U.S. Department
of Transportation

**Federal Aviation
Administration**

Northwest Mountain Region
Colorado, Idaho, Montana
Oregon, Utah, Washington,
Wyoming

1601 Lind Avenue, S. W.
Renton, Washington 98057-3356

August 14, 2012

Mr. James Elwood
Airport Manager
Aspen-Pitkin County Airport/Sardy Field
0233 E. Airport Road
Aspen, Colorado 81611

Dear James Elwood:

Aspen-Pitkin County Airport/Sardy Field
Aspen, Colorado
Wildlife Hazard Management Plan Review and Approval

The Wildlife Hazard Management Plan (WHMP) for Aspen-Pitkin County Airport/Sardy Field has been reviewed and approved.

If you have any questions, please contact me.

Sincerely,

Lynn Deardorff

Lynn Deardorff
Airport Certification Safety Inspector

Cc: Brad Davis, DEN-ADO
Dan Hirchert, Wildlife Damage Biologist, Mead & Hunt

Appendix 3

WILDLIFE HAZARD MANAGEMENT PLAN

ASPEN / PITKIN COUNTY AIRPORT

Original Date: 7/6/2012

Revision Date: _____

FAA Approval: _____

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Table of Contents

Section 6 – Laws and Regulations

Section 7 – Wildlife Management Procedures

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Section 1 – Project Background

Section 1 presents the purpose, background, and regulatory framework associated with the Wildlife Hazard Management Plan (WHMP) and provides a summary of the WHMP contents.

1.1 Purpose and Regulatory Framework

The Federal Aviation Administration (FAA) is responsible for establishing and enforcing Federal Aviation Regulations (FARs). The FAA establishes policies to enhance public safety at air carrier airports holding an Airport Operating Certificate under FAR Part 139 (also referred to as Title 14, Code of Federal Regulations [CFR Part 139]). To obtain a certificate, an airport operator must agree to certain operational and safety standards, which vary depending on the size of the airport and the type of flights available. To ensure that airports with Airport Operating Certificates meet the requirements of FAR Part 139, the FAA conducts certification inspections. If an airport does not meet its obligations under Part 139, the FAA can impose an administrative action, a financial penalty, or, in extreme cases, revoke an airport's certificate or impose limits on its operations. The Aspen-Pitkin Airport (ASE) is a federally obligated air carrier airport that holds an Airport Operating Certificate from the FAA.

FAR Part 139 addresses wildlife hazard management because it is a safety issue. To ensure compliance with FAR Part 139, codified at Title 14, CFR Part 139.337b (see **Appendix A**), the FAA requires the operator of a certificated airport to conduct a Wildlife Hazard Assessment (WHA), and if necessary, prepare a WHMP when a "triggering event" occurs on or near the airport. According to FAR Part 139:

> In a manner authorized by the FAA Administrator, each certificate holder must ensure that a WHA is conducted when any of the following events occurs on or near the airport:
>
> (1) An air carrier aircraft experiences multiple wildlife strikes;
>
> (2) An air carrier aircraft experiences substantial damage from striking wildlife. As used in this paragraph, substantial damage means damage or structural failure incurred by an aircraft that adversely affects the structural strength, performance, or flight characteristics of the aircraft and that would normally require major repair or replacement of the affected component;
>
> (3) An air carrier aircraft experiences an engine ingestion of wildlife; or
>
> (4) Wildlife of a size, or in numbers, capable of causing an event described in paragraphs (b)(1), (b)(2), or (b)(3) of this section is observed to have access to any airport flight pattern or aircraft movement area.

If one or more triggering event occurs, the FAA will require an airport operator to perform a WHA.

1.2 Need for a Wildlife Hazard Management Plan at Aspen-Pitkin County Airport

On June 11, 2009, the FAA issued Certalert No. 09-10 to Airport Operators and to federal Airport and Certification Safety Inspectors (see **Appendix K**). The FAA issued the Certalert "to remind airport operators of their obligation under Part 139 to conduct WHAs if certain criteria are met." The criteria identified in the Certalert were the four "triggering events" identified by FAR Part

139.337. The Certalert included a list of 96 airports that would be required to perform WHAs based on available wildlife strike data. The Certalert identified ASE as an airport for which a WHA would be required because an air carrier had experienced multiple wildlife strikes and because wildlife capable of causing an event was observed to have access to an airport flight patterns or aircraft movement area (FAA, 2009b).

In response to the FAA's Certalert, Pitkin County (County) performed a WHA during the 12-month period from June 2010 to June 2011 under the direction of an FAA-qualified biologist. Avian and terrestrial surveys were performed to identify the presence and abundance of wildlife species, as well as behavior, movement, and migration patterns. Sixty-nine avian species and 12 mammal species were observed during the study. For more detailed discussions of the WHA, refer to Section 2.2.

The County submitted a report to the FAA in November 2011 that summarized the results of its 12-month WHA studies. Based on the findings presented in the WHA report, the FAA Administrator determined that a Wildlife Hazard Management Plan (WHMP) was needed at Aspen-Pitkin County Airport (ASE) in accordance with FAR Part 139.337(e) (Deardorff, 2011).[1]

1.3 Plan Overview

The WHA provided a site-specific understanding of wildlife hazards at ASE, and the recommendations presented in the WHA provided a framework for the development of the WHMP. The objective of the WHMP is to provide a well-defined set of policies, goals, and standards that will be implemented to reduce wildlife hazards. In addition, it presents habitat modification measures and wildlife control procedures to reduce the potential for strikes between wildlife and aircraft operating at ASE.

The WHMP includes the following components to fulfill the legal requirements set forth in FAR Part 139.337(e):

- Persons who have authority and responsibility for implementing the plan (see **Section 3**);
- Priorities for needed habitat management and land use identified in the WHA, including target dates for completion (see **Section 5**);
- The legal status of wildlife is described, including laws and regulations pertaining to permits needed for management actions, including harassment and take of animals, as well as copies of local, state, and federal wildlife control permits (see **Section 6**);
- Procedures to be followed during air carrier operations, including: personnel assignments; physical inspections of the movement area and other areas critical to wildlife hazard management; specific wildlife control measures; and communication protocols for wildlife personnel and air traffic (see **Section 7**);

[1] Deardorff, Lynn. 2011. Personal communication. Letter to Mr. James Elwood, Manager, Aspen-Pitkin County Airport/Sardy Field, December 2, 2011. Federal Aviation Administration. Renton, Washington.

- Necessary training required to properly identify wildlife and apply wildlife management techniques in a safe, effective, and efficient manner (see **Section 9**);
- Procedures for the periodic review and evaluation of the WHMP (see **Section 8**); and
- Resources to be provided by the airport operator/certificate holder for implementation of the plan (see **Section 4**).

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Section 2 – Airport Background

This section provides an overview of the airport setting and summarizes the County's 2011 WHA efforts.

2.1 Airport Location and Facilities

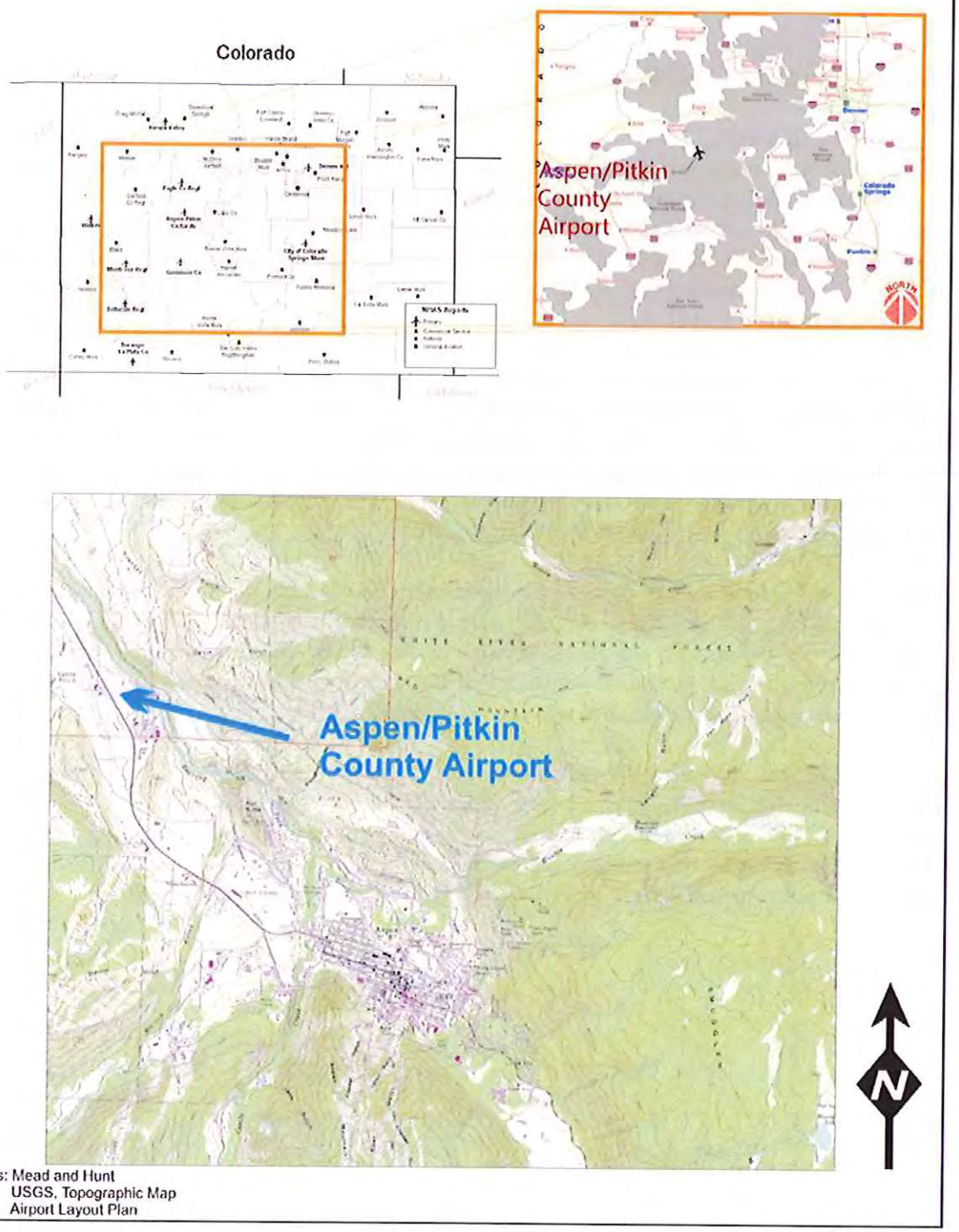
2.1.1 Location and Setting

ASE is located on the western slope of the Rocky Mountains, approximately 2 miles northwest of the city of Aspen in Pitkin County, Colorado, and approximately 200 miles southwest of Denver, Colorado. ASE is adjacent to Colorado State Highway 82 (SH-82) and surrounded by the Rocky Mountains and nearby resort areas (see **Figure 2-1: Location Map** and **Figure 2-2: Airport Setting**). Mountainous terrain surrounds the area on all sides, with nearby peaks extending to 14,000 feet above mean sea level (msl).

ASE is located at an approximate elevation of 7,820 feet above msl, on a bench that resides approximately 200 feet above the Roaring Fork River. The project area is semi-arid and typified by sagebrush-steppe. The airport project area experiences a total annual precipitation of approximately 24 inches. The annual average maximum temperature is approximately 55 degrees Fahrenheit, and the average annual minimum temperature is approximately 28 degrees Fahrenheit. The total annual snowfall is approximately 174 inches (Pitkin County, 2010).

The Aspen Airport Business Park Center is located immediately east of the Airport across SH-82 (Pitkin County, 2010), with residential development to the east and north. The area south of the Airport includes the Buttermilk Ski Area, Maroon Creek Club, and the Aspen Municipal Golf Course. Affordable housing is located southeast of the airport property, while large lot residential development comprises most of the land west and southwest of ASE.

A large open space area is located immediately east of the Airport and SH-82. This County-owned area provides trails and includes land on both sides of the Roaring Fork River, the predominant feature in the area, and it serves as a buffer between the Airport and other residential uses farther east. Other designated open space areas near the Airport include Cozy Point and Cozy Point South, which are located north of the Airport at SH-82, and Brush Creek (Pitkin County, 2010).



Sources: Mead and Hunt
USGS, Topographic Map
Airport Layout Plan

FIGURE 2-1

Location Map
Aspen/Pitkin County Airport

ASPEN/PITKIN COUNTY AIRPORT
AIRPORT SETTING
Figure 2-2
Base Map: services.arcgisonline.com_arcgis_services_world_imagery_mapserver\World_Imagery

2.1.2 Facilities

ASE was founded in 1946 as a privately owned, public use gravel landing strip. In 1956 the Aspen Airport Corporation deeded the Airport to Pitkin County, making it a publicly owned, public-use airport. The 573-acre airport is operated by the Pitkin County Board of County Commissioners (BOCC) and supports both general and commercial aviation. The airport supported an average of 102 operations per day throughout 2010.

The National Plan of Integrated Airport Systems (NPIAS) identifies nearly 3,400 existing and proposed airports that are significant to national air transportation and eligible to receive Federal grants under the Airport Improvement Program (AIP). ASE serves commercial and passenger airlines, as well as private general aviation (GA) aircraft. The 2009-2013 NPIAS lists Aspen/Pitkin County Airport as a Non- Hub, Commercial Service, Primary facility.

Airside facilities at ASE include a runway and taxiways, aprons, and ramp areas, aircraft storage and maintenance facilities, fueling facilities, lighting, and navigational aids (see **Figure 2-3**). Runway 15/33, the Airport's single runway, is 8,006 feet long, 100 feet wide, and extends in a generally north-south direction. The Airport is equipped with an air traffic control tower. Additional facilities located east of the runway include the passenger terminal building and tenants, rental car facilities, and automobile parking. Support facilities for aircraft rescue and firefighting and snow removal equipment are located west of the runway at the Airport Operation Center (AOC).

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2.1.3 Nearby Wildlife Attractants

Located in the heart of the Rocky Mountain resort area, ASE is surrounded by abundant natural resources. The airport property includes mowed grasslands that attract many species of birds and mammals. The airport and its immediate vicinity provide a combination of woodlands, shrubs, fruit, nuts, and other seed-producing plants, and water sources (see **Figure 2-2**). Owl Creek is located adjacent to the airport and passes through the northern portion of the property. The combination of food and water sources meets the basic needs of several species and, in some cases, provides an ideal habitat for species that live or migrate through this elevation.

Nearby off-site locations and features also support diverse wildlife communities, such as mountainous areas and the Roaring Fork Valley. Nearby manmade features include ponds, golf courses, the Pitkin County Landfill, and the Aspen Consolidated Sanitary District ponds.

2.2 Wildlife Hazard Assessment Findings

2.2.1 ASE Wildlife Strike History

According to the FAA's wildlife strike database, a total of 31 wildlife strikes were reported at ASE from January 1, 1990, to December 2011, of which 30 were actual strikes (see **Table 2-1**). One incident was not a wildlife strike, but a report of interference by a domestic dog and humans crossing the runway prior to aircraft departure. Sixteen strikes were associated with air carrier aircraft, and eight with business aircraft.

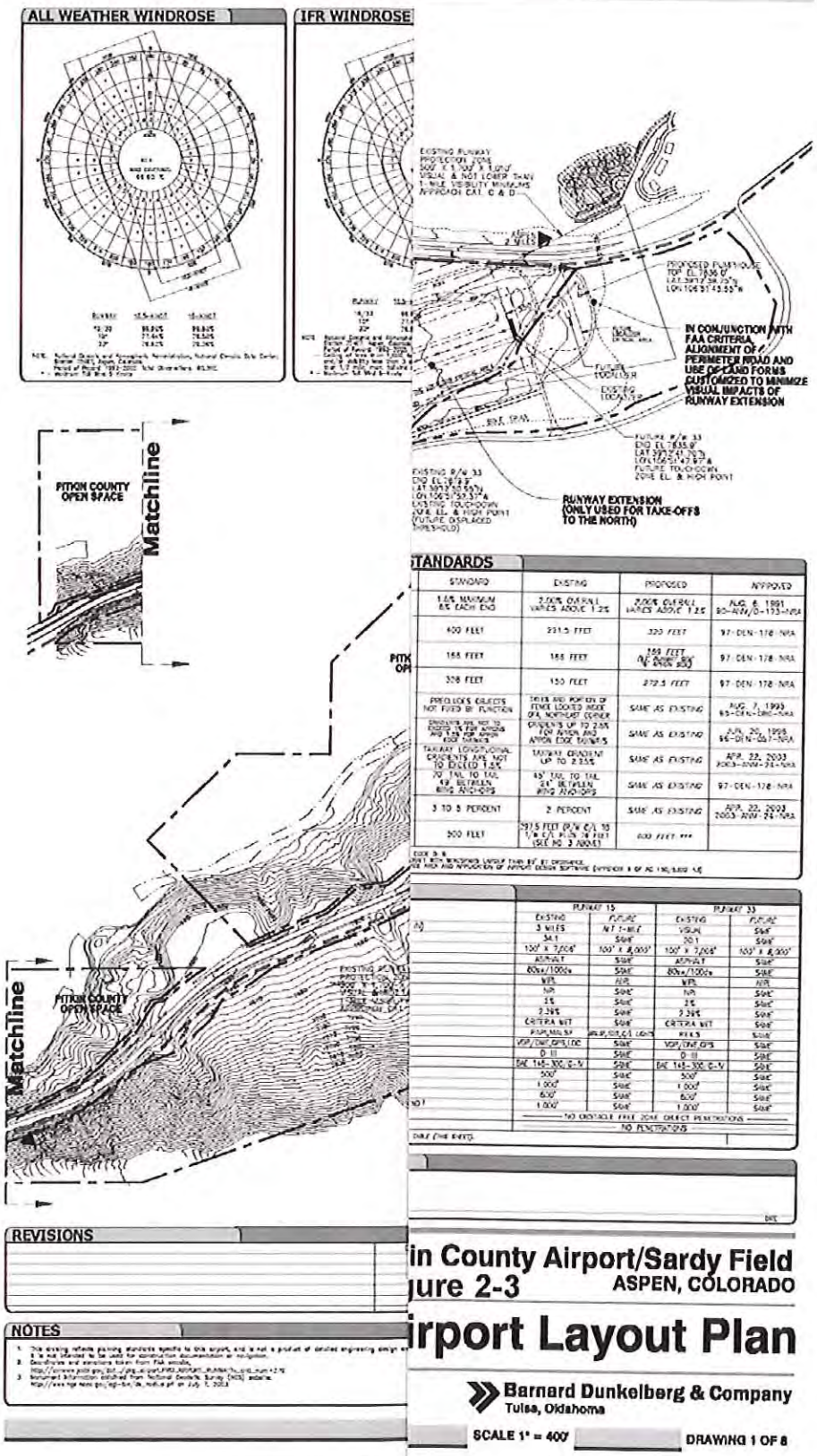
Minor aircraft damage was associated with two strikes: Flight Operations, a fixed-based operator, reported minor damage after a Cessna twin-engine aircraft struck hawks on June 9, 2005, and Skywest Airlines reported minor damage after a regional jet struck a small, unknown bird on June 11, 2009. No injuries were reported in the FAA database.

Table 2-1. Wildlife Strikes Reported in the FAA Wildlife Strike Database at Aspen-Pitkin County Airport, January 1, 1990, through December 31, 2011

Date	Operator and Aircraft Type	Aircraft Type	Damage	Species Struck	Remarks from Report
7/19/11	Unknown	Unknown	—	Killdeer	One killdeer found dead on runway being eaten by two turkey vultures at midfield of Runway 15 at 1300.
7/22/10	Business	Challenger 300	N	Unknown bird	Hit bird on departure. (Assume takeoff.) No reported damage.
3/27/10	Skywest Airlines	CL-RJ700	N	Unknown bird (small)	None.
3/20/10	Unknown	Unknown	—	Horned lark	Identified by Smithsonian. FAA 4169. Photo.
8/9/09	Business	Gulf aero III	—	Unknown bird (small)	None.

Table 2-1. Wildlife Strikes Reported in the FAA Wildlife Strike Database at Aspen-Pitkin County Airport, January 1, 1990, through December 31, 2011

Date	Operator and Aircraft Type	Aircraft Type	Damage	Species Struck	Remarks from Report
7/2/09	Unknown	Unknown	—	Great horned owl	Suspected bird strike. No pilot report of bird strike, but bird remains found on runway during morning inspection.
6/26/09	Skywest Airlines	CL-RJ700	N	Sparrows	None.
6/11/09	Mesa Airlines	DHC8 Dash 8	N	Sparrows	None.
6/11/09	Skywest Airlines	CL-RJ700	Minor	Unknown bird (small)	None.
4/18/09	Mesa Airlines	DHC8 Dash 8	N	Unknown bird (small)	Possibly sparrows. No known damage. (Data entry note: Number struck not reported, assume 2-10, same number as seen.)
3/21/09	Skywest Airlines	CL-RJ700	N	Unknown bird (small)	Small bird, thought to be a sparrow or finch.
3/19/09	Unknown	Unknown	N	Unknown bird (small)	Bird was unidentifiable.
8/21/08	Skywest Airlines	CL-RJ700	N	Unknown bird - large	Just after touching down and the start of the landing roll, a large bird (possibly a hawk or owl) appeared on the right side but hit the left windshield with a loud pop. The remains blurred some vision but did not affect the safety of the landing.
8/15/08	Business	CL-600	N	American crow	No damage reported. Bird reported as a crow. Assume American crow from location.
7/31/08	Skywest Airlines	CL-RJ700	N	Unknown bird small	Pilot reported striking one small bird on four-mile final. No damage reported. Landed without incident.
7/16/08	Skywest Airlines	CL-RJ700	N	Fox	No damage.
10/21/07	Mesa Airlines	DHC8 DASH 8	N	Sparrows	Hit four birds during landing flare. The birds took flight next to the runway and moved in aircraft path. Informed tower. Found four spots hit. No damage.



Original Date: 7/6/2012

Revision Date: _____

FAA Approval: _____

Table 2-1. Wildlife Strikes Reported in the FAA Wildlife Strike Database at Aspen-Pitkin County Airport, January 1, 1990, through December 31, 2011

Date	Operator and Aircraft Type	Aircraft Type	Damage	Species Struck	Remarks from Report
9/21/06	Bombardier Business Jet	Learjet-45	N	Unknown bird - small	No damage.
9/7/06	Business	DA-50 Falcon	N	Unknown bird - small	Landing flare. No report of damage.
7/16/06	Skywest Airlines	CL-RJ700	N	Gulls	Hit a gull midfield during departure. No damage reported at this time.
8/13/05	Mesaba Airlines	AVRO RJ 85	N	European starling	Reported striking two starlings. No damage reported.
6/9/05	Flight Options	C-650	Minor?	Hawks	Hit large hawk after touchdown. Damage to right flap panel.
9/10/04	Unknown	CL-600	N	American crow	On departure hit a crow. (Assume American crow from location.) No damage reported. Flight continued.
9/2/04	Business	Learjet-35	N	Unknown bird - small	Pilot reported that there was no damage. Hit small bird on landing.
6/17/04	Business	C-550	N	Mourning dove	No damage.
5/30/04	Business	Learjet-31	N	Sparrows	Hit small bird on departure (assume climb). Pilot thought it was a sparrow that hit the vertical stabilizer. No known damage. Flight continued.
10/30/02	Air Wisconsin Airlines	BA-146	N	Unknown bird - medium	Hit bird over landing threshold. No damage reported.
3/6/00	Executive Jet Aviation	Hawker 800	N	Unknown bird - small	Saw small flock lying upon landing flare, across runway. Small thump was heard. Found remains on left negative intake nacelle. Bird parts streaked down in and outside of engine. Also on midpoint of left flap. No secondary damage.
12/18/95	Business	CL-RJ100/200	N	Domestic dogs	*Not a strike.* Three dogs and two people ran across the runway in front of aircraft causing aborted takeoff.

Table 2-1. Wildlife Strikes Reported in the FAA Wildlife Strike Database at Aspen-Pitkin County Airport, January 1, 1990, through December 31, 2011

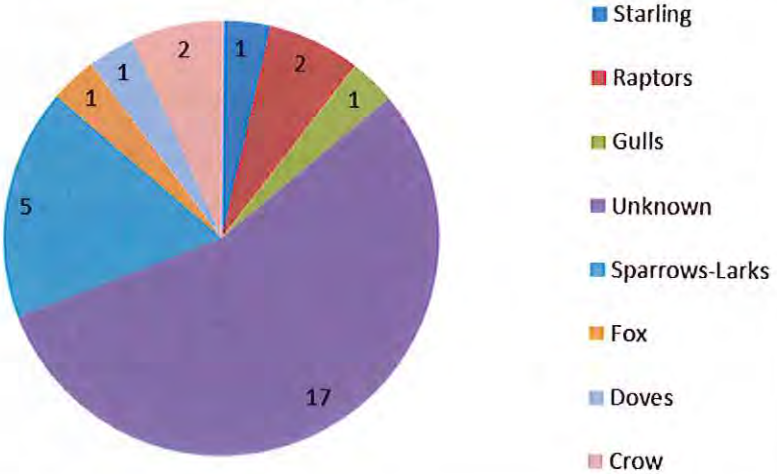
Date	Operator and Aircraft Type	Aircraft Type	Damage	Species Struck	Remarks from Report
5/27/94	Air Wisconsin Airlines (UAL Express)	BA-146	N	Unknown bird - medium	Struck bird on Departure and reported. No damage to aircraft. Continued to Denver.
3/19/92	Air Wisconsin Airlines	BA-146-100	N	Unknown bird - small	Saw 10, hit 8. No damage.

Key:
__ - Nothing reported in FAA Wildlife Strike Database.
N - No damage reported.
Minor - Minor damage reported

Source: FAA Wildlife Strike Database, available at: http://wildlife-mitigation.tc.faa.gov/wildlife/database.aspx

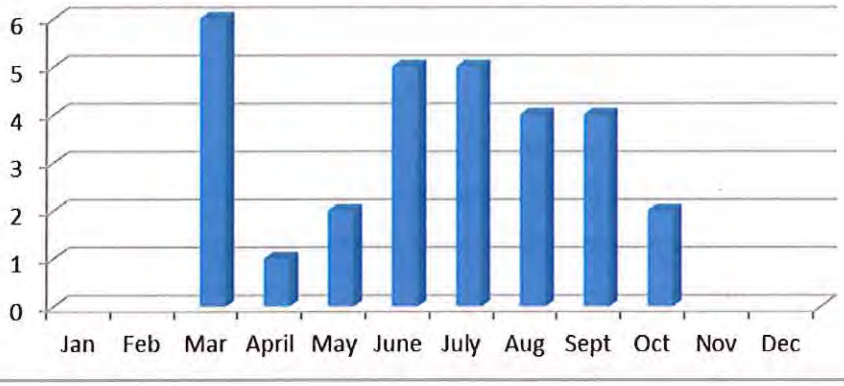
As shown on **Table 2-1** and **Figure 2-4**, 17 strikes were associated with unknown birds, most of which were small. Five strikes were associated with sparrows and larks, two strikes were associated with raptors (hawks and an owl), and two with American crows. A single strike was associated with a dove, gull, and starling. One wildlife strike was associated with a mammal (fox).

Figure 2-4
Reported Wildlife Strikes at ASE by Species (1990-2011)



Based on available FAA data from for the 21-year period, the greatest number of wildlife strikes occurred in March, and throughout the summer months (June through September). No strikes were reported during the four-month period from November through February.

Figure 2-5
Reported Wildlife Strikes at ASE by Month
(1990-2011)



Spring appears to be the most active season for wildlife in the vicinity of ASE. The populations of migrating populations increase significantly throughout the month of March. If weather conditions deteriorate at higher altitudes, birds can temporarily be forced to stay where there is available food and shelter. The greater number of wildlife strikes in March and throughout the summer months illustrates the influx of these returning species.

2.3 Wildlife Hazard Assessment Results

The monitoring locations associated with the 12-month WHA study were selected to identify and document the presence of species that spend time in the local environment. Monitoring locations (points) were specifically placed in areas where the majority of species were likely to frequent. The overall goal of the monitoring effort was to record all the species that have the potential—directly or indirectly—to increase the risk of interaction with aircraft or attract other species that could negatively interact with airport operations.

Three off-site wildlife locations were selected to determine the presence of wildlife within 5 miles of the airport: the Pitkin County Landfill, the Aspen Consolidated Sanitary District ponds, and the pond at the corner of Owl Creek Road and West Buttermilk Road. Each location was selected because it included characteristics that would likely attract wildlife. These sites offered ponded water, food, and opportunities for protection that are not available at other locations. The goal in selecting these areas was to monitor wildlife that did not necessarily frequent the airport, but might travel in airspace used by aircraft approaching or departing ASE.

The WHA concluded that ASE is located within a resource-rich area that supports abundant and diverse wildlife, and some species were observed on and near the airport that are known to pose hazards to aircraft. As a result, a WHA recommended that a WHMP be prepared to reduce the risks

posed by such species and to make the airport less attractive to them. Four general recommendations were identified in the WHA as described in Sections 2.3.1 through 2.3.4.

Current wildlife hazard procedures have been limited to vehicular, lights/sirens when incidental observations of wildlife occur within the perimeter fence and annual, contractor applied pesticide treatments to reduce on-site populations of ground squirrels.

2.3.1 Develop a Wildlife Hazard Management Program

Regardless of the decision to prepare a WHMP, the WHA recommended that the County implement an overall Wildlife Hazard Management Program that included the following:

- Designate a Wildlife Coordinator,
- Develop a Wildlife Hazard Working Group,
- Provide wildlife hazard management training,
- Record keeping to document wildlife hazards and management actions, and
- Ongoing monitoring of nearby proposals and land use changes.

2.3.2 Develop and Implement Ongoing Wildlife Hazard Management Policies and Procedures

The WHA recommended that the County implement several policies and procedures under the direction of a Wildlife Coordinator:

- Develop a wildlife hazard reporting and communication protocol
- Continue to monitor wildlife populations and use patterns
- Adopt an incremental and adaptive approach towards wildlife hazard management
- Adopt a zero-tolerance policy toward hazardous wildlife.

The WHA identified specific species that should be addressed specifically during the implementation of wildlife hazard management procedures, such as harassment. Such species included red-tailed hawks, turkey vultures, crows, ravens, waterfowl, coyotes, foxes, deer, and elk.

2.3.3 Implement Site-Specific Recommendations

Several site-specific recommendations were identified for implementation using a phased approach. Specific techniques ranged from passive techniques that would discourage wildlife from using the airport to more direct techniques, such as hazing and removal, for species that persisted in using the airport despite the implementation of passive management techniques. Site-specific management techniques included:

- Regular maintenance and inspection of the perimeter fence to exclude wildlife;
- Modifying habitats or features that attract potentially hazardous wildlife, such as open water, riparian areas, and shrubs;

- Modifying ASE's Landscape Master Plan to avoid the use of materials that attract potentially hazardous wildlife; and

- Implementing species-specific controls.

2.3.4 Implement Species-Specific Wildlife Management Techniques

While the habitat recommendations represented the initial and preferred method for dispersing populations of potentially hazardous wildlife species observed at ASE, not all species will respond in the same manner and further action will likely be required to manage specific wildlife species. Incorporating the use of pyrotechnics to haze wildlife and some lethal management activities as a last resort to reinforce non-lethal techniques was determined to be the most prudent approach to address hazards associated with several species observed at ASE.

Species for which direct management techniques were recommended included elk, mule deer, raptors, Wyoming ground squirrels, pocket gophers, cedar waxwings, coyotes, crows, and ravens. These species were determined to pose the greatest threat to aircraft operations based on their potential to result in substantial damage to aircraft, populations, or potential to support species that could substantially affect aircraft operations.

Sections 3 through 8 of this WHMP provide policies to address the recommendations presented in the WHA and summarized in Sections 2.2.1 through 2.2.4.

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Section 3 – Plan Authority, Roles, and Responsibilities

FAR Part 139.337(f)(1) & (5i): The individuals having authority and responsibility for implementing each aspect of the plan and designation of personnel responsible for implementing the procedures.

The Aviation Director has the authority and is responsible for designating a Wildlife Coordinator to implement the WHMP. Each department and associated agency has responsibilities outlined in the WHMP and must incorporate them into their programs. Clear communication and direction among airport personnel are essential elements of a successful WHMP. Personnel will communicate resource needs, recommendations, and progress to the designated Wildlife Coordinator. The Aviation Director will ensure that the WHMP is approved by the FAA and that the WHMP and amendments comply with Federal, state, and local laws and regulations.

3.1 Wildlife Hazard Working Group

The Wildlife Hazard Working Group (WHWG) is composed of individuals from many departments/divisions. The purpose of the group is to provide a forum for discussing ongoing issues associated with wildlife hazard management and to determining whether the WHMP is effective. The working group will meet at least annually, with intermittent meetings as necessary.

The WHWG may include persons or representatives of the following airport departments or groups:

- Aviation Director
- Wildlife Coordinator / Assistant Aviation Director - Operations & Facilities
- Airport Training, Safety and Standards Coordinator
- Airport Operations Coordinator
- Airport Operation Officers
- Airport Facilities Manager/Staff
- FAA Airport Certification Safety Inspector
- FAA Air Traffic Control Tower Manager
- FAA Qualified Wildlife Biologist

At minimum, the WHWG is responsible reviewing the WHMP at least annually to determine whether revisions are necessary. Each re-evaluation effort should consider the duties and activities performed by each member of the group, and the status of the recommendations or efforts described in the WHMP. The WHWG will present proposed WHMP recommendations or revisions to the Wildlife Coordinator, who will consider the recommendation and approve proposed revisions to the WHMP.

3.2 Staff Roles and Responsibilities

This section provides an overview of the roles and responsibilities of ASE staff involved in wildlife related issues. **Figure 3-1** provides an organizational chart.

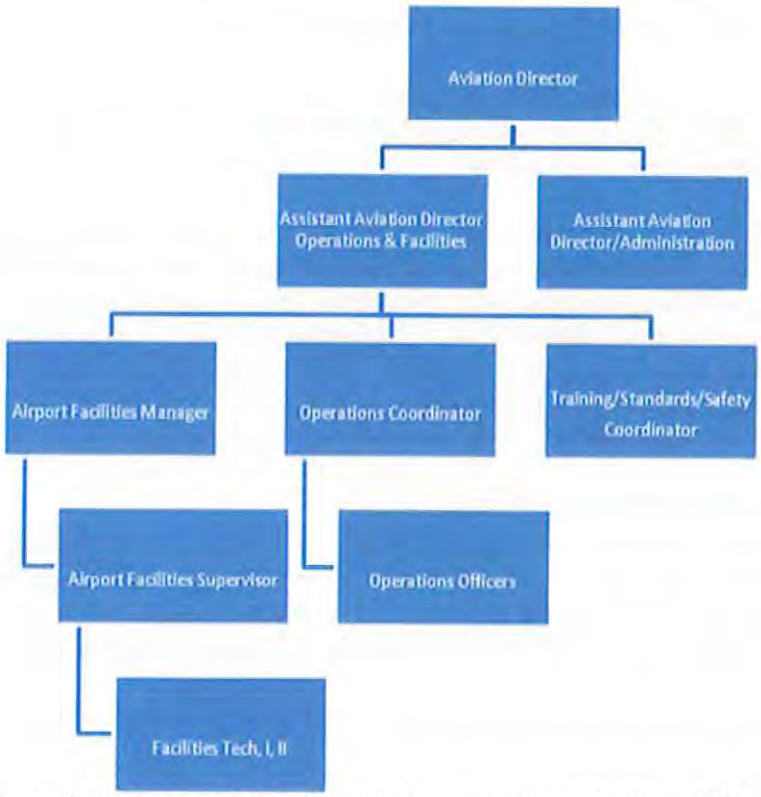

Figure 3-1. Aspen-Pitkin County Airport Organizational Chart

3.2.1 Aviation Director

The Aviation Director provides the decision-making authority for major program decisions, controversial issues or conflict resolution in support of the aviation mission. Specific duties associated with WHMP implementation include:

- Involve the Wildlife Coordinator with project proposals that could potentially result in hazardous wildlife attractants within 5 miles of ASE.
- Involve the Wildlife Coordinator with land use planning and mitigation efforts.
- Involve the Wildlife Coordinator in evaluating permit requirements and agency coordination for activities in wetlands, streams, or on mitigation sites.

3.2.2 Wildlife Coordinator / Assistant Aviation Director – Operations and Facilities

The Wildlife Coordinator / Assistant Aviation Director – Operations and Facilities is responsible for providing managerial support for wildlife hazard management efforts. They must ensure that sufficient resources are available to implement the plan. The Wildlife Coordinator is responsible for implementing the wildlife hazard management program and carrying out the measures identified in the WHMP, and for ensuring that staff receives appropriate training to carry out their responsibilities as described in the WHMP. The Wildlife Coordinator also is responsible for

maintaining an ongoing record of all management activities. Specific duties associated with WHMP implementation include:

- Provide direction to the Airport Operations Coordinator regarding the WHMP implementation policies and guidelines.
- Provide both strategic guidance and operational direction to the program.
- Provide guidance for program protocols, management decisions, or technical questions. Serve as the decision maker for significant issues at the program level.
- Elevate issues to the Airport Director as appropriate.
- Plan and administer the budget for the program.
- Coordinate technical issues with wildlife management staff.
- Participate with local, state, and federal agencies on land use decisions that could attract wildlife species of concern to properties around the airport.
- Provide guidance to the staff on wildlife and other natural resource management issues, regulatory requirements, permitting, etc.
- Serve as the primary Wildlife Hazard Management program liaison with the FAA.
- Communication:
    - Brief airport management on the WHMP program progress, management activities, and controversial issues, and relay management guidance to members of the wildlife program.
    - Actively engage the regulatory agencies, airport staff, and the public in dialog to foster the management objectives of the program.
- Ensure the WHMP is consistent with the current CFR Title 14 FAR Part 139.337.
- Implement the WHMP.
- Establish and chair the WHWG.
- Update the WHMP as necessary.
- Disseminate information and assignments through the WHWG.
- Coordinate landscape changes beforehand with the County's designated landscape architect, facilities coordinator, and planning staff to ensure wildlife attractants are minimized.

- Provide public relations support for wildlife hazard management activities as necessary.
- Ensure only properly trained wildlife management personnel operate on the Aircraft Operation Area (AOA) in accordance with FAA regulations. Such training includes radio communications, driving on the AOA, and appropriate use of methods and techniques to resolve wildlife risks.
- Train, supervise, coordinate, and monitor activities of the Airport Operations and Facilities Departments, as outlined in the WHMP, especially with regard to the safe use of firearms and pyrotechnics.
- Alleviate hazardous wildlife attractants deemed an imminent hazard.
- Coordinate the issuance of Notices to Airmen (NOTAM) through the Airport Operations Department pertaining to wildlife hazards. In addition, have the Airport's Air Traffic Control Tower (ATCT) advise pilots on Automated Terminal Information Service (ATIS).
- Provide public relations support for the wildlife program through Media Relations.
- Monitor facilities and tenant concerns for wildlife problems.
- Keep a log of all wildlife strikes and control actions and forward reports to FAA as necessary. Control actions will be documented and available for review on request.
- Make electronic wildlife strike report readily available to airfield operations and airlines for submission to the FAA National Wildlife Strike Database.
- Make electronic or hard-copy Wildlife Log forms available to the Airport Operations Coordinator and Operations Officers.
- Coordinate with airport environmental staff of all modifications planned in wetlands, streams, storm water facilities, or mitigation areas with required stakeholders..
- Work with airport facilities to alter wildlife habitat as needed to minimize hazardous wildlife attractants on ASE property.
- Review plans' involving land use change to avoid inadvertently attracting wildlife to the area and obtain the opinion of a FAA qualified wildlife biologist when necessary to determine project impacts.
- Obtain and maintain permits for wildlife depredation, harassment, capture, marking, and relocation from federal or state wildlife agencies to control protected birds and mammals.

3.2.3 Airport Operations Coordinator

The Airport Operations Coordinator is responsible for assisting the Wildlife Coordinator as requested and providing frequent updates regarding wildlife management issues to the Wildlife Coordinator and Operations Officers.

- Log all known wildlife strikes on the online electronic strike report (**Appendix E**) and forward the forms to the Wildlife Coordinator.
- Inform the ATCT and pilots of imminent wildlife hazards.
- Ensure wildlife-attracting refuse does not accumulate in fields and ditches on the airport.
- Inspect critical areas for wildlife activity and strikes and maintain a record of the action, even if no wildlife was present.
- Reduce wildlife hazards from critical areas when appropriate as outlined in Section 7.
- Record all wildlife activity or animals dispersed or shot on the "Wildlife Log" (**Appendix F**) and forward the report to the Wildlife Coordinator.
- Assist with wildlife control activities involving field rodents, rabbits, bird abatement, and other programs.
- Alleviate all attractants deemed an imminent hazard and, if necessary, coordinate a runway closure to remedy wildlife hazards.

3.2.4 Airport Operations Officers

Airport Operations Officers are responsible for assisting the Operations Coordinator in wildlife hazard management efforts and control activities and for performing routine inspections of the AOA and airport property. Specific duties include:

- Conduct runway inspections to identify and remove dead or injured wildlife.
- Inspect aircraft and the Aircraft Operations Area for snarge (wildlife remains).
- Log all known wildlife strikes on the FAA's online wildlife strike report and Wildlife Log (**Appendix F**) and forwards the forms to the Airport Operations Coordinator.
- Inform the air traffic control tower and pilots of imminent wildlife hazards.
- Inspect airport property to ensure refuse that would attract potentially hazardous wildlife does not accumulate in fields, ditches, etc.
- Inspect critical areas for wildlife activity and strikes and maintain a record of the action, even if no wildlife was present.

- Perform wildlife control measures in critical areas when appropriate as outlined in Section 7.
- Record all wildlife activity or animals dispersed or shot on the Wildlife Log (**Appendix F**), and submit the report to the Wildlife Coordinator.
- Assist with wildlife control activities involving field rodents, mammals, bird and other programs.

3.2.5 Airport Facilities Staff

The Airport Facilities staff supports wildlife hazard management activities by ensuring that facilities and infrastructure operate effectively and by performing facility inspections and repairs as necessary. Specific duties include:

- Assist with or identify resources to implement habitat modification measures identified in the WHMP, such as vegetation maintenance, brush/tree removal, and tree pruning.
- Maintain ditches and drains to ensure that water flows, thereby avoiding pooling and accumulation of refuse on the airport.
- Install and maintain netting or wire grids over ponds, ditches, and other water areas as determined necessary by the Wildlife Coordinator.
- Maintain the perimeter fence line to exclude large mammals such as elk, deer, and coyotes.
- Remove all trash and debris on the airfield.
- Minimize pooling water formed by rain on tarmac and infield areas, and grade or drain if necessary.
- Assist with wildlife management activities involving field rodents, mammals, and birds, and other programs.
- Inform Wildlife Coordinator of rodents and other wildlife found in and around buildings.
- Rodent-proof buildings, dumpsters, and other refuse containers to the extent feasible.
- Involve the Wildlife Coordinator with project proposals that could potentially result in hazardous wildlife attractants within 5 miles of ASE.
- Involve the Wildlife Coordinator with land use planning and mitigation efforts.
- Assist the Wildlife Coordinator in evaluating permit requirements and agency coordination for activities in wetlands, streams, or on mitigation sites.

3.2.6 Communications and Media Relations

The Communications and Media Relations staff will assist the Wildlife Coordinator in promoting community awareness of wildlife hazards posed to airport operations and assisting with stakeholder coordination.

3.3 Federal Aviation Administration

FAA staff provide the following support to wildlife hazard management efforts:

- Reviews WHMP for incorporation into the Airport Certification Manual.
- Provides information related to aircraft-wildlife strikes and other wildlife incidents to the Wildlife Coordinator.
- Assists ASE in reviewing proposed land use changes, construction plans, and mitigation projects for potential wildlife hazards to aircraft as necessary.
- Reviews changes or edits to the WHMP.

3.4 Qualified Wildlife Biologist

The FAA-qualified Biologist is responsible for providing ongoing assistance to ASE staff during the preparation and implementation of its Wildlife Hazard Management Program. Specific duties include:

- Train airport personnel about wildlife hazards awareness.
- Instruct airport staff in the safe handling and proper use of wildlife dispersal equipment and techniques.
- Assist ASE in reviewing proposed land use changes, construction plans, and mitigation projects for potential wildlife hazards to aircraft.
- Provide ongoing consultation regarding wildlife hazard management issues as they arise.

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Section 4 – Resources

FAR Part 139.337(f)(4) Identification of resources to be provided by the certificate holder for implementation of the plan.

4.1 Authorized Airport Supplies

Habitat Management and wildlife management supplies can be purchased from several companies. The Wildlife Coordinator is responsible for ensuring adequate supply of equipment will be kept on hand at ASE for use by trained personnel.

Table 4-1 summarizes the wildlife hazard materials that should always be available at the airport:

Table 4-1. Wildlife Hazard Management Supplies

Item	Description and Quantity
Documentation	Wildlife Hazard Management Plan
	Bird and mammal identification guides. A copy of each guide should be kept in all vehicles used to inspect the airfield, and an additional copy should be kept in the Wildlife Coordinator's office.
	Wildlife Log forms
	Prevention and Control of Wildlife Damage (see 7.1)
Pyrotechnics supplies	Launchers. The airport should maintain a supply of 15 mm pyrotechnic pistol launchers and caps. One pistol launcher should be available in each vehicle that does airfield inspections.
	Screamers and Whistlers. Screamers/whistlers should be available in each vehicle used for airfield inspections, and one week's supply should be available in storage.
	Bird Bangers/Bombs. Bird bangers/bombs should be available in each vehicle used for airport inspections, and one week's supply should be available in storage.
	Personnel Safety Equipment. Eye and hearing protection should be maintained in each vehicle used for airfield inspections. Protective eye goggles, ear protection and a fire extinguisher should be included in each vehicle, and extras should be maintained at all times.
Monitoring equipment	Binoculars. One pair of binoculars should be kept in each vehicle used to perform airfield inspections.
	Spotlight. A spotlight should be available in each vehicle for night time operations.
	Wildlife Log. A logbook/computer file should be available to document daily observations pertaining to wildlife hazards and all management activities.
Firearm/ammunition	12-gauge shotgun and non-toxic ammunition. If lethal control is necessary, the airport should maintain a 12-gauge shotgun and non-toxic ammunition for use by appropriately trained airport employees in addition to the Wildlife Coordinator. A cleaning kit for all firearms should also be provided.

Table 4-1. Wildlife Hazard Management Supplies	
Item	**Description and Quantity**
Animal Traps/Devices	Snare/catch pole Cage trap for dogs (e.g., Tomahawk 110B) Cage trap for cats/opossums/raccoons (Tomahawk 108) Rat/mouse traps snap traps
Miscellaneous Items	Mylar tape Latex gloves Garbage bags Gallon-size food storage bags

Note: Additional supplies such as distress calls, mammal traps, rotating beacons, and sirens may be necessary as specific situations arise. It is the responsibility of the airport operator to ensure these items can be procured in a timely manner.

4.2 Airport Operations Coordinator and Airport Operations Officers

Airport Operations Coordinator and Operations Officers will be responsible for responding to emergency calls from the Airport's ATCT or Airport Operations to disperse animals from the runways. The airport operations vehicles should be stocked with the supplies listed above to facilitate an immediate response to wildlife hazards.

When responding to emergency calls, staff must maintain radio communications with the ATCT, and the inspections must operate within the air movement areas according to FAA guidelines.

4.3 Budget Allocations

The operating and maintenance budget allocations would initially include funding for equipment, materials and supplies, along with contracted pest management and permitting. Many items are one-time expenses and others reoccurring. A review of current wildlife management expenses and inventory of resources is necessary to determine the appropriate level to minimally equip staff and vehicles.

The Wildlife Coordinator will be responsible for monitoring expenses and developing an annual budget for wildlife hazard management expenses. The budget will be submitted to the Aviation Director.

Section 5 – Management Strategies

FAR Part 139.337(f)(2ii,iii) Priorities for needed habitat modification and changes in land use identified in the wildlife hazard assessment with target dates for completion.

5.1 Overview

Habitat management provides the most effective long-term solutions for reducing wildlife hazards on and near airports. Habitat management includes the physical removal, exclusion, or manipulation of areas that are attractive to wildlife. Ninety percent of the on-site bird observations during the WHA were associated with three habitat types (long grass, shrub and woodland). The prioritized measures are designed to impact these on-site habitats to reduce wildlife risks. The ultimate goal is to make the environment fairly uniform and unattractive to the species that are considered the greatest hazard to aviation.

Habitat modification efforts will be monitored carefully following implementation to ensure that the measures reduce wildlife hazards and do not create new attractions for different wildlife. **Tables 5-1, 5-2,** and **5-3** present prioritized lists of habitat, maintenance/management, and population management measures based on the recommendations presented in the WHA and target dates for their completion. An incremental and adaptive approach to population management will be utilized to achieve results with individuals or populations, for more on this approach see Section 7.1.

Each measure is color categorized by the priority in which the measure will be considered. Prioritization was given to the measure by the likely impact it will have on wildlife hazards based on surveys and observations conducted during the WHA. Red was assigned to measures prioritized as critical, orange to high and yellow to moderate.

5.1.1 Proposed Habitat Modification Measures

Table 5-1 presents proposed habitat modification to reduce the risk of wildlife hazards at ASE. Each measure is presented with a proposed target date for completion and an area in which the completion date may be recorded.

It should be noted that some of the projects presented in Table 5-1 may have already been implemented or completed, but because they require a continued effort (e.g., mow and maintain brush and tall native grass at 4-8 inches), they are listed as "ongoing."

Table 5-1. Proposed Habitat Modification Measures

Proposed Measure	Target Date	Date Completed
Investigate (i.e. cost, regulatory process, labor) the removal woody vegetation adjacent to Owl Creek on ASE property	Spring 2013	
Investigate (i.e. cost, regulatory process, labor) enclosing Owl Creek and conversion to upland vegetation from the Ranch Access Rd. to where it enters the enclosure within the AOA	Spring 2013	

Table 5-1. Proposed Habitat Modification Measures		
Proposed Measure	**Target Date**	**Date Completed**
Investigate (i.e. cost, regulatory process, labor) enclosing Owl Creek and conversion to upland vegetation from the enclosed outflow to the east property boundary	Spring 2013	
Investigate (i.e. cost, regulatory process, labor) removal of larger trees between SH-82 and airport replace with species that exhibit vertical branching	Spring 2013	
Investigate (i.e. cost, regulatory process, labor) removal Canada Red Chokecherry shrubs east of Owl Creek along SH-82.	Spring 2013	
Remove fruit- and nut-bearing trees on ASE property	Summer 2012	
Modify ASE Landscape Master Plan to eliminate species attractive to hazardous wildlife	Fall 2012	
Mow and maintain brush and tall native grass at 4-8 inches	Spring/Summer 2012	Ongoing
Improve drainage on west side to prevent seasonal water features	Fall 2012	
Evaluate potential wildlife hazards associated with new construction/land-use changes	Ongoing	Ongoing
Remove remnant landscaping trees on southwest corner of property	Summer 2012	

5.1.2 General Maintenance/Management Measures

Table 5-2 presents general maintenance/management measures to reduce the risk of wildlife hazards at ASE. Each project is presented with a proposed target date for completion and an area in which the completion date may be recorded. Note that some of the projects may have already been implemented or completed, but because they require a continued effort (e.g., maintain and regularly inspect perimeter fence), they are listed as "ongoing."

Table 5-2. General Maintenance/Management Actions		
Proposed Measures	**Target Date**	**Date Completed**
Establish a wildlife hazard working group	Summer 2012	Ongoing
Train personnel in wildlife hazards/hazing procedure and species identification	Summer 2012	Ongoing
Develop an electronic record keeping system for wildlife strikes and hazing efforts	Summer 2012	Ongoing
Stock and maintain wildlife control supplies	Summer 2012	Ongoing
Develop and maintain a Wildlife Hazard Management Plan	Summer 2012	Ongoing
Maintain and regularly inspect perimeter fence	Summer 2012	Ongoing
Close gaps between fence and gate attachment northwest corner	Summer 2012	
Implement a wildlife hazard reporting and communication protocol	Summer 2012	
Investigate installation of small mesh wire over identified portions of perimeter fence	Spring 2013	

5.1.3 Population Management Measures

Table 5-3 presents a prioritized list of species-specific population management actions. The actions are proposed to reduce the overall presence and abundance of species that were identified as posing the greatest threats to aircraft operations at ASE. Each project is presented with a proposed target date for completion and an area in which the completion date may be recorded.

Note that some of the may have already been implemented or completed, but because they require a continued effort (e.g., maintain a zero-tolerance policy towards hazardous species and events), they are listed as "ongoing."

Table 5-3. Population Management Measures

Proposed Measures	Target Date	Date Completed
Maintain a zero-tolerance policy towards hazardous species and events.	Summer 2012	Ongoing
Apply and maintain federal Migratory Bird Depredation Permit, CDPH&E Use Prohibited Devices Permit and others as appropriate.	Summer 2012	
Continue to monitor wildlife populations and patterns.	Summer 2012	
Continue managing Wyoming ground squirrels by pesticide applications.	Summer 2012	Ongoing
Monitor and manage coyotes that enter the AOA.	Fall 2012	
Monitor hawk activities on airfield and relocate/remove hawks as necessary to mitigate hazards.	Summer 2012	
Contact managers of potential attractive site to coordinate wildlife concern/response as needed including Aspen Cons. Sanitary District, Pitkin County Landfill.	Summer 2012	
Investigate pocket gopher management by pesticide application.	Summer 2012	
Monitor deer and elk populations, remove individuals that access the AOA.	Ongoing	

5.2 Wildlife Attractants On and Near ASE

General Zone

The general zone is the area within a 5-mile radius of ASE as measured from the nearest aircraft operations area (see **Appendix G**). Wildlife attractants in this area, especially those that lie within the approach and departure surface, have the potential to affect aircraft safety. The objective of the WHMP is to actively reduce attractive wildlife habitat on airport property and work cooperatively with other property owners/managers in the general zone to reduce or discourage land-use practices that might pose wildlife hazards. Potential wildlife attractants identified within this zone include the Pitkin County Landfill.

Critical Zone

The critical zone is the area within 10,000-feet of ASE as measured from the nearest aircraft operations area (see **Figure 5-1**). The management measures presented in the WHMP will focus on the critical zone because aircraft typically operate within this area during approaches and departures at altitudes of less than 1,000 feet. Approximately 75% of all civil bird-aircraft strikes occur within 10,000 feet of the airfield from which they depart or arrive. Attractants within this zone include:

- Owl Creek and adjacent wooded riparian area,
- Remnant residential landscaping in the southwest corner of AOA,
- West side stormwater management facilities,
- Brush and tall grass within AOA, and
- The Aspen Consolidated Sanitary District ponds.

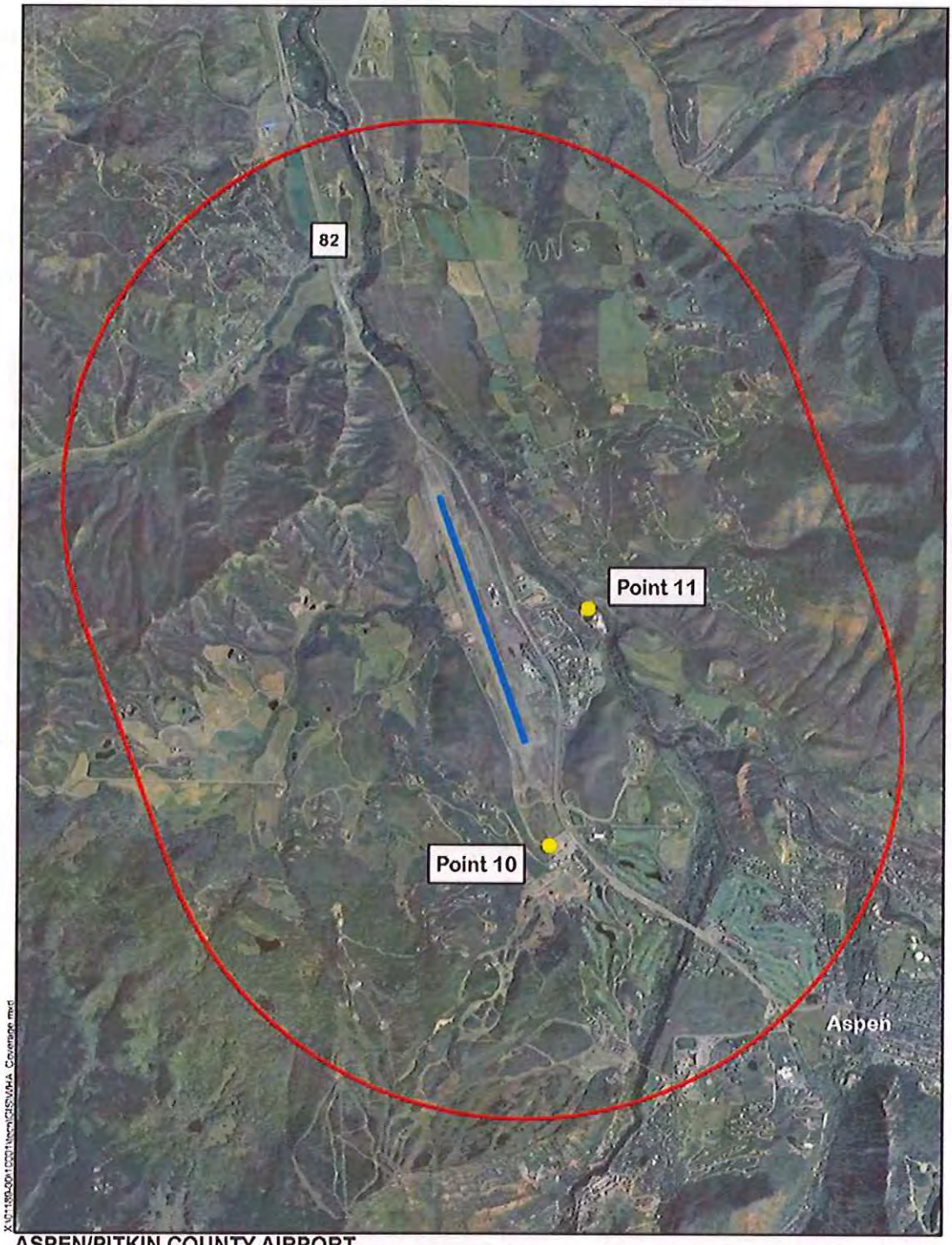

Figure 5-1. ASE Critical Zone

5.3 Structure Management

Structures can attract potentially hazardous wildlife by providing cover and perches for hunting. Wildlife management should be considered whenever new structures are proposed to prevent the creation of nesting, perching, or roosting sites for birds and to inhibit access by mammals such as rodents and raccoons.

5.3.1 Airfield Structures

Airfield structures, such as runway lights, ramp and taxiway signs, ILS towers, and light poles, can be used as hunting and loafing perches for birds such as hawks. Lights attract insects at night, which, in turn, attract bats and nighthawks. Structures found to routinely attract birds in a hazardous manner should be fitted with wire coils or porcupine wire (e.g., Nixalite).

Figure 5-2. Perching deterrents mounted on runway marker lights to decrease bird use.

5.3.2 Perimeter Fence and Gates

The perimeter fence has worked at excluding large animals from the AOA. Smaller mammals such as coyotes and fox have gained access to the airfield during winter when snow depths have allowed them to pass through larger spaces between horizontal and vertical wire alignment. The Wildlife Coordinator will investigate options that include an addition of 3-4 feet of small mesh wire fencing that is consistent with the gauge and quality of the current materials in areas identified in the WHA.

Gates also can provide access for coyotes and fox. Gaps around the gate or where the gates meet or attach to the post can increase over time due to freeze thaw action. Gaps to allow for ground clearance and attachment to posts should be no greater than 3 inches. The Facilities Manager is responsible for monitoring the perimeter fence and gates and performing maintenance to meet this standard.

5.3.3 Airport Building Projects

The Wildlife Coordinator shall/will participate in the initial and early phases of all airport building projects and solicit input from an FAA-qualified wildlife biologist to identify and avoid any project features or activities that would inadvertently increase wildlife hazards, such as proposed architectural or landscape changes. Early participation will be required to ensure that new projects and construction activities are designed in a manner that minimizes wildlife attractants prior to

detailed design efforts. Additionally, the FAA's Denver Airports District Office (ADO) will review proposed construction activities for potential wildlife attractions when the FAA Form 7460-1 application is submitted.

5.3.4 Abandoned Structures

Structures that are not pertinent to air operations or no longer in use should be removed, including abandoned structures, sheds, machinery, and light poles. Such structures are attractive to rodents, small birds, and rabbits and, in turn, attract coyotes, hawks, owls, and other predators that can become a significant air hazard. Structures used for crash-fire training are considered to be pertinent to air operations and are generally compatible with safe air operations.

While no abandoned structures were observed during the WHA to attract potentially hazardous wildlife, the removal of excess structures should be considered a routine maintenance activity in support of WHA efforts. If a structure cannot be removed, it should be inspected to ensure that it does not provide shelter or nesting opportunities for wildlife.

5.3.5 Non-airport Land-use Projects

The Wildlife Coordinator will monitor and participate in land-use decisions proposed by other City and County agencies or private developers that would occur within the General Zone. The Wildlife Coordinate will ensure that proposed stormwater management facilities landscaping are reviewed by a qualified biologist to avoid the inadvertent creation of wildlife hazards to aircraft within the General Zone. Such participation will require coordination with the local planning agencies to identify a review proposed land-use changes prior to discretionary approvals. If projects cannot be reasonably modified before construction to mitigate wildlife hazards, the Wildlife Coordinator should monitor the project area following construction to identify potentially activity by hazardous wildlife activity and to offer recommendations on how these hazards might be reduced.

The FAA's Denver ADO and Safety and Standards Branch of the FAA Northwest Mountain Region will provide technical guidance to ASE in addressing land use compatibility issues. ASE or the FAA may requests assistance from USDA-WS (per Memorandum of Understanding between FAA and Wildlife Services (**Appendix H**). USDA-WS can provide technical recommendations to address issues or concerns associated with the proposed project or land-use change.

The Wildlife Coordinator will discourage proposed projects that are likely to attract or increase the abundance of potentially hazardous wildlife within the general zone or suggest potential measures to reduce hazards. Incompatible land uses or infrastructure development within the critical zone may such items as water reservoirs, parks with artificial ponds, wetlands, waste handling facilities, and wildlife refuges/sanctuaries. These types of land-use changes will be monitored for compatibility by working with the local planning authorities.

Figure 5-3. Closely mowed turf adjacent to water features attracts people and wildlife.

5.4 Water Management

Several water features on the airfield provide food and cover to the species observed during the WHA survey period. The northern half of ASE is bisected by Owl Creek and the associated riparian area. Stapleton Ditch is present in the southwest/south portion of the AOA and continues towards the bike trail and Owl Creek Road. Ponds within the critical zone include one at the intersection of Owl Creek Rd and West Buttermilk Road and at least five others located at area golf courses. Temporary seasonal drainages associated with melt-water runoff on the west side were also observed and found to attract bird species. Off-site water features within the critical area will be monitored, and the Wildlife Coordinator will work with local agencies and landowners to help deter hazardous wildlife.

Figure 5-4. Stapleton Ditch entering ASE on the southwest side of the AOA.

5.4.1 Wetlands

A wetland delineation in 2006 identified several wetlands on airport property (Figure 5-5). A 2.7-acre emergent wetland (1) is located at the southern boundary of the Airport. Hydrology is supplied by Stapleton Ditch and natural topographic runoff. This area has a low gradient and could enlarge if

the channel is blocked or restricted. The Wildlife Coordinator will continue to monitor this site for flow impediment and wildlife use. Appropriate mitigation techniques will be taken to reduce the potential wildlife threat when observed.

Additionally a small 0.02-acre wetland (2) is present near Stapleton Ditch on the southwestern corner of the airport property. The Wildlife Coordinator will continue to monitor this site. . The vegetation composition does not include a substantial woody component, and few wildlife observations were made associated with this pond or the Stapleton Ditch.

Two small wetlands were identified adjacent to Owl Creek, a 0.31-acre wetland (3) in the northeastern corner of the airport property, and a 0.03-acre wetland (4) along the bank located on the western side of the airport property. Both of these sites, in combination with Owl Creek and the riparian vegetation were associated with the majority of wildlife observations during the WHA survey period. ASE will investigate options for converting and maintaining these areas in an upland condition in combination with Owl Creek alterations. Impacts to wetlands will require a Clean Water Act 404 Permit from the U.S. Army Corps of Engineers (USACE) as well as state agency coordination. The Wildlife Coordinator will continue to monitor these sites until they can be converted to upland.

The Wildlife Coordinator will review any future wetland mitigation projects. If required, mitigation associated with future projects will occur as far away from the airfield as possible, unless it can be demonstrated with reasonable certainty that the mitigation measure would not likely increase wildlife hazards and will comply with criteria described in FAA Advisory Circular 150/5200-33B.

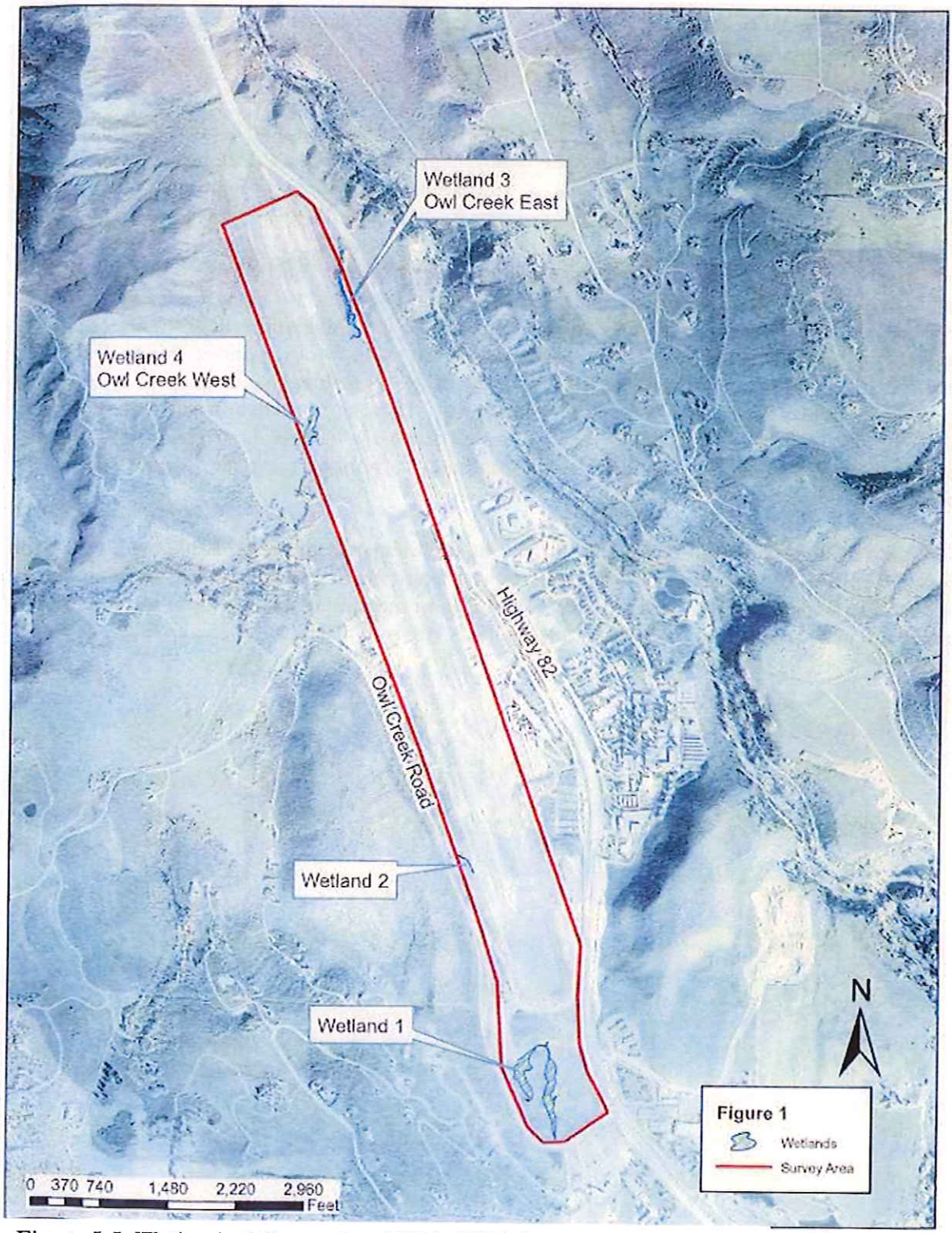

Figure 5-5. Wetlands delineated at ASE in 2006 site survey

5.4.2 Ponds

The pond located at the intersection of Owl Creek Road and West Buttermilk Road was monitored during WHA field studies (observation point 10). Approximately 50 mallards were observed using this water feature during the course of the 12-month study. The Wildlife Coordinator will continue to monitor this pond regularly because it is situated within the critical area.

Figure 5-5A. Pond located southwest of the Owl Creek Rd and West Buttermilk Road intersection.

Wildlife movement between this pond and water features associated area golf courses is likely. If wildlife associated with this pond becomes noticeably hazardous to airport operations, ASE's Wildlife Coordinator will work cooperatively with the adjacent property owners to deter and/or remove the problem animals that threaten aircraft safety. Options to deter wildlife use of this pond include:

- Liners
- Netting
- Floating balls
- Floating covers
- Underground storage

5.4.3 Creeks

Owl Creek bisects the northern portion of ASE as noted on **Figure 5-5**. This area is the single largest wildlife attractant at ASE. Approximately 66 percent of the birds recorded during the 12-month WHA were observed from the points on the northern half of ASE due to available habitat provided by Owl Creek and the associated riparian habitat. This area also includes two small wetlands noted in Section 5.4.1. ASE will investigate options for converting and maintaining these areas in an upland condition through the removal of woody vegetation and enclosing Owl Creek from the Ranch Access Road to the eastern property boundary.

The Stapleton Ditch enters the AOA on the south west side of the AOA and then travels south toward Owl Creek Road. The ditch was not observed to attract a significant number of birds or other wildlife during the WHA field studies, and it does not include woody vegetation like Owl Creek. As stated previously in 5.4.1, ASE's Wildlife Coordinator will continue to monitor the Ditch

for flow impediment and wildlife use. Appropriate species specific mitigation techniques will be taken to reduce the potential wildlife threat when observed.

5.4.4 Temporary Seasonal Water

During spring melt events the west side of the AOA receives heavy runoff that exceeds the capacity of the natural drainage and results in temporary standing water. This feature can attract birds (especially shorebirds) during migration. ASE will investigate options to redesign or divert runoff so that water is not pooled for longer than 48 hours and monitor the area for wildlife use.

The following protocol has been developed to manage non-jurisdictional "wet areas" on ASE property so they do not develop into jurisdictional wetlands at a future date.

1. Airport staff and the Wildlife Coordinator will inspect ASE properties and identify and monitor areas that have the potential of forming jurisdictional wetlands or temporary pools.

2. If Airport staff identifies an area that has the potential to become a jurisdictional wetland or temporary pool, the area will be reviewed to verify that it has not become a jurisdictional wetland. Once verification is received the staff will submit a request to resolve the drainage problem will be submitted.

2. If ASE does not have the resources to eliminate the wet area (i.e., the drainage problem cannot be resolved through surface grading), the Aviation Director will evaluate the area of concern in consultation with the Wildlife Coordinator to determine whether involvement by the Community Development Department is warranted.

Figure 5-6. Owl Creek and associated habitat at ASE.

4. The Aviation Director will take necessary actions through the engineering process or hiring a contractor to resolve the drainage problem and identify a funding source.

Additionally, any new or altered ditches should be appropriately sloped so that water does not pool and leaves the airfield in a reasonably short amount of time (less than 48 hours). Ditches that pool and attract hazardous wildlife may be covered, in whole or part, using a wire grid system or other barrier

5.4.5 Stormwater Management

In general, the Airport property has a consistent gradual slope, following the grade of the valley north, toward the Town of Basalt. Aspen/Pitkin County Airport has a Stormwater Management Plan. The Airport's stormwater is conveyed east from airport buildings, roads, and parking areas to a drainage swale along the west side of the Airport Frontage Road. The swale is a combination of open ditches and culverts under roadways. Stormwater run-off collected on the east side of the Airport eventually flows into the open meadow north of the FBO apron. The remaining water that does not percolate into this open meadow flows into the Owl Creek drainage; this creek eventually flows into the Roaring Fork River. None of the current stormwater features were identified during the WHA field studies as attracting wildlife that could pose a risk to aircraft. The Wildlife Coordinator will monitor these features and take appropriate mitigation techniques if wildlife is observed.

Should any new storm water detention ponds be located in the critical zone, the Airport Director or Wildlife Coordinator will review the proposed design to ensure that they comply with Section 2-3.b of FAA AC 150/5200-33B, Wildlife Hazard Attractants on and Near Airports, which states the following:

> On-airport stormwater detention ponds should be designed, engineered, constructed, and maintained for a maximum 48-hour detention period for the design storm and remain completely dry between storms. To facilitate the control of hazardous wildlife, the FAA recommends the use of steep-sided, narrow, linearly shaped water detention basins. When it is not possible to place these ponds away from the airport's AOA, airport operators should use physical barriers, such as bird balls, wire grids, 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 FAA Denver Regional Airports Division Office. All vegetation in or around detention basins that provides food or cover for hazardous wildlife should be eliminated.

If, despite these guidelines, any new storm water detention structure attracts wildlife species of concern, the Wildlife Coordinator will implement appropriate species-specific mitigation techniques to reduce the potential wildlife threat.

5.5 Vegetation Management

The County developed the Pitkin County Airport Landscape Master Plan to provide an aesthetically pleasing environment that incorporated native species to the extent practical while addressing some of the specific requirements associated with an aviation environment. For example, one of the goals associated with the Landscape Master Plan is to retain and provide an aesthetically pleasing landscape and to eliminate the vertical intrusion of vegetation into aircraft operating airspace. To

support the WHMP and further support aviation safety, the Landscape Master Plan should be revised to reconsider proposed planting materials so that they will not attract potentially hazardous wildlife to the Airport. With the exception of the features discussed in 5.5.4, none of the current landscape plan elements were identified during the WHA field studies as attracting wildlife that could pose a risk to aircraft.

ASE property includes diverse vegetation, some of which is highly attractive to potentially hazardous wildlife. As documented in the WHA, 65 percent of the wildlife observed on ASE property was associated with shrub or woodland habitat. The most effective approach to reducing this attraction in the critical zone is to remove trees, shrubs, weeds, and plants to the extent possible and replace them with non-seeding or small-seeded grass, especially in areas that are within 200 feet of the runway. The Wildlife Coordinator will review all proposed landscape plans for ASE property to ensure that proposed planting materials do not attract potentially hazardous wildlife and to ensure that attractive features are removed and replaced with less attractive materials.

5.5.1 Edge Removal

Edges are the places where different habitats meet. These areas are often most attractive to wildlife because many species' biological needs can be met in a relatively small area. Much of the "edge" at ASE consists of a forest-grassland and shrub-grassland adjacent to Owl Creek and un-mowed shrubs and tall native vegetation in the northwest section of the airport. The removal of this vegetation would push attractive habitat away from the AOA and eliminate resources for the species that use these habitats. Monotypic plant communities on and around the AOA are encouraged.

Figure 5-7. Shrub-grass and woodland-grass edge habitat adjacent to Owl Creek at ASE.

5.5.2 Grass Management

Other than paved areas, grass will be the primary cover inside the perimeter security fence. FAA Certalert No. 98-05 (**Appendix J**) advises, "airport operators should ensure that grass species and other varieties of plants attractive to hazardous wildlife are not used on the airport." In addition, grasses that produce large seeds and are known to be attractive to wildlife will be avoided when planting new areas.