Airport Wildlife Management Plan

Red Deer Regional Airport
3801 Airport Drive
Springbrook, AB T4S 2E8

Telephone: 403-886-4388

Original: Unverified

Amendment 13: 2025-07-31

Contents

2.0 PERMITS

2.1 Environment Canada Permit – Migratory Bird

Environment and Climate Change Canada | Environnement et Changement climatique Canada

Airport Permit

Permit issued under the *Migratory Birds Convention Act, 1994* (S.C. 1994, c.22) pursuant to paragraph 12(1)(c) and section 72 of the *Migratory Birds Regulations, 2022*.

Permit number:

AP-PR-2024-036-AB

Valid From: *(yyyy/mm/dd)*	**Expiry date:** *(yyyy/mm/dd)*
2024/01/01	2028/12/31

Report due annually on: *(mm/dd)*

12/31

Permit holder (full name):

Derwin Hein
Red Deer Regional Airport
Airport Manager

Mailing address:

3801 Airport Drive
Springbook Alberta
T4S 2E8 Canada

Telephone number:	**Email address:**
403-886-4388	d.hein@flyreddeer.com

Airport	**Operated By**
Red Deer Airport PO Box 370 Penhold Alberta T0M 1R0	

Activities authorized under this permit:

Scaring with a firearm or aircraft and/or killing migratory birds at an airport that are considered to be a danger to aircraft operating at that airport.

Species Affected

- All Migratory Birds (SARA Included) (For birds causing imminent danger to aircraft)

Canada

2.2 Alberta Fish & Wildlife – Damage Control License

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3.0 ADMINISTRATION

3.1 Distribution List

Name and Title	Agency	Copies
Director, Airport Operations	Red Deer Regional Airport	1
Operations	Red Deer Regional Airport	1
Vortex (electronic)	Red Deer Regional Airport	1

3.2 Record of Amendments

Section/Page	Subject	Date of Revision	Revision Number	Initialed By
AOM:WMP	Layout of WMP in the AOM	April 2015	1	
A	Migratory Bird Kill Permit Renewal	November 2015	2	
5,9,11,12,13,14, 16,17,18,19,20, 24,29,31,34,37, 41,55,59,60,62, 63	Updated to current information	January 2016	3	
10,15,16	Updated maps	October 2016	4	
2,14,27,29,36,56, 57,61,63,65,71,C, D,E,F	Updated to current information. Added Appendix E,F Formatting – all pages	February 2019	5	
4, 6, 7, 21, 41, 42, 48, 62, 63	Updated to current information	July 2019	6	
6, 7, 11, 13, 14, 15, 16, 17, 18, 20, 21, 23, 24, 25, 27, 32,34,35,40, 47, 51, 55, 57, 58, 60, 61, 62, 63, 64, 70, 71, 72	Updated to current information	December 2020	7	
9, 13, 14, 15, 17, 21, 24, 39, 50, 51, 52, 55, 56, 57, 58, 59, 60, 62, 66, 67, 68, 69, 71	Updated to current information. Formatting – all pages	June 2021	8	
11, 23, 24, 25,27, 30, 34, 35, 40, 47, 48, 50, 51, 61, 62, 64, 71, 72	Updated to current information; removal of obsolete data; formatting	December 2021	9	
13, 14, 15, 16, 17, 19, 20, 21, 23, 24, 27-40	Updated to current information; addition of wildlife information source and species	December 2022	10	
Not documented	Updated to current information; changes not documented	April 2023	11	
11, 13, 14, 16, 17, 21, 25, 36	Updated to current information; runway information, tables 1, 2, 3, 7, 8; map 3; data on deer and elk	November 2023	12	
1, 4, 7, 9, 11, 12, 13, 14, 16, 17, 19, 20, 23, 24, 28, 33, 43, 44, 45, 64, 70	Updated to current information; formatting – all pages; new maps due to construction	July 2025	13	

4.0 RISK ASSESSMENT

4.1 Introduction

In 2005, Transport Canada introduced the addition of a *Wildlife Planning and Management Regulation to the Canadian Aviation Regulations* (CARs), *Part III, Subpart 2 – Airports*. The reasons for the need for these new regulations are discussed in the following paragraphs.

√ *The populations of some wildlife species that are particularly hazardous to aircraft are increasing at a rapid rate.*

This includes species such as: White-tailed Deer, Canada Geese, Mallard Ducks, Gulls, Coyotes, Owls, Cranes and Herons and other large Raptors. Many of these species are also urban tolerant, finding suitable habitat in close proximity to human activity, including airports.

√ *There is an increasing number of aircraft flying today, particularly turbine-powered aircraft that are most susceptible to damaging bird strikes.*

Although, like many other industrial sectors, aircraft movements are likely to go through cycles of activity, overall, with the number of aircraft movements increasing worldwide. Dramatic shifts in aircraft movements can occur in airports of all sizes. It has been estimated that globally, the number of aircraft flying hours will double between 1996 and 2016.

√ *Airport operators play a key role in the management of risks associated with wildlife.*

Approximately 80% of all bird strikes take place in the landing or takeoff phases of flight. Airport operators, therefore, have a key role to fulfill in reducing exposure to hazards and managing wildlife strike risk. They also have a role to play in increasing general awareness of the wildlife hazard issue and influencing land use policies and practices in the vicinity of airports.

√ *New information and management techniques are now available and all airports that meet the criteria should establish well-conceived, well-managed, wildlife management programs of consistent approach across Canada.*

Much has been learned over the past few decades regarding the management of wildlife, the kinds of hazards that exist and the technique of risk assessment. Airports now have the knowledge to prepare a systematic, science-based approach to Airport Wildlife Management.

4.2 Application of the Wildlife Planning and Management Regulation

Not all airports are required to prepare an Airport Wildlife Management Plan. However, the new regulations will apply to any certified airport in Canada that meets one of the criteria below.

The following is a list of conditions under which the regulations apply. A checkmark has been applied to the conditions that apply to Red Deer Regional Airport.

Receives commercial passenger-carrying aircraft operating under Subpart 4 or 5 of Part VII of the CARs *with more than 2,800 movements (a movement is defined as a takeoff or landing) annually.*

Commercial passenger-carrying aircraft include airplanes (multi-engine and turbo-jet powered) certified under Canadian Aviation Regulations to carry more than ten passengers, e.g., regular commercial flights, commuter operations, sightseeing operations.

√ *Where the presence of wildlife hazards, including those referred to in section 322.302 of the* Airport Standards-Airport Wildlife Planning and Management*, has been observed in an airport flight pattern or movement area.*

The list ranks wildlife from the most hazardous to the least hazardous by species group and as such, identifies the species that should be of primary concern to the operator. The list provided by Standard 322.302 is as follows.

a. Deer
b. Geese
c. Gulls
d. Hawks
e. Ducks
f. Coyotes
g. Owls
h. Rock doves and pigeons
i. Bald and Golden Eagles
j. Sandhill Cranes
k. Sparrows and snow buntings
l. Shorebirds
m. Blackbirds and starlings
n. Crows and ravens
o. Swallows
p. Mourning doves
q. Herons
r. Turkey vultures
s. American Kestrels
t. Wild Turkeys
u. Cormorants

√ *Has a waste disposal facility approximately 15 km from the geometric centre of the airport.*

Included as waste disposal facilities are:

- landfill sites, garbage dumps.
- waste transfer and sorting facilities, recycling, and composting facilities.

4.3 Goal and Objectives

The goal of this Airport Wildlife Management Plan (AWMP) is to promote aviation safety for passengers and flight crews by reducing wildlife hazards and associated risks to aircraft and airport operations caused by wildlife activities on and in the vicinity of the airport.

The purpose of Section 4.0 of this report is to establish through a risk assessment procedure, and a screening process, whether the requirements of the *Canadian Aviation Regulations (CARs), Part III, Subpart 2 – Airports, Section 302.304 – Airport Wildlife Planning and Management,* apply to this airport.

When a Wildlife Management Plan is required, the results of the risk assessment will be used to guide and inform the plan, and as a tool to measure future changes in the hazard and risk assessments.

The objectives of Section 4.0 of the AWMP are as follows.

1. Identify and review existing sources of wildlife information for the area.
2. Identify wildlife hazards on and near the airport.
3. Identify seasonal patterns related to hazards.
4. Undertake a risk assessment and prioritize wildlife management efforts.

4.4 Description of Airport

The Red Deer Regional Airport:
LEGAL LAND DESCRIPTION
BLOCK 1, PLAN 7821766, BEING PART OF SECTIONS 13 AND 14
TOWNSHIP 37, RANGE 28 WEST OF THE 4TH MERIDIAN

The airport is located nine kilometers southwest of Red Deer and occupies a land area of approximately 893 acres, of which approximately 500 acres are currently harvested for its hay crop and is surrounded on three sides by farmland and the Hamlet of Springbrook on the fourth side.

The Red Deer Regional Airport Authority is incorporated under the Alberta Regional Airport Authorities Act (Alberta Regulation 149/90) and is a not-for-profit organization with equal representation from the City of Red Deer and Red Deer County. Red Deer Regional Airport Authority operates and maintains the Red Deer Regional Airport as a public facility. The Authority owns the airport land and leases the land to the businesses that operate here.

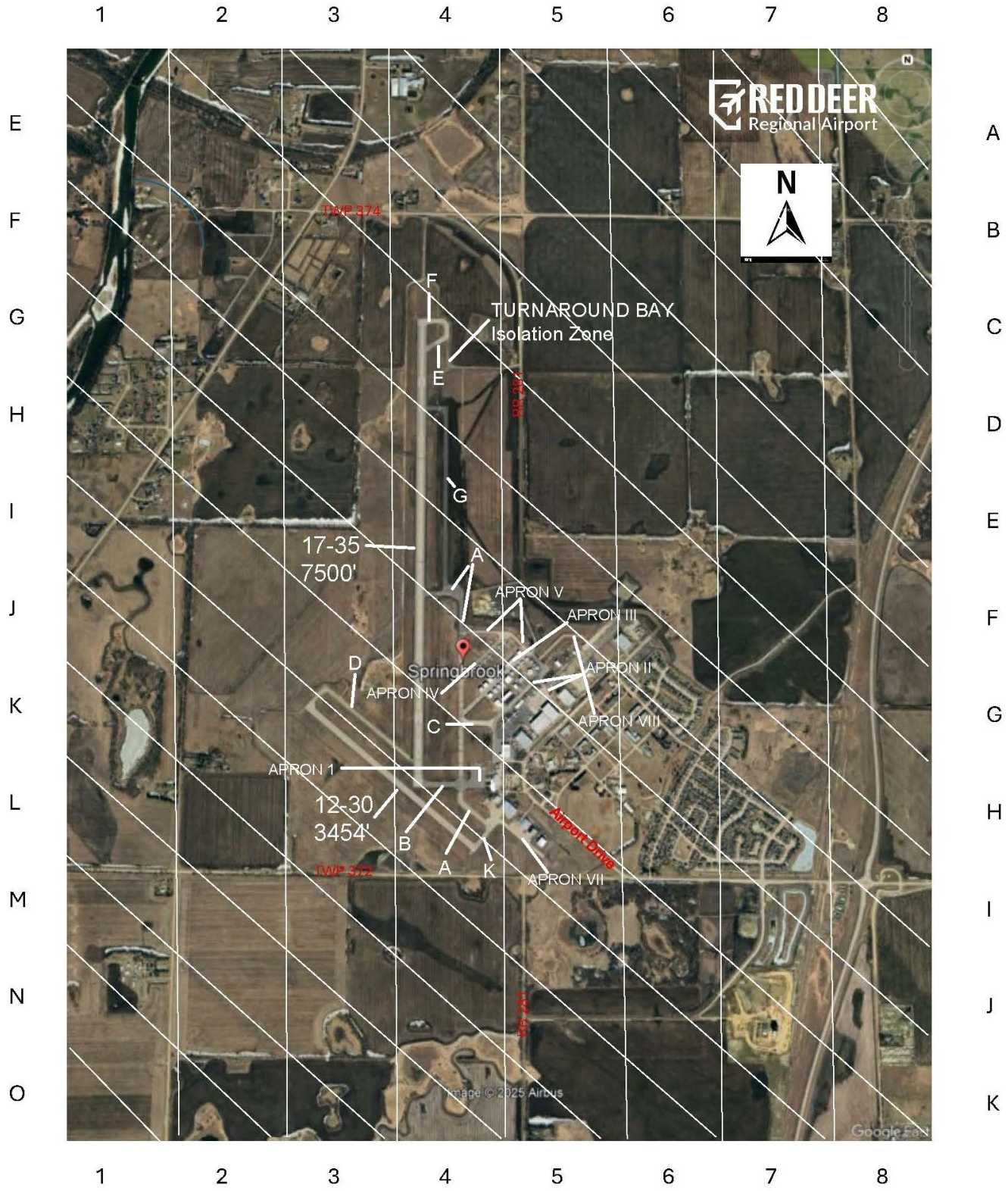
The Red Deer Regional Airport is operational 24 hours per day, seven days per week, and is capable of supporting both VFR and IFR operations, precision and non-precision approach limits, of aircraft in the B737 category (reference code 3C). The maneuvering area consists of two adjacent runways and a joining taxiway system, plus a public apron. The primary runway, 17/35, is asphalt surfaced, 7,500’ (2286 M) long by 150’ (47.3M) wide. The secondary runway, 12/30, is asphalt surfaced, 3,449’ (1051M) long by 100’ (30M) and supports Short Take Off and Landing (STOL) and light aircraft activity.

The Red Deer Regional Airport maintains an average yearly aircraft movement in excess of 30,000 movements.

The Red Deer Regional Airport hours of operation are Monday to Friday from 06:00 - 16:30 local time.

This means that there is no immediate staff at the airport after hours or on weekends unless weather conditions dictate maintenance to be done.

Map 1 - Location Map



Geometric Center N52^0 10’56.2362” W113^0 53’40.2305” Elevation 2968’

4.5 Aircraft Movements and Types

The different patterns of flight operation between local and itinerant traffic may affect exposure to wildlife hazards and should be considered in the risk assessment.

Without an effective AWMP, at any given airport, wildlife strikes are likely to increase as air traffic movements' increase. Therefore, the risk assessment process needs to consider the number of aircraft movements currently and, to the extent that forecasts are available, in the future.

Aircraft are not equally susceptible to having a damaging strike occur. For example, relatively slow-moving piston aircraft are not as likely to strike wildlife as are the faster moving turboprops or jet aircraft.

Aircraft also vary greatly in their susceptibility to damage from a wildlife strike. For example, turbofan engines, especially when mounted under-wing with their large intake areas are at greater risk due to damage from a bird strike than turboprop and turbo shaft engines.

To facilitate the risk assessment process Tables 1 and 2 provide estimates on recent aircraft movements and types at this airport.

The Red Deer Regional Airport Traffic pattern has a higher number of aircraft movements in the mornings during the winter. In the summer, training flights (Cessna 172, Piper, Seneca, King Air) make up the majority of movements with circuit traffic.

Changes in traffic profile, such as an increase in jet powered aircraft, large increases in traffic volume or special events such as air shows, can result in significant shifts in risk and would require a reassessment of risk.

All data has been sourced, using the search bar, through

https://www150.statcan.gc.ca/n1/en/type/data

Table 1 – Local and Itinerant Airport Traffic

Local and Itinerant movements by year — 2020 - 2024

Year	Local	Itinerant	Total
2020	30,124	22,180	52,304
2021	22,902	19,008	41,910
2022	17,728	17,313	35,041
2023	17,745	16,222	33,967
2024	19,315	16,561	35,876

Table 2 – Itinerant Airport Traffic

Itinerant movements by aircraft maximum take-off weight
2020 – October 2024

Maximum take-off weight in kilograms										
Year	**2,000 and under**	**2,001 To 4,000**	**4,001 To 5,670**	**5,671 To 9,000**	**9,001 To 18,000**	**18,001 To 35,000**	**35,001 To 70,000**	**70,001 To 90,000**	**90,001 To 136,000**	**136,001 and over**
2020	15,269	2,787	1,623	136	91	11	175	2	0	0
2021	14,958	1,618	1,470	447	186	26	187	3	0	0
2022	13,960	1,020	1,208	563	67	34	183	6	0	0
2023	12,622	1,005	1,467	562	91	196	196	2	0	0
2024	11,815	448	1,348	627	200	130	188	2	0	0

Itinerant movements by type of power plant
2020 – October 2024

Year	Jet engines	Turbo-propellers	Piston engines	Helicopters	Gliders
2020	274	1,813	17,255	751	1
2021	372	1,985	2,357	900	8
2022	248	1,833	14,264	694	2
2023	420	2,006	13,245	468	2
2024	416	2,047	11,816	477	2

Table 3 – Local Airport Traffic

Local movements by month — 2020 - 2024

Month	***2020***	***2021***	***2022***	***2023***	***2024***
January	*1,858*	*1056*	*1200*	*912*	*1270*
February	*3,474*	*1096*	*1454*	*1238*	*896*
March	*2,648*	*3236*	*1692*	*1368*	*946*
April	*998*	*2344*	*1528*	*1400*	*1504*
May	*574*	*1318*	*2022*	*1118*	*1308*
June	*2,498*	*1890*	*1118*	*1146*	*1941*
July	*2,936*	*2558*	*2616*	*2404*	*3166*
August	*4,774*	*1786*	*1322*	*2152*	*1784*
September	*1,992*	*2202*	*1340*	*1891*	*1820*
October	*2,426*	*2088*	*1456*	*1568*	*2216*
November	*3,506*	*2342*	*1234*	*1736*	*990*
December	*2,440*	*986*	*746*	*812*	*1474*
Total	***30,124***	***22902***	***17728***	***17745***	***19315***

4.6 Identification of Sources for Existing Information on Wildlife

The hazard and risk assessment in this document is based on existing information sources and/or on wildlife inventories that have been undertaken expressly for the purpose of developing this AWMP. Data from information sources listed here will be used in Section 5.0 of the Plan, which is a description of wildlife habitat resources.

Table 4 - Sources for Wildlife Information – On the Airport

Document/Source	Type of Information	Located
Wildlife Management file	*Care and control of wildlife on the airport. Also, data on wildlife kills conducted under permits.*	*Vortex*
Knowledge of airport staff	*Presently airport maintenance staff has over 15 years total on site Knowledge.*	*Springbrook, Alberta*

Table 5 - Sources for Wildlife Information – Outside the Airport

Document/Source	Type of Information	Located
Kerry Wood Nature Centre	*Limited available information on local bird types, animals and rare species in the area.*	*Red Deer, Alberta*
Medicine River Wildlife entre	*Limited available information on local bird types, animals and rare species in the area.*	*Spruce View, Alberta*

Table 6 - Sources for Information on Wildlife Species of Conservation Concern

Document/Source	Type of Information	Located
Alberta Conservation Association	*Maintains Wildlife species data for this area*	*Edmonton, Alberta*
Provincial Species at Risk	*Birds and Mammals that require protection to maintain species*	*http://www.srd.alberta.ca/BioDiversityStewardship/ Wild Species/Default.aspx*

4.7 Strike Data

Annual reporting of strike data is required by the CARs. This data can be a valuable source of information on existing hazards. As a higher percentage of strikes are recorded and reported, this source of information will increase in value. The following table provides a brief summary of strike data for this airport since 2013.

Table 7 - Strike Data for YQF Airport

Date mm/dd/yy	Aircraft	Wildlife Species and Number	Phase of Operation	Effect on Flight	Comments
08/19/13	BE-C90	Unknown	Take off	None	Rwy 16
09/02/14	Quest Kodiak 100	1 - Gull	Landing	None	Rwy 34
09/16/14	BE-1900	1-Redtailed Hawk	Take off	None	Rwy 16
09/13/15	BE-1900	1-Swainson's Hawk	Landing	None	Rwy 34
12/07/15	Unknown	5 - Sparrow	Landing	Unknown	Rwy 16
01/25/16	BE-1900	1 - Coyote	Roll out	Inspection of propeller	Rwy 16
06/28/16	BE-C90A	4 - Magpie	Roll out	None	Rwy 34
08/27/16	Cessna 172	3 - Gull	Landing	None	Rwy 16
2017	NONE				
2018	NONE				
04/26/19	Piper PA-32-300	1 – Snowy Owl	Landing	None	Rwy 17/35
05/06/19	Unknown	1 – Redtailed Hawk	Unknown	Unknown	Rwy 12/30
07/02/19	Unknown	1 – Magpie	Unknown	Unknown	Rwy 17/35
07/24/19	Unknown	1 – Magpie	Unknown	Unknown	Rwy 17/35
07/30/19	Unknown	1 – Crow	Unknown	Unknown	Rwy 12/30
08/14/19	Cessna 172P	1 – Merlin	Landing	None	Rwy 17/35
10/17/19	Cessna 172R	1 – Pigeon	Take off	None	Rwy 17/35
07/27/20 Near Miss	Unknown	2 – Redtailed Hawks	Take off	None	Rwy 17/35
08/05/20	Cessna 172	1 – Coyote	Landing	None	Rwy 17/35
08/04/21	C-GZOR	1 – Magpie	Unknown	None	Rwy 17/35
06/06/22	Beechcraft King Air 300	1 – Starling	Landing	None	Rwy 17/35
07/13/23	Unknown	1 – Magpie	Unknown	Unknown	Rwy 12/30
09/07/23	Unknown	1 – Gull	Unknown	Unknown	Rwy 17/35
08/22/24	Unknown	1 - Unknown	Unknown	None	Rwy 12/30
10/26/24	Cirrus SR22T	1 – Short-eared Owl	Landing	None	Rwy 17/35

*Source Transport Canada and Airport Files

The total number of wildlife strikes per 10,000 movements at the Red Deer Regional Airport is shown in Table 8.

Table 8 - Wildlife Strikes per 10,000 Movements per Year

Year	Total Movements	Total Wildlife Strikes	Wildlife Strikes per 10,000
2020	52,304	1	.19
2021	41,910	1	.24
2022	35,041	1	.29
2023	33,967	2	.59
2024	35,876	2	.56
2020 - 2024	**199,098**	**7**	**Avg. 0.37**

4.8 Description of Wildlife Habitats and Resources

It is important to understand the wildlife communities in as much detail as is practical so that consequences of management actions might be considered prior to implementation.

Using existing sources of information and including any wildlife studies undertaken for the purpose of this AWMP, the following sections will describe the functions (i.e., roosts, feeding habitat, breeding colonies, resting areas) and attributes (i.e., species) associated with wildlife in three landscape categories. Of particular interest is determining the movement patterns, spatially and through time, of wildlife within the airport itself and across the landscape. In terms of wildlife hazards, habitat extends to buildings and agricultural lands as well as more typical wetlands, forests, and meadows. All species known to be an issue at the airport should be described as some may not be direct hazards, however they may attract hazards (such as Richardson Ground Squirrels providing food for coyotes and hawks).

The first category is the airport itself, where habitats and the wildlife using them will be described in detail. This will rely on site-specific field work and standard techniques for describing vegetation communities (e.g., Ecological Land Classification) and wildlife communities, their use patterns and seasonal variations that have been observed or that might be expected.

The second category is the nearby lands that are not under direct control of the airport. The physical area included in this category generally includes lands up to 8 km from the airport reference point, which should include an area of sufficient size to provide an adequate picture of wildlife movements through the airspace identified later in this document. This assessment is largely based on existing information and remotely sensed habitat analysis rather than site-specific field work. It will describe the location of moderately hazardous land use practices such as wastewater discharge plants and sewage lagoons, crop production, recreational sites and managed or created wildlife habitats. There is no requirement under the regulation to manage these lands; however, it is important to be aware of potentially hazardous off airport land uses.

The third category is the determination of the presence of extremely hazardous land use practices that may be many kilometers from the airport. At a minimum: food waste disposal sites, outdoor composting and commercial fish plants, will be mapped when they occur within 15 km of the airport reference point. Such features may be mapped at greater distances where wildlife associated with them may become a hazard to aircraft using the airport.

The following sections of the AWMP provide the findings of these three categories.

4.9 Primary Habitat Areas on Airport

(Map 2 illustrates the primary habitats found on the airport lands).

Overall the most predominate vegetation on the airport is short/medium long grass. There is normally no standing water, due to the improved drainage system on the West side of runway 17/35. There are some large trees that surround the airport that attract birds during the summer.

Area 1 – is short/medium grass cut in the summer for cattle feed. Gulls are seen in this area during the wet/ periods. Other species such as coyotes use this area to hunt for small animals like Richardson Ground Squirrels. This is the most prevalent habitat type on the airport land.

Area 2 – surrounding the airport is farmland, and this attracts seagulls during planting season(s)

Map 2 - Primary Habitat Areas on Airport

Table 9 - Overview of Wildlife Species Known to Occur on the Airport

Common Name	Scientific Name	Seasonal Occurrence	Location, Abundance
Birds			
Ring-billed Gull	*Larus delawarensis*	*April-October*	*Forages airside on pavement or short grass, usually small flocks, feeding on worms during wet weather - up to 10 birds.*
Herring Gull	*Larus argentatus*	*April-October*	*Forages airside on pavement or short grass, usually small flocks, feeding on worms and frequently fly over. Large numbers.*
Franklin's Gull	*Larus leucophaeus*	*April-October*	*Forages airside on pavement or short grass, usually small flocks, feeding on worms and frequently fly over. Large numbers.*
Canada Goose	*Branta canadensis*	*April-May August-November*	*Forage on grass areas during migration. Rarely seen; normally in flocks of more than 20 birds.*
Snow Goose	*Anser caerulescens*	*April-May August-November*	*Forage on grass areas during migration. Rarely seen; normally in flocks of more than 20 birds.*
Mallard Duck	*Anas platrthynchos*	*April-May August-September*	*Fly over and occasionally land in small wet areas. Normally one or two birds.*
Teal Duck	*Anas discors*	*April-May August-September*	*Fly over and occasionally land in small wet areas. Normally one or two birds.*
Red Tailed Hawks	*Buteo jamaicensis*	*Year-round*	*Are interested in mice and Richardson Ground Squirrels found around the airport. Occasionally up to six are seen in a day.*
Osprey Hawks	*Pandion haliaetus*	*Year-round, less frequent than Red Tailed*	*Are interested in mice and Richardson Ground Squirrels found around the airport. Occasionally up to six seen in a day.*

Bald Eagle	*Haliaeetus leucocephalus*	*Year-round, less frequent than Red Tailed*	*Prefers old-growth and mature stands of coniferous or hardwood trees. Normally one or two birds.*
Snowy Owl	*Bubo scandiacus*	*Year-round, nocturnal.*	*Are interested in mice and Richardson Ground Squirrels found around the airport. Seen in early mornings.*
Sandhill Crane	*Antigone canadensis*	*March - April September - November*	*Migrate seasonally through district; very seldom seen on airfield but has been known to happen.*
European Starling	*Sturnus vulgaris*	*Year-round*	*Typically seen groundside; feeds in grass areas. 2-10 birds normally.*
Tundra Swan	*Cygnus columbianus*	*March - April September - November*	*Migrate seasonally through district.*
Trumpeter Swan	*Cygnus buccinator*	*March - April September - November*	*Migrate seasonally through district.*
Raven	*Corvus corax*	*Year-round*	*Feeds in the grass area along runways and taxiways. 2-6 birds normally.*
American Crow	*Corvus brachyrhynchos*	*Year-round*	*Feeds in the grass area along runways and taxiways. 2-6 birds normally.*
Black-billed Magpie	*Pica pica*	*Year-round*	*Feeds on worms and insects on the grass areas. Usually one or two birds.*
Rock Dove/Pigeon	*Columba livia*	*Year-round*	*Feeds on insects and nearby farm fields. Seen nesting in old planes in boneyard.*
Red-winged Blackbird	*Agelaius phoeniceus*	*February - December*	*Small; numerous seen crossing airfield, sometimes feeding in short grass.*

Mammals			
Moose	*Alces alces*	*Year-round*	*Frequent outside airfield, but have high frequency appearances at random times.*
White-tailed Deer	*Odocoileus virginianus*	*Year-round*	*Frequent outside airfield, now commonly seen airside.*
Mule Deer	*Odocoileus hemionus*	*Year-round*	*Frequent outside airfield, now commonly seen on airport.*
Elk (Wapiti)	*Cervus canadensis*	*Year-round*	*Passing through, very rarely seen; first seen on airport 2022*
Coyote	*Canis latrans*	*Year-round*	*Hunt for small mammals on the grass areas beside runways and taxiways. Seen occasionally in groups of 1-3.*
Red Fox	*Vulpes vulpes*	*Year-round*	*Hunt for small mammals on the grass areas beside runways and taxiways.*
Domestic Dog	*Canis lupus familiaris*	*Year-round*	*Very seldom seen on airfield but has been known to happen.*
Badgers	*Millivora capensis*	*May - October*	*Individual animals very rarely seen digging for Richardson Ground Squirrels in the field.*
Muskrat	*Ondatra zibethicus*	*Year-round*	*Individual animals very rarely seen in ditches and wet areas. Have not been seen airside.*
Porcupine	*Erithizontidae dorsatum*	*Winter*	*Passing through, seen very rarely on airport.*
Jack Rabbit/Hare	*Lepus timidus*	*Year-round*	*Feeds in grass areas, usually not on pavement. Can be seen in groups of 2-4, or solitary hiding in taller grass.*
Richardson Ground Squirrel	*Urocitellus richardsonii*	*April - October*	*Like to dig holes in open fields in small numbers, and attract coyotes and badgers to the area.*

4.10 Adjacent Lands and Extremely Hazardous Land Use Practices

Map 3 illustrates some of the moderately hazardous land use practices within eight kilometers of the airport reference points and the extremely hazardous land use practices within 15 kilometers.

Land used around the airport is generally used for agriculture and in the spring during cultivating will attract seagulls to the area.

The remainder land used is for business commercial and residential and therefore processes low risk to attract wildlife to the area.

A small waste transfer station is located approximately 15 km southeast of the airport (since 2006) and has posed no increase in wildlife to the airport and/or the vicinity.

Table 10 provides details of the key wildlife hazards, and in no specific order, based on the previous steps in this AWMP.

Table 10 - Use of Adjacent Land

Map Area #	Description	Hazards	Wildlife
1	Body of Water	Water area that attracts birds. Process of aeration tends to discourage birds from using this area	Ducks (all), Gulls (all), Swan (all)
2	Recreational Area	Forested area attracts mammals such as deer and coyotes. May be nesting area for birds	Moose, Deer (all), Elk, Coyotes, Fox, Raven, Hawks (all)
3	Hay Crop	Attracts mammals such as coyotes to feed on small animals (mice). Grazing area for deer/other ungulates. May also attract birds	Moose, Deer (all), Elk, Coyotes, Fox (all)
4	Forested Area	Attracts mammals such as deer and coyotes. May be nesting area for birds	Moose, Deer (all), Elk, Coyotes, Fox (all), Raven, Hawks (all)
5	Pine Lake, Gull Lake, Red Deer River	Attracts to the river valley. Attracts birds to roost and feed.	Geese (all), Swan (all), Ducks (all), Gulls(all), Cranes, Killdeer, Deer (all), Moose, Elk
6	Town Industrial and Residential Areas	Attract birds (raven, gulls) and mammals (coyote, fox) to garbage bins etc. Deer are also attracted to gardens.	Moose, Deer (all), Coyotes, Fox (all)), Raven, Gulls (all), Magpies
7	Regional Landfill Site	Attract birds	Gulls (all), Ravens
8	Parts Planes Boneyard	Attracts nesting areas for birds, and in turn, predatory birds preying on eggs.	Pigeons, Magpies, Crows

4.11 Summary of Key Wildlife Hazards

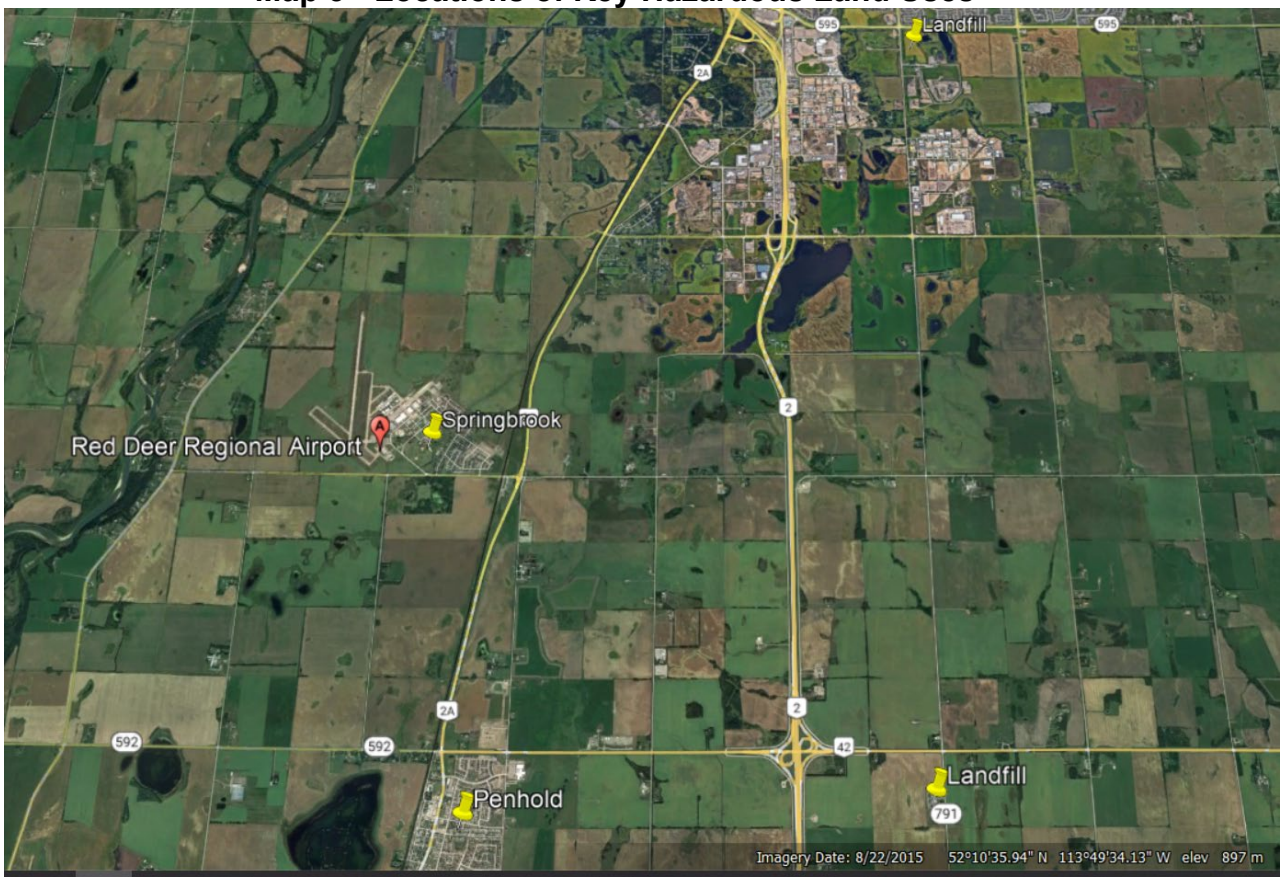
The previous steps of the AWMP will have identified most of the wildlife species found in and around the airport environment. Not all these species are particularly hazardous to airport operations. Some species are more hazardous because they are large; others because they flock, or yet others because they soar at higher altitudes. A few are particularly hazardous, because they fit all three descriptors (e.g., gulls and geese). Occasionally, an unusual food resource (e.g., an insect hatch) causes birds to concentrate in the airport environment that might not otherwise be considered a hazard (e.g., swallows).

The *Wildlife Control Procedures Manual* (Transport Canada, 2002) and the *Sharing the Skies* (Transport Canada 2001b) provides information on the most effective management techniques for hazardous wildlife species in the airport environment.

Table 11 - Key Wildlife Hazards at YQF Airport

Species	On-site Issue
Geese (all)	Yes
Gulls (all)	Yes
Hawks (all)	Yes
Cranes (all)	No
Ducks (all)	Yes
Swallows (all)	No
Pigeons	Yes
Eagles (all)	No
Swans (all)	Yes
Shorebirds (all)	No
Starlings	No
Ravens	No
Magpie	Yes
Crows	No
Porcupine	No
Moose	Yes
Deer (all)	Yes
Elk	No
Coyotes/canids	Yes
Fox (all)	Yes

Map 3 - Locations of Key Hazardous Land Uses



4.12 Discussion of Key Hazards

Each of the species or groups of similar species (e.g., gulls) appearing in Table 8 are discussed in this section.

This detailed discussion uses habitat information from Section 7 and addresses flight lines, flocking behavior and use of seasonal food sources or other attractants. Seasonal, temporal (time of day) and spatial patterns of habitat use (where they are and why) will also be discussed.

This Section also reviews observed or know behavioral characteristics of the species (e.g., flocking) and identifies the reasons for the presence of these species and their movement patterns or particular behavior that has led to their designation as key hazards at this airport.

This summary will rely on information already presented in this document, other reports if they are available (e.g., gull hazard assessments), and information that is available in the literature for these particular species (e.g., Transport Canada, 2001b; 2002).

Each species or group of species is addressed in the following tabular pattern, which is presented with one species per page.

4.13 Hazard Assessments

The Mass/flocking rank is a scale of one to six that considers the mass and flocking characteristics of a species. Those with the most mass that also flock are ranked number 1(highest), while the smallest non-flocking are ranked number 6 (lowest). See Section 5.0 (Risk Assessment) for more details. The endangered levels of active species at the Red Deer Regional Airport will be checked every review of this manual.

Table 12 - Wildlife Hazard Assessments

Geese (Canada / Snow)	
Mass/Flocking Rank (1-6): 1	**Species Protection Status:** The Migratory Birds Convention Act and Regulations
Seasonality (time of year): April and May during the northward migration and September and October for the southerly migration. They are active in summer in this region.	
Temporal (Time of day): Generally tend to be more active just before dusk and after dawn.	
Spatial (where in the area the hazard exists, hotspots): Spend time resting and feeding on lakes, ponds, and fields near the airport. Will occasionally forage on the airfield. Fly over the airport when leaving or returning to the lakes	
Behaviors of Concern: Flocks, slow evasive actions, feeding in high-risk zones, flying through high-risk zones, but most do not tend to be lower than 100 m.	
Discussion of Numbers (peak counts, low counts, breeding pairs): Few counts available. Up to ten occasionally rest/feed on the airfield. Flock usually less than 40.	
Reasons Why Species are Present in Area (e.g., food source, landfill, roost): The close proximity of the lakes and ponds are an attractant. They occasionally visit the grassy airfield/farm area for feeding.	
Sources of Information for Species in this Area (list reports and other sources): Kerry Wood Nature Center, Medicine River Wildlife Centre, and Red Deer River Naturalists materials	
Strike Summary: No reported strikes.	
Other Comments: Birds are mostly in the area during migration and very rare for small flocks to be on airport. One or two times per year and are easily dispersed.	

Gulls (Ring-billed / Herring Gull / Franklin's)	
Mass/Flocking Rank (1-6): 3 for Ring-billed Gull and Franklin's Gull, 2 for Herring Gull	**Species Protection Status:** The Migratory Birds Convention Act and Regulations
Seasonality (time of year): Summer only, most common on airport during rainy and overcast weather. When the farmland is being tilled/disturbed, gulls have been known to be in large flocks gorging on dew worms during airport construction.	
Temporal (Time of day): Move from roosts to feeding areas daily.	
Spatial (where in the area the hazard exists, hotspots): Most common on shore of the lakes and at landfill sites. Forage on runway for worms (especially during and after wet weather), short mown grass for invertebrates. May move across high-risk zones, may flock over other grass areas adjacent to airport.	
Behaviors of Concern: Flocking, use of airside, flight lines may be across high-risk areas.	
Discussion of Numbers (peak counts, low counts, breeding pairs): No counts available.	
Reasons Why Species are Present in Area (e.g., food source, landfill, roost): Central Alberta has several lakes near-by (Sylvan, Pine and Gull Lake and ponds, all in near vicinity) and these attract birds, as well as two Landfill sites within five miles of airport.	
Sources of Information for Species in this Area (list reports and other sources): Kerry Wood Nature Center, Medicine River Wildlife Centre, and Red Deer River Naturalists materials	
Strike Summary: Five reported strikes in the last 15 years.	
Other Comments: Need information on flight lines, numbers, and movements to and from the local landfill sites.	

Hawks (Red Tailed Hawk and Osprey)	
Mass/Flocking Rank (1-6): 3	**Species Protection Status:** Provincial Fish and Wildlife Act
Seasonality (time of year): Seen more often in June – October.	
Temporal (Time of day): Day – no specifics.	
Spatial (where in the area the hazard exists, hotspots): Over and around runways and hunting in grass areas near airport.	
Behaviors of Concern: Hover over grass areas hunting for small mammals.	
Discussion of Numbers (peak counts, low counts, breeding pairs): No counts available, usually fly solo.	
Reasons Why Species are Present in Area (e.g., food source, landfill, roost): Abundance of small mammals in the area- attracted by food. Primary roosts unknown.	
Sources of Information for Species in this Area (list reports and other sources): Kerry Wood Nature Center, Medicine River Wildlife Centre, and Red Deer River Naturalists materials	
Strike Summary: Three reported strikes in the last 15 years.	
Other Comments: Seen over airport summer and fall.	

Bald Eagle	
Mass/Flocking Rank (1-6): 3	**Species Protection Status:** Provincial Fish and Wildlife Act
Seasonality (time of year): Seen more often in June – October.	
Temporal (Time of day): Day – no specifics.	
Spatial (where in the area the hazard exists, hotspots): Over and around runways and hunting in areas near airport.	
Behaviors of Concern: Flying to and from ponds/lakes. Cross flights paths when returning to nests.	
Discussion of Numbers (peak counts, low counts, breeding pairs): No counts available, usually fly solo.	
Reasons Why Species are Present in Area (e.g., food source, landfill, roost): Central Alberta has several lakes near-by (Sylvan, Pine and Gull Lake and ponds, all in near vicinity) and these attract birds, as well as old-growth and mature stands of coniferous/hardwood trees.	
Sources of Information for Species in this Area (list reports and other sources): Kerry Wood Nature Center, Medicine River Wildlife Centre, and Red Deer River Naturalists materials	
Strike Summary: No reported strikes in the last 15 years.	
Other Comments: Seen over airport summer and fall.	

Ducks (Mallard, Teals, and Ring-necked)	
Mass/Flocking Rank (1-6): 2	**Species Protection Status:** The Migratory Birds Convention Act and Regulations
Seasonality (time of year): Summer residents- seen more commonly spring and fall when migrating.	
Temporal (Time of day): Day – no specifics.	
Spatial (where in the area the hazard exists, hotspots): Over and around runways and grass areas and farmlands adjacent to the airport.	
Behaviors of Concern: Flying to and from lakes/ponds. Usually travel in 1-2 or small flocks. During migration larger numbers are seen.	
Discussion of Numbers (peak counts, low counts, breeding pairs): No counts available, normally one or two seen at a time.	
Reasons Why Species are Present in Area (e.g., food source, landfill, roost): Rivers, lakes, and ponds in area. Tend to loaf and feed in water areas.	
Sources of Information for Species in this Area (list reports and other sources): Kerry Wood Nature Center, Medicine River Wildlife Centre, and Red Deer River Naturalists materials.	
Strike Summary: No strikes reported in the last 15 years.	
Other Comments: Ducks are rarely seen on airport grounds due to lack of wet areas.	

Swallows and Red-winged Blackbirds	
Mass/Flocking Rank (1-6): 5	**Species Protection Status:** The Migratory Birds Convention Act and Regulations (Barn Swallow is at the "threatened status")
Seasonality (time of year): Summer residents- April-August.	
Temporal (Time of day): All day – no specifics.	
Spatial (where in the area the hazard exists, hotspots): Over and around runways and hangars/buildings.	
Behaviors of Concern: Cross flights paths in search of food and when returning to nests.	
Discussion of Numbers (peak counts, low counts, breeding pairs): No counts available, usually in small flocks.	
Reasons Why Species are Present in Area (e.g., food source, landfill, roost): Abundance of food.	
Sources of Information for Species in this Area (list reports and other sources): Kerry Wood Nature Center, Medicine River Wildlife Centre, Ellis Bird Farm and Red Deer River Naturalists	
Strike Summary: No reported strikes in the last 15 years.	
Other Comments:	

Swans (Trumpeter and Tundra) and Sandhill Cranes	
Mass/Flocking Rank (1-6): 1	**Species Protection Status:** The Migratory Birds Convention Act and Regulations
Seasonality (time of year): Seen during spring and fall migration.	
Temporal (Time of day): Day – no specifics.	
Spatial (where in the area the hazard exists, hotspots): Over airport air space during migration.	
Behaviors of Concern: Large flocks fly over during migration.	
Discussion of Numbers (peak counts, low counts, breeding pairs): No counts available.	
Reasons Why Species are Present in Area (e.g., food source, landfill, roost): On migration route.	
Sources of Information for Species in this Area (list reports and other sources): Kerry Wood Nature Center, Medicine River Wildlife Centre, and Red Deer River Naturalists	
Strike Summary: No reported strikes in the last 15 years.	
Other Comments: Seldom seen - may fly over airport in spring and fall.	

Owls (All)	
Mass/Flocking Rank (1-6): 2	**Species Protection Status:** Provincial Fish and Wildlife (Short-eared Owl is at the "Special Concern" status.)
Seasonality (time of year): Great Horned, Grey, Snowy, Northern Saw-whet, Boreal and Short-eared Owls are permanent residents in the area, but in small numbers.	
Temporal (Time of day): Dusk and night, just before dawn.	
Spatial (where in the area the hazard exists, hotspots): Over airport air space during hunting.	
Behaviors of Concern: Large birds may fly in flight path.	
Discussion of Numbers (peak counts, low counts, breeding pairs): No counts available.	
Reasons Why Species are Present in Area (e.g., food source, landfill, roost): Feed on small mammals (mice/Richardson Ground Squirrels)- lots of food in area.	
Sources of Information for Species in this Area (list reports and other sources): Kerry Wood Nature Center, Medicine River Wildlife Centre, and Red Deer River Naturalists	
Strike Summary: No reported strikes in the last 15 years.	
Other Comments: Seldom seen- may fly over airport in evening/nighttime while hunting.	

Crows, Pigeons and Jays (Black-billed Magpie, Blue, Gray Jays)	
Mass/Flocking Rank (1-6): 4	**Species Protection Status:** The Migratory Birds Convention Act and Regulations
Seasonality (time of year): Permanent residents and seen year-round.	
Temporal (Time of day): Day – no specifics.	
Spatial (where in the area the hazard exists, hotspots): Over airport grounds, terminal building (FBO)/main ramp, Apron IV storage area.	
Behaviors of Concern: Occasionally found on grass adjacent to runways looking for food.	
Discussion of Numbers (peak counts, low counts, breeding pairs): No counts available.	
Reasons Why Species are Present in Area (e.g., food source, landfill, roost): Often found in built up areas.	
Sources of Information for Species in this Area (list reports and other sources): Kerry Wood Nature Center, Medicine River Wildlife Centre, and Red Deer River Naturalists	
Strike Summary: Two strikes (2016 and 2021) reported within the last 15 years.	
Other Comments:	

Deer (White-tail and Mule)	
Mass/Flocking Rank (1-6): 1	**Species Protection Status:** Provincial Fish and Wildlife
Seasonality (time of year): Permanent residents to area and seen year-round in district.	
Temporal (Time of day): Often most active at dawn and dusk.	
Spatial (where in the area the hazard exists, hotspots): Move from forested areas to forage on grass airside.	
Behaviors of Concern: Crossing runway in poor light conditions and at night. Active during hunting season.	
Discussion of Numbers (peak counts, low counts, breeding pairs): Usually only one or two, largest herd seen was a group of nineteen.	
Reasons Why Species are Present in Area (e.g., food source, landfill, roost): Feeding on grass and movement between forest areas.	
Sources of Information for Species in this Area (list reports and other sources): Internet and local hunters	
Strike Summary: No reported strikes in the last 15 years.	
Other Comments: Generally considered the highest risk species at airports. Decreasing numbers at CYQF.	

Moose	
Mass/Flocking Rank (1-6): 1	**Species Protection Status:** Provincial Fish and Wildlife
Seasonality (time of year): Permanent residents and seen year-round.	
Temporal (Time of day): Often most active at dawn and dusk.	
Spatial (where in the area the hazard exists, hotspots): Move from forested/marsh areas to forage on grass airside or move from one forested area to next.	
Behaviors of Concern: Crossing runway in poor light conditions and at night, and active during hunting season.	
Discussion of Numbers (peak counts, low counts, breeding pairs): Usually only one or two.	
Reasons Why Species are Present in Area (e.g., food source, landfill, roost): Feeding on grass and movement between forest areas.	
Sources of Information for Species in this Area (list reports and other sources): Internet and local hunters	
Strike Summary: No reported strikes in the last 15 years.	
Other Comments: Generally considered the high-risk species at airports.	

Elk	
Mass/Flocking Rank (1-6): 1	**Species Protection Status:** Provincial Fish and Wildlife
Seasonality (time of year): Passing through and seen year-round.	
Temporal (Time of day): Often most active at dawn and dusk.	
Spatial (where in the area the hazard exists, hotspots): Move from forested/marsh areas to forage on grass airside or move from one forested area to next.	
Behaviors of Concern: Crossing runway in poor light conditions and at night, and active during hunting season.	
Discussion of Numbers (peak counts, low counts, breeding pairs): Usually only one.	
Reasons Why Species are Present in Area (e.g., food source, landfill, roost): Feeding on grass and movement between forest areas.	
Sources of Information for Species in this Area (list reports and other sources): Internet and local hunters	
Strike Summary: No reported strikes in the last 15 years.	
Other Comments: First seen near the airport in 2022.	

Coyotes and Domestic Dogs	
Mass/Flocking Rank (1-6): 1	**Species Protection Status:** Provincial Fish and Wildlife
Seasonality (time of year): Permanent residents and seen year-round.	
Temporal (Time of day): Seen at any time of day.	
Spatial (where in the area the hazard exists, hotspots): Along runways /taxiways when searching for prey.	
Behaviors of Concern: May cross runways/taxiways when occupied searching for prey.	
Discussion of Numbers (peak counts, low counts, breeding pairs): Usually only one or two seen together - no counts available.	
Reasons Why Species are Present in Area (e.g., food source): Grass areas are a good place to find small animals such as mice, for food.	
Sources of Information for Species in this Area (list reports and other sources): Internet and local airport workers sightings	
Strike Summary: One strike (2016) reported within the last 15 years.	
Other Comments: Generally easily scared off by the presence of humans. Have had to fire shots to scare off grounds.	

Muskrat, Rabbit, Red Fox, and Richardson Ground Squirrels	
Mass/Flocking Rank (1-6): 1	**Species Protection Status:** Provincial Fish and Wildlife
Seasonality (time of year): Permanent residents and can be seen year-round.	
Temporal (Time of day): Can be seen anytime, but often most active at dawn and dusk.	
Spatial (where in the area the hazard exists, hotspots): Move from forested areas to forage on grass airside.	
Behaviors of Concern: May cross runways/taxiways when searching for food or moving from forest area to forest area.	
Discussion of Numbers (peak counts, low counts, breeding pairs): Usually only one or two, but no counts available.	
Reasons Why Species are Present in Area (e.g., food source, landfill, roost): Food sources on the airport- mice and in town garbage.	
Sources of Information for Species in this Area (list reports and other sources): Internet	
Strike Summary: No reported strikes in the last 15 years.	
Other Comments: Seldom seen when aircraft/humans are present.	

4.14 Risk Assessment

In the context of the AWMP, a hazard is a condition (e.g., the presence of gulls) with the potential to cause injury to personnel or damage to equipment or structures. Reducing exposure to hazards is a component of risk management.

Risk is the likelihood of injury or loss occurring, which is a function of exposure to the hazards, as well as the likelihood of a strike occurring and the magnitude or severity of the strike. It follows then, that high-risk species are those that are most frequently involved in strikes, as well as those that cause the greatest damage.

Risk assessment is an important part of this plan because it serves to ensure that wildlife management activities are directed at the species that create the highest risk, in a prioritized fashion.

Risk is strongly influenced by the type of aircraft and their operations. The likelihood of a catastrophic wildlife strike occurring with a small piston-powered aircraft is much less that with turbine powered aircraft.

Table 13 summarizes airport traffic into three broad risk categories based on their vulnerability to damaging wildlife strikes. All classes have been retained in the risk assessment matrix in case use patterns should change in the future. In addition, the severity or consequences are much less.

Table 13 - Airport Traffic

Aircraft Classification		Strike Susceptibility Level	Approximate Annual Movements	Other Considerations
1	**Turbofan & Turbojet**	High	Under 1,000	Charters and privately owned.
2	**Helicopter & Turboprop**	Moderate	Under 1,000	Majority of charters are of this type.
3	**Piston Aircraft**	Low	12,000	Mostly day use. One flight school makes up for approx. 90% traffic.

In addition to the immediate airport environment, the risk assessment must consider the area outside of the airport. For this reason, the typical approach and takeoff routes for all runways and both types of air traffic (i.e., local and itinerant) need to be considered. Map 4 shows the approach and takeoff and the area where 90% of flights at this airport are typically below 500 to 600-ft AGL and typical circling patterns where those patterns approach 500-ft AGL.

We are primarily concerned with biomass that has the ability to affect safe flight. The following are general characteristics of high-risk behavior.

a. Larger species which tend to cause greater damage due to higher impact forces (e.g., hawks and gulls).
b. Flocking of birds (e.g., gulls and swallows) or herds of animals.
c. Large, slow flying birds that are less maneuverable (e.g., geese, hawks).
d. Species that habitually hunt or forage on or over the airfield, especially inexperienced animals (e.g., owls).
e. Birds that habitually fly or soar into airspace used by aircraft (e.g., gulls or migrating waterfowl).

If a hazardous species is particularly numerous (e.g., swallows), then it might be considered a high-risk. Conversely, one or two pairs of swallows nesting on the airport property might be considered a hazard, but one associated with low risk.

Map 5 overlays Map 4 with likely wildlife pathways of connectivity and presents potential gull flight lines. The figure does provide some insight into the interaction of off-site land use and the presence of hazardous species within high-risk zones.

For the species considered to represent an elevated risk at YQF Airport, Table 15 provides several risk assessment tools. These are described in the following paragraphs.

Mass/Flocking Hazard Rank

This ranking system uses flocking characteristics and mass to provide a relative index of risk, should an aircraft strike the species. Examples are provided in Table 14.

Map 4 - Approach and Takeoff Routes for all Runways

Map 5 - Habitat Connectivity

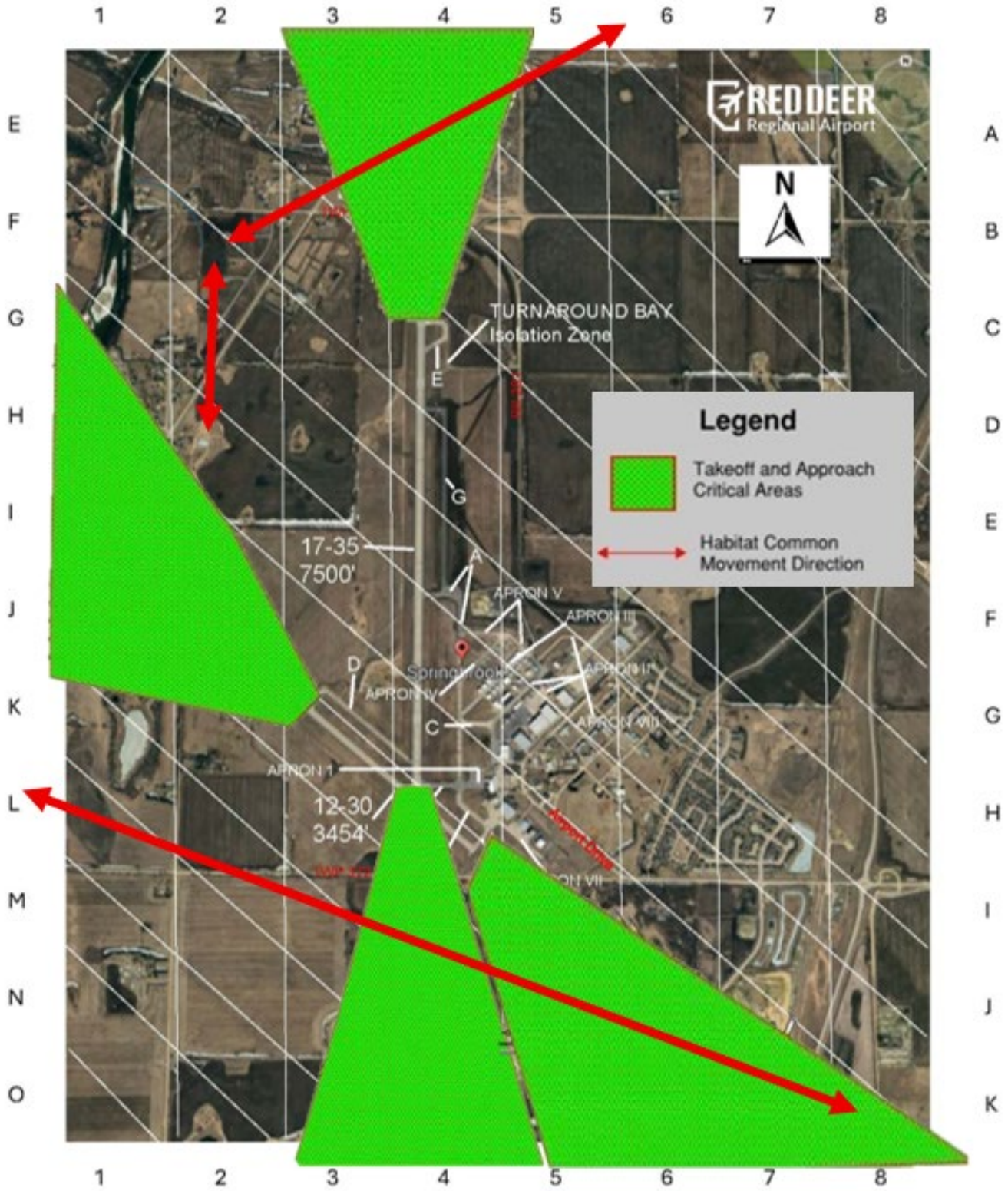


Table 14 - Risk Assessment Using Flocking Characteristics and Mass

Level of Risk	Characteristics	Example Species
Level 1	Very Large (>1.8 kg), flocking	Geese (all), Cranes (all), and Swans (all)
Level 2	Very Large (>1.8 kg), solitary or Large (1-1.8 kg), flocking	Herring Gull, Mallard, Great Blue Heron
Level 3	Large (1-1.8 kg), solitary or Medium (300g - 1 kg), flocking	Red-tailed Hawk, Teals, Pigeons
Level 4	Medium (300g - 1 kg), solitary or Small (50 g - 300 g), flocking	Blackbirds, Starlings, Northern Harrier
Level 5	Small (50 g - 300 g), solitary or Very Small (<50 g), flocking	Swallows (all), Snow Bunting, American Kestral
Level 6	Very Small (<50 g), solitary	Savannah Sparrows

Note: Based on Kelly, 2004

Relative Hazard Score

This is sourced from Dolbeer *et al.* (2000). In the study, strike data was analyzed and assessed for relative risk associated with 21 different species groups. This analysis examined damage to aircraft, major damage, effects on flight, and from this data determined a composite ranking. It is important to remember that this assessment is entirely based on recorded strikes. That is, all these species present proven risks to aircraft. They effectively occupy the top portion of a list of potentially hazardous species that occur on airfields in Canada.

Transport Canada Hazard Rank

Transport Canada rank for most hazardous wildlife (1 through 20, with 1 being the highest hazard) is provided, based on *Airport Wildlife Management and Planning Standard 322.321*. This list ranks wildlife from most hazardous to least hazardous by species group and as such, identifies the species that should be of primary concern for the operator. All listed species are thought to be hazardous, and the status of some species may have changed since the ranks were established (e.g., Turkey Vulture is an increasing hazard to many areas of Canada; however, it is yet to become a strike risk at most airports).

Two columns are also provided for specific assessments for this airport for relative abundance (H-M-L) and hazardous behavior (H-M-L) based on the previous sections of this report. The following criteria are used to help assess the risk levels at this airport.

Relative Abundance

-High Frequently present in conflict areas; may be seasonal; multiple daily observations; often numerous.

-Medium Occasionally and regularly present in conflict areas; not present daily, but present weekly; sporadically numerous.

-Low Occasionally and infrequently present; usually not numerous.

Hazardous Behavior

-High Frequently flocking in conflict areas; regular flight lines through conflict zone; unpredictable response to aircraft (e.g., inexperienced birds); frequently active in poor light.

-Medium Sporadic flocking in conflict areas (e.g., when food supplies dictate); sometimes active in poor light.

-Low Rarely or never flocking; seldom feeding close to conflict zone; usually active only in daytime.

The final three columns in the risk matrix represent qualitative based on air traffic type and volume at this airport (using the three categories provided in Table 9). The following criteria are used to help determine risk by aircraft type and traffic volume.

-Severe Frequent high-risk aircraft movements coinciding with high values for other risk factors (i.e., relative abundance, hazardous behavior, risk/hazard rankings).

-High Frequent high or moderate risk aircraft movements coinciding with high or moderate values for other risk factors.

-Moderate Occasional or regular moderate risk aircraft movements coinciding with moderate or sometimes high values for other risk factors.

-Low All other categories

The risk assessment matrix does not provide numerical computations and none of these values are absolute. Therefore, the purpose of the table is to draw attention to high-risk species for management purposes and to guide management priorities rather than absolutely quantify the risk.

Table 15 - Risk Assessment Matrix for YQF Airport

Species Group	General Risk and Hazard Ranking Tools			For Red Deer Regional Airport (YQF)		Risk Assessment by Aircraft Type[4] and (volume)		
	Mass/ Flocking Rank[1]	Relative Risk Score[2]	Transport Canada Hazard Rank[3]	Relative Abundance	Hazardous Behaviour	1 *Turbo Fan*	2 *Heli & Turboprop*	3 *Piston*
White-tailed Deer / Mule Deer	1	100	1	**M**	**H**	**M**	**M**	**M**
Canada Geese	1	52	2	**L**	**M**	**L**	**L**	**L**
Ducks (all)	2.5	37	5	**L**	**M**	**M**	**L**	**L**
Gulls (all)	3	22	3	**H**	**H**	**H**	**M**	**M**
Hawks (all)	3	25	3	**L**	**L**	**L**	**L**	**L**
Coyote	1	30	2	**M**	**L**	**L**	**L**	**L**
Fox (all)	6	5	10	**L**	**L**	**L**	**L**	**L**
Blackbirds	4	9	13	**L**	**L**	**L**	**L**	**L**
Starlings	4	9	13	**L**	**L**	**L**	**L**	**L**
Magpie	5	20	13	**M**	**L**	**L**	**L**	**L**

Note:

1 *This mass/flocking score is based on mass and propensity of a species to flock. The scale is based on 1 being the highest hazard and 6 the lowest hazard.*

2 *The Dolbeer Ranking System for relative risk; 100 is the highest, 2 is the lowest.*

3 *Transport Canada hazard list: 1 is the highest, 20 is the lowest; all are considered to be hazardous, and the status of some species has changed since the ranks were established.*

4 *The summary risk rank based on the three aircraft categories listed in Table 9 and considers the type and number of traffic movements. The scale is based on: Severe, High, Moderate and Low.*

The final management priorities provided in Table 15 will be consistent with the information provided in the Risk Assessment Matrix. A change in habitat conditions, wildlife attractants or aircraft type using the airport (e.g., an increase in commuter jets will result in a re-assessment of risk).

Overall, the final management priority rank should make sense in the context of the information provided in the previous sections of this AWMP. The final rank does not consider how manageable the species might be, just what the current assessment of priority is for the airport.

Table 16 - Wildlife Management Priorities for YQF Airport

Management Priority	Species Group
High	*Canada Geese*
	Gulls (all)
	Deer/Moose
Moderate	*Coyote*
	Hawks (all)
Low	*Magpies*
	Crows
	Ducks (all)

In summary, this assessment has:

- Screened out those species not considered to be an elevated risk.
- Considered the type and volume of air traffic movements at the airport.
- Applied a risk assessment matrix to hazardous species.
- Identified management priorities based on the risk assessment.

However, any wildlife species (even those not considered to be an elevated risk) may still from time to time represent a risk to aircraft safety or may increase in abundance or change their behavior and become an immediate concern.

Some of the risk assessments by aircraft type were considered to be severe or high, primarily due to the aircraft types and volumes using the airport and existing management activities.

Of those identified to represent an elevated risk, magpie and ducks are considered low priority, coyotes and hawk moderate and Canada geese, deer and seagulls are high priority.

5.0 AIRPORT WILDLIFE MANAGEMENT PLAN

5.1 Goals and Objectives

The goal of this Airport Wildlife Management Plan (AWMP) is to promote aviation safety for passengers and flight crews by reducing wildlife hazards and associated risks to aircraft and airport operations caused by wildlife activities on and in the vicinity of the airport.

The purpose of Section 5.0 is to identify management techniques that will be implemented to address the hazards and risks identified in Section 4.0 of this document.

The objectives of Section 5.0 of the AWMP are to:

1. Determine and implement wildlife management actions for the airport.
2. Identify required actions around the airport.
3. Establish a monitoring program for all aspects of the AWMP, including performance monitoring and annual reporting.
4. Establish communication procedures with respect to wildlife hazards.
5. Describe the training program, roles, and responsibilities.
6. Identify research needs that would assist the improvement of the YQF Airport Wildlife Management Plan.

5.2 Review of Available Wildlife Management Measures

Generally, there are tools and techniques available to manage wildlife hazards associated with airports to an acceptable risk level. Approaches to minimizing the potential for serious strikes at airports have focused on the following areas (after Jackson, 2001).

1. Manipulating habitat and access to habitat at or near the airport ("passive").
2. Dispersing, removing, or excluding wildlife from the airport ("active").
3. Influencing land use decisions around the airport where they may increase the hazard to aircraft.
4. Critical to the success of any wildlife management program is the human factor and the development of a Safety Management Systems approach (see Transport Canada, 2001 a). This encourages the application of the three "Cs" of leadership.

    Commitment: Wildlife management requires commitment at all levels from Senior Management to technical field staff. The available tools must be made to work effectively.

    Cognizance: Recognizing the hazards and risks and what needs to be done, when, and how, are key to successful wildlife management.

    Competence: Having adequately trained staff that have the ability to "out-think the wildlife, identify and properly apply the appropriate tools is critical to successful wildlife management. For example, this any involve considering any consequential effects of managing one species on the abundance of another.

In this Section of the AWMP a brief overview of wildlife management techniques is provided in tabular format, based primarily on the *Wildlife Control Procedures Manual* (Transport Canada, 2002). The Manual provides much more detail on these techniques and should be consulted directly. However, they are repeated here to provide ready summary of available techniques to compare against the hazard and risk assessments for this airport. It is important to link the actions being taken back to the hazard and risk assessment, as these prioritize the actions to be undertaken.

The active methods are primarily directed at the immediate airport environment. Additionally, techniques may be available for specific off-site applications (e.g., over-wiring active landfill facilities).

5.3 Passive Techniques

These techniques are generally those that alter habitat or permanently exclude entry (Table 16). Experienced wildlife managers know very well that measures to deter or exclude one species (e.g., short grass) will inevitably attract another species. There is an overriding principle that should be followed with habitat alteration: the minimization of habitat diversity. More diverse habitat means more diverse wildlife species. Managing one particular group of wildlife species can be easier than addressing a mosaic of species attracted by a variety of habitats through seasons.

Table 17 - Passive Wildlife Management Techniques

Examples	Suggested Approaches (see Wildlife Control Procedures Manual for more details)
Cropland	• Generally, none within 80 m of a runway. • Limit to hay, alfalfa, canola, flax, soy, wheat. • No standing bales in the fields. • Zero till planting. • Straight combining so no feed is left laying on the ground.
Grass	• Manage height according to hazards at the airport Adaptive management, experimental manipulation at individual airports.
Buildings	• Ensure entry holes/crevices are blocked, screened, netting. • Influence design of new buildings, slope ledges.

Open water, ponds, ditches, storm water ponds, poorly drained areas	• Drain, improve drainage. • Remove vegetation. • Control habitat.
Shrubs, trees, brush, hedges, woodland	• Remove undergrowth and under storey layers. • Reduce biodiversity, habitat niches.
Infield perching features	• Remove. • Apply spikes when required.
Waste storage	• All disposal containers must be wildlife proof. • Eliminate dumps on the airport.
Outdoor picnic areas	• Signage.
All remaining habitats, airport perimeter	• Chain-link fencing, high tensile fixed knot fencing.
Aircraft	• Ensure that bird nesting does not occur within parked aircraft.

5.4 Active Techniques

Active techniques fall into two major subgroups. These are:

1. Dispersal (various kinds of deterrents, hazing).
2. Removal (live capture, killing).

In the following table (Table 18), the relative efficacy of various techniques is also indicated. Many of these techniques are effective when used as part of an integrated program (e.g., playback of distress calls), but can be markedly ineffective when used incorrectly. For example, birds easily habituate to the playback call in the absence of other management techniques.

Because wildlife species often habituate to non-lethal threats within a few weeks, in the long-term, dispersal techniques are seldom effective unless a clear and present danger is presented to the target species (e.g., with a dog, raptor or live gunshot). The management challenge is to keep wildlife guessing when the threat is real, and when it is not.

Table 18 - Active Wildlife Management Techniques

	Techniques	Primary Targets	Potential Efficacy as Part of an Integrated Program
Non-lethal	Pyrotechnics	Birds and mammals	High
	Gas Cannons	Birds, especially migrants	Moderate
	Screecher	Birds, especially migrants	Moderate
	Rubber Bullets	Mammals	High
Lethal	Lethal trapping	Small mammals	Low
	Live ammunition shooting	Birds, some mammals	High

The advantages and disadvantages of each of these techniques, and the different forms of these techniques, are discussed and reviewed in the *Wildlife Control Procedures Manual* (Transport Canada, 2002b) and in Aerodrome Safety Circular 98-004-TP13029- *Evaluation of the Efficacy of Products and Techniques for Airport Bird Control* (1998).

5.5 Firearms

Firearms are heavily restricted and special permits are required. Special training is required before they are used in or around this airport.

In addition, the use of firearms in Canada (e.g., shotguns, but not typical pyrotechnic launchers) requires the possession of a PAL (Possession and Acquisition License). To obtain this license it is necessary for the individual license holder to undertake the Canadian Firearms Safety Course. A Federal Registration Certificate is also required for individual firearms that identifies to whom they belong.

When using firearms, empty casings shall be recovered; they can cause serious damage when ingested into turbine aircraft engines.

5.6 Other Permits Required

Wildlife management personnel must ensure that all appropriate permits are in place and current prior to operations commencing. This should include the following:

Migratory Birds – *Migratory Birds Convention Act*

Regulations under this Act protect most bird species, including gulls, (but excluding, for example, crows and blackbirds), and permits are required for active scaring as well as killing. Therefore, an application should be made for both a scare permit and a kill permit. The kill permit application will need to carefully establish the need for a kill permit, explain the limited use to which the permit will be put and the manner in which the lethal reinforcement and other alternate deterrents will be used.

Note: The regulations under this Act also include the protection of nests.

Provincial and Territorial Regulations
Provincial and Territorial regulations may require a Small Game License, or similar, to hunt or trap crows, selected blackbirds, and most mammals. Alberta Fish & Game require a Damage Control License.

Alberta Fish & Wildlife First Red Deer Place Suite 404, 4911-51st St.
Red Deer, Alberta T4N 6V4

Federal Firearms Act
In Alberta, all hunters should also be aware of federal laws surrounding the acquisition, possession, transportation and use of weapons and ammunition.

Canadian Pesticide Regulation
The use of some chemicals may also be controlled, and provincial regulation should be consulted.

Local Bylaws – Discharge of Firearms
Many urban and suburban municipalities have discharge of firearm bylaws in place that restrict the use of firearms. In these cases, it may be necessary to apply to the local authority for an exemption from a firearm discharge bylaw, for wildlife management purposes.

There are no local bylaws that pertain to the use of firearms on the airport.

5.7 Outside Airport Boundaries

Although most wildlife management activities detailed in this plan will take place within the airport limits, where most wildlife strikes occur, the immediate surroundings of airports are increasingly being scrutinized as critical sources for wildlife species that either visit the airport or pass through conflict zones.

In some circumstances, airports may extend their active or passive wildlife management activities beyond the airport boundary. However, the typical tool kit for influencing land use activities outside of the airport includes regulation, outreach, education (wildlife hazard awareness program), discussion and persuasion. The following approaches can be used to influence activities outside of the airport.

Airport Zoning Regulations
Airport Zoning Regulations that are established under the Authority of the *Aeronautics Act,* Section 5.4(2) could be enacted to prohibit land use activities that have been identified as hazardous to aircraft operations. As of July 2004, 55 airports across Canada have a Waste Disposal Clause contained within their zoning regulations.

Government Planners
Engagement in the local planning process is critical to influencing land use change around the airport. The airport operator can open a dialogue with planners, provide material and copies of the AWMP, and provide a presentation every two years on land use issues that affect the airport. It is important to keep this information current and to include all planning partners (i.e., in the case where the airport zone of influence impedes on two jurisdictions or where there are two or more tiers of planning authority). In some cases, local Official Plans refer applicants to seek consultation with the Airport Manager(s) when certain changes in land use activities are proposed near the airport.

Local Government
Providing an occasional presentation on wildlife issues at the airport to local, city or regional council is an important step in influencing future land use change applications. Many proponents will “test the water” with local politicians prior to launching a full-scale development application. Having wildlife concerns identified at the earliest possible stage will help encourage positive outcomes.

Land Users
The users of land around the airport can be engaged in a dialogue with the airport. This may be more easily facilitated when these landowners have a direct interest in the airport (e.g., a local farmer who also crops hay within the airport boundary). However, this does not mean that other land users should be excluded. An open house to discuss hazard issues, safety, potential liability, what land users can do to help and how the airport might be able to assist the land users is a useful start. Specific problems may indicate a need to contact individual land users.

Regulatory Agencies
Regulatory agencies may influence a variety of projects from wildlife habitat creation to the design of storm water management facilities. Without knowledge within the agency of wildlife strike issues, proponents of land use change may find themselves pulled in two different directions. The kinds of agencies that need to be regularly updated on airport wildlife issues include federal, provincial, and municipal authorities such as: Federal Department of Fisheries and Oceans, Provincial ministries responsible for natural heritage and land and water resources, and Conservation Authorities (or other flood and fill-oriented agencies).

Non-Governmental Organization (NGOs)
Some of the larger national or provincial NGOs may be involved in habitat creation initiatives and may be involved in a stakeholder group (e.g., Ducks Unlimited Canada). Others, such as natural history groups or humane societies, may become important to the airport if wildlife control, especially lethal control, is included as part of the AWMP. Organized public opposition can influence a variety of permit applications; it is therefore important to ensure that these groups are included when appropriate.

In some circumstances the striking of a stakeholder committee (a "Wildlife Management Committee") may help foster awareness and support for management actions of the airport. The airport will consider establishing such a committee, should the need arise.

5.8 Determination of Wildlife Management Activities for YQF Airport

Section 4.0 of this AWMP has presented detailed information on:

a. Aircraft movement statistics, including types.
b. Wildlife hazards and their habitats and movements.
c. A risk assessment for this airport.

In Section 5.0 (chapters 1 and 2), typical management tools that can be used on and off the airport have been discussed. In the following chapters, management activities that are intended to remove or manage the hazards and mitigate risks created by those hazards will be detailed.

This section has been broken into first, second and third priorities. The planned activities have been developed from a review of the problem species, what attracts them into the conflict zone (whether on or off the airport) and steps taken to address both the attractants (e.g., short grass, open water, small mammals, or worms as food) and the species themselves (e.g., dispersal of gulls).

It is important to note that steady improvement in wildlife management at the airport does not mean that all activities need to be undertaken in the first instance. It is intended that this plan will provide guidance on management priorities. Progress will be made towards plan objectives, as amended from time to time, over the next several years.

5.9 First Priority

Gull (Ring-billed, Herring, and Franklin's)
Highest Airport Risk Ranking: High Management Priority: High

Summary:

This species was ranked high priority, because it is frequently seen at the airport during rainy periods feeding on worms on the runway. Being medium-sized, it also has flocking habits and relatively slow flight. It tends to fly across the path of approaching aircraft when they are disturbed, due to the noise of coming/going flights.

Insufficient data is available to be certain on flight lines and potential risks. There has been a total of four documented strikes at this airport, involving the gull species, since 1995.

The following steps have been and will continue to be undertaken.

1. During daily airfield inspections gull activities will be noted and action taken, if a hazard to aircraft, it is noted.
2. Gull activities on the airport will be entered in Vortex when seen during daily airfield inspections.
3. When precipitation occurs that cause worms to emerge onto the runway and taxiway surfaces in great numbers, mechanical sweeping may be done to remove the worms.
4. Pyrotechnics, reinforced with live shooting, will be used whenever gulls are seen during wildlife patrols.
5. Airport tenants will be encouraged to contact the Director, Airport Operations when large numbers of gulls are seen on the airport.
6. Red Deer Air Traffic Control will be contacted when gulls are a hazard to aircraft and dispersal techniques are ineffective.

5.10 Second Priority

Deer (White-tail & Mule)
Highest Airport Risk Ranking: Moderate Management Priority: Moderate

Summary:
This species is ranked moderate, rather than high, because deer are more frequently seen passing by the airport, as opposed to being on the airport grounds, and mostly in Fall, rather than all year long. Deer can cause significant damage when struck by aircraft. They are also particularly active at dawn and dusk, when low light conditions make them hard to see. They frequently pass by the airport from one wooded area to another wooded area. They are infrequent or absent in typical winter and summer periods.

The following steps have been and will continue to be undertaken.

1. During airfield daily inspections any deer observed will be noted and appropriate action taken.
2. All deer sightings will be entered in Vortex.
3. All airport tenants and pilots will be encouraged to report all deer sightings on the airport.
4. Wooded areas on the airport grounds have been removed or reduced to discourage them from coming onto airport property.

5.11 Third Priority

Hawks (all)
Highest Airport Risk Ranking: Low Management Priority: Low

Summary:
This species is ranked low, because they are only in the grass areas around the airport and appear to have no interest in being on the runways. They do not like people or aircraft and leave the area quickly during active times.

The following steps have been and will continue to be undertaken.

1. This species will be carefully monitored for changes in numbers or behavior.
2. All sightings will be entered in Vortex.

5.12 Fourth Priority

Coyote
Highest Airport Risk Ranking: Low Management Priority: Low

Summary:
This species is ranked low, rather than moderate, because it is likely that only one or two pairs frequent the area. They also tend to displace and control a number of other potentially hazardous species as they limit the number of small mammals for raptors, and they may provide disturbance to deer.

The active control of coyotes has been enforced, as needed, due to the increased numbers on site.

The following steps have been and will continue to be undertaken.

1. This species will continue to be monitored for changes in numbers or behavior.
2. Coyote dens on the airport property will be removed or destroyed in the early summer to reduce the number of young, inexperienced animals wandering airside.

5.13 Monitoring

Monitoring is a critically important wildlife management tool. Monitoring provides information to assist the Director, Airport Operations (DAO) in adjusting the program in response to shifts in hazard and risk. It also provides a tool to demonstrate to regulators and others what the airport has been doing to minimize risks, and to maximize safety for its staff and the traveling public. This can be particularly important should a litigious situation arise.

Note: Monitoring includes reporting (5.14) and monthly summaries (5.15).

5.14 Wildlife Reporting

The first step in a good monitoring program is good record keeping. The most efficient manner to collate daily wildlife logs is using software specifically designed for the task. A program is in place at this time to record and analyze wildlife behavior, management of the wildlife, and strike data. Airport Operations Specialists are performing these checks during wildlife observations as part of the daily Physical Inspection Check List as well as randomly through the day to catch wildlife off guard. This includes date, numbers and species, map location, control activity, details of lethal control, results/evaluation, personnel, and other pertinent information.

All logs will be recorded in Vortex.

5.15 Monthly Summary

At the end of each month a Vortex wildlife module report summary will be provided during the RDRAA monthly internal safety meeting. The report is compared to previous months for any environmental changes or unusual conditions that may have led (or might lead) to unusual wildlife hazard situations, or changes in risk assessment.

This report can bring up discussion of wildlife interactions to help focus the need for future changes to the AWMP. For example, success in managing one species that leads to a sharp increase in another species should be noted, even if the evidence is largely circumstantial and anecdotal. The “best judgment” of the experienced DAO on the ground will be given careful consideration.

These reports are stored in Vortex under the monthly internal safety meetings along with any significant changes of operation in the notes taken.

5.16 Wildlife Strikes

CARs 302.303:

(2) Wildlife remains that are found within 200 feet of a runway or an airside pavement area are presumed to be the result of a wildlife strike unless another cause of death is identified.

(3) The operator of the airport shall submit a written and dated report to the Minister

(a) for each wildlife strike, within 30 days of its occurrence; or

(b) for all wildlife strikes that occur in a calendar year, before March 1 of the following calendar year.

Red Deer Regional Airport has an agreement with Vortex and Transport Canada in which Transport Canada can view the Red Deer Regional Airport's wildlife strike data within Vortex. This satisfies the requirements of CARs. Proof is attached below.

HD

Harris, Devon <devon.harris@tc.gc.ca>
Today, 6:15 AM
Tyson Shearer

Reply all

Hi Tyson,

We don't have any written agreement, but as long as the vortex tool is used to submit all wildlife strikes and you've given Vortex permission to provide that information directly to me, it satisfies the requirements for submission. I have spoken with regional inspectors to let them know.

The responsibility to report still remains, so please be sure that all strikes are being reported as such into the Vortex system. This includes when remains are found but no strike was reported as well as if a pilot reports a strike, but no remains are found.

Thanks,

Devon Harris
Wildlife Management / Gestion de la faune
Aerodrome Standards / Normes relatives aux aérodromes
613-990-4869
devon.harris@tc.gc.ca
Transport Canada / Transports Canada
Place de Ville (AARTA), Ottawa, Ontario K1A 0N8

Reports are made to Canadian Wildlife Services, Wildlife Enforcement Division

When reporting a wildlife strike the Transport Canada form titled- "Bird/Wildlife Strike Report" #51-0272, can be used, and is available on-line at:

http://wwwapps.tc.gc.ca/Saf-Sec-Sur/2/bsis/s_r.aspx?lang=eng

Any information that the airport operator has, that is outlined on the form, should be included. If strike data becomes an increasingly reliable source of information, this will assist in the risk analysis procedure for this airport and future updates to the AWMP.

Wildlife strikes are now defined by Transport Canada as occurring when:

a. A pilot reports the striking of wildlife.
b. Aircraft maintenance personnel identify damage to an aircraft as having been caused by a wildlife strike.
c. Personnel on the ground, report seeing an aircraft strike wildlife.
d. Wildlife remains are found within 200 feet of a runway or an airside pavement area unless another cause of death is identified.

Strike data will be entered into the wildlife management database with the required fields of information provided (see Appendix 3 of the *Wildlife Control Procedures Manual*). The software discussed in the preceding section includes a data entry window for wildlife strikes.

At this airport, regular wildlife patrols will note any dead wildlife found within 200 m of the runway centerline, for struck wildlife species. Notation will also be made of any animal remains that are considered non-strikes prior to their removal.

Where the identity of remains of wildlife species that have been struck is in doubt, parts will be preserved for identification. After taking a digital photograph for the Wildlife log, remains will be bagged (i.e., bones, fur, feathers, bill, and feet, but not soft tissue). Specialists may be able to identify a bird from a single small feather, so even if they look unidentifiable, remains should be recovered. Specimen material can be sent by courier to:

Canadian Bird Strike Services
Biodiversity Institute of Ontario
University of Guelph
50 Stone Road East
Guelph, ON N1G 2W1

Include the following information: airport name and location date and local time of strike, light conditions, aircraft type, phase of flight, altitude (AGL), speed (KIAS), part(s) struck, damage and any additional comments. The analysis report will be returned directly to you, i.e., common name, genus, species, and approximate weight. Please send a copy of the report to:

Wildlife Control Specialist Transport Canada, Civil Aviation Aerodromes and Air Navigation
Place de Ville, Tower C, 330 Sparks St.
Ottawa ON K1A 0N8 Telephone: (613) 990-3742
Facsimile: (613) 998-7416

The DAO should also consider the collection of any strikes; as stomach contents, or bird identification of approximate age, can be a factor for future consideration (i.e., stomach contents may reveal what food source was attracting the bird to the airport).

In addition to any studies, research, or other new information that is available, the Vortex entries and the Monthly Summaries will be carefully examined for information that will assist the required two-year update to this AWMP.

5.17 Establishment of Performance Indicators and Self-Assessment

The establishment of performance indicators is critical to help determine the need for enhancement or modification. It is also very necessary because actions to reduce one wildlife hazard will inevitably result in improved conditions for some other wildlife species. When inadvertent effects such as these result in an increased in hazards, this must be recognized and addressed.

The seven primary measurements of performance in this plan are:

1. The number of wildlife strikes.
2. Strike rate.
3. Damage associated with strikes.
4. Individual species hazard assessment.
5. Feedback from airport users.
6. Risk rankings for this airport.
7. The status of action items that have been recommended in the plan.

Strike data will be generated from the monitoring program and the annual strike report must be filed with Transport Canada (http://wwwapps.tc.gc.ca/Saf-Sec- Sur/2/bsis/) prior to March 1 of each following year. Although this airport is interested in reducing the overall strike rate independent of air traffic movements, it is true that more strikes are likely when air traffic increases. Therefore, the strike rate will also be measured per 10,000 air traffic movements. A discussion of damage related to strikes will also be provided, as strikes that do not produce much or any damage may not be treated with the same level of concern as damaging strikes.

The hazard and the risk assessment will be updated and compared to the previous assessments in the AWMP every two years (or earlier if a significant change in hazards or risk). A discussion of any changes will be provided.

Feedback from airport users will be sought and reported in time for each two-year update; this will help determine if the wildlife program is being responsive to their needs.

The final measurement will be the extent to which action items in the plan have been instigated. A list of action items is provided in Section 17; this will be put into tabular form for the updated AWMP and the status of the proposed actions will be noted.

Taken together, these seven measurements will form an effective and objective measurement of performance of the AWMP for this airport.

5.18 Summary of Activities and Approaches

Several of the proposed management techniques in the previous sections are duplicated. For example, the removal of a particular habitat feature, such as a pond, will reduce the hazard and risk associated with several groups of species (e.g., geese, ducks, and blackbirds).

In this section, a brief bullet point summary of activities is provided, along with other requirements such as permits.

Passive:

1. Short grass length at the airport will be kept to a minimum (except where shorter grass is required for navigation aid and around maneuvering areas).
2. Long grass areas will be cut yearly.

3. Bare vegetated areas will be minimized except crop land that has been tilled at the end of the growing season.
4. Vegetation along fences will be cut as required and the fences will be checked monthly.
5. All garbage bins on site will be enclosed or covered.
6. Entry holes for starlings, Rock Doves and swallows will be identified, and filled or covered.

Active:

1. Wildlife patrols will be part of the daily airfield inspections.
2. Sweeping of runway and taxiway areas will be undertaken following mass emergence of earthworms.
3. Gulls and coyotes will be selectively shot at the airport to reinforce deterrents.
4. Wildlife patrols will note any dead wildlife as strikes within 200 feet of a runway or an airside pavement area
5. Wildlife patrols will photograph any struck wildlife and if necessary bag some specimen material for identification by specialists (if not already identifiable).
6. Any animal carcasses on the airport or the adjacent road will be recorded, removed by wildlife patrols, and disposed of in a manner that makes them unavailable to scavengers.
7. Pyrotechnics and report shells (reinforced with live shooting where appropriate) will be used whenever high or moderate risk species are seen during wildlife patrols.
8. Wildlife patrols will be increased in April and August or when monitoring shows increased use of the airport by gulls.
9. Active coyote dens within the airport will be destroyed during Spring/Summer.

Other:

1. Monthly summaries will be reviewed in monthly internal safety meetings as required.
2. Strike reports will be prepared and submitted to Transport Canada within 30 days of the strike occurrence and will be documented in Vortex.
3. The AWMP will be reviewed and updated at a minimum of every two years if changes warrant.

Equipment, Contract Requirements and Permits

1. An equipment list will be prepared for the AWMP as it is purchased.
2. A Wildlife Management and Wildlife Strike software program is in place (Vortex).
3. Federal kill permits for migratory birds will be updated to include the additional species as required.
4. All persons using firearms will be required to obtain the proper federal permits and licenses.

5.19 Communication Procedures

The following communication procedures have been established for the purposes of wildlife management at this airport.

1. Information will be provided directly from the field staff on duty to the Air Traffic Control (ATC) Specialist via radio contact.
2. Field staff will be responsible for ensuring that updated wildlife information is provided to YQF-ATC immediately if an urgent situation arises and on a regular basis depending on the current conditions.

5.20 Training Program

The Wildlife Management and Planning Regulation requires that a training program be established for the AWMP in accordance with airport standards. Properly trained staff to implement the plan, to reassess risks and to provide updates to this plan every two years, is an essential and required part of the regulation.

Effective wildlife management is critically dependent on staff with the tools, knowledge, and motivation to complete the task at hand. Transport Canada has a standard training program that is available for wildlife management staff. The program will address the following.

- Nature and extent of wildlife management problem.
- Regulations, Standards and Guidelines.
- Ecology and biology of key species.
- *Wildlife Control Procedures Manual* (TP 11500) and *Sharing the Skies* (TP 13549).
- Species of conservation concern.
- Liability.
- Habitat management.
- Issues outside of the airport boundary.
- Active management.
- Removal techniques.
- Firearm safety (a pre-requisite being the Canadian Firearms Safety Course).
- Wildlife Management Planning.
- Development and implementation of awareness programs.
- Monitoring.
- Training record and schedule.

In addition to training directly associated with wildlife behavior and the application of management techniques as part of the AWMP, it is essential that safety requirements are fully reviewed and addressed. This should include at a minimum:

- Safe use and storage of pyrotechnics.
- Safe use, storage, and maintenance of pyrotechnic launchers.
- Identification and mandatory use of safety equipment.

The following table (Table 19) details the staff that have attended the training program. Training certificates are stored under the Vortex Training Module.

Table 19 - Training Program

Name	Title	Date of certification
Derwin Hein	Director of Operations	April 23, 2025
Gabriel Jaruchik	Operations Specialist	Upcoming
Zac Lambert	Operations Specialist	April 23, 2025
Quintin Bell	Operations Specialist	March 19, 2025

5.21 Roles and Responsibilities

The **Director, Airport Operations** is accountable to the CEO/Accountable Executive and is ultimately responsible for the following.

a. Making document changes in the manual, as required by law, and instructed by CEO.
b. Review of updated manuals, and any final changes made, before submission to Transport Canada.
c. Sending documented manual changes to Transport Canada.
d. Assist in getting bird strike data in by March 1, each year, as provided by Operations, to Transport Canada.
e. Register staff for Wildlife training courses/refresher seminars as required.
f. Coordinating, supervising and overall management of the AWMP.
g. Review monthly wildlife log data to determine if adjustments in the Wildlife Maintenance Plan need to be reviewed, or changes in procedures need to be made.
h. Acquisition of the various permits.
i. Initiate any projects / studies that are required to study effects of changes that may impact the wildlife program that may be happening due to the growth of the airport, or changes in maintenance procedures.

The **Airport Operations Specialists** are accountable to the Director, Airport Operations and are responsible for:

a. Maintaining the Wildlife Management Log via Vortex (including strike data, details on wildlife numbers and activity, AWMP measures undertaken, firearm use details, details on the use of lethal reinforcement and monthly summaries).
b. Co-ordination of the monitoring program.
c. Aid in the preparation of the annual strike report.
d. Ensure that airport operations are consistent with the requirements of the AWMP.
e. Ensure that the appropriate permits are current and present on-site.
f. Undertake deterrent activities.
g. Ensure all activities that are undertaken follow standard practices and safety protocols.
h. Identify equipment, resources, and additional needs at a site-specific level.
i. Provide updates, with full details, to the Director, Airport Operations/CEO wildlife strikes, concerns, and measures recommended be undertaken.

5.22 Research Projects

Occasionally a research need will be identified. This may be related to a proposed change in habitat management. A good example is changes to grass height, which are very much airport-specific. When a target grass height is increased, for infield grass, to dissuade certain species (e.g., European Starlings and Killdeer), habitat opportunities for other species (e.g., Sandhill Cranes and deer) may increase. A small-scale research project may be needed to determine which option works best in the overall framework of wildlife management.

Any necessary studies to ensure that unacceptable effects of the proposed habitat change do not outweigh the benefits, will be documented in this section in future updates to this AWMP. Documentation will include a summary of the purpose and objectives of any initiatives, the methods to be employed to satisfy the objectives, and timelines for the project. Future updates or special reports (e.g., to Bird Strike Committee Canada) will provide the results of the research.

Current priorities for research at this airport: No research priorities identified at this time.

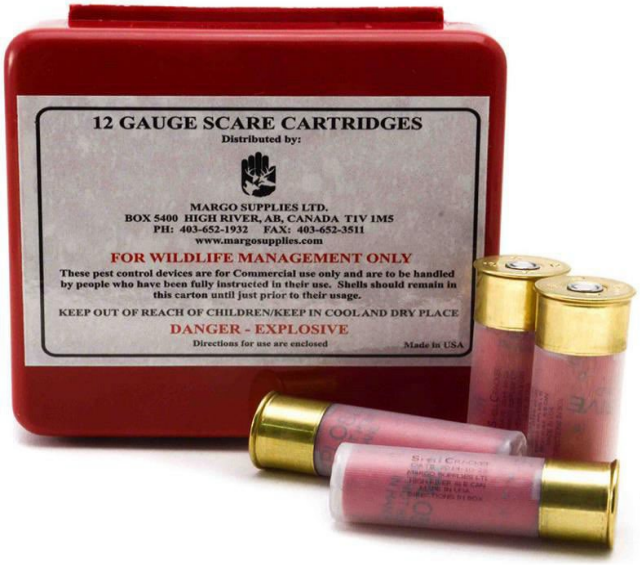
6.0 APPENDICES

6.1 Appendix A - Passive Techniques Used at RDRA

Bird Screecher

Bird Cannon

12 Gauge Scare Cartridges



Scare Pistol (Bangers, Screechers, Whizzers)

6.2 Appendix B - Active Techniques Used at RDRA

12 Gauge Shotguns

.243 High Velocity Rifle

.17 Pellet Rifle

Richardson Ground Squirrel Trap

6.3 Appendix C – Wildlife and Food Sources Bulletin

Safety Bulletin 2025-01

January 8, 2025

Distribution List: All Airport Users

Wildlife and Food Sources

This publication is to remind Red Deer Regional Airport Staff and Tenants about the policy against feeding wildlife or leaving food sources available for wildlife to access. It is EVERYONE's responsibility to help keep wildlife away from the airport's maneuvering areas and aprons, by not feeding wildlife and keeping food sources such as open trash or dropped food from being accessed. Airport staff have duties to scare off any wildlife on the premise when possible and deter the animals from wanting to come back onto airport property. For a list of these methods, please refer to Red Deer Regional Airport's Wildlife Management Plan on our website (Publications & Policies | Red Deer Regional Airport). With everyone's cooperation with this policy, we will provide another layer of safety in preventing wildlife strikes and near misses.

Any questions or concerns can be referred to any Red Deer Regional Airport staff, and we will do our best to answer or accommodate.

Derwin Hein
Director, Airport Operations
Red Deer Regional Airport
T: 403.886.4388
C: 403.318.7842

6.4 Appendix D - References

Canada. Transport Canada. 2001a. Safety Management Systems (TP13739E). Ottawa: Transport Canada.

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