made or natural geographic feature that can attract or sustain hazardous wildlife within the landing or departure airspace or the airport's AOA. These attractants can include architectural features, landscaping, waste disposal sites, wastewater treatment facilities, agricultural or aquaculture activities, surface mining, or wetlands.
- 32. Wildlife hazard.** A potential for a damaging aircraft collision with wildlife on or near an airport.
- 33. Wildlife strike.** A wildlife strike is deemed to have occurred when:
- a. A pilot reports striking 1 or more birds or other wildlife;
  - b. Aircraft maintenance personnel identify aircraft damage as having been caused by a wildlife strike;
  - c. Personnel on the ground report seeing an aircraft strike 1 or more birds or other wildlife;
  - d. Bird or other wildlife remains, whether in whole or in part, are found within 200 feet of a runway centerline, unless another reason for the animal's death is identified;
  - e. The animal's presence on the airport had a significant negative effect on a flight (i.e., aborted takeoff, aborted landing, high-speed emergency stop, aircraft left pavement area to avoid collision with animal) (Transport Canada, Airports Group, *Wildlife Control Procedures Manual*, Technical Publication 11500E, 1994).

**2. RESERVED.**



## **Appendix E**

**FAA Advisory Circular 150/5200-36A, *Qualifications for Wildlife Biologist Conducting Wildlife Hazard Assessments and Training Curriculum for Airport Personnel Involved in Controlling Wildlife Hazards at Airports***

FAA APPROVED

APR 08 2018

*JB*







U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

# Advisory Circular

**Subject:** Qualifications for Wildlife  
Biologist Conducting Wildlife Hazard  
Assessments and Training Curriculums for  
Airport Personnel Involved in Controlling  
Wildlife Hazards on Airports

**Date:** 01/31/2012

**AC No:** 150/5200-36A

**Initiated by:** AAS-300

**Change:**

## 1. Purpose.

This Advisory Circular (AC) has two purposes. First, this AC describes the qualifications for wildlife biologists who conduct Wildlife Hazard Assessments (WHA) for airports certificated under Title 14, Code of Federal Regulations, Part 139 (14 CFR Part 139), and at non-certificated airports funded by a Federal Aviation Administration (FAA) Airport Improvement Program (AIP) or Passenger Facility Charge (PFC) Program. We recommend that airports, at a minimum, consult with a qualified airport wildlife biologist when developing a Wildlife Hazard Management Plan (WHMP). However, airports are not required to do so.

Second, this AC addresses the minimum wildlife hazard management curriculum for the initial and recurrent training of airport personnel who implement an FAA-approved WHMP.

## 2. Applicability.

The standards and practices in this AC for public-use airports and for those who conduct Wildlife Hazard Assessments and conduct required training are:

- a. Mandatory for airports certificated under Title 14, Code of Federal Regulations, Part 139 (14 CFR Part 139).
- b. Mandatory for airports that have accepted AIP or the Passenger Facility Charge (PFC) Program funds.
- c. Highly recommended for all other airports that independently fund Wildlife Hazard Assessments.

See Grant Assurance No. 34, Policies, Standards, and Specifications, and PFC Assurance No. 9, Standards and Specifications.

## 3. Cancellation.

This AC cancels AC 150/5200-36, Qualifications for Wildlife Biologist Conducting Wildlife Hazard Assessments and Training Curriculums for Airport Personnel Involved in Controlling Wildlife Hazards on Airports, dated June 28, 2006.



#### 4. Background.

Wildlife biologists conducting Wildlife Hazard Assessments or training airport personnel actively involved in implementing FAA-approved Wildlife Hazard Management Plans at certificated airports must have professional training and experience in wildlife hazard management at airports [§139.337(c) and (f)(7)]. Airport personnel actively involved in overseeing or implementing FAA-approved Wildlife Hazard Management Plans must receive initial training and recurrent training every 12 consecutive months [§139.303(c) and (e) (Personnel)].

#### 5. Related Reading Material.

Please review the most recent versions of the following documents:

- a. FAA AC 150/5200-18, Airport Safety Self-Inspection.
- b. FAA AC 150/5200-32, Reporting Wildlife Aircraft Strikes.
- c. FAA AC 150/5200-33, Hazardous Wildlife Attractions On or Near Airports.
- d. FAA AC 150/5200-34, Construction or Establishment of Landfills Near Public Airports.
- e. FAA AC 150/5210-20 Ground Vehicle Operations on Airports
- f. FAA AC 150/5220-25 Airport Avian Radar Systems
- g. FAA AC 150/5300-13 Airport Design
- h. FAA AC 150/5340-1K Standards for Airport Markings
- i. FAA AC 150/5340-18F Standards for Airport Sign Systems
- j. FAA Office of Safety and Standards, Certalert no. 98-05, Grasses Attractive to Hazardous Wildlife.
- k. FAA Office of Safety and Standards, Certalert no. 04-09, Relationship Between FAA and WS.
- l. FAA Office of Safety and Standards, Certalert no. 04-16, Deer Hazard to Aircraft and Deer Fencing.
- m. Cleary, E. C. and Archie Dickey. 2010. Guidebook for Addressing Aircraft/Wildlife Hazards at General Aviation Airports. Airport Cooperative Research Program Report #32.
- n. Cleary, E. C. and R. A. Dolbeer. 2005. Wildlife Hazard Management at Airports: A Manual for Airport Personnel. 2<sup>nd</sup> Ed. FAA, Office of Airport Safety and Standards, Washington, DC.
- o. Dolbeer, R. A., S. E. Wright, J.R. Weller and M.J. Begier. 2009. Wildlife Strikes to Civil Aircraft in the United States, 1990 – 2008. FAA National Wildlife Aircraft Strike Database Serial Report #15.
- p. Dolbeer, R. A. et al. Ranking the Hazard Level of Wildlife Species to Civil Aviation in the United States: Update #1. Special Report for the Federal Aviation Administration, July 2, 2003.





- q. Report to Congress: Potential Hazards to Aircraft by Locating Waste Disposal Sites in the Vicinity of Airports, April 1996, DOT/FAA/AS/96-1.
- r. Title 14, Code of Federal Regulation, Part 139, Certification of Airports.
- s. Title 40, Code of Federal Regulation, Part 258, Criteria for Municipal Solid Waste Landfills.
- t. FAA Grant Assurance No. 34, Policies, Standards, and Specifications
- u. FAA Passenger Facility Charge (PFC) Assurance No. 9, Standards and Specifications
- v. Aeronautical Information Manual (AIM)

Some of these documents and other information on wildlife management, including FAA Certalerts and guidance on siting hazardous wildlife attractants such as landfills, are available on the FAA website at <http://www.faa.gov/airports/> and <http://wildlife.faa.gov/>.

#### **6. Professional Qualifications of Wildlife Biologists Conducting Wildlife Hazard Assessments and Wildlife Hazard Management Training at FAA Certificated Airports.**

- a. Wildlife biologists conducting airport Wildlife Hazard Assessments must meet certain education, training, and experience standards.

§139.337(c) reads: Wildlife Hazard Assessment required in paragraph (b) of this section shall be conducted by a wildlife damage management biologist who has professional training and/or experience in wildlife hazard management at airports or an individual working under direct supervision of such an individual.

- b. Airports with a FAA-approved Wildlife Hazard Management Plan must provide employees the training needed to carryout the Plan.

§139.337(f)(7) reads: A training program conducted by a qualified wildlife damage management biologist to provide airport personnel with the knowledge and skills needed to successfully carry out the Wildlife Hazard Management Plan required by paragraph (d) of this section.

- c. To meet the requirements of §139.337(c) and (f)(7), a wildlife damage management biologist (from now on referred to as a "qualified airport wildlife biologist") must:

(1) Have the necessary academic coursework from accredited institutions and work experience to meet the qualifications of a GS-0486 series wildlife biologist as defined by the U.S. Office of Personnel Management classification standards (Appendix A) **or** be designated as a Certified Wildlife Biologist by The Wildlife Society (<http://www.wildlife.org>) **and**,

(2) Have taken and passed an airport wildlife hazard management training course acceptable to the FAA Administrator (Appendix C), **and**;

(3) While working under the direct supervision of a qualified airport wildlife biologist, have conducted at least one Wildlife Hazard Assessment acceptable to the FAA Administrator (as described in §139.337(c)). **and**,



(4) Have successfully completed at least one of the following within five years of their initial FAA approved airport wildlife hazard management training course, and every five years thereafter:

- (i) An airport wildlife hazard management training course that is acceptable to the FAA Administrator (Appendix C) or,
- (ii) Attendance, as a registered participant, at a joint Bird Strike Committee—USA/Bird Strike Committee—Canada annual meeting or,
- (iii) Other training acceptable to the FAA Administrator.

d. Individuals who work under the direct supervision of a qualified airport wildlife biologist are allowed to conduct Wildlife Hazard Assessments if the airport sponsor and the qualified airport wildlife biologist agree in writing to determine how the qualified airport wildlife biologist will:

- (1) Supervise how the individual(s) will conduct the Wildlife Hazard Assessment; and
- (2) Report progress of the Wildlife Hazard Assessment; and
- (3) Supervise the Wildlife Hazard Assessment report production.

e. Certificate Holders or Airport Sponsors must obtain documentation verifying the qualifications outlined in c (1) – (3) above of any person(s) conducting wildlife hazard assessments or providing requisite training

## **7. Initial and Recurrent Training for Airport Personnel Actively Involved in Managing Hazardous Wildlife On or Near Airports.**

a. Personnel actively involved in implementing FAA-approved Wildlife Hazard Management Plans are subject to the requirements of 14 CFR Part 139.303. §139.303 requires a specific training regimen for all airport personnel. §139.303(c) and (e) require the holder of an Airport Operating Certificate issued under Part 139 to provide initial training and, every 12 months thereafter, recurrent training in wildlife hazard management to airport personnel actively involved in implementing FAA-approved Wildlife Hazard Management Plans. The required training must include “Any additional subject areas required under ... §139.337” [§139.303(c)(5)] and, “As appropriate, comply with the following training requirements of this part ... §139.337, Wildlife Hazard Management” [§139.303(e)(5)].

b. Appendix D outlines the minimum training requirements for airport personnel who carry out an airport’s Wildlife Hazard Management Plan. Depending on local wildlife and environmental issues, additional topics or more in-depth coverage of listed topics might be needed.

c. §139.337(f)(1) requires the Wildlife Hazard Management Plan to include a list of the individuals having authority and responsibility for implementing each aspect of the plan. This list identifies the individuals who must complete the required training.

d. §139.337(f) does not prohibit holders of Airport Operating Certificates from using a “train-the-trainer” approach when providing the requisite training, provided the trainers receive and successfully complete their initial and recurrent training from a qualified airport wildlife





biologist. Trainers who are not qualified airport wildlife biologists are limited to providing training to their airport employees.

e. Holders of Airport Operating Certificates issued under Part 139 are required to make and keep records of all training for airport personnel involved in controlling wildlife hazards for at least 24 consecutive calendar months.[ §139.301(b)(1) and §139.303(d)].



Michael J. O'Donnell  
Director, Office of Airport Safety and Standards





### Appendix A.

#### **U.S. Office of Personnel Management Qualification Standards for GS-0486 Series Wildlife Biologists.**

To be qualified as a GS-0486 series wildlife biologist, a candidate must have the following:

1. A degree in biological science that includes—
  - a. At least nine semester hours in such wildlife subjects as mammalogy, ornithology, animal ecology, and wildlife management or research courses in the field of wildlife biology; **and**
  - b. At least 12 semester hours in zoology in such subjects as general zoology, invertebrate zoology, vertebrate zoology, comparative anatomy, physiology, genetics, ecology, cellular biology, parasitology, and entomology or research courses in these subjects (excess courses in wildlife biology may be used to meet the zoology requirements where appropriate); **and**
  - c. At least nine semester hours in botany or the related plant sciences; **or**
2. A combination of education and experience equivalent to a major in biological science (i.e., at least 30 semester hours), with at least nine semester hours in wildlife subjects, 12 semester hours in zoology, and nine semester hours in botany or related plant science, as shown in Paragraph 1 above, plus appropriate experience or additional education; **or**
3. Be designated as a Certified Wildlife Biologist by The Wildlife Society (<http://www.wildlife.org>).



## Appendix B.

### Training Resource Requirements and Instructor Qualifications.

The following training resource requirements and instructor qualifications are for any individual wishing to:

- Provide an airport wildlife hazard management course acceptable to the FAA Administrator, for personnel conducting Wildlife Hazard Assessments; or
- Provide training to airport personnel actively involved in implementing FAA approved Wildlife Hazard Management Plans.

#### 1. Training Resources and Requirements.

a. A list of training program providers acceptable to the FAA Administrator can be found on the FAA's wildlife strike website: <http://wildlife.faa.gov/>.

b. Links to the most recent versions of FAA regulations, FAA Advisory Circulars, Certalerts, and other documents relevant to wildlife hazard management issues can be found at <http://www.faa.gov/airports/> and <http://wildlife.faa.gov/>.

c. Those proposing to establish a program to train qualified airport wildlife biologists to meet the requirements of 14 CFR §139.337 must submit a complete training syllabus and instructor resume to the FAA. The syllabus must include all lesson plans, student handouts, and graphic presentations that include as a minimum all curriculum provided in Appendix C. Submit the materials to:

FAA National Wildlife Biologist, AAS-300  
Office of Airport Safety and Standards  
Federal Aviation Administration,  
800 Independence Ave SW  
Washington DC 20591

d. The goal of the training must be to provide the knowledge, skills, and abilities needed by a GS-0486 wildlife biologist to conduct Wildlife Hazard Assessments [§139.337(c)] and to conduct wildlife hazard training [§139.337(f)(7)]. To be acceptable to the FAA, the course must be at least 24 hours in length and include the curriculum items listed in Appendix C.

#### 2. Instructor Qualifications.

The lead instructor for the training should:

- a. Be a qualified airport wildlife biologist.
- b. Have academic credits in education or instructor/teaching experience.
- c. Have a minimum of 2 years experience in all aspects of managing hazardous wildlife on or near airports.



## Appendix C.

### Training Curriculum Outline for Any Individual Wishing to Provide an Airport Wildlife Hazard Management Course Acceptable to the FAA Administrator, for Personnel Conducting Wildlife Hazard Assessments.

#### 1. Training Curriculum Outline.

The goal of the training must be to provide the knowledge, skills, and abilities needed by a GS-0486 wildlife biologist to conduct Wildlife Hazard Assessments [§139.337(c)] and to conduct wildlife hazard training [§139.337(f)(7)]. To be acceptable to the FAA, the course must be at least 24 hours in length and include the curriculum items listed below.

- a. Training goals and process
- b. Airport familiarization
  - (1) Introduction to the National Plan of Integrated Airport Systems
  - (2) Airport design and layout (AC 150/5300-13 Airport Design)
  - (3) Navigation aids and Air Traffic Control (Aeronautical Information Manual [AIM])
  - (4) Airport operations and safety (AIM)
  - (5) Signs, marking, and lighting (AC 150/5340-1K Standards for Airport Markings and AC 150/5340-18F Standards for Airport Sign Systems)
  - (6) Ground vehicle operator communication (AC 150/5210-20 Ground Vehicle Operations on Airports)
- c. Aircraft familiarization
  - (1) Physics of a strike
  - (2) Aircraft nomenclature
  - (3) Civil aviation aircraft categories
  - (4) Aircraft engines
    - (a) Reciprocating
    - (b) Turbo
  - (5) Aircraft certification standards
- d. Preview of wildlife hazards to aviation
  - (1) History of major strikes
  - (2) Aviation losses
    - (a) Worldwide
    - (b) United States
- e. Controlling laws, regulations, and policies
  - (1) Migratory Bird Treaty Act of 1918, as amended





- (2) Animal Damage Control Act of 1931, as amended
- (3) Bald Eagle Protection Act of 1940, as amended
- (4) Federal Insecticide, Fungicide, and Rodenticide Act of 1948, as amended
- (5) National Environmental Policy Act of 1969, as amended
- (6) Endangered Species Act of 1973, as amended
- (7) Title 14, Code of Federal Regulation, Part 139, Certification of Airports
- (8) Title 40, Code of Federal Regulations, Part 258, Criteria for Municipal Solid Waste Landfills
- (9) Title 50, Code of Federal Regulations, Parts 1–199, Wildlife Management
- (10) Wendell H. Ford Aviation Investment and Reform Act for the 21st Century, Pub. L. No. 106–181 (April 5, 2000), "Structures Interfering with Air Commerce," section 503
- (11) Applicable FAA ACs in the 150/5200 series about Airport Wildlife Hazard Management
- (12) Applicable FAA Airport Certalerts
- (13) Applicable state and local laws, regulations, and ordinances
- f.** Department of Defense requirements and perspective on military/civilian joint-use airports
- g.** Other Federal and State agency roles and responsibilities
  - (1) U.S. Department of Interior, Fish and Wildlife Service
    - (a) Role and responsibilities related to managing problem wildlife
    - (b) Migratory Bird Depredation Permits
    - (c) Salvage Permits
  - (2) U.S. Department of Agriculture, Wildlife Services
    - (a) Role and responsibilities related to managing problem wildlife
  - (3) Other agencies
    - (a) U.S. Environmental Protection Agency
      - (i) Siting landfills
      - (ii) Pesticide registration and use
    - (b) U.S. Army Corps of Engineers
      - (i) Wetlands mitigation
  - (4) Multi-Federal Agency Memorandum of Agreement
  - (5) Applicable State wildlife regulations
- h.** FAA National Wildlife Aircraft Strike Database
  - (1) Strike reporting



- (2) Species identification and feather identification
- (3) Database access
- i. Environmental issues—working with Federal and State agencies
  - (1) National Environmental Policy Act
  - (2) U.S. Army Corps of Engineers (wetland loss and mitigation issues)
- j. Initial consultations and Wildlife Hazard Assessments (WHAs)
  - (1) Triggering events for WHAs
  - (2) Duration and contents of WHAs
  - (3) Wildlife surveys at airports to assess wildlife hazards
  - (4) Data analysis and presentation of results
  - (5) Writing a WHA
- k. FAA review of a WHA and determination of need for a Wildlife Hazard Management Plan (WHMP)
  - l. Drafting and carrying out integrated WHMPs
    - (1) Contents of WHMPs
    - (2) FAA review of WHMPs
    - (3) Endangered Species Act compliance
    - (4) National Environmental Policy Act review
  - m. Integrated wildlife hazard management for airports; survey of basic control strategies and tactics
    - (1) Flight schedule modification
    - (2) Habitat modification and exclusion
    - (3) Wildlife dispersal techniques
    - (4) Wildlife population management
  - n. Addressing off-airport attractants and community planning and involvement
  - o. Outline of field trip (to conduct a “mini” WHA)
  - p. Field trip/site visit
  - q. Final exam
  - r. Post exam review
  - s. Course evaluation
  - t. Presentation of certificates

## 2. Recommendations.

- a. Exams or tests may be oral, written, practical demonstrations, or a combination of each.



- b. Passing grade/evaluation should be recorded and retained as instructor's records.
- c. Instructors should retain course attendance records for a period of three years.





## Appendix D.

### Training Curriculum Outline for Airport Personnel Actively Involved in Implementing FAA-Approved Wildlife Hazard Management Plans.

#### 1. Training Curriculum Outline.

The goal of the training course must be to provide the knowledge, skills, and abilities needed by airport personnel to safely, accurately, and effectively implement relevant portions of an FAA-approved Wildlife Hazard Management Plan. To be acceptable to the FAA, initial and recurrent training must include the following agenda items:

- a. General survey of wildlife hazards to aviation based on the most recent annual FAA National Wildlife Strike Database Serial Report
- b. Review of wildlife strikes, control actions, and observations at the airport over at least the past 12 months
- c. Review of the airport's Wildlife Hazard Assessment is to include—
  - (1) Existing wildlife hazards and trends in wildlife abundance
  - (2) Status of any open or unresolved recommended action items for reducing identified wildlife hazards to air carrier operations within the past 12 months
- d. Review of the airport's Wildlife Hazard Management Plan, to include the following:
  - (1) Airport-specific wildlife attractants, including man-made and natural features and habitat management practices of the last 12 months.
  - (2) Review of the airport's wildlife permits (local, State, and Federal)
  - (3) Review of other airport-specific items:
    - (a) Wildlife hazard management strategies, techniques, and tools:
      - (i) Flight schedule modification
      - (ii) Habitat modification, exclusion
      - (iii) Repelling methods
      - (iv) Wildlife population management
    - (b) Responsibilities of airport personnel for—
      - (i) Reporting wildlife strikes, control actions, and wildlife observations
      - (ii) Communicating with personnel who conduct wildlife control actions or who see wildlife hazards and air traffic control tower personnel and others who may require notification, such as airport operations or maintenance departments
      - (iii) Documenting and reporting wildlife hazards seen during patrols and inspections and follow-up control efforts
      - (iv) Documenting and reporting when no hazards are seen during patrols and inspections



e. Basic bird and mammal identification, stressing local hazardous and rare or endangered species of concern

f. For any airport personnel using pyrotechnic launchers or firearms, training on the following topics from a qualified individual<sup>2</sup>:

- (1) Safety, parts, and operation of pyrotechnic launchers
- (2) Fundamentals of using pyrotechnics to safely and effectively disperse wildlife
- (3) Personnel protective equipment
- (4) Cleaning, storage, and transport of firearms and pyrotechnic launchers
- (5) Applicable local, State, and Federal regulations on firearms, pyrotechnic launchers, and pyrotechnics<sup>3</sup>

(6) Live fire training with pyrotechnic launchers including strategies for dispersing wildlife away from runways and aircraft movement corridors

(7) For any airport personnel using firearms, live fire training. This training is highly recommended from a qualified individual but not a requirement for this training program<sup>2</sup>.

g. Any other training required by local, State, or Federal regulations

## 2. Recommendations.

a. Exams or tests may be oral, written, practical demonstrations, or a combination of all three.

b. The Trainer should retain passing grades/evaluations records.

c. The Trainer should retain course attendance records for a period of three years.

d. Airport personnel responsible for the airport's wildlife hazard management program should retain records of those to whom instruction in airport wildlife hazard management has been given for the period of time during which the employees conduct hazardous wildlife management activity on the airport and for six months after termination of employment.

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<sup>2</sup> State Certificated Hunter Safety Instructors, police officers, firearms instructors and other personnel who have been professionally trained in firearms safety should be qualified to teach firearm safety and possibly the safe use of pyrotechnic launchers. Pyrotechnics are classified as high explosives by the Bureau of Alcohol Tobacco and Firearms (ATF) and as Division 1.4 explosives by the U.S. Department of Transportation. There are numerous regulations, security considerations, and ATF licensing requirements that apply to pyrotechnics.

<sup>2</sup> Airport personnel actively involved with the use of firearms for the mitigation of wildlife hazards should receive and maintain current firearms training from either a licensed National Rifle Association (NRA) instructor or other qualified individual. This training should include type and caliber of weapon used at the airport.

<sup>3</sup> Bureau of Alcohol, Tobacco and Firearms provides information on Federal explosive requirements for explosive pest control devices at: <http://www.atf.gov/explosives/how-to/documents/epcd-flyer.pdf>.



