FORTIS ALBERTA

Avian Protection Plan

May 2019

Table of Contents

List of Tables

List of Figures

1 Introduction

FortisAlberta is committed to providing electrical service to over 550,000 residential, farm and business customers in Alberta. FortisAlberta serves more than 240 communities with more than 124,000 km of distribution power lines. The service territory includes two national parks, several provincial parks and recreation areas, three military bases and various provincial land management agency jurisdictions.

1.0 Scope

The purpose of an Avian Protection Plan (APP) is to provide the framework for a utility specific program that will reduce impacts to raptors and migratory birds, minimize operational risks and ensure compliance with environmental legislation (APLIC 2006). An APP is designed depending on the location and geographic extent in which a utility operates and the vintage and type of facilities the utility owns. The benefits of an APP are enhanced service reliability, reduced bird mortality, favorable public perception and the maintenance of positive working relationships with regulatory agencies.

This Avian Protection Plan (herein "the Plan") places emphasis on preventing avian electrocution and collision mortality by identifying high-risk areas and prioritizing remedial actions based on the combined level of biological and engineering risk. An electrocution risk assessment will provide a proactive approach to avian electrocution issues while reducing the number of power outages attributed to bird interactions with power lines. Additionally, the Plan includes a review of construction standards to ensure that avian-safe considerations are incorporated into new designs where possible. Finally, the Plan provides guidance for the consideration of raptors and migratory birds that nest on or proximate to FortisAlberta's facilities, increasing species protection and ensuring due diligence with wildlife related legislation.

1.1 Principles of an APP

This plan was developed based on the principles outlined in the Avian Protection Plan Guidelines, prepared by Avian Power Line Interaction Committee (APLIC) and the U.S. Fish and Wildlife Service (2005). Although a similar document standard has not been published in Canada to guide avian protection for electrical utilities, the APLIC Guidelines represent a universal tool kit that can be applied to FortisAlberta's business. Several of APLIC's principles will be used to guide and implement this Plan both to align with a recognized industry standard and to complement FortisAlberta's practical focus on asset management and reliability initiatives.

1.2 Goals of the Plan

FortisAlberta has implemented avian protection in the form of perch deterrents, cover-ups, and alternate nesting platforms for the past two decades. Bird protection efforts are focused on meeting

reliability standards imposed by the Alberta Utilities Commission and on reducing customer outages to increase the overall reliability of the distribution system. Ad-hoc bird protection is applied to remove "bird traps" during line patrols and during routine maintenance work. Targeted maintenance programs, such as Bird Proof Main Line Apparatus, focus on main line structures to reduce sustained and multiple customer outages.

This voluntary plan supports practices of avian protection and includes standards that will be applied to existing infrastructure and future installations. Implementation of these standards serves the overall purpose of reducing the potential for unintentional impacts to raptors and migratory birds associated with FortisAlberta's distribution system. The goals of the Plan are to:

- Assist FortisAlberta in compliance with federal and provincial legislation regarding avian species to avoid the threat of penalties and fines
- Aid in the recovery of species at risk by prioritizing mortality reduction measures in sensitive habitats
- Improve service reliability and reduce repair costs by reducing power outages due to avian interactions with the power line
- Identify and isolate where electrocution and collision mortalities have occurred or have the highest risk of occurring, using risk assessment methodology, to minimize future incidents
- Reduce the potential for electrocution impacts to raptors and other bird species by implementing a mortality reduction program (retrofits, rebuilds, line burial)
- Ensure new distribution line construction implements bird-safe standards

1.3 Implementation Plan

A phased approach will be necessary to plan and implement the Plan to account for FortisAlberta's vast service territory and relatively dense network of distribution infrastructure. To assist in setting priorities to best meet the goals of this Plan, a coarse scale assessment of FortisAlberta's service territory will be conducted. The assessment will consider species' status and geographic ranges, number and density of past outages and several social factors including the locations of urban centres, parks and protected areas, and designated habitat areas. Prioritization based on the aforementioned combination of environmental, economic and social factors, will ensure that resources are directed where the greatest benefit to both birds and electricity customers will be realized.

2 Justification

2.1 Reliability and Customer Service

Service reliability as a core commitment to customers is one of the key facets of the Company's overall business plan. FortisAlberta will continue to make investments that improve service reliability in the communities the Company serves. Weather events and bird or animal interactions with the power line continue to represent the greatest proportion of outages (Figure 1). Although bird or animal caused outages have declined by 12 per cent overall from 2011 to 2018, data show that birds or animals continue to contribute an average of 17 per cent of the overall system outages. Many of these outages are preventable and are anticipated to further decrease throughout the execution of the Plan.

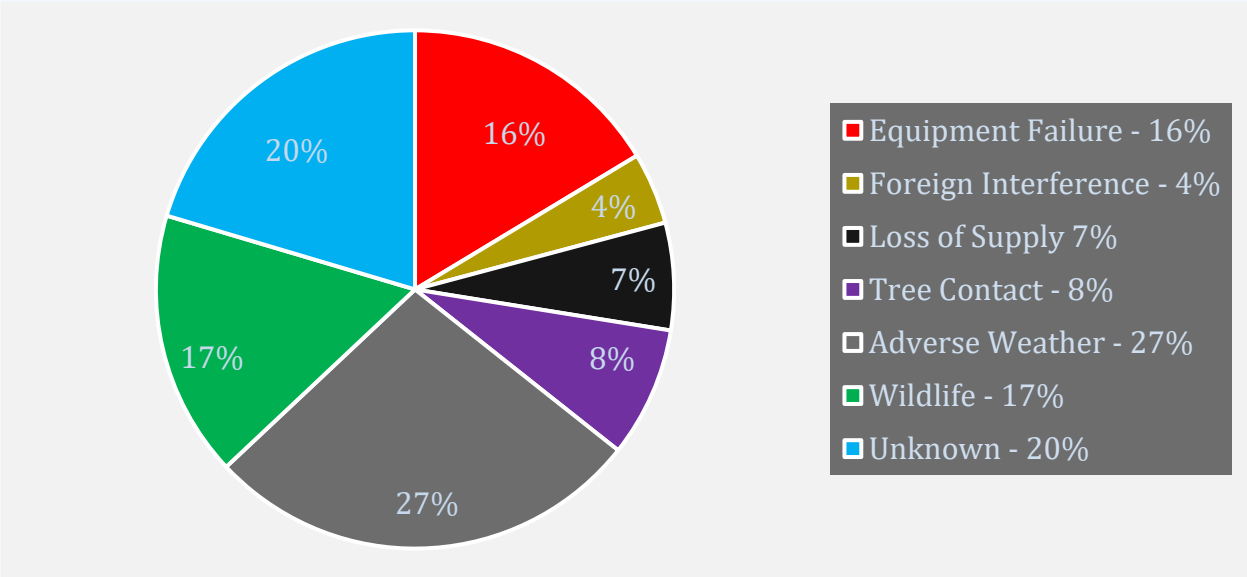

Figure 1. 2018 Summary of Outages by Cause (excluding preplanned outages)

2.2 Legal Background

The voluntary implementation of an avian protection plan will support compliance with the *Migratory Birds Convention Act*, the *Species at Risk Act* and Alberta's *Wildlife Act*. Noncompliance with these acts and/or failure to take reasonable measures to avoid impacting avian species during the course of constructing, operating, and maintaining an electrical distribution system may result in fines and other penalties.

2.2.1 Migratory Birds Convention Act and Regulations

The *Migratory Birds Convention Act* (MBCA) protects the nests, eggs, and individuals of most migratory birds in Canada except for rock dove, European starlings, house sparrows and other non-indigenous birds. Birds not falling under federal jurisdiction within Canada include grouse, quail, pheasants, ptarmigan, hawks, owls, eagles, falcons, cormorants, pelicans, crows, jays, and kingfishers.

Industries across Canada have a growing concern with respect to prohibitions under the Migratory Bird Regulations (MBR) pertaining to the destruction or disturbance of nests and eggs. Electrical distribution and transmission utilities are potentially exposed to prosecution and penalties under the MBR in instances where the nests, eggs, and young of migratory birds are accidentally impacted. This inadvertent disturbance, destruction, taking or hunting of nests, eggs, and young or adult migratory birds has been termed "incidental take" by Environment Canada.

Currently, there is no legal mechanism available to authorize via a permit or exemption the incidental take of individuals, nests or eggs of migratory birds that may occur as a result of industrial activities (Environment Canada 2011). To maintain compliance with prohibitions in the current MBR, Environment Canada provides recommendations to avoid potentially destructive activities during key nesting periods and to minimize or mitigate impacts on nests. Any disturbance to nests or eggs, whether intentional or unintentional, and regardless of the scale of the activity, the level of potential impacts on bird populations, or the nature of mitigation measures taken, would constitute an offense. These offenses are considered strict liability offenses, meaning that a corporation can defend itself by proving that all reasonable steps were taken to avoid or mitigate disturbance or destruction of the nests and eggs of migratory birds. The Canadian Electricity Association has developed a beneficial management standard to assist utilities in creating programs to reduce the risk of incidental take.

2.2.2 Species at Risk Act

The federal *Species at Risk Act* (SARA) provides protection to species designated as endangered, threatened or extirpated. The Act provides for two types of protection; a basic prohibition against killing or harming the species and its residence and a separate prohibition protecting critical habitat.

SARA applies in the first instance to federal jurisdiction species, including aquatic species and migratory birds, wherever they occur in Canada. SARA protection for all other endangered, threatened and extirpated species may apply automatically to private and Crown lands if protection provided under provincial or territorial legislation is deemed inadequate and emergency orders or other 'safety net provisions' are invoked.

In the context of an APP, a person, including a corporation, is prohibited from killing or harming a listed bird and from damaging or destroying a listed bird's nest. Intentional or unintentional death, injury, disturbance or destruction would constitute an offense. These offenses are considered strict liability offenses, meaning that a corporation can defend itself by proving that all reasonable steps were taken to avoid or mitigate the death, injury disturbance or destruction of a listed bird and its nest. Birds listed under SARA that occur in Alberta are summarized in Table 1.

2.2.3 Wildlife Act

Most birds not offered protection under the MBCA, including raptors, are protected under Alberta's *Wildlife Act.* The Act and regulations prohibit a person, including a corporation, from willfully molesting, disturbing or destroying an individual, house, nest, or den of prescribed wildlife at prescribed times. This prohibition includes the nests of endangered and threatened birds, raptors, upland game birds, all birds protected under the MBCA and nest of birds in wildlife or game bird sanctuaries.

3 Species and Areas of Management Concern

Of the 415 species on the Official List of the Birds of Alberta (Royal Alberta Museum 2011) relatively few require special management around electric utility structures, outside of the utility demonstrating due diligence under relevant provincial and federal wildlife legislation. Those that do are presented below. In the same manner, FortisAlberta's service area is broad and crosses a wide range of habitat types. There are some that are more sensitive and require more specific management than others. These are discussed here in further detail.

3.1 Species of Management Concern

3.1.1 Raptors

Raptors, or birds of prey, which include hawks, owls, eagles, falcons, osprey, and usually, vultures, are a key group of management concern for FortisAlberta. They are highly susceptible to electrocution mortality because of a combination of their large body size, and their tendency to use distribution power poles for hunting, resting, feeding, and nesting, and other purposes. This, combined with their legal protection can present some unique challenges for FortisAlberta. However, raptors in general, and more specifically, their use of power lines, have been well-studied, and this collective body of knowledge can be applied to provide effective management solutions.

3.1.2. Other Species of Management Concern

Ducks, geese, swans, and other water birds: These are the birds most likely to collide with power lines. This is especially prevalent with power lines that are located over or near lakes, ponds, rivers, wetlands, and other waterbodies, or between wetlands and feeding areas (e.g., agricultural fields) where birds make regular flights, particularly at dawn and dusk.

Ravens and Crows: Ravens, and to a lesser extent, crows, are often involved in avian incidents on FortisAlberta's infrastructure. Ravens are very large (approximately the same size the largest owls in Alberta), often build nests on power poles, and are relatively curious and intelligent, leading them to behave differently around power poles than other birds. They also tend to congregate in large groups.

Nesting Birds: Any nests built on or near FortisAlberta's infrastructure may require management if nesting activity conflicts with safe and reliable operation of the service. Examples include osprey or Canada goose nests on power poles, woodpeckers nesting in power poles, ground-nesting birds in the

right of way, or songbird or other nests in trees in a planned right of way. FortisAlberta has developed a Nest Management Best Practice, *OPR 200.48, Active Bird Nest Management* (See Section 6).

3.1.3. Species at Risk

There are eight birds listed as *Threatened* or *Endangered* under the Alberta *Wildlife Act*; six of those are also federally listed. There are an additional eight federally listed *Threatened* and *Endangered* Birds that occur in Alberta (see Table 1). These species, as well as provincially and federally designated Special Concern species, breed or spend part of their time in FortisAlberta's service regions, and most of them are predominantly found in the Grasslands Natural Region.

While all species at risk must be considered in the full spectrum of FortisAlberta business, a handful of *Endangered, Threatened*, and *Special Concern* species are at a higher risk of direct mortality through electrocution and collision. Specifically, electrocution risk is higher for ferruginous hawks, peregrine falcons, and short-eared owls, while collision risk is higher for whooping crane and trumpeter swans, relative to other species. By prioritizing mitigation work in ferruginous hawk habitat, for example, FortisAlberta is aligned with strategies in the Alberta Ferruginous Hawk Recovery Plan 2009-2014 (Alberta Ferruginous Hawk Recovery Team 2009).

Table 1. Provincially and federally[1] designated *Endangered*, *Threatened* and *Special Concern* Birds occurring in Alberta as of December 2011.

Species	Provincial Status[2]	Federal Status[3]	Risk of Direct Mortality[4]	Predominantly Grasslands Species
Peregrine falcon	TH	SC – no schedule	•	
Ferruginous hawk	EN	TH-1	•	•
Trumpeter swan	TH	N/A	•	
Burrowing owl	EN	EN-1		•
Sage grouse	EN	EN-1		•
Barred owl	SC	N/A		
Prairie falcon	SC	N/A	•	•
Whooping crane	EN	SC-1	•	
Common nighthawk	N/A[4]	TH-1		•
Sage thrasher	N/A	EN-1		•
Loggerhead shrike	SC	TH-1		•
Olive-sided flycatcher	N/A	TH-1		
Piping plover	EN	EN -1		•
Mountain plover	EN	EN-1		•
Red knot	N/A	EN-no schedule		
Sprague's pipit	SC	TH-1		•

Long-billed curlew	SC	SC-1		•
Chestnut-collared longspur	N/A	TH-no schedule		•
McCown's longspur	N/A	SC-1		•
Rusty blackbird	N/A	SC-1		
Short-eared owl	N/A	SC-3	•	•
Yellow rail	N/A	SC-1		
Canada warbler	N/A	TH-1		
Black-throated green warbler	SC	N/A		
Harlequin duck	SC	N/A		
Western grebe	SC	N/A		
Horned grebe	N/A	SC – no schedule		
Barn swallow	N/A	TH – no schedule		

[1] As designated by COSEWIC; COSEWIC lists are updated biannually.

[2] As designated by ASRD. "EN" (*Endangered)* and "TH" (*Threatened)* species are listed as such under the provincial *Wildlife Act.*

[3] "EN" = *Endangered*; "TH" = *Threatened*; "SC" = *Species of Special Concern* as determined by COSEWIC; "1" and "3" refer to the schedule under which they are currently listed in the SARA. "N/A" = Not applicable, species is not designated as *Endangered, Threatened* or *Special Concern*

[4] Indicates whether or not bird demonstrates relatively high use of power poles, or has higher relative likelihood of collision

3.2 Areas of Management Concern

3.2.1 Broad scale

Native Prairie: Of all the regions FortisAlberta services, the southeast corner of Alberta is the most sensitive from a wildlife perspective, and this impacts FortisAlberta's activities in two ways. First, much of the native prairie within the Grasslands Natural Region has been converted to agricultural production in the past century. As a consequence, it is home to the highest density of *Endangered* and *Threatened* species in the province. This requires additional consideration during route planning, construction, and maintenance activities.

Second, grasslands have few natural perches for birds to use; not surprisingly, power lines built through the grasslands are a strong attractant for many species of eagles, hawks, and owls. This dependence on power poles leads to an increased incidence of electrocution and raptor-caused outages, as compared to forested service regions.

Migration corridors: Alberta is situated within the "Central Flyway" migratory bird corridor. This pathway roughly runs from the southeast area of Alberta in a northwesterly direction, crossing through most of FortisAlberta's service regions. The eastern edge of the "Pacific Flyway" also runs along the foothills of the rocky mountains, through FortisAlberta's corresponding service region.

Thousands of birds pass through these corridors during spring and fall migration, especially during the fall when populations are bolstered by young of the year. Avian-caused outages and disturbances are typically elevated during the migration period. Collisions are typically elevated during these periods too, as the wetlands within these corridors become critical staging areas.

Natural Landscape funnels: Certain landscape features act to "funnel" birds during migration or daily flights, particularly when they run north/south. These include the east slopes of the rockies, large valleys through hilly or mountainous landscapes, river valleys, or the edges of large lakes. Power lines that intersect such natural funnels may have a higher incidence of collision and electrocution mortality.

3.2.2 Fine scale

On a finer scale, knowledge of certain habitat features (Table 2) that attract wildlife can assist with planning FortisAlberta's business, including new routing, application of electrocution and collision mitigation, and construction on a fine scale.

Table 2. Examples of fine scale habitat features that attract certain species or family groups.

Species/Families	Habitat features
Osprey (and bald eagles, to a lesser extent)	Fish-bearing water bodies
Ferruginous hawks	Grasslands but are attracted to power lines in treeless areas
Waterfowl and waterbirds	Wetlands, agricultural fields adjacent to wetlands
Ravens and crows	Urban areas; garbage dumps; other artificial food sources

4 Avian Use of Electrical Distribution Structures

4.1 Causes of Avian Mortality

Raptors, ravens, and to a lesser extent, other birds, have been utilizing power poles since they were first built in the 1800s. Avian collision was first reported in 1876 (Coues 1876), while electrocution of eagles were reported at least as early as the 1920s (Hallinan 1922). Birds would not use power poles without some derived benefit; they allow birds an elevated location from which to hunt, feed, rest, seek shade or shelter, and in some cases, nest. The value of power poles to birds is even more pronounced in ecosystems with few natural perches (e.g., native prairie).

Certain features in the environment serve as attractants to birds, drawing them in to available perches, such as power poles. Factors that draw raptors to FortisAlberta's power poles include:

- Rural areas (lower density human infrastructure)
- Food supply – ground squirrels, small mammals, fish, waterbirds, and road kill
- Heterogeneous habitat – boundaries or edges between two land uses (e.g., native prairie, cropland, wetland, roadsides, etc.)
- Lack of available natural perches (grasslands, other relative open prairie)

4.1.1 Electrocutions

Electrocutions occur when a bird (usually a raptor or raven) simultaneously contacts two energized conductors or other energized equipment, causing a phase-to-phase electrocution, or simultaneously contacts an energized component of the pole and one grounded element of the pole (such as a ground wire, transformer box, uninsulated guy wire, etc.), which results in a phase-to ground electrocution. Some electrocutions result in an outage, however, incidents on tangents and deadends often trip the system momentarily, until the line is automatically reset, and are not reflected in outage data. While electrocution can occur on transmission lines, it is much more prevalent on lower voltage distribution lines, where spacing between energized components is much lower. Several environmental and biological factors influence the likelihood of electrocutions, and are summarized in Table 3.

Table 3. Conditions that increase the likelihood of electrocution and collision.

Factor	Conditions that increase likelihood of ELECTROCUTION	Conditions that increase likelihood of COLLISION
Age	Juveniles	N/A
Sex	Females	Males, if during breeding season
Time of year	Nesting season (April – August)	Breeding (early summer), moulting (late summer), and staging (migration)
Time of day	Primarily dawn/dusk for diurnal birds; night for nocturnal species	Dawn and dusk
Flocking behaviour	N/A in Alberta	Large groups travelling together
Topographical Placement	Has the most commanding view of the landscape (usually the highest pole)	Power line crosses perpendicular to linear migratory corridor
Weather	Inclement conditions (wind, precipitation)	Inclement conditions (wind, fog, precipitation)
Habitat	Open areas with few trees	Within 500 m of high bird use areas (wetlands - lakes, reservoirs, rivers and

	(grasslands, prairie);	streams)
Food Availability	Healthy supply of prey (small mammals, birds, etc.)	Near feeding areas (wetlands, conservation areas, grain fields, garbage dumps, etc.)
Line Placement	Rural areas; especially where two land uses meet (e.g. crop & native prairie)	Intersecting feeding, breeding or resting areas; line not obscured by vegetation.
Vegetation	Power poles higher than surrounding trees	Conductors above tree height

4.1.2 Collisions

Power line collisions usually involve ducks, geese, and other heavy-bodied waterbirds such as swans, herons, grebes, and pelicans. While the issue is more prevalent on transmission lines, collisions with distribution lines, especially those near wetlands, do occur and can have severe impacts on a localized scale; for example, the primary cause of decline in trumpeter swans, a provincially-listed *Threatened* species, is power line collisions with distribution lines (Alberta Trumpeter Swan Recovery Plan 2012 - 2017). Risk is especially high in situations where a distribution line intersects two feeding areas, such as a wetland and an agricultural field, where birds make flights back and forth several times throughout the day, and often during low light conditions (dawn and dusk). A summary of factors that influence the incidence of power line collision is shown in Table 3, above.

4.1.3 Bird Nesting

With a vast network of infrastructure crossing through a wide variety of habitats, bird nests inevitably appear on, in, or near FortisAlberta's system, and impact many areas of the Companies business. The most frequent avian nest issue for FortisAlberta is osprey nest management. Osprey, a raptor that specializes in hunting fish, regularly target distribution poles for nesting, especially those with double crossarms, as they make an attractive base for building nests. This is especially true of those in close proximity to fish-bearing waterbodies. Their bulky nests can threaten the integrity of FortisAlberta's system, and the birds themselves. FortisAlberta also frequently encounters nests of other species on its infrastructure (including woodpecker nests in wooden poles and hawk nests on tranformers).

Nests of sensitive species or birds otherwise protected by legislation are also an important consideration during the siting and construction phases of projects. More information can be found in *OPR 200.49, Raptor Nest Management* and *OPR 200.48, Active Bird Nest Management.*

5 Electrocution & Collision Risk Assessment

5.1 Construction Standards Assessment

Since 1981, APLIC, a U.S. based consortium of utility industry members from the U.S. and Canada, wildlife management agencies, conservation groups, and vendors, has recommended that utilities provide 60" (1 524mm) of horizontal spacing and 40" of vertical spacing among energized components, and between energized components and grounded components for power lines 60kV or less (Olendorff et al. 1981; APLIC 2006). If these clearances cannot be met by framing alone, APLIC recommends the use of cover up specifically designed to prevent avian contacts on power systems.

Typically, electrocutions are more prevalent on equipment structures with minimal clearances such as transformers, overhead to underground riser poles, and cutout structures, to name a few (Harness 2001; Platt 2005); these are typically reflected in outage data. Electrocutions on deadend and tangent structures, particularly with eagles, is not uncommon, however these interruptions are usually automatically reset by the system, and are thus not reflected within utility outage data.

In keeping with the goals of the APP, an assessment of FortisAlberta's *Distribution Structure Manual 2011* was completed to determine which structures required further bird protection to meet APLIC's standards (Kemper 2011b). Bird protection in the form of bushing covers, lightning arrestor caps, guy links, and longer crossarms have been added to the standards in recent years. However, potential contact points were identified on several structures. This desktop assessment was completed for electrocution risk only (not collision; see subsequent section).

5.2 Field Risk Assessment

5.2.1 Justification

The purpose of a field risk assessment (RA) for electrocution risk is to determine which structures pose the most immediate risk to raptors and to FortisAlberta's system, such that they can be prioritized for remediation. The intent is not to assign an electrocution risk or priority to every structure in Fortis' distribution system. The assessment provides a snapshot in time and uses the best information available at that time to inform the Company of relative risk.

It is recognized that all structures that physically lack the appropriate clearances to prevent raptor electrocution pose some degree of risk to birds. However, from a mitigation standpoint, it is not cost effective or necessary to retrofit all existing FortisAlberta structures. Alternatively, attempting to narrow the high priority structures based on configuration alone would result in a list of thousands of poles that would potentially require mitigation in the short term. The purpose of the RA is to single out which poles or areas pose the highest, or most immediate, risk to raptors and to FortisAlberta's system, so that they receive first priority for mitigation. These poles are identified by incorporating data on past outages, land use, proximity to nesting raptors, local topography, and evidence of avian use of the pole.

5.2.2 Field Methods

Field investigations identify specific poles determined to have a higher risk of an avian-caused outages and/or electrocution mortality. Data are collected on biological, engineering, and environmental features at each site, and specific recommendations are made on bird protection measures needed to ensure poles meet avian protection standards set out by APLIC. Individual poles written up were assigned a mitigation priority of 1 or 2; a priority of 3 was assigned for poles identified through a pattern analysis requiring longer-term mitigation; equipment poles requiring mitigation as part of a longer-term mitigation plan were classified as Priority 4.

While the focus of the RA is on electrocution risk, an assessment of collision risk is also included and primarily focuses on line orientation in relation to surrounding habitat features. More details on methods used can be found in Kemper (2011a).

5.2.3 Risk Assessment Priorities

FortisAlberta's RA is being conducted using a phased approach to assess the 124,000 kilometers of distribution power line and almost one million structures encompassed within the service territory. A field RA is being focused in areas that experience pockets of bird-related outages or an overall high count of bird caused incidents. Individual service points will be prioritized for field surveys based on the consideration of four main criteria including the occurrence of species of management concern, previously documented avian mortalities, presence of highly suitable raptor habitat, and the five year average count of past outages. Service points selected for the initial three years of the program are summarized in Table 4. Final reports detailing methodology, approach and results will be included under separate cover for each service points. Field results, specifically individual structures and recommendations for mitigation will be entered into FieldView to prioritize and align remedial work with pre-existing maintenance programs.

Table 4. Service points targeted for the initial three years of the Risk Assessment.

Service Point	Year	Supporting Criteria	Final Report
Medicine Hat (S60) **Foremost (S55)**	**2011**	Core Ferruginous Hawk breeding range Extensive native grassland habitat Documented raptor mortality	Kemper, C.M. 2011a. Avian Electrocution & Collision Risk Assessment Medicine Hat and Foremost Service Points. Report commissioned for FortisAlberta, Inc. Edmonton, AB. 31pp.
Strathmore (S65)	**2012**	Highest count of bird related outages in Southern Alberta	

		Documented raptor mortality Migratory flyway	
Coaldale/Warner (S68)	**2013**	Core Ferruginous Hawk breeding range Extensive native grassland habitat	

6 Nest Management

Issues with bird nesting can come up during any stage of FortisAlberta's business, including, but not limited to:

- Finding nests of species at risk during route selection for new construction;
- Working within Alberta Environment and Parks guidelines for timing of construction or maintenance to avoid disturbing birds during critical breeding times;
- Finding osprey nest-building on FortisAlberta's infrastructure in the spring or late summer;
- Woodpecker nests excavated from FortisAlberta's poles; and
- Finding and avoiding ground-nesting birds in the ROW.

The legal protection of bird nests through the *Species at Risk Act*, *Migratory Bird Convention Act* and the *Wildlife Act* (see Section 2.2) warrants special management protocols for birds nesting in, on, or in very close proximity to, FortisAlberta's infrastructure. Guidelines for when and where nest surveys are required, timing restrictions around construction and maintenance activities, and protocols for dealing with active nests, can be found in *OPR 200.48, Active Bird Nest Management.*

Each year, FortisAlberta power line technicians encounter a number of osprey nests or nest starts that pose serious risks related to reliability, fires, public perception and bird electrocutions. Guidelines for the removal of problem nests, siting and placement of nesting platforms and application of nest deterrents, can be found in *OPR 200.49, Raptor Nest Management*.

7 Planning of New Distribution Right of Ways

FortisAlberta standard practice is to site distribution power lines parallel to existing linear disturbances whenever possible. This approach supports the principles of integrated land management and represents capital and operating costs savings from reduced right-of-way clearing. More importantly, environmental risks are often reduced or entirely mitigated at the outset of a project by avoiding cross

country or green field routing. Guidelines for screening new construction projects to determine the occurrence and locations of wildlife species, habitats and ranges can be found in OPR 200.46, *Wildlife and Species at Risk.*

8 Incident Reporting

There is currently no regulatory mechanism in Alberta to guide the reporting of avian mortalities that result from interactions with power lines. The Fisheries and Wildlife Division of Alberta Environment and Parks is working to publish land use and wildlife management guidelines aimed at the electric utility sector. One of the requirements may include submitting records of bird mortalities. Currently, FortisAlberta voluntarily reports known raptor electrocution mortality to the local Fish and Wildlife Division where the incident occurred.

Internally, bird related outages are recorded in the System Status Log (SSL). Outages caused or suspected from bird interactions are entered under the cause “birds or animals”. Information that must be entered is the date, time, approximate location of the fault and the faulty component. Documenting bird species mortalities supports continual improvement of the risk assessment process by identifying problem areas or high risks associated with species of management concern; further, it provides feedback on the success of mitigation efforts to date. These data will also provide mortality estimates to satisfy pending regulatory reporting requirements.

9 Communications

9.1 Training and Awareness

In order to effectively implement this plan, training and awareness will be incorporated into the following:

- Corporate messaging to enhance general employee awareness;
- Material and standards updates rolled out to Operations by the Distribution Standards Team;
- Field training on detailed line patrol and general visual inspection delivered by the Asset Management planning team;
- Environmental training and awareness of the APP and Operational Control Documents; and
- Environment, Land and Forestry related training sessions for Design and Project Teams.

9.2 Stewardship

FortisAlberta is proud of its multi-year partnership with the Alberta Birds of Prey Foundation. The $50,000 per year financial commitment has helped offset the cost of operating and expanding the facility located in Coaldale, Alberta. Educational and outreach programs delivered as a result of this

partnership highlight FortisAlberta's commitment to environmental stewardship and provide endorsement to the value of avian protection planning to customers and stakeholders.

As part of FortisAlberta's commitment to sustainability, greater emphasis is placed on projects and initiatives related to land use and biodiversity. Wildlife and habitat stewardship opportunities, both completed and planned, are summarized in Table 5, below.

Table 5. Summary of recent wildlife and habitat stewardship initiatives supported by FortisAlberta.

Year	Agency or Group	Stewardship Activity
2010	Alberta Environment and Sustainable Resource Development	Fish and Wildlife Division – installed 2 nesting platforms for ferruginous hawk on private lands near Dunmore
2010	Alberta Environment and Sustainable Resource Development Alberta Conservation Association	Project Resting Swan – line burial adjacent to trumpeter swan staging wetland
2011	Eagle Lake Campground	Bat Houses at Eagle Lake Campground
2011	City of St. Albert	Big Lake – install line markers on underbuilt power line that spans confluence of Sturgeon River and Big Lake
2012	Alberta Environment and Sustainable Resource Development	Sage-grouse Recovery – invest in translocation of greater sage-grouse from Montana to augment *Endangered* Alberta population
2012	Nature Conservancy of Canada (NCC)	NCC – install 1 nesting platforms for osprey on Nature Conservancy lands in Crowsnest
2013	Alberta Environment and Sustainable Resource Development	FortisAlberta begins streaming live video from an Osprey nest near Exshaw. The artificial nesting platform at this location has been active since the mid-1980s.
2015	Alberta Conservation Association Alberta Fish & Game Association	FortisAlberta installed an artificial nesting platform for ferruginous hawks in support of Operation Grassland Community in the Cardston area.
2016	Medicine River Wildlife	FortisAlberta installs an artificial nesting platform for a bald eagle pair that lost their nest in a serious spring storm. Three fledglings

	Centre	were rescued from the site and relocated to other nests.
2016	Mountain View County Sarcee Fish and Game Association	Three bat boxes were installed at a popular day use area fishing pond near Olds.
2018	Nature Conservancy of Canada Alberta Conservation Association	One artificial nesting platform was installed on a NCC managed property in the Milk River Ridge area.
2019	Beaverhill Bird Observatory Society	Donation to support the activities at the Beaverhill Bird Observatory.

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Appendix A

Table A1. Common and scientific names of species mentioned in this document.

Species Common Name	Scientific Name
American crow	*Corvus brachyrhynchos*
Bald eagle	*Haliaeetus leucocephalus*
Barn swallow	*Hirundo rustica*
Barred owl	*Strix varia*
Black-throated green warbler	*Dendroica virens*
Burrowing owl	*Athene cunicularia*
Canada goose	*Branta canadensis*
Canada warbler	*Wilsonia canadensis*
Chestnut-collared longspur	*Calcarius ornatus*
Common nighthawk	*Chordeiles minor*
Common raven	*Corvus corax*
Ferruginous hawk	*Buteo regalis*
Greater sage-grouse	*Centrocercus urophasianus*
Golden eagle	*Aquila chrysaetos*
Harlequin duck	*Histrionicus histrionicus*
Horned grebe	*Podiceps auritus*
Loggerhead shrike	*Lanius ludovicianus*
Long-billed curlew	*Numenius americanus*
Mountain plover	*Charadrius montanus*
McCown's longspur	*Calcarius mccownii*
Olive-sided flycatcher	*Contopus cooperi*
Osprey	*Pandion haliaetus*
Peregrine falcon	*Falco peregrinus*
Piping plover	*Charadrius melodus*
Prairie falcon	*Falco mexicanus*
Red knot	*Calidris canutus*
Rusty blackbird	*Euphagus carolinus*
Sage thrasher	*Oreoscoptes montanus*
Short-eared owl	*Asio flammeus*
Sprague's pipit	*Anthus spragueii*

Trumpeter swan	*Cygnus buccinator*
Western grebe	*Aechmophorus occidentalis*
Whooping crane	*Grus americana*
Yellow rail	*Coturnicops noveboracensis*