

APPENDIX B

Wildlife Hazard Management Plan

(Reference Section 337)

Original Date: _____

FAA Approval: _____

Revision Date: _____

Wildlife Hazard Management Plan Salt Lake City Department of Airports

1) Authority for Implementing the Wildlife Plan

The authority for implementing the Salt Lake City Department of Airports's (SLCDA) Wildlife Hazard Management Plan (WHMP) is the responsibility of the Airport Operations Division under the direction of the Executive Director of Airports. Other Airport departments that have a role in the plan include the following.

Airport Planning and Engineering

- Responsible for incorporating reduction of wildlife attractants in landscape design by reducing the number of trees planted and selecting species least desirable to wildlife.
- Design of water retention ponds that automatically pump standing water off of the airfield.
- Design of bridges to have enclosed understructure to prevent roosting and nesting areas.

Airport Maintenance

- Responsible for the maintenance of the airfield, which includes field mowing to keep the grass maintained at a length least desirable for wildlife.
- Tree removal of nesting and roosting habitat.
- Maintaining the airport's 8' perimeter fence to keep mammals off the airfield.
- Small scale pesticide and herbicide spraying on the airport.
- Installation of netting to prevent roosting and nesting.
- Filling and grading of low areas that collect standing water.
- Grading of gopher mounds and operation of the "gophernator."

Vehicle Maintenance Shop

- Responsible for repair and maintenance of the Airport's vehicles and sirens used for wildlife control and the Airport's propane-powered bird cannons.

Airport Police

- Under direct supervision of the Airport Duty Manager, are responsible for emergency lethal removal of large mammals on the airport if USDA Wildlife Services or Utah State Division of Wildlife Resources personnel are unavailable.

Original Date: _____

FAA Approval: _____

Revision Date: _____

All above departments assist by reporting wildlife hazards observed on the airport to Airport Operations.

- 1.1) Outside Agencies. Departments outside the Airport that assist in the WHMP include the following:

USDA Wildlife Services. Is under contract by the Airport and is responsible to:

- assist in monitoring wildlife use patterns;
- identify aircraft hazards on the airport and surrounding property;
- coordinate needed insect and rodent control;
- provide supplemental hazing or coordinated population reduction;
- provide regular wildlife and firearms training;
- provide expert legal testimony;
- advise on future expansion concerning wildlife; and
- assist in removal of deer and other wildlife from airport property.

Utah Division of Wildlife Resources. Is responsible for:

- issuing state wildlife depredation permits;
- assisting in removal of deer and other large mammals from airport property;
- providing bird counts and estimated waterfowl numbers in wetlands surrounding the airport; and
- providing advice on various wildlife issues.

U.S. Fish and Wildlife Service. Is responsible for:

- issuing depredation and salvage permits to the Airport to control federal migratory birds listed in the permit; and
- removing dead migratory birds as a result of bird strikes on the airport.

2) Ecological Study

USDA Wildlife Services began a wildlife hazard assessment in 1991, which resulted in a long-term ecological study that continued through 1997. During the study, wildlife species, activities, and attractants were documented with recommendations made to reduce wildlife hazards on the airport. The recommendations included controlling standing water and vegetation along canals, discontinuing livestock grazing and agricultural farming, tree, brush and construction debris removal, and posting no feeding signs in the public observation area.

To date, all recommendations listed in the study have been completed and the Airport continues to regularly consult with USDA Wildlife Services to improve habitat modification and reduce wildlife hazards (Attachment 2).

Original Date: _____

FAA Approval: _____

Revision Date: _____

3) Habitat Management

It is the policy of the Airport to minimize, to the extent practical, the development of new wildlife habitat and eliminate existing habitat and land uses which attract birds and other wildlife. When determined to be a problem, the following actions will be taken to eliminate habitat and land uses identified as contributing to wildlife hazards. These changes will be made consistent with available resources and the Airport's ability to influence land use decisions.

- Turf will be maintained in such a manner as possible that it will not constitute an attraction to wildlife.
- Areas of standing water that are identified as strong wildlife attractants that are frequented by shorebird and other waterfowl will be drained or filled.
- Storm water detention basins will be pumped out in a timely fashion to reduce the attraction to wildlife.
- Trees, brush, and vegetation along canals and other areas that are found to provide food, shelter, or roosting facilities for wildlife will be cleared.
- Water in canals that are considered to be strong wildlife attractants will be drained, covered, or have wire stretched above the canal in a zig zag pattern to discourage wildlife use.
- Small mammal populations will be monitored and direct control will be initiated if necessary.
- Buildings will be made as uninhabitable as possible as nesting or roosting sites with netting, bird spikes, or other suitable materials.
- Waste receptacles containing food that may attract wildlife will be eliminated or rendered inaccessible, and "no feeding" signs will be posted in areas where tenants or the public may provide food for wildlife.
- Construction debris that may provide cover for small mammals and perching sites for birds will be removed before it becomes an attractant.
- Specialists will monitor insect populations, and insecticides will be applied if necessary.
- Agricultural practices and livestock grazing are not allowed on the airport in any area that may attract wildlife and affect aircraft operations. Grazing and agricultural practices on airport property away from the airfield may be allowed on a case by case basis after review.

4) Species Specific Population Management

- 4.1) **Canada Geese.** Canada geese are a species of serious concern and often congregate on the airport and surrounding wetlands and golf courses

Original Date: _____

FAA Approval: _____

Revision Date: _____

throughout the year. Canada geese are likely to cause damage to aircraft due to their size and flocking behavior.

Attractants:

- Much of the geographic area near the airport is wetland marshes that contain many private waterfowl hunting clubs that manage the habitat to promote waterfowl numbers. The Great Salt Lake, private waterfowl hunting clubs, and several wildlife refuges north of the airport contribute to very large waterfowl numbers near the airport. Geese often attempt to use the airport as a refuge to avoid hunting pressure from surrounding hunting clubs. The airport golf course and surplus canal at the south end of the airport are a strong attractant to geese with open water most of the year and acres of grass that geese use a primary food source.

Management Techniques:

- Hazing
 - Propane cannons are utilized to assist in hazing geese from the airport. The cannons are placed on the airfield and golf course and are moved as conditions warrant. The cannons are numbered and activated by Operations personnel through the Airport Control Center radio system.
 - 12-gauge shotguns are utilized to launch pyrotechnic cracker shells to haze birds from the area, and live ammunition is used if lethal control is necessary.
 - A paint ball gun is used as a non-lethal deterrent.
- Population Control
 - Nest oiling and addling is utilized under the terms and conditions listed in the US Fish and Wildlife depredation permit to control future generations of geese being imprinted to the area.
- Lethal Control
 - Lethal control is utilized under the terms and conditions listed in the US Fish and Wildlife depredation permit as a last resort after non lethal means have proven ineffective to haze geese from the area.

Original Date: _____

FAA Approval: _____

Revision Date: _____

- 4.2) **Ducks.** Ducks are a species of concern that pose a threat to aircraft damage due to their size and tendency to flock. Small numbers of ducks are present at the airport throughout most of the year; however, very large numbers are present in surrounding wetlands during spring and fall migration periods.

Attractants:

- The Great Salt Lake, private waterfowl hunting clubs, and several wildlife refuges north of the airport contribute to very large waterfowl numbers near the airport. Ducks are attracted to areas of the airport that contain standing water, the golf course ponds, and the surplus canal. These areas are used for feeding, loafing, nesting, and roosting.

Management Techniques:

- Hazing
 - Propane cannons are utilized to assist in hazing birds from the airport. The cannons are placed on the airfield and golf course and are moved as conditions warrant. The cannons are numbered and activated by Operations personnel through the Airport Control Center radio system.
 - 12-gauge shotguns are utilized to launch pyrotechnic cracker shells to haze birds from the area, and live ammunition is used if lethal control is necessary.
 - A paint ball gun is used as a non-lethal deterrent.
- Lethal Control
 - Lethal control is utilized under the terms and conditions listed in the US Fish and Wildlife depredation permit as a last resort after non lethal means have proven ineffective to haze birds from the area.

- 4.3) **Gulls.** Gulls have been one of the most common species of birds involved in strikes with aircraft at the airport. Gulls are a serious threat and are likely to cause aircraft damage due to their size, low flight patterns, and the tendency to flock. The surrounding Great Salt Lake marshes are home to one of the largest breeding populations of California gulls in the world. Gulls are a seasonal problem in the spring, summer, and fall.

Original Date: _____

FAA Approval: _____

Revision Date: _____

Attractants:

- Gulls are attracted to the airport by open water and to feed on grasshoppers and earthworms. The summer of 2002 was a period of numerous strikes with gulls due to larger than normal infestation of grasshoppers that gulls were feeding on daily.

Management Techniques:

- Hazing
 - Propane cannons are utilized to assist in hazing birds from the airport. The cannons are placed on the airfield and golf course and are moved as conditions warrant. The cannons are numbered and activated by Operations personnel through the Airport Control Center radio system.
 - 12-gauge shotguns are utilized to launch pyrotechnic cracker shells to haze birds from the area, and live ammunition is used if lethal control is necessary.
 - A pesticide spray application is utilized for insect control if conditions warrant by licensed Airport Maintenance personnel or by personnel referred by USDA Wildlife Services.
- Colony Removal
 - USDA Wildlife Services and a local hunting club removed a large colony of approximately 10,000 gulls north of the airport that were established on the hunting club in 1999. The gull colony was a serious threat as their daily flight pattern was directly over the airport's center and east runways. The colony was removed by nest removal, egg oiling, and finally by pigs being put on the nesting colony island to consume eggs and destroy newly laid nests.
- Lethal Control
 - Lethal control is utilized under the terms and conditions listed in the US Fish and Wildlife depredation permit as a last resort after non lethal means have proven ineffective to haze birds from the area.

- 4.4) White Faced Ibis. White faced ibis are a species of concern mostly during spring and fall migration periods. The nearby Great Salt Lake marshes are home to one of the largest breeding populations in the world.

Attractants:

Original Date: _____

FAA Approval: _____

Revision Date: _____

- This species is mostly an off airport concern, but will occasionally congregate on the airport in shallow areas of standing water in the spring and early summer.

Management Techniques:

- Hazing
 - Propane cannons are utilized to assist in hazing birds from the airport. The cannons are placed on the airfield and golf course and are moved as conditions warrant. The cannons are numbered and activated by Operations personnel through the Airport Control Center radio system.
 - 12-gauge shotguns are utilized to launch pyrotechnic cracker shells to haze birds from the area, and live ammunition is used if lethal control is necessary.
- Lethal Control
 - Lethal control is utilized under the terms and conditions listed in the US Fish and Wildlife depredation permit as a last resort after non lethal means have proven ineffective to haze birds from the area.

4.5) **Swallows.** Barn and cliff swallows are a species of concern that are a seasonal problem in the spring and summer months. Swallows are small birds that congregate in nesting colonies. They tend to fly in loose flocks that generally do not cause serious damage when struck by aircraft, but aircraft strikes with swallows sometimes result in flight delays and downtime for inspection; and, as with any bird strike, the potential for serious consequences is always a concern to minimizing strikes with any species. Swallows do not respond well to hazing and unless an immediate threat, no action may be the best option.

Attractants:

- Swallows are attracted to bridges and buildings for nesting sites. The surplus canal is a water source that supports a large insect population and nearby buildings and bridges are a strong attractant. Open fields are also an attractant the swallows use for hunting insects.

Management Techniques:

- Colony Removal
 - When swallows are attempting to establish a nesting colony in an area that may impact aircraft operations and it is not practical to construct a

Original Date: _____

FAA Approval: _____

Revision Date: _____

permanent barrier, nests are destroyed prior to birds laying eggs. Nests are removed by knocking them down with a pole or high-pressure water hose. Airport ARFF units have been utilized in nest removal.

- Habitat Modification
 - Netting is installed on bridges to provide a permanent barrier in areas where swallow colonies may affect aircraft operations.

4.6) **Starlings**. Starlings are a species that inhabit the airport year round and are a concern due to the large migratory flocks that may include over 1000 birds and the tendency to fly in tightly dense flocks. Flocks of starlings often feed on the ground in open grass fields and move as a cohesive unit to other feeding areas a short distance away. Damage caused is generally related to flock size. Several birds seldom cause damage, but a large flock often causes damage.

Attractants:

- Open grassy fields, insects, above ground electrical wires, and trees attract starlings. Most trees have been removed.

Management Techniques:

- Habitat Modification
 - Large groups of Russian Olive trees have been removed by Airport Maintenance from areas on the airport and adjacent properties. These trees were a strong attractant as nighttime thermal roosting sites.
- Lethal Control
 - Lethal control is utilized when starlings present an immediate threat to aircraft operations. Starlings are not protected by state or federal policy.

4.7) **Horned Lark**. Horned larks inhabit the airport year round and generally are a concern during the winter months. They are small birds that congregate in flocks of approximately 100. Serious bird strike damage to aircraft is seldom caused, but strikes sometimes result in flight delays and down time for inspection. Horned larks do not respond well to hazing and unless an immediate threat to aircraft, no action may be the best option.

Attractants:

- Horned larks are attracted to paved surfaces after measurable snowfall as a resting place and to gather grit placed as part of the airport snow removal operations.

Original Date: _____

FAA Approval: _____

Revision Date: _____

Management Techniques:

- Hazing
 - Because horned larks are generally an immediate threat to aircraft operations while on a runway or taxiway, hazing with vehicle and sirens has proven to be most effective.
- Lethal Control
 - Lethal control is utilized under the terms and conditions listed in the US Fish and Wildlife depredation permit as a last resort after non lethal means have proven ineffective to haze birds from the area.

4.8) **Raptors.** Raptors are present at the airport throughout the year, but are most prevalent during spring and fall migration. The most common species are the American kestrel, red-tailed hawk, northern harrier, Swainsons hawk, rough legged hawk, barn owl, and turkey vulture, with bald eagles occasionally observed. Raptors are mostly observed alone or in pairs and are an occasional threat to aircraft. Raptors often cause aircraft damage due to their size.

Attractants:

- Raptors are attracted to open fields to hunt for small rodents and are often observed perched on fences, utility poles, airfield buildings and equipment. They also soar above the open field searching for prey.

Management Techniques:

- Hazing
 - Propane cannons are utilized to assist in hazing birds from the airport. The cannons are placed on the airfield and golf course and are moved as conditions warrant. The cannons are numbered and activated by Operations personnel through the Airport Control Center radio system.
 - Electronic distress cry generators are also placed on the airfield to deter birds.
 - 12-gauge shotguns are utilized to launch pyrotechnic cracker shells to haze birds from the area.
 - A paint ball gun is utilized as a non-lethal deterrent.

4.9) **American White Pelican.** American White Pelicans are a species of serious concern and are migratory birds that are present during spring, summer, and fall. Pelicans are very large birds that are likely to cause damage due to their size.

Original Date: _____

FAA Approval: _____

Revision Date: _____

Attractants:

- These birds migrate in large flocks to and from a nesting colony on Gunnison Island in the Great Salt Lake. They travel to and from the island to feed on fish in fresh water marshes near the airport. They have been observed on the golf course pond feeding on fish and are often seen soaring at high altitudes flying in a circular pattern.

Management Techniques:

- Hazing
 - Propane cannons are utilized to assist in hazing birds from the airport. The cannons are placed on the airfield and golf course and are moved as conditions warrant. The cannons are numbered and activated by Operations personnel through the Airport Control Center radio system.
 - 12-gauge shotguns are utilized to launch pyrotechnic cracker shells to haze birds from the area.
 - A paint ball gun will be utilized as a non-lethal deterrent.
- Habitat Modification
 - Keeping the west golf course pond pumped dry during spring, summer and fall periods has reduced the attraction to pelicans at the airport.
 - Area duck clubs near the airport have joined together and plan to poison areas of standing water to remove fish that destroy habitat for aquatic vegetation utilized by waterfowl. This would reduce the attraction to pelicans that feed on the fish and have been a problem during late summer and early fall.

4.10) **Red Fox.** Red fox inhabit the airport throughout the year and have been prevalent for many years. Although the potential for being struck by aircraft exists, strikes have been seldom and the Airport and USDA Wildlife Services generally do not consider the species a serious concern. The presence of the red fox has shown to be a benefit by controlling small rodents and deterring waterfowl use of the area.

5) Permits

The Airport Operations Division maintains all state and federal wildlife depredation and salvage permits. All applications and renewals will be completed as stated in permits. Wildlife control will be conducted under the terms and conditions in the following permits:

Original Date: _____

FAA Approval: _____

Revision Date: _____

- U.S. Fish and Wildlife Service Migratory Depredation Permit #MB708334-0
- U.S. Fish and Wildlife Service Migratory Salvage Permit #MB063204
- Utah Division of Wildlife Resources Depredation Permit #PRT-708334

All species of birds in the state of Utah are protected except starlings, sparrows and feral pigeons. Any other species must be listed in the depredation permits before lethal control may be used by Airport personnel. All wildlife mammals in the state of Utah are protected except red fox, coyotes, raccoons and skunks. All others must be listed in the depredation permits before Airport personnel may use lethal control.

6) Resources Assigned

The Airport Operations Division is responsible for implementing the Airport's WHMP in conjunction with USDA Wildlife Services, who is under contract with the Airport. The following is an inventory of equipment used for implementing the Airport's WHMP.

- 12-gauge shotguns used to launch cracker shells and live ammunition
- Pistol launcher used to launch "banger and screamer" cartridges
- Pellet gun used for lethal control
- Paint ball gun used as non-lethal control and to mark problem birds
- Gun safe used as a secure storage area for firearms when not being used for wildlife control
- Propane cannons
- Vehicles, spotlights and sirens
- Snare poles and nets used to catch wildlife and domestic pets
- Binoculars, flashlights, cameras, waders, and bird field guides
- Wildlife freezer used to store wildlife carcasses and remains until species can be positively identified
- Polaris six-wheeled ATV

Original Date: _____

FAA Approval: _____

Revision Date: _____

7) Assigned Personnel and Procedures

Airfield & Terminal Operations

An Airport Operations Officer is assigned to conduct wildlife control daily from dawn to dusk. The remaining Airport Operations Officers are also responsible for wildlife control as a part of their regular airfield patrol duties. Efforts to remedy any observed wildlife hazard will be taken as soon as it is safely possible. Personnel will advise FAA Air Traffic Control (ATC) of wildlife that may affect aircraft operations. Additional inspections and control measures may be required and will be conducted as conditions warrant. Personnel are available 24 hours a day to respond to wildlife issues.

The Airport Operations Officer (AOO) assigned to wildlife each shift also conducts daily bird counts at thirteen (13) designated sites on the airport. The survey provides important data on actual bird numbers on the airport throughout the year, ensures the entire airport is being monitored for wildlife, assists in meeting environmental requirements for depredation and wetland mitigation permits, and requires Airport Operations personnel to identify birds on the airport. Occasionally, bird surveys are cancelled due to weather or unforeseen priority or emergency situations.

Airport Maintenance

Airport Maintenance is responsible for dragging airfield areas to reduce gopher mounds, operating the “gophernator”, small scale pesticide and herbicide application, installation of bird nets, maintenance of propane bird cannons and assist with habitat management in the form of effective mowing practices and removal or management of wildlife friendly landscaping.

Airport Police

Airport Police will be dispatched for emergency lethal removal of large mammals if State or Federal wildlife personnel are not available.

Habitat Modification

- The Airport attempts to manage wildlife to the extent practical with land use and planning to reduce the risk of wildlife hazards.

Original Date: _____

FAA Approval: _____

Revision Date: _____

Hazing

- The Airport uses scare tactics as the primary means of controlling wildlife. This is done using a combination of pyrotechnics, propane cannons, and vehicle sirens.
- When an area is identified as a continual problem area for wildlife, a work order will be placed to have bird cannons moved to that location and additional inspections will be conducted.
- All Airport Operations vehicles used for wildlife control are equipped with two-way ATC radios. Contact will be made with ATC whenever conducting wildlife control that may affect aircraft operations.
- Species of birds respond differently to hazing tactics. Personnel should identify the species and be aware of its habits before hazing. Most waterfowl respond well to hazing and will find another area if hazing is aggressive and consistent. Horned larks and swallows do not respond well and generally fly only a short distance and will not leave the area. Often no action is the best option with some species if not an immediate threat to aircraft operations.
- Large flocks of birds may be difficult to move by just one person and a joint effort may be necessary to move birds from the area.
- The Airport Control Center and Airport Police will be notified of wildlife control that may elicit public or tenant response from the noise of firearms and pyrotechnics used.

Lethal Control

- Lethal control will be used primarily as a last resort after other methods have proven to be ineffective, in emergency situations, or if necessary to destroy an injured animal.
- As a general rule, for lethal control to be effective in hazing birds, it should be used on a sizeable flock to have an impact on other birds and deter them from coming back to the area. Certain problem birds that refuse to haze and can be identified may be taken as an exception to having a large flock present. In certain areas and circumstances, it may be beneficial to leave carcasses of birds taken by lethal means as a deterrent. If carcasses are left as a deterrent, the area should be monitored closely as other hazardous species, such as turkey vultures, may be attracted to the area.
- Lethal control will be conducted under the terms listed in the US Fish and Wildlife and Utah State depredation permits. If species of wildlife causing a threat are protected and not listed in the permit, USDA Wildlife Services will be contacted.

Original Date: _____

FAA Approval: _____

Revision Date: _____

- If large mammals, such as deer, are a threat to aircraft operations, an officer with the USDA Wildlife Services or the Utah Division of Wildlife Resources should be contacted through the Airport's Control Center. If personnel from either of these agencies are unavailable or the animal presents an immediate threat to aviation safety or aircraft operations, an Airport Police Officer will be dispatched.

Documentation

- Wildlife inspections and control management measures will be called in by Operations and Maintenance personnel and logged by the Airport Control Center. Inspection reports should note all hazardous species hazed and should be called in even if no wildlife is observed during the inspection. Wildlife inspections should be conducted in sections as follows:
 - West Airfield
 - East Airfield
 - Midfield
 - East Golf Course
 - West Golf Course
 - South Canal
 - West Canal
- When a migratory bird or bird carcass is removed from the airfield or airport property as a result of lethal control, a bird strike, or other means, it will be documented in the Airport Wildlife Depredation/Salvage Log (Attachment 1).
- All wildlife strikes and carcasses or wounded wildlife found within 200' of a runway centerline will be considered a wildlife strike and documented on FAA Form 5200-7 and sent to the FAA. If possible, the aircraft crew or mechanics should be contacted to obtain as much information as possible to complete a report. If a bird strike is reported to be a possible bird strike (i.e. pilot reported he/she thought they hit a bird and no evidence can be found on the aircraft or runway), do not do a report. If the pilot is confident they hit a bird, do a report.
- If species involved is unidentifiable, remains should be obtained by gathering carcass, remaining pieces or a blood sample and placing it in the wildlife freezer located in the shuttle bay for further identification. If necessary, remains will be sent to the Smithsonian for positive identification. Recovered carcasses that have been identified will be buried or incinerated.
- Completed bird surveys will be kept on the designated board in the Airport Operations Office and given to the USDA Wildlife Service quarterly.

Original Date: _____

FAA Approval: _____

Revision Date: _____

Training

- All Operations personnel receive regular wildlife control and identification, firearms, and air traffic ground control training to effectively implement the WHMP.

8) Review and Evaluation

The Executive Director, Director of Operations, Operations Superintendent, Airport Duty Manager in charge of wildlife, and a biologist with the USDA Wildlife Services will review the Airport WHMP annually. Operations personnel meet regularly with USDA Wildlife Services personnel to discuss current wildlife problems and procedures.

Original Date: _____

FAA Approval: _____

Revision Date: _____

ATTACHMENT 1



WILDLIFE DEPREDATION / SALVAGE LOG

Date		
Time		
Species		
Approximate Number Observed		
Location		
Activity		
Number Taken by Lethal Control		
Number Relocated		
Final Disposition (Incinerated/Buried)		
Area Relocated To		
Logged By		
Comments		

Original Date: _____

FAA Approval: _____

Revision Date: _____

ATTACHMENT 2

U.S.D.A.'S

WILDLIFE HAZARD ASSESSMENT

For

Salt Lake City International Airport

(Consists of the Following 14 Pages)

Original Date: _____

FAA Approval: _____

Revision Date: _____



United States
Department of
Agriculture

Animal and
Plant Health
Inspection
Service

Wildlife
Services

1860 West Alexander St.
P.O. Box 26976
Salt Lake City, UT 84126

Wildlife Hazard Assessment
for
Salt Lake City International Airport

This report is the wildlife hazard assessment conducted by USDA-APHIS-Wildlife Services (WS) for the Salt Lake City International Airport (SLCIA). The assessment is divided into four sections based on FAR Part 139.337 paragraph (b).

Section 1: WS History at SLCIA

There is no single event which prompted this wildlife hazard assessment. WS involvement at SLCIA began in August 1991, when Salt Lake City Airport Authority (SLCAA) requested WS input in the development of a Wildlife Hazard Management Plan (WHMP) for SLCIA. Roy McDonald, a WS Biologist, toured the airport and reviewed the proposed WHMP. Roy reported that considerable thought and action had been taken at the airport to minimize problems between wildlife and aircraft. Because most of the conditions contained in FAR Part 139.337 paragraph (a) had occurred at SLCIA, Roy did suggest that a wildlife hazard assessment, in accordance with FAR Part 1 paragraph (b), should be done.

During 1992, SLCAA continued to consult with WS about wildlife hazards at the airport. On August 26, 1992, SLCAA and WS met with the Federal Aviation Administration (FAA) to discuss the bird strike situation. The month following that meeting, Roy and Norm Thompson did a wildlife survey at the airport and Roy made numerous recommendations for reducing wildlife use at SLCIA and the associated risks to aviation safety.

In November 1992, WS submitted a formal proposal to SLCIA to conduct a long-term ecological study at the airport. This long-term study began in June 1993 and continued



APHIS - Protecting American Agriculture

DEC 2 0 2004

Original Date: _____

FAA Approval: _____

Revision Date: _____

through July 1997. When WS' contract with SLCIA airport was renewed in August 1997, the initial long-term study was deemed complete. Because the interim WHMP adopted by SLCIA is a dynamic plan, weekly site visits by WS personnel have continued to supplement the original study. These weekly visits also allow WS to remain alert to any habitat alterations or variations in wildlife use at the airport that may require habitat alteration or additional studies.

Section 2: Wildlife Species and Activities

During the long-term ecological study at SLCIA, various species were observed and patterns in wildlife use were discovered. SLCAA made many habitat alterations during the initial long-term study, and the numbers and locations of wildlife species have reflected those changes. Therefore, this section contains general information on wildlife numbers and locations. Specific information regarding the numbers of each species and their specific locations at the airport are recorded on the original survey data sheets and in past quarterly and year-end reports to SLCIA. These data sheets and reports are on file at the WS State office in Salt Lake City, and the reports are also included in this report in Appendix A.

Following is a list of species observed at SLCIA. Species are grouped by family and/or habit. The time of year when they occur at the airport, their flocking behavior, the habitats where they have been observed at the airport, and their activities are described.

Shorebirds

Cattle Egret	Snowy Egret	Great Blue Heron
White-faced Ibis	American Avocet	Black-necked Stilt
Killdeer	Marbled Godwit	Semi-Palmated Plover
Long-billed Curlew	Willet	Greater Yellowlegs
Wilson's Phalarope	Red-necked Phalarope	Double-crested Cormorant

The greatest occurrence of shorebirds coincides with the annual spring migration, primarily in March, April, and May. Killdeer are usually seen singly or in pairs and will remain throughout the summer. American avocets are often present in flocks of around 20 individuals and may remain for a month or more in the spring. Other shorebird species are usually only seen in small flocks of less than 10 birds and are present for only a few days to a few weeks in the spring. The majority of shorebirds are found at the golf course, along drainage canals, and in areas with standing water. The birds use these areas for feeding and loafing.



APHIS - Protecting American Agriculture

DEC 20 2004

Original Date: _____

FAA Approval: _____

Revision Date: _____

Waterfowl

Canada Goose	Mallard	Gadwall
Green-winged Teal	Northern Pintail	Northern Shoveler
Blue-winged Teal	Cinnamon Teal	Ruddy Duck
Redhead	Lesser Scaup	American Coot
Feral Domestic Duck	Western Grebe	Eared Grebe

Various species of waterfowl can be found at the airport year-round. The majority of species are present during the spring migration in March, April, and May. Some species are again seen in the fall migration, although fewer species and lesser numbers occur. Canada geese have been observed at the airport year-round and are usually seen in pairs or small to medium flocks of up to 30 birds. Canada geese often congregate at the airport in late fall through early winter, when the birds use the airport and adjacent areas as refuges from hunting. Mallard ducks are also observed year-round in pairs or small flocks. Other duck species, such as northern shovelers, cinnamon teal, and lesser scaups, are usually only present for about a month during the spring migration. These duck species are usually seen in small to medium flocks of up to 50 birds. Waterfowl use is concentrated in and along the drainage canals, at the golf course, and in the larger bodies of standing water. Some species, such as Canada geese, use areas with short grass for feeding and nesting. Most species use the area only temporarily for feeding and loafing during migration. Canada geese and a few pairs of various duck species that remain throughout the summer will breed and raise their broods at the airport.

Gulls and Terns

Franklin's Gull	California Gull	Common Tern
-----------------	-----------------	-------------

Terns are usually only seen in the vicinity of the airport during the spring migration and their numbers are normally low. Gulls migrate through the Salt Lake area in the spring, with some remaining throughout the summer, and again migrate through in the fall. Flock size of gulls varies, but numbers can exceed 200 birds. During spring and summer months, gulls can often be seen flying over the airport singly, in small groups of 2-10 birds, and in larger flocks of over 50 individuals. Gulls and terns congregate at the golf course, in areas with standing water, and in the open short grass areas of the airfields. These birds feed and loaf both in areas with short grass and those with open water.



APHIS - Protecting American Agriculture

DEC 2 0 2004

Original Date: _____

FAA Approval: _____

Revision Date: _____

Raptors

Bald Eagle	Northern Harrier	Turkey Vulture
Swainson's Hawk	Red-tailed Hawk	Rough-legged Hawk
American Kestrel		

Raptors are seen most often at the airport during the winter months although red-tailed hawks, northern harriers, and the American kestrels are present year-round. The rough-legged hawk is primarily a winter visitor. Raptors normally occur alone or in pairs, and densities are normally very low. The raptors present at the airport are birds of open spaces, and are usually seen perched on fences and airfield structures while loafing or attempting to locate prey. They also hover and soar in the airspace above the open grass infields while they search for prey.

Passerines and other Small Birds

Mourning Dove	Western Kingbird	Horned Lark
American Robin	House Sparrow	House Finch

Most species of passerines are migratory and are normally only present at the airport during the warmer months of the year. Horned larks, although present year-round, are more likely to be hit by airplanes in the winter months when they gather in flocks of over 100 birds and congregate along the runways where the snow has melted off or been removed by machinery, and sand is available for grit. Most other passerine species are observed in pairs or small flocks, and their densities are normally low. Passerines are found near areas with trees, brush, or other vegetative cover, such as along drainage canals. Although cover needs to be nearby, these birds may forage in areas with short grass. Depending on the species, these birds will feed, loaf, and nest on and near the airport.

Kingfishers

Belted Kingfisher

Belted kingfishers may be present year-round. They normally occur alone or in pairs. Kingfishers are found along drainage canals where they hunt for fish.



APHIS - Protecting American Agriculture

DEC 20 2004

Original Date: _____

FAA Approval: _____

Revision Date: _____

Swallows

Cliff Swallow

Barn Swallow

Swallows are migratory and are normally only present at the airport during the warmer months of the year. Swallows nest in large colonies and over 100 birds may be seen flying around these nesting sites. Nesting sites are usually located under bridges or building eaves. Swallows are often seen hunting insects over water sources and open fields.

Pigeons

Rock Dove

Rock doves, also known as common pigeons, are present year-round. They normally occur in small to medium flocks of up to 50 birds. Pigeons can be found nearly anywhere at the airport, but are usually located near buildings where they like to roost. Pigeons feed, loaf, and nest at the airport.

Starlings

European Starling

Starlings are present at the airport year-round. They may occur in extremely large groups with over 1000 individuals, although flocks of 50-100 birds are more typical. Starlings have been seen feeding in areas with short grass and in the brush along drainage canals.

Blackbirds

Brewer's Blackbird

Western Meadowlark

Yellow-headed Blackbird

Red-winged Blackbird

Brown-headed Cowbird

Blackbirds are migratory and usually begin arriving at the airport in early spring. Red-winged blackbirds and western meadowlarks are the blackbird species most often observed at the airport. Red-winged blackbirds are numerous in the brush along the drainage canals where they feed and nest. Western meadowlarks are usually seen alone on fences, signs, or other structures in the airfields, and they feed and nest in areas with short grass.



DEC 2 0 2004

Original Date: _____

FAA Approval: _____

Revision Date: _____

Crows, Ravens, and Magpies

Black-billed Magpie	American Crow	Common Raven
---------------------	---------------	--------------

Magpies, crows, and ravens are found at the airport year-round. These species occur in low densities and are usually seen alone or in pairs, although they will sometimes form small flocks. These birds have been seen throughout the airport, and no areas of consistent use have been observed. Magpies, crows, and ravens are usually seen flying locally or loafing on fences, signs, or the concrete slabs in the east airfield.

Upland Game Birds

Ring-necked Pheasant

Ring-necked pheasants are present year-round. They are usually seen singularly or in small flocks. Pheasants tend to remain near areas with tall grass or other vegetative cover.

Mammals

Skunk	Pocket Gopher	Voles
Red Fox	Domestic Cat	Muskrat
Raccoon (tracks)	Mink (tracks)	

All mammals present at the airport occur year-round. Although many are common at the airport, most are nocturnal and are rarely observed during surveys conducted during the day. Red fox are abundant at and surrounding the airport. Although it is possible that a fox could get struck by an airplane during take-off or landing, they are generally not considered a species of concern. The presence of red fox at the airport may actually be a benefit, rather than a threat, to air carrier operations. Fox feed on small mammals and may aid in keeping the populations of mice and other rodents at acceptable levels, perhaps decreasing raptor use of the infield area. Because fox will also feed on waterfowl and their eggs, their presence may discourage waterfowl use at the airport.



APHIS - Protecting American Agriculture

DEC 2 0 2004

Original Date: _____

FAA Approval: _____

Revision Date: _____

Section 3: Features that Attract Wildlife

The Salt Lake Valley is an area with a history of wildlife use, including resident and migratory bird populations. Every spring numerous bird species migrate along the Wasatch Mountain Range which borders the valley on the east. Migrating birds use the numerous wildlife refuges and waterfowl management areas located throughout the valley as stopovers during the migration. The Great Salt Lake and its associated wetlands are also attractive summer range for a wide array of bird species. Because SLCIA is located close to the wetlands surrounding the lake, it is a likely area for wildlife use. In addition to the wetlands and the lake itself, the airport is located near agricultural fields and drainage canals. To the south and east of the airport is Salt Lake City and its surrounding suburbs where numerous ponds, small lakes, rivers, drainage canals, and park areas intermingle with the urban environment. Many wildlife species have learned to co-exist with humans and their activities, even the operation of loud aircraft. The historical wildlife use of the area, the diverse landscape surrounding the airport, and wildlife's ability to habituate to human activities combine to make SLCIA very attractive to wildlife.

Although there is little SLCIA can do to reduce the attractiveness of the entire Salt Lake Valley, there are numerous things that can be done at the airport itself. When WS personnel first toured the airport in 1992, potential wildlife attractants were identified and many initial recommendations were made. Following are the various attractants, how they are used by wildlife, WS' recommendations regarding each attractant, and what SLCAA has done in response to these recommendations.

Standing Water

Standing water attracts birds and other wildlife which use these water sources for drinking, bathing, and feeding on the plants and insects produced there. WS recommends that whenever possible, standing water should be eliminated. Paved areas must have enough camber to promote quick and complete runoff of water. Small depressions and damaged areas in paved or graveled areas should be repaved or repaired as soon as possible. Low lying areas in and surrounding the airfields should be managed to reduce standing water. SLCAA continuously monitors the airfields for standing water, assigns a priority level to each problem area, and eliminate standing water by draining, filling, and levelling, or repaving. SLCAA, in conjunction with the Wingpointe Golf Course, placed spraying fountains in one of the large ponds at the golf course to discourage waterfowl use.

Vegetation Along Canals

Vegetation along drainage canals provides cover, nesting and perching sites, and food for wildlife. WS recommends that this vegetation is removed with herbicides, mowing, or burning. These areas need to be monitored for regrowth and periodic vegetation removal may be necessary. SLCAA burns the canal banks in the spring.



APHIS - Protecting American Agriculture

DEC 20 2004

Original Date: _____

FAA Approval: _____

Revision Date: _____

Water In Canals

Water in the drainage canals is used by waterfowl and some shorebirds for drinking, bathing, and feeding on the plants and insects produced there. WS recommends that the drainage canals be evaluated to see if they can be dredged for better water removal or if they can be filled with drainage tile and then covered over. If the canals must remain open, 10-gauge wire or 100-pound test nylon monofilament line should be stretched 2-6 feet above the canals in a zig-zag pattern. SLCAA has placed monofilament lines over several canals. The canal system at the airport is currently being rerouted, and several canals in the airfields have been drained and filled.

Short Grass Areas

Short grass provides feeding and loafing habitat for many bird species including gulls, geese, horned larks, and starlings. WS recommends that airfield grass be maintained at a height of 6-10 inches tall. Grasses should not exceed 4 inches near runways, taxiways, and safety areas where visual aids might be obscured. Mowing may stir up insects and small mammals, attracting insectivorous and predatory birds. If this occurs, WS recommends mowing at night or during low traffic periods during the day. SLCAA attempts to maintain grass at a height of 6-10 inches tall. However, during the relatively dry summer months, the grass may become shorter than 6 inches as it dries and withers.

Livestock

The presence of livestock can compact the soil, leading to reduced drainage and uneven vegetation growth. Droppings encourage weeds and attract insects, which in turn attract birds. Livestock feed also attracts birds. WS recommends that grazing and feeding of livestock should not be allowed at the airport. SLCAA banned livestock grazing in east airfield pastures in 1994.

Agricultural Practices

Agricultural practices such as plowing, irrigation, and harvesting of crops attract large flocks of birds and other wildlife. WS recommends that farming should not be allowed at the airport. SLCAA banned farming practices at the airport in 1994.

Trees and Brush

Trees and brush provide food, cover, perching sites, and nesting sites for wildlife. WS recommends that trees and brush should be removed from the airport whenever possible. SLCAA removed a large stand of trees that was located in the northeastern corner of the east airfield and also several individual trees located near an old homesite located in the east airfield.



APHIS - Protecting American Agriculture

DEC 20 2004

Original Date: _____

FAA Approval: _____

Revision Date: _____

Construction Debris

The piles of concrete slabs and other construction debris provides cover for small mammals that may attract raptors. They also provide perching sites for birds. WS recommends that these piles be removed if possible. SLCAA has removed several piles of construction debris and has plans for removing others.

Insect Populations

Abundant insects such as grasshoppers or mosquitoes and attract large flocks of insectivorous birds. WS recommends that insect populations be monitored and that insecticides be applied if necessary. SLCAA monitors insect populations. To date, no control has been necessary.

Small Mammal Populations

Abundant small mammals such as mice and voles attract raptors and mammalian predators. WS recommends that small mammal populations be monitored and direct control methods be initiated if required. SLCAA monitors small mammal populations. To date, no control has been necessary.

Public Observation Area

Visitors to a public observation area along the southwest corner of the east airfield were attracting birds, most notably large flocks of gulls, to the area. WS recommends that feeding be discouraged and "no feeding" signs be posted. SLCAA has posted signs that explain the threat that feeding birds pose to aircraft. Airport personnel also routinely patrol the area and advise anyone feeding birds to stop.

Section 4: Wildlife Hazards to Air Carrier Operations

The presence of wildlife at SLCIA does pose a hazard to air carrier operations. As detailed in Section 3, SLCAA has made many habitat changes to reduce this hazard. However, wildlife strikes with aircraft, primarily involving birds, do occur at SLCIA.

The trend in the number of bird strikes at SLCIA was compiled from 2 sources of bird strike information. One source was a list of bird strikes at SLCIA from 1989 through 1997. It is the understanding of WS that this list is a complete FAA record of bird strikes at SLCIA. The second source was yearly summaries, from 1991 to 1997, of bird strikes at the airport. Both sources of bird strike information show similar trends (Appendix A).

For the years provided, there is no significant upward or downward trend in the number of bird strikes at SLCIA. Considering the FAA numbers, bird strikes reached a high of 43 (FAA) in 1992, dropped to 22 in 1993, and continued decreasing until 1996 when bird strikes



APHIS - Protecting American Agriculture

DEC 20 2004

Original Date: _____

FAA Approval: _____

Revision Date: _____

began to increase. SLCIA bird strike information shows fluctuating numbers of strikes, with the most continual increase occurring from 1995 to 1997.

The trend in the amount of aircraft activity at SLCIA from was also compiled. Aircraft movements were defined as either one take-off or landing. Appendix B shows a graph of aircraft movements at SLCIA. The number of aircraft movements at SLCIA has been slowly increasing, with a slight drop in activity in 1997.

The trend in the number of bird strikes per 10,000 aircraft movements (Appendix C) shows a similar trend to the number of strikes reported by the FAA (Appendix A).

An attempt was made to analyze the trend in waterfowl and shorebird numbers over the same time period as the bird strike information. Although national bird censuses show an upward trend in waterfowl and shorebird populations, we were unable to locate reliable data for the Salt Lake Valley.

SUMMARY

The number of bird strikes at SLCIA does not show a definite downward trend. While this could indicate that more needs to be done to reduce the attractiveness of the airport to wildlife, WS believes that SLCAA has done a credible job of implementing WS' recommendations in the past. Several other factors exist that could affect the number of strikes reported at SLCIA.

First, as awareness about wildlife strikes increases, so does the reporting of strikes. Therefore, it is possible that the number of strikes may be more a reflection on the reporting process rather than on the actual number of strikes that occur. Second, in recent years at SLCIA, an increasing number of reported strikes have taken place several miles away from the airport at high elevation. These strikes often occur at night and involve migrating waterfowl. The presence of birds where these strikes have occurred is not affected by conditions at SLCIA, and SLCAA cannot do anything to prevent this type of bird strike.

A credible effort has been conducted by SLCAA to reduce wildlife hazards associated with the airport. Short of relocation out of the Salt Lake Valley (an unrealistic option), there will always be risks associated with aviation near the Great Salt Lake. Nonetheless, these risks can be managed.

The interim WHMP implemented by SLCAA has done a wonderful job of reducing the risks of wildlife strikes at the airport. If off-field strikes were discounted, the trend data would reflect this reduction. However, like all plans, the dynamic nature of wildlife populations and off-field development requires a dynamic plan which can accommodate changes in wildlife abundance, airport uses or both. The WHMP adopted by SLCAA and the current contract between SLCAA and APHIS-WS reflects this. Certainly the on-going relationship provides opportunities to identify and remedy any wildlife hazards at the SLCIA.



APHIS - Protecting American Agriculture

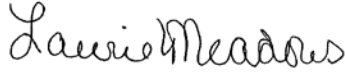
DEC 2 0 2004

Original Date: _____

FAA Approval: _____

Revision Date: _____

Should the administrator deem it appropriate to require a WHMP, WS believes the interim plan developed by SLCAA contains all the necessary provisions for addressing known, existing wildlife hazards and recommends that plan be adopted for SLCIA.



Laurie Meadows
Wildlife Specialist



Michael J. Bodenchuk
Supervisory Wildlife Biologist
State Director

Enclosures

- Appendix A-Bird Strike Data
- Appendix B-Aircraft Movement Data
- Appendix C-Bird strikes per 10,000 movements
- Appendix D-Annual reports-FY 94, 95, 96, 97



APHIS - Protecting American Agriculture

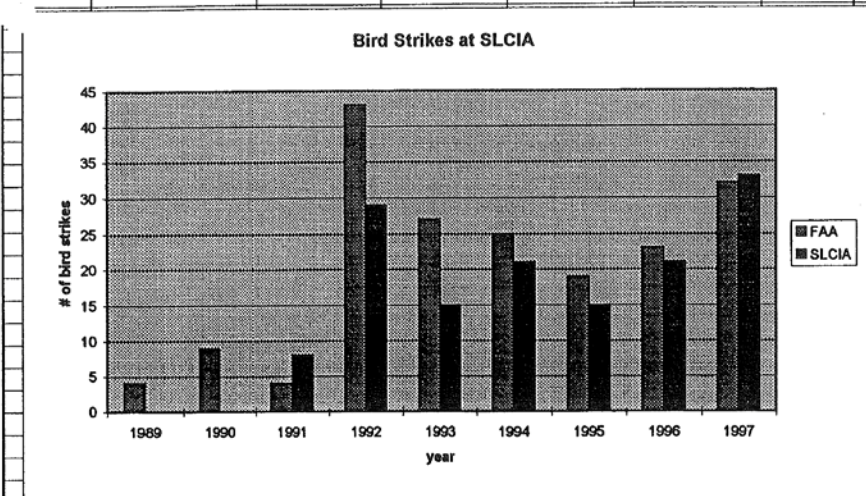
DEC 20 2004

Original Date: _____

FAA Approval: _____

Revision Date: _____

Appendix A

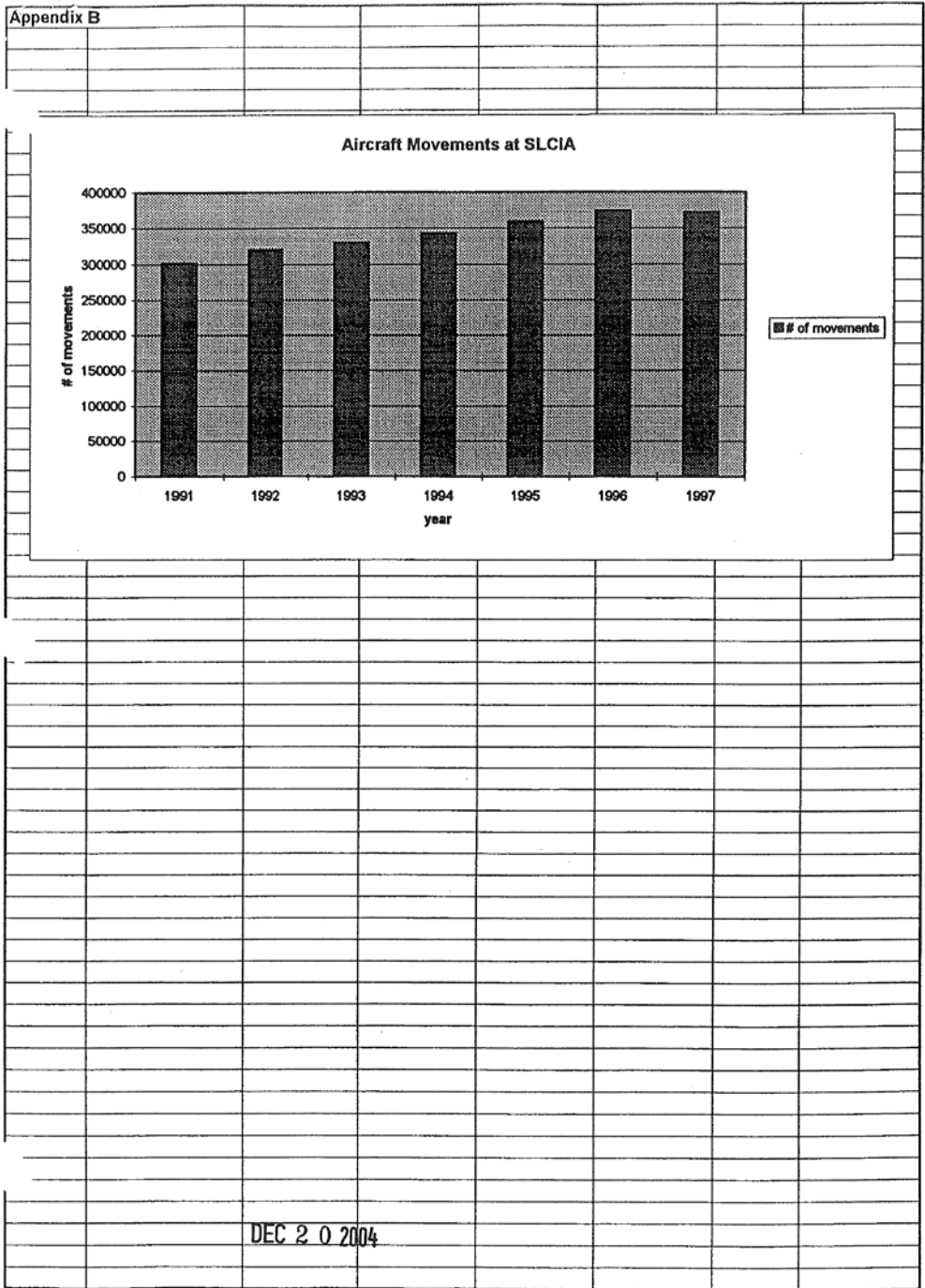


DEC 2 0 2004

Original Date: _____

FAA Approval: _____

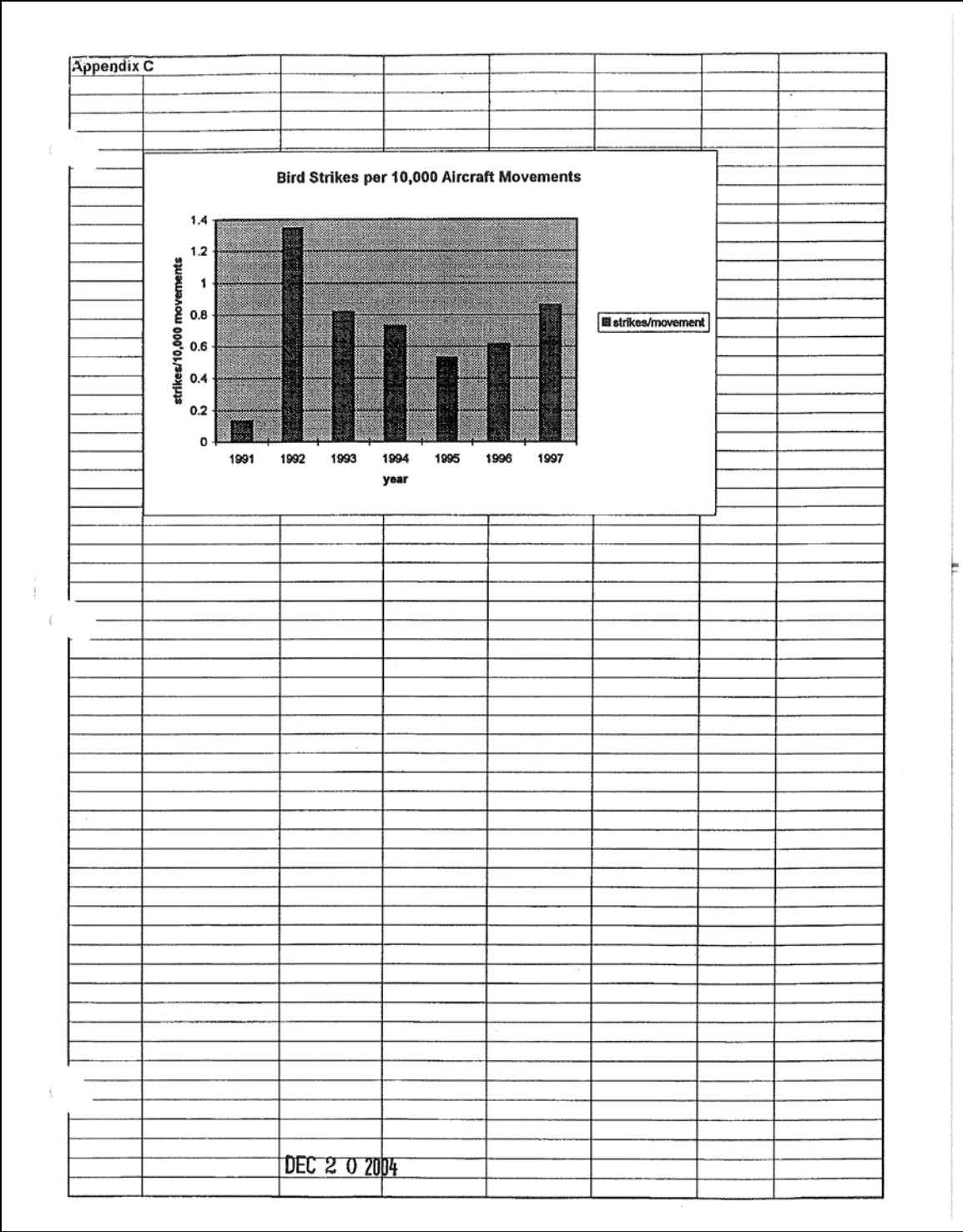
Revision Date: _____



Original Date: _____

FAA Approval: _____

Revision Date: _____



Original Date: _____

FAA Approval: _____

Revision Date: _____

WILDLIFE PERMITS

State of Utah, Division of Wildlife Resources:

Certificate of Registration

Department of the Interior
Federal Fish and Wildlife Permits:

*Special Purpose Salvage Permit
and
Depredation Permit*

Current Permits are on File in the Operations Division

Original Date: _____

FAA Approval: _____

Revision Date: _____