

Bird Beneficial Management Practices Guide for Utilities



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**Canadian Electricity
Association**

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Photograph courtesy of ATCO

Foreword

Energy is the foundation upon which the Canadian economy is built. The electricity sector employs over one million people from coast-to-coast-to-coast and accounts for a full 10% of Canada's GDP. The other 90% of Canada's economic activity benefits from assured access to reliable, affordable energy. Canadian Electricity Association (CEA) members, in part or in whole, are tasked with designing, constructing and operating major facilities and the 4.7 million kilometers of electrical lines that safely, reliably and securely deliver electricity to Canadian homes and businesses. They must continue to do this while simultaneously respecting and protecting the environment in which they operate.

This Beneficial Management Practice (BMP) Guide was developed by CEA utility member companies committed to delivering reliable, affordable, and sustainable electricity to support the growth of a low carbon, clean energy economy and advance Canada's international climate change commitments. CEA members are committed to compliance with legislation and regulations that apply to our facilities, including, but not limited to, the Migratory Birds Convention Act. This proactive approach to beneficial practices is designed to meet the requirements set out in the MBCA.

The BMP has been consciously developed based on extensive, first-hand experience of electricity facility construction and operation across Canada. This BMP is not prescriptive and is intended for use by any CEA member utility; and, is national in scope, but local in application. This was achieved through development of a risk management framework and mitigation toolbox, from which members can apply selective situation relevant mitigative measures. While the BMP was created with the intention of addressing interactions with migratory birds, the general applicability of this document will benefit all bird species.

We are introducing this essential document with the objective of finalizing relevant informational components through ongoing subject matter expert agencies engagement, along with other stakeholders. We will work collaboratively with all relevant Parties with a stated objective of continually improving our practices which are ultimately enhancing the conservation of birds throughout Canada.

CEA and its members hope that this Beneficial Management Practice Guide will encourage and facilitate important discussions about the electricity industry's commitment to environmental performance and conservation as it specifically relates to minimizing its impact on migratory birds, their nests and eggs.

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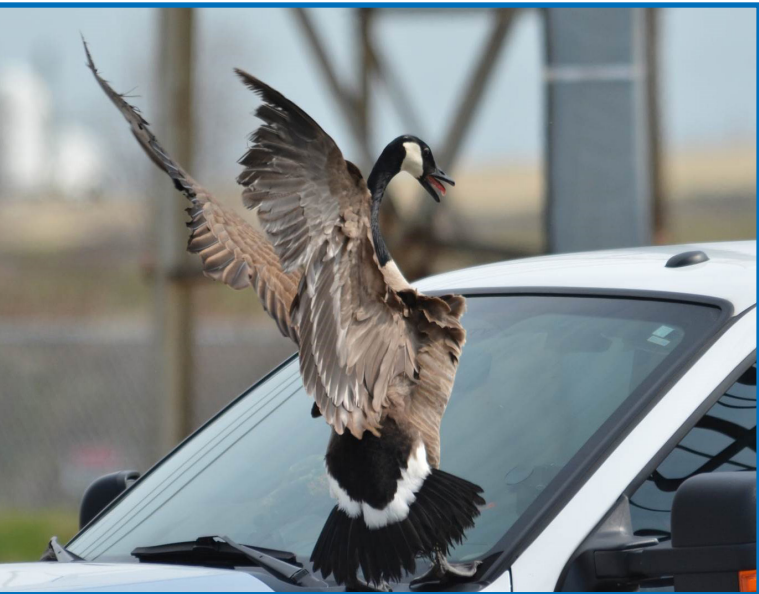
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1.0 Introduction

As part of our commitment towards creating an environmentally sustainable, reliable, and secure electricity system for Canada, the Canadian Electricity Association (CEA) retained Stantec Consulting Ltd. (Stantec) to develop beneficial management practices (BMPs) to manage the risk of incidental take of migratory and non-migratory birds during the construction, operation, and maintenance of electricity projects (e.g., transmission lines, generating stations, facilities). As a regulated industry, the development and use of BMPs are an important tool in managing and mitigating environmental effects while ensuring safe and reliable services.

Various activities associated with the construction, operation, and maintenance of electricity infrastructure have the potential to affect birds. Activities may affect birds directly (e.g., destruction of a nest) or indirectly (e.g., noise from equipment causing birds to avoid or abandon nests). For the purpose of this document, BMPs focus on all project activities, particularly where vegetation clearing and management is undertaken, but do not include mortality from electrocution and collisions, as widely accepted guidelines for these concerns have been produced by the Avian Power Line Interaction Committee (APLIC 2006, 2012).

Of particular concern is incidental take, defined as the “inadvertent harming, killing, disturbance or destruction of migratory birds, nests and eggs” (ECCC 2017a). Incidental take is linked to prohibitions pertaining to migratory birds under the federal Migratory Birds Convention Act, 1994 (MBCA), and to other bird species under provincial or territorial legislation. Environment and Climate Change Canada (2017a) encourages industries and stakeholders whose activities might cause incidental take of migratory birds to assess risks, and to develop and implement appropriate preventive and mitigation measures, including BMPs.

CEA members are committed to regularly validating and updating existing practices to ensure they are reflecting current scientific knowledge with respect to migratory birds. Member companies have been actively involved in developing beneficial practices as they pertain to mitigating incidental take of birds and their nests. These efforts not only benefit the conservation of birds, but also improve the safety, reliability, and cost efficiency of power distribution through reducing the frequency of system disruptions due to interactions with birds. The purpose of this BMP document is to build upon existing efforts, to outline a mitigation hierarchy that enables CEA member utilities to effectively improve the overall management of their interactions with birds, and promote compliance with federal, provincial, and territorial legislation related to incidental take.

1.1 Objectives

The objective of this BMP document is to provide CEA members with a toolbox of mitigation measures to facilitate the minimization of risk of incidental take of birds, nests and eggs during activities associated with electricity projects. The application of the toolbox should take into consideration that CEA members must be able to provide safe and reliable power. To accomplish this, the BMP document addresses:

- identification of factors that may affect the risk of incidental take, including environmental setting and project constraints that influence the ability to manage the risk of incidental take
- compilation of existing beneficial practices utilized by CEA members to manage potential interactions with birds
- recommendations for mitigation to avoid, minimize, and compensate for the risk of incidental take, including timing restrictions, setback distances, and methods for identifying active and inactive bird nests.

1.2 Scope

This document has been prepared for use across Canada and applies to all business groups within CEA, including transmission, generation and distribution. It is applicable to all areas where incidental take could occur, including vegetated lands, freshwater shorelines and exposed areas (e.g., rock outcrops, river beds, and cleared areas), and habitats adjacent to a development footprint where nesting birds may be affected by sensory disturbance. While the focus is primarily on mitigation of effects during the breeding season, an overview is provided of situations that may require attention at any time of year.

The BMPs included in this document focus primarily on construction, operation, and maintenance activities, and specifically on habitat disturbance, vegetation clearing, and site management. They concentrate on incidental take, which can occur:

- if an active nest of any bird species, protected under federal and/or provincial or territorial legislation, is incidentally, or accidentally, disturbed or destroyed
- if the disturbance or destruction of an inactive nest of a bird species could result in a negative effect on future nesting success of that species (e.g., species that typically reuse nests where the availability of nest sites is limited, such as bank swallow, cliff swallow or great blue heron)
- This document concentrates primarily on Environment and Climate Change Canada's (2017a) three guiding principles regarding incidental take:
 - knowing legal obligations
 - avoiding potentially destructive or disruptive activities in key sensitive periods and locations to minimize the risk of affecting breeding birds
 - developing and implementing appropriate preventive and mitigation measures to minimize the risk of incidental take, and to help maintain sustainable populations of birds.

2.0

Regulatory Framework

The primary driver for the need to develop BMPs for managing the risk of incidental take is the MBCA, but the Species at Risk Act (SARA) and provincial and territorial legislation also apply to some situations. BMPs take into account the requirements of such legislation and outline common mitigation measures for minimizing risk of incidental take, such as timing windows and setbacks.

Environment and Climate Change Canada administers the MBCA and the Migratory Birds Regulations, through regional Canadian Wildlife Service (CWS) offices. Migratory birds covered under the MBCA in Canada include (refer to ECCC [2017c] for full list):

- waterfowl (e.g., ducks and geese)
- waterbirds (e.g., sandhill cranes, gulls)
- shorebirds (e.g., plovers and sandpipers)
- most songbirds (e.g., flycatchers, warblers, and sparrows)

Birds not included under federal jurisdiction in Canada include upland game birds (e.g., grouse, quail, pheasants, ptarmigan), birds of prey (e.g., hawks, owls, eagles, falcons), cormorants, pelicans, kingfishers, crows, jays, and some blackbirds. However, most birds excluded from the MBCA are protected under provincial and territorial legislation.

The possession, purchasing, selling, exchanging, or giving of a migratory bird or nest are prohibited without authorization, as stated in Section 5 of the MBCA. In 2005, the MBCA was amended to expand the purpose of the Act to include conserving migratory birds; specifically, that birds are to be protected and conserved as populations and as individual birds, in addition to incorporating habitat and ecosystem concepts (Government of Canada 2005). The MBCA is the enabling statute for the Migratory Birds Regulations.

In the Migratory Birds Regulations, Section 6 states that without the authorization of a permit, the disturbance, destruction, or taking of a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird is prohibited, as is possession of a migratory bird, carcass, skin, nest, or egg (Government of Canada 2011a). In addition, Section 5(1) of the MBCA prohibits the deposition of substances harmful to migratory birds in waters or areas frequented by migratory birds, or in a place from which the substance may enter such waters or such an area.

As stated by Environment and Climate Change Canada (2017a), the Migratory Birds Regulations do not explicitly limit the protection of nests to active nests. An individual (or company)

may be in violation of the Regulations if they damage, destroy or remove a non-active migratory bird nest. However, because most migratory bird species build or occupy a new nest each year, removing an inactive nest following the breeding season is not likely to have an effect on the ability of that species to nest again. For some species, such as great blue heron, reuse of the same nest or nest tree can occur annually; therefore, the loss of these nests could have a negative effect on the future ability of that individual or population to nest.

As Environment and Climate Change Canada cannot provide authorizations or permits to allow for incidental take of migratory birds and their nests and eggs (ECCC 2017a), BMPs should be adopted to reduce the risk of detrimental effects to migratory birds and their nests and eggs. Although Environment and Climate Change Canada promotes the development and use of BMPs, it does not have the authority to recognize BMPs as ensuring legal compliance with the MBCA and, all individuals and companies are legally bound to comply with the prohibitions under the legislation. The need to develop BMPs to manage the risk of incidental take is clear given the increased enforcement of the MBCA, and recent fines that have been levied against companies charged with disturbing or destroying migratory bird nests. Although fines will vary with individual circumstances, examples of recent fines include \$10,000 for destroying one robin's nest and \$8,000 for destroying a bank swallow nest in a sand pit. Overall, fines can increase substantially for offences related to the deposition of harmful substances in areas occupied by migratory birds (Walton 2017).

The Species at Risk Act, 2002 (SARA) provides additional protection to birds listed under its authority. The nest of a migratory or non-migratory bird can be, but is not necessarily, included in the definition of "residence" for bird species listed on Schedule 1 of SARA as endangered and threatened. Nests of species listed on Schedule 1 of SARA are also protected at all times in the case of species that usually reuse nests from previous years (Appendix A).

Provincial and territorial regulations apply to species that are covered under the MBCA as well as species that are not. Specific legislation regarding disturbance or destruction of wildlife exists in most provinces and territories in Canada. Generally, provincial and territorial legislation that is applicable to this BMP is focused on non-migratory species; however, this depends on the province or territory. In some instances, provincial regulatory agencies require permits for undertaking nest searches, regardless of species.

Appendix A provides a summary of federal and provincial and territorial acts and legislation across Canada that are applicable to birds, and their nests and eggs.



Photograph courtesy of ATCO

3.0 Risk Management Framework

To promote compliance with applicable federal, provincial, and territorial legislation, beneficial management practices to avoid or minimize incidental take need to be developed with an understanding of the risks to migratory and non-migratory birds associated with project life cycle phases (e.g., construction, operation and maintenance, decommissioning). The interactions that may result in increased risk of incidental take are influenced by a variety of factors; however, with application of the mitigation hierarchy (e.g., avoid, minimize, compensate), the risk of incidental take can be effectively managed with proper planning. To facilitate identifying risks and determining the necessary preventive or mitigation measures to incorporate into project planning, CEA members should review and implement the steps outlined in the risk management framework section of this BMP. Figure 1 provides a summary overview of the risk management framework, which includes:

- Identifying factors that may affect risk of incidental take
- Identifying project constraints that may affect the ability to manage risk of incidental take
- Applying the mitigation hierarchy to avoid, minimize, and offset risk of incidental take

The risk management framework provides CEA members with a toolbox of options to implement as they deem necessary, in consideration of project activities to be undertaken and the risk they might have for causing incidental take. Documenting the information gathered through each step of the framework, including supporting rationale for each decision and action, will be an important part of demonstrating due diligence.

For the purpose of this BMP, a project interaction with birds is defined as one that occurs during the nesting period and which may cause incidental take (i.e., due to direct mortality, loss of nests, or sensory disturbance). Direct mortality refers to taking a bird's life, or causing the loss of nestlings or eggs, as a result of project activities. Loss of nests refers to a project activity that causes the destruction of a nest, or the abandonment of a nest that leads to unsuccessful hatching of eggs or fledging of nestlings. Sensory disturbance refers to project activities that cause disturbance to nesting birds, such as from the presence of workers and equipment close to the nest, or from noise generated by vehicles, equipment or infrastructure.

The risk management framework provided in this BMP is designed to identify factors, project constraints, and mitigation for managing risk of incidental take specific to the electricity sector (non-electrocution and non-collision). Individual projects or activities are not expected to cause population-level effects on birds, although the risk management framework accommodates this assessment, particularly for species of management concern. The risk management framework is focused on identifying measures to avoid or minimize incidental take across the various project life cycle stages. Overall, the determination of the risk of incidental take made through implementation of the risk management framework will be a decision of each individual CEA member.

Figure 1

Identify Factors Affecting Risk of Incidental Take

Project activities (construction; operations and maintenance, decommissioning)

Species (including species of management concern)

Habitat (including critical habitat and residence)

Species' sensitivity

Nesting Periods

Breeding and migration behaviour



Project Constraints to Managing Incidental Take

Safety

Reliability Surrounding land uses

Confliction environmental timing windows

Labour force and equipment availability Limits on activity

Scale of activity (e.g., are affected; duration)

Managing risk to infrastructure

Start window to undertake maintenance activities



Apply Mitigation Hierarchy to Project Planning

Avoid



Minimize



Compensate (requires consultation with appropriate regulatory agency)

Document: At all stages of risk management, CEA members should document risk factors, project constraints, and mitigations to be implemented, including rationale supporting those decisions and actions.



Photograph courtesy of ATCO

Photograph courtesy of ATCO

3.1 Factors Affecting The Risk Of Incidental Take

The first step of the risk management framework focuses on defining the risk of incidental take for the project activities in question. Risk of incidental take refers to the likelihood of direct mortality, loss of nests, or sensory disturbance occurring as a result of a particular construction or operation phase or activity.

To address this, CEA members need to determine the likelihood of the presence of birds and their nests or eggs when project activities are scheduled to occur (ECCC 2017a), and then conduct an assessment of risk factors that could cause incidental take (ECCC 2017a). Broadly, the following factors can affect the risk of incidental take:

- Planned project activities, including disturbance level and duration (e.g., vegetation clearing during construction, operation and maintenance).
- Species potentially breeding in the area and their status (i.e., federally and/or provincially listed species).
- Suitability of habitat present for breeding birds, including diversity and density of species present, the presence of critical habitat or biophysical attributes of critical habitat (as defined under SARA).

- Sensitivity of species to disturbance, and their ability to habituate to sensory disturbance (i.e., visual and noise disturbance).
- Time of year in relation to the nesting periods for birds, which includes consideration of the nesting calendars developed by Environment and Climate Change Canada for migratory birds, and nesting windows for non-migratory birds (e.g., raptors).

The ability to determine or detect nesting activity, as it is influenced by the type of habitat(s) present and time of year, can affect the risk of incidental take. In cases where there is structurally complex habitat during the peak of the breeding season, CEA members may retain a qualified biologist to assist with determining nesting activity and risk.

As part of determining risk of incidental take from various project activities, the effects of disturbance on birds and their nests needs to be considered. The risk levels associated with disturbance will depend on different factors (Table 1). While these factors may not be applicable to all project activities in all situations, they are useful for determining the risk of incidental take. In general, the application of mitigation measures (e.g., setbacks around active nests) will reduce the risk level.

Table 1

Examples of Lower and Higher Risk Levels for the Factors Associated with the Disturbance of Nests and Nesting Birds

The following sections provide further information on the factors that can influence the risk of incidental take.

Factors that Influence Disturbance of Nests and Nesting Birds	Example of Lower Risk Level	Example of Higher Risk Level
Intensity of operation	<p>Infrequent, short duration, and low intensity disturbance.</p> <p>One or few sources of disturbance.</p> <p>Low or below ambient noise in natural areas.</p>	<p>Frequent, long duration, and large disturbance.</p> <p>Several sources of disturbance.</p> <p>Loud noise emissions, especially when above ambient in natural areas.</p>
Landscape context	<p>Presence of birds accustomed to disturbance in the area or already breeding successfully in disturbed areas.</p>	<p>Presence of birds intolerant to disturbance, such as those moving away from their nest, agitated or performing distraction displays, or actively defending the nest.</p>

SOURCE: after ECCC (2017a)

3.1.1

Construction and Operation and Maintenance Activities

During the construction phase, site preparation (e.g., vegetation clearing for a new right-of-way or substation) can have the highest risk for incidental take. Once the site has been prepared for construction (i.e., vegetation has been removed), there is reduced potential for use of the disturbed area by birds due to the removal of suitable nesting habitat. However, the gap between site preparation and construction can influence nest initiation on the cleared project area by certain species (e.g., killdeer; common nighthawk). Following site preparation, construction (i.e., of transmission lines, substations) may affect birds through sensory disturbance.

Sensory disturbance (e.g., noise, presence of equipment) can cause breeding birds to abandon their nests, egg, or young, or to use valuable energy reserves for defense, instead of incubating eggs and feeding their young (ECCC 2017a). In addition, activities that disturb nests may prevent adult birds from returning to protect and feed their young, or unnecessarily expose eggs or nestlings to predation or the lethal effects of heat, cold, or rain.

During the operation and maintenance phase, vegetation management (e.g., including mechanical [i.e., cutting] and/or chemical (i.e., herbicide application) treatments) along the right-of-way or around facilities and towers/poles can have a high risk for incidental take. The amount of vegetation that needs to be managed (e.g., trimmed, brushed, mowed) or removed can vary, depending on the location of the project (e.g., urban, forests, grasslands). The timing of vegetation management is generally what determines the risk of incidental take. In general, hand clearing of vegetation can minimize the risk of disturbing or destroying nests or eggs, and therefore has a lower risk of incidental take.

Table 2 summarizes examples of electricity sector risk factors associated with incidental take; risk related to collision and electrocution are dealt with in other beneficial practices (APLIC 2006; APLIC 2012).

Table 2

Potential Interactions of Electricity Projects with Birds

Project Phase	Activity	Potential Effects on Birds
Pre-construction	Site preparation (including temporary workspace), including vegetation removal (clearing and grubbing), topsoil stripping and grading	Vegetation clearing can result in loss of habitat, destruction of nests, direct mortality, and sensory disturbance.
Construction and/or Decommissioning	Substation and generation facility construction, tower installation (assembly and erection), line stringing, clean-up and reclamation. Decommissioning would consist of similar activities, essentially in reverse for removal of infrastructure, clean-up and reclamation.	Primarily sensory disturbance if work immediately follows pre-construction, and there is potential for destruction of nests and direct mortality if the site is inactive between phases.
Operation and Maintenance	Vegetation management, including mechanical and/or chemical* (i.e., herbicide application) treatments Examples of vegetation management include: <ul style="list-style-type: none"> · tree trimming and danger tree removal (i.e., hand-clearing) · right-of way maintenance and travel (e.g., ground and aerial patrols) · brushing/mowing 	Primarily destruction of nests and direct mortality, by movement of equipment; also, loss/alteration of habitat and temporary sensory disturbance.
	Structure repair, pole salvage or replacement Overhead line and tower maintenance	Birds could nest in project components, including structures/buildings, substations, stockpiles, poles and towers. Depending on where the nests are located, they can be a safety and reliability concern and may need to be removed. Temporary sensory disturbance may also be an issue during repair activities.

***MBCA S 5.1(1) prohibits deposition of a substance that is harmful to migratory birds. This prohibition can be lifted by an authorization under an Act of Parliament that specifies the type and quantity of the harmful substance (MBCA 5.1(3)(b))**

As electricity projects can include a variety of different activities, an important part of working through the risk management framework is to categorize the activities according to their risk. Examples of how activities can be categorized according to risk are provided in Table 3. The risk levels are intended to take into consideration both the potential amount of vegetation affected

(i.e., habitat loss) and the disturbance level (i.e., sensory effects) of each activity. Information from Table 3 is also useful for working through the mitigation hierarchy.

Table 3

Electricity Project Activities and Risk of Incidental Take

High Risk Activities	Example of Lower Risk Level
<p>Construction/Decommissioning:</p> <ul style="list-style-type: none"> Overhead and underground utility line construction during the nesting season involving vegetation clearing in bird habitat (including pre-construction site preparation) New generation facility construction in migratory bird habitat during the nesting season <p>Operation and Maintenance:</p> <ul style="list-style-type: none"> Vegetation management –mowing, mulching or other right-of-way/site clearing during the nesting season Overhead utility line maintenance or salvage during the nesting season; Vegetation clearing in migratory bird habitat; and, vegetation management (mechanical or chemical*) during the nesting season 	<p>Construction/Decommissioning:</p> <ul style="list-style-type: none"> Landowner cleared or clearing that occurs outside of the nesting season and is managed to reduce the potential for nesting <p>Operation and Maintenance:</p> <ul style="list-style-type: none"> Ground patrol/inspections Pole testing Hardware tightening Structure, Insulator or cross arm replacement Conductor repair Cathodic protection program Line raise Switch installation Vegetation management – weed control (spot-spraying) Vegetation management – herbicide application to control regrowth Vegetation management – individual tree hand clearing/trimming Structure assessment – by boat Helicopter maintenance Driving along established trails Aerial patrol Overhead line salvage

***MBCA S 5.1(1) prohibits deposition of a substance that is harmful to migratory birds. This prohibition can be lifted by an authorization under an Act of Parliament that specifies the type and quantity of the harmful substance (MBCA 5.1(3)(b))**



Photograph courtesy of Manitoba Hydro

3.1.2

Species Status and Sensitivity to Disturbance

The conservation or management status of species can imply an inherent sensitivity to disturbance. The term ‘sensitivity’, in the context of incidental take, is often interpreted as potential for nest abandonment or failure, or potential to put at risk or worsen a population. Increased risk of nest abandonment or failure can relate to how a species responds to activities in proximity to the nest. For example, species with heightened sensitivity are likely to flush from a nest earlier and more often, and remain away from the nest for longer periods when project activities are relatively close to a nest, compared to less sensitive species. Some species may habituate to disturbance, or show relatively little sensitivity to disturbance activities.

The population size of a species can also relate to sensitivity, with smaller populations potentially being more sensitive to disturbance than larger populations. This would be particularly relevant in the case of incidental take, where the loss of a few individuals from a small population would have a larger proportional effect than would the same loss of individuals from a larger population. Conversely, the probability that a species with a small population may be affected by a disturbance activity can be relatively low because of inherently smaller distributions or lower densities. Therefore, risk factors potentially affecting bird species with small populations should be reviewed carefully as part of avoiding and minimizing the risk of incidental take. For example, life-history strategies such as colonial-nesting (e.g., cliff swallow; black tern) could put local populations at increased risk.

For the purpose of this BMP, federal and provincial species’ designations, and Bird Conservation Region (BCR) priority species, are used to identify species with status. Federally, these include species listed on Schedule 1 of SARA, and species designated as Endangered, Threatened, or Special Concern by the Committee on the Status of Endangered Wildlife in Canada. Provincially and territorially, these include species with status ranks indicating a conservation concern (e.g., red-listed; blue-listed; S1/S2).

BCRs are ecologically based regions across North America, used to plan, implement, and evaluate bird conservation actions by the North American Bird Conservation Initiative partners (ECCC 2017b). For each of the ecoregions in Canada, conservation strategies have been developed that are to be used as the biological basis to develop guidelines and BMPs that support compliance with the MBCA. BCR priority species are identified for each region (Figure 2), with prioritization based on vulnerability due to population size, distribution, population trend, abundance, and threats. Some BCR priority species are considered ‘stewardship species’ as they typify the national or regional avifauna and/or because they have a large proportion of their range and/or continental population in a sub-region.

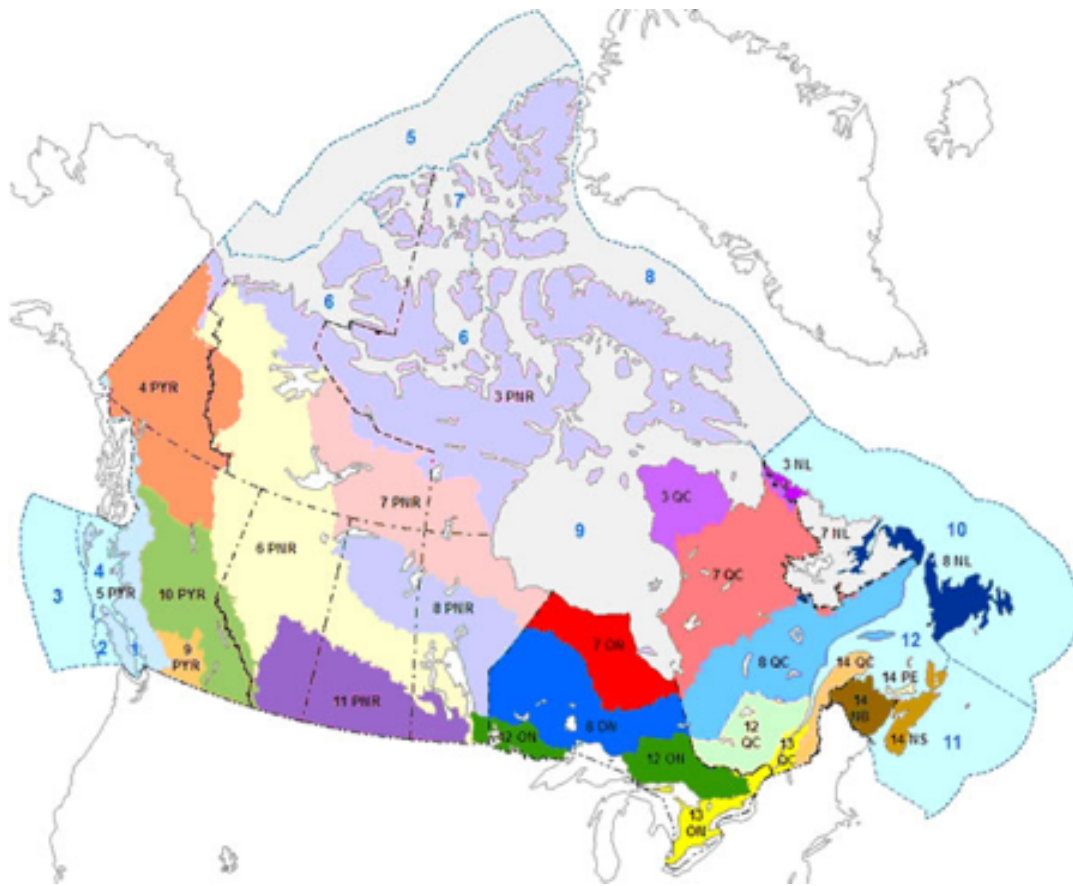


Figure 2

Bird Conservation Regions in Canada

(source: ECCC 2017b)

When preparing and reviewing risk factors for bird species potentially affected by a project activity, it will be important to determine whether there are any residences or designated critical habitats for Schedule 1 SARA species. The nests of Endangered or Threatened birds listed on Schedule 1 of SARA are considered 'residences' and cannot be damaged or destroyed (regardless of activity). For critical habitat, a risk assessment of the biophysical attributes that comprise critical habitat may also be necessary.


Important Bird Areas (IBAs) are also locations that merit attention as they support specific groups of birds that may be threatened or be restricted by range or habitat. Information about IBAs serves as an important tool to understand local conservation priorities. Nature Canada and Bird Studies Canada can provide maps of Canada's Important Bird Areas to inform project planning, construction, and operation and maintenance.

Overall, the risk to birds can be summarized into the following categories based on regulations and conservation concerns (Table 4):

1. SARA species with defined critical habitat
2. presence of SARA or provincially-listed species and their habitat
3. presence of BCR priority species and their habitat
4. other migratory birds and their habitat

Table 4

Categories Used to Assess Risk Based on Species Status

Bird Risk Category	Description	
SARA species with defined critical habitat, biophysical attributes of critical habitat, or residences	Site preparation (including temporary workspace), including vegetation removal (clearing and grubbing), topsoil stripping and grading	 <p data-bbox="1372 730 1507 808">Increased Regulatory Risk</p>
Presence of species (and their habitat) that are listed under SARA, provincial, or territorial rankings	Species listed under SARA, provincial, or territorial rankings are known to breed at or near the area where a project activity is planned. Designated areas for birds are also recognized (e.g., Wildlife Habitat Areas in British Columbia; Important Bird Areas; RAMSAR sites).	
BCR priority species and their habitat are present	Birds (migratory and non-migratory) listed as BCR priority species are known to occur at or in proximity to planned project activities. Species-specific management goals that need to be considered during planning may be in place.	
Migratory birds (all species) and their habitat	Project activities have the potential to affect migratory birds.	
Other birds – species not listed under SARA, not listed provincially or territorially, not a migratory bird under the MBCA, and not a BCR priority species	This list includes primarily non-listed species and species not identified as a migratory bird on MBCA or as a BCR priority species. The list might include, for example, certain species of owl, hawk, eagle, or falcon which may be protected generally under provincial or territorial legislation.	

Certain species (including non-migratory birds) also require special consideration, due to other legislation (e.g., SARA, provincial wildlife or endangered species acts), wildlife management plans (e.g., BCR Strategies) or the existence of protected or important habitat areas (e.g., Important Bird Areas [IBAs]) close to a proposed project. During scoping for a proposed project these categories should be considered as they can have a direct effect on the timing of activities and where they can occur.

3.1.3

Habitat Suitability for Breeding Birds

The risk of incidental take is determined in part by the likelihood of encountering a breeding bird during a specified time and in a specific habitat. Environment and Climate Change Canada (2017a) uses three broad habitat types: forest, wetland, and open fields. These habitat types are then used to describe nesting periods for migratory birds across 62 nesting zones delineated within Canada. While this information is useful for general mitigation planning, most of the nesting zones span several degrees of latitude and longitude, and have considerable variation in elevation or habitat (i.e., different types of forest), such that project specific details related to environmental setting will be a necessary and important factor in managing the risk of incidental take.

Another important factor in managing the risk of incidental take is the timing of high and moderate risk activities in/ or adjacent to habitat types that naturally would have a relatively high risk for disturbance (e.g., forest habitats with complex structures). If highly complex habitats can be avoided during the breeding season and nesting period, then the relative risk of incidental take would likely be minimized in comparison to areas of less complex habitat types where breeding bird densities may be lower. The magnitude of risk reduction would be based on the amount of habitat that would be affected. For example, the risk of incidental take would be the same if one hectare (ha) of habitat with a density of four nests/ha was affected compared to if four ha of habitat with one nest/ha was affected. There is little information to support risk tradeoffs among habitat types, primarily because nest detection is largely a function of habitat type (i.e., density and complexity), and the kinds of species present, their abundance, and ability to detect them (i.e., cryptic compared to conspicuous species). A habitat-based risk matrix has been developed for the forestry sector in the interior of British Columbia (Stuart-Smith 2016), but its merits for minimizing the risk of incidental take are still being tested and evaluated.

While disturbed habitats (e.g., clearcuts, existing right-of-ways) are generally less complex and not specifically identified by Environment and Climate Change Canada as a “habitat type”, there is still a risk of incidental take, even if species richness and breeding bird density is very low; however, the risk would be lower than that of natural habitats. For example, within major transmission corridors located in the Lower Mainland of southwest British Columbia, bird density was strongly correlated with habitat diversity within the right-of-way (Preston and Campbell 2004).

This BMP document takes into consideration general patterns of species abundance, diversity, and density based on patterns identified through literature and expert opinion. For project-specific mitigation planning however, a detailed review of the kinds of habitats and species likely to be present is recommended.

3.1.3.1 Forests

Birds occur and nest in all forested habitats in Canada, but generally the abundance and diversity of species tends to be greatest in mixed-wood stands rather than in pure deciduous or coniferous stands (Drapeau et al. 2000). Furthermore, deciduous stands tend to have greater diversity and abundance than pure coniferous stands (Willson and Comet 1996; Hobson and Bayne 2000a; Machtans and Latour 2003; Preston et al. 2010; Cavard et al. 2011). Bird diversity, and hence potential nesting density, can also be affected by elevation and stand size. Forests at higher elevations generally support fewer bird species and individuals compared to stands at lower elevations (Rahbek 1997; Waterhouse et al. 2002), and small forest patches (i.e., less than 10 ha) tend to support fewer species and individuals compared to larger patches (i.e., greater than 10 ha; McIntyre 1995; Saab 1999; Schmiegelow and Hannon 1999). Stand age can also be a predictor of bird abundance or density, but can be a less reliable predictor of species richness and abundance because it often covaries with stand type, canopy and understory vegetation composition, moisture regime, and slope and aspect (Hansen et al. 1995; Stelfox 1995; Hobson and Bayne 2000b). Stand age tends to have a U-shaped distribution, with the early succession forests having moderately high richness and abundance, mid-seral forests having lower richness and abundance, and mature and old-growth forests having the highest richness and abundance (e.g., Davis et al. 1999; Schwab and Sinclair 2004; Preston et al. 2006). Recently cleared or harvested forest areas (i.e., typically less than 5 years old) should not be discounted as habitats that do not support breeding birds. In fact, recently cleared areas can have considerable variability in species richness and abundance depending on several factors, such as snag retention, presence of wildlife trees or tree patches, volume of coarse woody debris, and the density and cover of shrubs (e.g., King and DeGraaf 2000; Preston and Harestad 2007; Preston et al. 2010).

3.1.3.2 Wetlands

Throughout Canada, wetlands are an incredibly variable habitat type that cover about 14% of Canada's land area and support numerous breeding bird species (ECCC 2017d). Wetlands are commonly classified by their substrate of origin (organic or mineral), size, depth, extent of emergent vegetation, pH, and whether they are freshwater or brackish (ECCC 2017d). Typical categories of wetlands include bogs, fens, swamps, marshes, wet meadow, and shallow water (Keddy 2000). Numerous bird species use wetlands for breeding, and many species are classified as colonial (i.e., the species' habitually nests in moderate to large numbers in close proximity to other individuals of the same species). Examples of colonial species include terns, gulls, and some herons and egrets, and examples of non-colonial species include common yellowthroat, marsh wren, rails, shorebirds, and several species of duck. Examples of species that may exhibit either colonial or non-colonial behavior, which typically is dependent on wetland size and habitat availability, include red-winged and yellow-headed blackbird.

Wetlands that are typically referred to as swamps and marshes, as evidenced by extensive emergent vegetation typically rooted in hydric soils (e.g., willows; cattails; bulrushes; grasses and sedges; small trees and snags) tend to be productive habitats for breeding birds with relatively high densities, particularly in grassland, parkland, boreal, and mountain valley ecosystems (Cheskey et al. 2011). Wetland habitats with lower breeding densities typically include bogs and fens; bogs are often dominated by Sphagnum moss, sedge, Ericaceae shrubs, and coniferous trees rooted in deep peat, and fens are often dominated by sedges and grasses rooted in shallow peat. Wet meadows and shallow water wetlands can have moderate breeding bird densities, and can support colonial and non-colonial species. Wet meadows are often typically dominated by herbaceous plants rooted in seasonally-flooded soils (e.g., prairie floodplains; meadows along the shorelines of large lakes), and shallow water wetlands are dominated by truly aquatic plants growing in and covered by at least 25 cm of water (e.g., littoral zones of lakes, bays in rivers, permanently flooded areas of prairie potholes) (Keddy 2000). There is much variability in these six wetlands classes, both in their ecological composition and in the kinds and numbers of birds that nest within them throughout Canada. For example, wetlands with very little vegetation, such as alkaline fens, often support shoreline nesting species such as plovers, stilts, and avocets that may not be present in non-alkaline fens. Wetlands surrounded by regularly maintained and homogenous terrestrial habitats (e.g., cultivated fields and rangelands) usually support few wetland breeding bird species.

3.1.3.3 Open

Open habitats include native grasslands, alpine, sparsely vegetated and exposed rock (e.g., extensive areas within the Canadian Shield), and agricultural lands (i.e., crop or livestock). Generally, each of these habitats have low densities of breeding birds, owing largely to the homogenous (or

mono-culture) nature of the habitat, but also the hostile conditions that these habitats often have (e.g., lack of cover; cold temperatures; low food availability). Like other habitat types, native grasslands have a number of bird species that are unique to this habitat. Due to a variety of factors, including agricultural conversion, native grasslands also have a high number of species at risk. Compared to native grasslands, croplands typically have low bird richness, abundance, and nest density (Best et al. 1997; DeJong et al. 2004); waterfowl are known to nest in croplands adjacent to wetlands. Lands managed for livestock, particularly rangelands (i.e., not feedlots) can support higher densities of breeding birds than croplands, but typically lower than native grassland. Alpine areas support few species, and nest densities are typically very low. Similarly, nest densities in habitats comprised primarily of exposed rock also are typically very low.

3.1.4

Temporal Considerations

The timing of project activities may have the largest influence on the risk of incidental take. The nesting period (or breeding season) for birds is a valuable indicator for determining when nesting birds are likely to be present. The nesting period is therefore used to provide guidance on when activities should be avoided or minimized to limit potential adverse effects to birds, and their nests and eggs. For large projects, such as transmission lines, more than one nesting period may be relevant.

All applicable federal and provincial guidance (including nesting periods or restricted activity periods) should be reviewed as part of defining project and activity specific avoidance periods. However, regardless of the time of year, if an active or protected nest is found, mitigation measures should be implemented.

Nesting Periods for Migratory Birds

Environment and Climate Change Canada (2017a) has developed nesting calendars that describe the number of species expected to be nesting in a given nesting zone and habitat type. The calendars are organized by the 12 major Bird Conservation Regions in Canada (Figure 2), as delineated by the North American Bird Conservation Initiative (NABCI 2014) and which are based on similar ecosystems, bird communities, and resource management issues. The BCRs are further subdivided into 62 nesting zones, and for each of these, a nest calendar is provided for three broad habitat types: wetlands, forest, and open fields. Each nesting period is divided into six categories (> 0-5%, 6-10%, 11-20%, 21-40%, 41-60% and 61-100%), which indicate the percentage of species in each nesting zone known or likely to be nesting during a given range of dates. Extreme nesting dates predicted for some atypical parts of each nesting zone are also provided (ECCC 2017a).

The information provided in the nesting calendars is for general mitigation planning, as each nesting zone spans several degrees of latitude and longitude. All of the zones

also have considerable variation in elevation or habitat (i.e., different types of forest), such that project-specific details related to environmental setting will be a necessary and important consideration in managing the risk of incidental take.

For this BMP, CEA has adopted general guidance for managing risk in relation to temporal considerations. This guidance is based on the primary nesting period, which describes the period when more than 10% of the species in a nesting zone and habitat type are likely to be nesting. The primary nesting periods are based on the Environment and Climate Change Canada nesting calendars, and therefore represent relatively large regions with considerable variation in the kinds of species, habitats, and elevations that occur within them. The primary nesting period serves as a trigger for the undertaking of a pre-disturbance nest search when avoidance is not feasible. The primary nesting periods are not specific to any given species, and nor are they representative of every species that may occur in a region. In addition, the primary nesting periods are based on migratory birds listed under the MBCA, and may not adequately account for species that nest earlier or later than the primary nesting period (e.g., some corvids and raptors).

CEA members should undertake their own project- or activity-specific review to determine which species and habitats will be affected, and when those species are likely to be nesting. Results of this review may cause the timing of project activities or commencement of nest searches to be adjusted. While the risk of incidental take is greatest during the primary nesting period, risk may not be eliminated outside of this period (i.e., for inactive nests of protected species and for any early or late breeding activity). Avoidance of activities during the primary nesting periods, particularly vegetation removal, will greatly minimize the risk of incidental take. If avoidance of the primary nesting periods is not possible, a qualified biologist may be needed to undertake bird nest surveys to determine whether any nest-specific avoidance measures are required.

Nesting Periods for Non-Migratory Birds

In addition to the primary nesting periods for migratory birds, some provinces (either through guidelines or legislation) have outlined supplementary avoidance periods for certain species (e.g., grouse; raptors) that are not covered under the MBCA. While most of the attention on minimizing the risk of incidental take has focused on migratory birds because of the MBCA, provincial legislation provides protection for non-migratory bird nests (depending on the province or territory). For certain non-migratory bird species, such as owls and other raptors (e.g., hawks, eagles, falcons), the nesting period begins before those of most migratory bird species. For example, species such as great horned owl will start laying eggs at the end of February and into March (Artuso et al. 2013). For this reason, when developing project-specific primary nesting periods, consideration is needed of the nesting periods of non-migratory species which are protected in the region.

Photograph courtesy of ATCO





Photograph courtesy of Manitoba Hydro

3.2

Project Constraints To Managing Incidental Take

As part of developing this BMP, an examination was undertaken of how major life cycle phases associated with electricity generation, transmission, and distribution could affect managing the risk of incidental take. The major life cycle phases considered were: project planning and design; construction; operation and maintenance; and decommissioning.

The examination identified that the construction and operation and maintenance phases have the greatest potential to cause incidental take. In particular, vegetation clearing or brushing, and human activity and noise, were the primary activities likely to increase the risk of incidental take. The project planning and design phase did not result in the potential for incidental take to occur, but was identified as an important part of understanding of potential project-habitat interactions that could increase risk during the

construction and operation and maintenance phases. The project planning and design phase can be used to avoid or minimize risk of incidental take through footprint planning and activity scheduling. Decommissioning (or infrastructure conversion) was identified as having moderate risk, based on the assumption that lesser amounts of habitat or vegetation were likely to be affected compared to construction and operation and maintenance, and that there may be greater flexibility in scheduling decommissioning activities outside of the nesting period.

Some constraints related to life cycle phases may prevent or restrict managing the risk of incidental take effectively. However, it should be reiterated that “individuals and companies are legally bound to comply with the existing prohibitions under the federal migratory bird legislation” (ECCC 2017a).

Table 5 summarizes potential constraints that could limit effective risk management.

Table 5

Project Constraints to Managing Risk of Incidental Take

Constraints	Life Cycle Phase	Comments
Safety	Construction Operation and maintenance Decommissioning	Project works must be completed in a safe and responsible manner such that the safety of project personnel and the public is upheld, and damage to property is avoided.
Managing risk to infrastructure	Operation and maintenance	Preventive maintenance may be required during the bird nesting period.
Volume of transmission and distribution infrastructure	Operation and maintenance	Challenging to complete all preventative maintenance outside of the bird nesting period.
Conflicting environmental timing windows	Project planning and design	Temporal considerations (e.g., timing restrictions) for other values (e.g., in-stream works; bear dens; caribou) must be considered, and tradeoffs between working within different timing windows may need to be considered.
Limits on activity	Construction	Some project activities may be limited by ground conditions (e.g., frozen), fire risk, and other factors.
Scale of the activity	Operation and maintenance	Large projects are generally less likely to be able to avoid nesting periods, compared to small projects
Short window to undertake maintenance activities	Decommissioning	Vegetation management, particularly under transmission and distribution lines, may be restricted to certain seasonal windows
Labor force and equipment availability	Construction	Availability of personnel, skilled workers, and equipment availability may limit when and duration of the required activity.
Surrounding land uses	Operation and maintenance	Restrictions on land use may prevent siting of project facilities within lower risk habitats.



Photograph courtesy of ATCO

3.3 Mitigation Hierarchy

3.3.1 Overview

Having defined the factors affecting the risk of incidental take and the constraints on the project activities, the next and final stage in the risk management framework is for the CEA member to determine if mitigation is necessary.

The standard approach to mitigation is to apply the mitigation hierarchy, which has three steps or considerations:

1. avoid incidental take
2. minimize the risk of incidental take
3. compensate

From an incidental take perspective, the two most common considerations are to avoid or minimize effects. This is important, because implementing appropriate measures that avoid or minimize the risk of effects to migratory birds and their nests and eggs contribute to the conservation of migratory birds in Canada (ECCC 2017a). There are some instances where compensation for incidental take may be an option. The need for compensation should be determined through consultation with the appropriate regulatory agency.

3.3.2 Avoid

Avoidance is the preferred method of preventing project effects on bird nests and eggs. The avoidance period will depend largely on the nesting period (migratory and non-migratory species) and habitat type that the project occurs within. However, due to constraints on project activities (Table 5), avoidance is not always possible. Overall, planning that considers temporal and spatial aspects to prioritize areas for project activities that avoid incidental take are preferable. Table 6 provides examples of measures that can be implemented to avoid incidental take.

Table 6

Potential Mitigation Measures - Avoidance

Category	Description	Examples
Planning	Measures or tools that are used to avoid bird nesting periods (temporal) or nesting habitat (spatial)	<ul style="list-style-type: none"> · Scheduling vegetation clearing to avoid the primary nesting period where feasible · Mapping habitat types or land cover (i.e., forests, wetlands, and open fields such as grasslands, cultivated lands, and tame pasture) on survey plans or alignment sheets following route selection and construction planning · Site Selection
Diversion/ Preventative	Measures designed to physically prevent birds from nesting on infrastructure or within the footprint prior to work commencing	<ul style="list-style-type: none"> · Use of fiberglass poles to prevent cavity nesters from nesting in poles · Other physical measures to prevent nesting on structures (e.g., netting, screening)
Early Access	Measures used to dissuade birds from nesting on infrastructure or within the footprint prior to work commencing	<ul style="list-style-type: none"> · Continuous mowing or other methods, starting prior to the nesting period, to keep birds from nesting on or adjacent to the project footprint

3.3.3 Minimize

When project activities that have a risk of incidental take cannot adhere to prescribed avoidance periods or habitat types that are suitable for nesting birds, additional BMPs that minimize effects on bird nests and eggs may be needed. Two of the most used methods to minimize effects on bird nests and eggs are awareness training (i.e., to allow for nesting sweeps by employees or contractors), and the undertaking of bird nest surveys by a qualified biologist. The combination of employee and contractor bird awareness (i.e., the awareness of signs or conditions indicative of nesting activity and presence of nests) and the use of bird nest surveys when recommended, are important BMPs that can provide valuable data to guide site-specific mitigation of incidental take.

As part of their guidance for minimizing incidental take of migratory birds, Environment and Climate Change Canada (2017a) generally discourages active nest searches because the probability of detecting all nests in an area is likely to be low in most habitats, and surveyors may disturb nesting birds in the course of their efforts. Disturbing nesting birds may cause them to flush off the nest, which may increase the risk of predation of the eggs or young, or may cause the adults to abandon the nest or the eggs. For this reason, Environment and Climate Change Canada recommends that active nest searches only be undertaken if the nests are easy to locate without disturbing them.

Table 7 provides a summary of BMPs that CEA members can use to minimize incidental take on bird nests and eggs.

Table 7

Potential Mitigation Measures – Minimize Impacts

Category	Description	Examples
Physical barriers to nesting	Measures designed to prevent birds from nesting on infrastructure	<ul style="list-style-type: none"> Use of flagging, nets, and other materials to prevent species from nesting on structures/facilities (e.g., materials to prevent mud sticking for swallow nests) Pigeon spikes
Auditory/olfactory deterrents	Measures designed to dissuade birds from nesting on infrastructure	<ul style="list-style-type: none"> Recordings of alarm or distress calls Recordings of birds of prey Synthetic gel and liquid deterrents Propane cannons
Sensory disturbance reduction	Measures designed to minimize sensory disturbance to birds	<ul style="list-style-type: none"> Muffling of sound Use of equipment with lower noise emissions Restricting crew size or equipment size, where possible
Monitoring	Measures designed to actively determine response of birds to activities	<ul style="list-style-type: none"> Monitor response of activities on nesting birds (e.g., raptors or other large birds) and implement mitigation depending on response
Post-activity review	Measures designed to determine whether mitigation was effective in minimizing impacts	<ul style="list-style-type: none"> Reporting and meetings to discuss results

Additional information on awareness training and the use of qualified biologists, the detection and management of nests that are observed, and integrated vegetation management are provided below.



Photograph courtesy of ATCO

3.3.3.1

Bird Awareness for Employees and Contractors

The first line of defense to minimizing the risk of incidental take for CEA members is to promote awareness of birds and their nesting behavior for their employees and contractors. Most member companies have implemented awareness training as part of their beneficial practices. This is important because employees or contractors may be the first to observe potential risk of incidental take, especially when undertaking routine maintenance activities such as mowing, weed control, or tree trimming, or when working within the breeding season but outside of the prime nesting period, when a formal nest survey may not be necessary. Providing training that can help employees and contractors identify and document nesting activity and monitor the application of setback buffers can facilitate effective mitigation.

The purpose of bird awareness training is to educate employees and contractors on how to undertake a pre-disturbance nesting sweep (i.e., detect signs of potential nesting activity) prior to routine, low risk maintenance activities such as weed control and mowing at substations or existing facilities. The following steps are recommended for employees and contractors undertaking a nesting sweep:

- carry out a visual check to determine if there are active or non-active nests in the work area. The following guidelines will be observed when completing a nesting sweep:
- walk through the project work area on foot before work begins. Nests may be located on infrastructure, the ground or in trees and shrubs.
- when completing the walk through, turn off equipment or vehicles so that the sounds of birds can be heard.

- avoid doing the sweep in high wind or heavy rainfall conditions, as this can reduce the observer's ability to hear and see birds.
- document that the nesting sweep was completed, including results and mitigation implemented if necessary.

If a bird is observed flushing from the ground or a tree, or if a nest is observed during construction and operation and maintenance activities, request specific direction from company environment staff or a qualified biologist as appropriate.

Appendix B provides a summary of relevant training considerations.

3.3.3.2

Use of Qualified Biologists

CEA members may choose to enlist support and technical expertise from a qualified biologist when identifying risk factors and selecting appropriate preventive and mitigation measures to avoid or minimize the risk of incidental take. A qualified biologist may also be needed to undertake bird nest surveys, determine breeding activity, and implement as required appropriate setbacks and timing restrictions for active, protected, or suspected nests.

There is no formal definition describing the qualifications of a qualified biologist, but the issue has been raised among industry, regulators, and practicing biologists (e.g., CMIAE 2017). For the purpose of this BMP, a qualified biologist would typically be an individual who has appropriate education, training and applicable knowledge on species identification, nesting biology, and regulations and beneficial practices related to the electricity sector (including this BMP).

3.3.3.3

Determining Nesting Activity

Depending on the species, bird nests can be found in a variety of habitats and locations (ECCC 2017a), such as in trees and snags (including in cavities), in shrubs, on the ground (including in hayfields, crops and pastures), within wetlands, on cliffs, in burrows, in reclamation soil stockpiles, and on human-made structures and equipment.

In general, even for qualified biologists, it can be difficult to locate the nests of many bird species because the nests are often well-hidden or at a height not easily visible to a human observer. Adult birds typically avoid approaching their nests in a manner that would attract predators to their eggs or young (ECCC 2017a). The amount and structural complexity of habitat can limit the ability to undertake nest sweeps or surveys, and successfully detect all nests. However, bird nests that are located in isolated trees or tree cavities, at eye-level or on the ground, or on human-made structures and/or in colonies, will generally be easier to detect (ECCC 2017a).

Wetlands pose particular challenges for undertaking nest surveys, depending on the type of wetland and the breeding species it may support. Generally, construction and operation and maintenance activities within wetland habitats should be avoided during the nesting period. If activities cannot be avoided, an activity-specific plan should be developed to address the unique challenges that one or more wetlands might impose.

Searching for nests in open habitats is relatively easy compared to complex forest habitats, but because nest densities may be very low, the rate of nest detection per unit of area searched can also be expected to be low. Typically, nest searches in croplands are not undertaken, although they may be necessary if species at risk are thought to be present. Similarly, searching for nests in active rangeland may be challenging if livestock pose logistical challenges or safety concerns. Searching for nests in alpine and exposed rock areas can be an exercise in extreme patience, as nesting birds can have a very good line-of-sight and move away from nests long before a human observer is close enough to detect the nest. In native grassland habitats, the rate of nest detection should be higher than in croplands, and nest searching should require relatively little effort because birds are generally easier to spot when flushed compared to when searching in alpine and rocky areas. Birds of prey that nest in lone trees (e.g., ferruginous hawk), or on rocky ledges (e.g., prairie falcon), within open habitats should be relatively easy to detect. The implementation of relatively large setbacks and timing restrictions for nesting raptors in open habitats will indirectly minimize the risk of incidental take on other species within the setback.

To determine the likelihood that birds, and their nests or eggs are present in a particular location, Environment and Climate Change Canada (2017a) recommends using an approach which considers available bird habitats, which bird species are likely to be encountered in those habitats, and the time periods when they those nests would likely be present. Observers should be looking for (ECCC 2017a):

- conspicuous nest structures (e.g., nests of great blue heron, bank swallow, chimney swift);
- habitat that is suitable for SARA-listed bird species which may be found in the area;
- tree cavities for species that nest in cavities (e.g., bluebirds; woodpeckers, chickadees and nuthatches; several species of waterfowl and owl); or
- colonial-breeding species that can often be located from a distance (e.g., a colony of terns, gulls, grebes, and several species of swallow).

When nests are not conspicuous, there are other signs of breeding activity that can be used to indicate the presence of active bird nests such as:

- adult birds flushing
- adult birds carrying food, nesting materials, or fecal sacs
- adult birds building nests or excavating cavities
- adult birds calling or singing
- adult birds copulating or engaging in distraction displays
- nestlings or fledglings

Employees and contractors would not be expected to identify the bird species, however, if these signs are observed, they should contact the company's environmental staff or a qualified biologist to properly document the observation.

3.3.3.4

Nest Management Considerations

3.3.3.4.1

Active Nests

If an active bird nest is found, the surveyor (e.g., contractor or qualified biologist) will record or review all available details including species, location, and breeding evidence (e.g., male singing, adults entering nest, nestlings heard or seen within nest).

When a suspected nest is detected, there are procedures to minimize the risk of incidental take based on the data recorded, specifically the use of nest-specific restricted activity periods, setbacks, and monitoring. In combination, these are used to restrict or limit activities in the vicinity of an active nest in order to prevent incidental take.

For a typical songbird, the nest-specific restricted activity period could be as long as 29 to 38 days if the nest is discovered (i.e., 2-3 days to build a nest; 4-5 days to lay a typical clutch of four eggs; 11-14 days to incubate; 11-14 days to brood; 1-2 days to fledge). The determination of a nest-specific restricted activity period should be made in consultation with a company environment staff member or a qualified biologist.

A setback (or buffer) is established around an active nest, or group of nests, to avoid or minimize the potential for incidental take associated with project activities. Environment and Climate Change Canada (2017a) indicates that setback distances should be appropriate for the species, intensity of disturbance, and nature of surrounding habitat, and that they should be retained until young have naturally fledged and left the area. This setback distance should take into account potential response to sensory disturbance, which can include birds leaving their nests for extended periods, which may lead to nest failure due to exposure, predation, or abandonment. The distance used to define a setback is measured as a radius around a nest, group of nests, suspected nest, or nest tree. Depending on the position of a given nest, it may not be necessary to flag the setback perimeter in its entirety, especially if the nest is off to one side of planned project activities. In cases where a precise nest location is unknown, the setback will be based on the estimated location from all available evidence.

Generally, a qualified biologist will determine the setback for a specific nest location using existing recommendations from federal and provincial regulatory agencies, professional judgment, and any new or supporting guidance regarding beneficial management practices. The setback will take into consideration the species, habitat, topography, and type of disturbance, and if necessary, the appropriate regulatory agency will be contacted if additional information is required. Setbacks may be reduced or expanded depending on the

sensitivity of the species and whether the nest is concealed by topographic features or vegetation.

In some cases, multiple active nests may be present in an area, and two or more setbacks and nest-specific restricted activity periods may overlap. Appropriate regulator(s) should be consulted if there is uncertainty about the spatial or temporal restrictions.

Once a setback and nest-specific restricted activity period are prescribed, it should be abided by even if it extends beyond the general avoidance period. After the nest-specific restricted activity period expires, another nest search should be completed prior to the commencement of project activities if the avoidance period is still in effect. If the nest-specific restricted activity period expires outside the avoidance period, an additional bird nest search is not required; however, the company's environmental staff or a qualified biologist should be consulted to determine whether a follow-up nest search is needed to confirm that nesting has been completed (i.e., the young have fledged).

The following provides example guidance to employees and contractors, specifically, on the procedures to follow when nests are found during nesting sweeps or incidentally during project activities. Different procedures are provided for both natural habitats (e.g., forest and grassland habitats) and disturbed areas (e.g., industrial sites, outside of natural areas within city limits) as there are differences in conditions that may be encountered.

Nest Management Procedure - Natural Habitats

- a. if a nest or suspected nesting location is found, mark or flag the setback, do not mark or flag the nest itself;
- b. delay work in the area if doing so will not compromise public safety or system security;
- c. complete work outside of setback as quickly and safely as possible and alert all other project crew of the setback location and avoidance requirements;
- d. if the nest is known or suspected as belonging to a bird that is a species at risk (e.g., Sprague's pipit; bobolink) or a species that has additional management concerns (e.g., bald eagle or ferruginous hawk where a large stick nest is present), stop work and contact the company environment staff or a qualified biologist for additional advice. Depending on the species, nest protection, species-specific setback distances,

- or timing restrictions consultation with regulatory agencies may be required;
- e. divert any crews, equipment or vehicles away from the nest throughout project and maintenance activities;
- f. in some cases, a temporary shut down of activities in the vicinity of a nest may be required until after the nestlings have fledged (i.e., left the nest or nest area);
- g. remove any flagging that was used to establish a setback or protect a nest following the completion of project activities; and
- h. all nests that are incidentally destroyed must be reported to the company environment staff.

- any limbs that are removed should be lowered in a manner such that they do not come in contact with the nest. Do not allow cut limbs to fall through the tree canopy;
- chipping will not be conducted in the vicinity of the active nest; and
- allow breaks for birds to return to nest if work will last more than 1.5 hours within 15m of the nest (depending on weather conditions).
- f. nests that are incidentally destroyed must be reported to the company environment staff.

Nest Management Procedures - Disturbed Areas

- a. if a nest or suspected nesting location is identified in trees or brush that is not an immediate safety or reliability concern, delay trimming or clearing until after the nesting period. Otherwise, maintain a recommended setback from the nest;
- b. if the nest is known or suspected as belonging to a bird that is a species at risk (e.g., Sprague's pipit; bobolink) or a species that has additional management concerns (e.g., bald eagle or ferruginous hawk where a large stick nest is present), stop work and contact the company environment staff or a qualified biologist for additional advice. Depending on the species, nest protection, species-specific setback distances, or timing restrictions consultation with regulatory agencies may be required;
- c. if the nest is located in vegetation that poses a safety risk or reliability risk then emergency pruning may occur; nest destruction must be reported to the company environment staff, who will contact the appropriate regulatory agency, as required;
 - d. branches containing nests will be kept intact (including as much of the crown as possible), while maintaining safe clearance from the conductor;
- e. when trimming in close proximity to an active nest implement the following methods:
 - complete work as quickly and safely as possible, using hand or hydraulic tools. Avoid using chain saws where an active nest has been identified, where possible, to minimize potential disturbance from noise or vibration;
 - use an aerial device to complete the work, where possible;
 - if using ladders or ropes, secure them as far away from the nest while maintain safety standards;
 - do not touch the nest;

3.3.3.4.2

Inactive Nests

An inactive nest (or non-active nest; ECCC 2017a) is a nest that is not currently being used by a bird species for breeding (e.g., a nest with eggs or fledglings present, a nest that is actively being used or tended to prior to egg laying). Despite the difference in risk of incidental take with an active nest, the Migratory Bird Regulations do not explicitly limit the protection of nests to active nests; therefore, an individual may be in violation of the Regulations if he or she damages, destroys or removes an inactive nest (ECCC 2017a).

The BMPs for inactive nests require different considerations compared to active nests. Environment and Climate Change Canada (2017a) recommend that, when an inactive nest is discovered, the surveyor must take into account relevant scientific information or practices for the species, considering in particular the species' reliance on its old nest and the potential impact on nesting success of having to build a new nest.

For instance, inactive nests of certain species found during nesting sweeps or bird nest surveys will be recorded and reported to the company's environment staff, in order to determine next steps. Inactive nests found outside the avoidance period should be reported to the company's environment staff to determine if nest removal can proceed.

Direct removal of the nest should be avoided to the extent possible. However, if the nest removal cannot be avoided, the CEA member may need to obtain a permit authorizing its removal if the nest belongs to a migratory bird species that re-uses nests where the availability of nest sites is limited (e.g., swallows, great blue heron), or to a raptor species specifically mentioned within applicable provincial or territorial legislation (e.g., bald eagle).

3.3.3.5

Integrated Vegetation Management

As defined by the American National Standards Institute, IVM is a system of managing plant communities in which compatible and incompatible vegetation is identified, action thresholds are considered, control methods are evaluated, and selected control(s) are implemented to achieve specific objectives (from ANSI Standard A300, part 7).

While the primary objectives for IVM are focused on maintaining safe and reliable transmission of electricity, integrated vegetation management can indirectly be used to actively lower the risk of incidental take by altering the habitat present for nesting birds. IVM is typically used to convert power line corridors from dense stands of tall-growing species that are created by continuous mowing and brushing, into low-growing stable plant communities of more desirable plants, such as compatible berry bushes, low-growing shrubs, and wildflowers (BC Hydro 2015). These low-growing plant communities require less vegetation maintenance and therefore minimize the risk of incidental take.

IVM Control methods include (BC Hydro 2015):

- Manual and Mechanical control: physical controls of vegetation that include activities such as pruning, hazard tree removal, mowing, brushing, grubbing, and girdling.

Manual and mechanical methods typically include:

- slashing
- mowing
- girdling
- grooming
- pruning
- Cultural control: management of vegetation in a way that suppresses the growth of incompatible target species through the use of crops, pastures, parks or other managed landscapes, e.g. compatible use.
- Biological control: methods that involve the reduction or suppression of unwanted organisms by introducing or enhancing the presence of natural enemies, such as insects, fungi, or compatible competitive plants. It is often used in noxious weed/invasive species control.
- Chemical control: management of incompatible

vegetation through the use of herbicides. Where the use of chemicals that may be harmful to birds is required, users will need to apply for an authorization from Environment and Climate Change Canada.

The choice of control methods is based on effectiveness, environmental impact, site characteristics, safety, security, and economics. For maintaining electric rights-of-ways, IVM is considered a beneficial management practice in utility vegetation management as the most effective, safe, economical, and environmentally sound procedure(s) (from ANSI Standard A300, part 7).

3.3.4

Compensate

There is currently no formal mechanism in the MBCA to enable the use of compensation in the risk management framework. CEA is also not aware of any guidance or policies that pertain specifically to offsets for incidental take specifically. Offsets do provide a potentially valuable future avenue for the management of incidental take once an adequate mechanism becomes available. However, there are examples of offset-like measures being implemented, particularly for non-migratory birds. In British Columbia, Alberta, Saskatchewan and Manitoba, the removal of some stick nests used by raptors (e.g., bald eagle, osprey, and ferruginous hawk) have been compensated for by installing replacement structures. For example, BC Hydro compensated for the removal of 19 bald eagle nest trees associated with the Site C project by installing platforms at compensation sites at a 2:1 ratio (CMIAE 2017). Numerous other measures, although not specifically referred to as an offset, have been implemented throughout Canada to improve nesting opportunities for birds. Some of these measures include the installation of nest boxes or platforms, restoring or enhancing habitat, and implementing mortality prevention measures.

CEA recognizes that if compensation measures, including offsets, are recommended for a particular project, the details will be worked out with Environment and Climate Change and/or provincial regulatory agencies.

3.4

Documentation

At all stages of the risk management framework, CEA members are encouraged to document risk factors, project constraints, and mitigation that was implemented, including the rationale supporting any decisions made and actions implemented. The purpose of documenting the steps of the risk management framework is to have a record of the decisions and results in the event that there are questions pertaining to how incidental take was managed or if there is an incident.

Reporting standards will be developed by each CEA member.



Photograph courtesy of ATCO

4.0 SUMMARY

The objective of this BMP document is to provide CEA members with a toolbox to facilitate minimization of risk of incidental take on nesting birds during activities associated with electricity projects, operations and maintenance. The application of the toolbox must take into consideration that CEA members need to be able to provide safe and reliable power.

To promote compliance with applicable federal, provincial, and territorial legislation, BMPs to avoid or minimize incidental take were developed with an understanding of the risks to migratory and non-migratory birds associated with project life cycle phases (e.g., construction, operation and maintenance, decommissioning). To facilitate identifying risks and

determining the necessary preventive or mitigation measures to incorporate into project planning, a risk management framework was developed for CEA members to review and implement as appropriate to their respective businesses.

The risk management framework provides CEA members with a toolbox of options to implement as they deem necessary, in consideration of project activities to be undertaken and the risk they might have for causing incidental take. Documenting the information gathered through each step of the framework, including supporting rationale for each decision and action, will be an important part of demonstrating due diligence.

5.0

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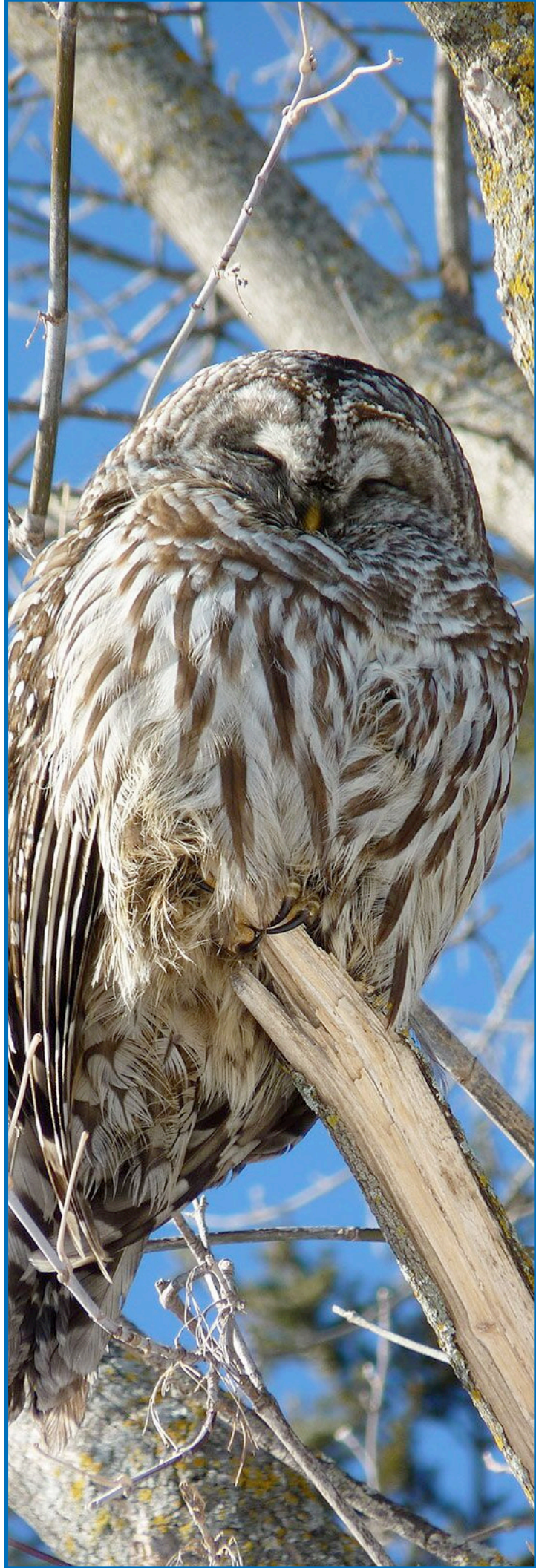
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Photograph courtesy of Manitoba Hydro



Appendices

Appendix A

Acts And Legislation

***NOTE:** Table A-1 provides excerpts of legislation as of the date this document was originally published. Users must confirm that applicable legislation is current for their operating jurisdiction.

Table A 1

Federal Acts and Legislation Protecting Bird Species

Acts/Legislation	Applicable Sections
Migratory Birds Convention Act, 1994	<p>Prohibitions</p> <p>Section 5. Except as authorized by the regulations, no person shall, without lawful excuse,</p> <ul style="list-style-type: none"> (a) be in possession of a migratory bird or nest; or (b) buy, sell, exchange or give a migratory bird or nest or make it the subject of a commercial transaction. <p>5.1 (1) No person or vessel shall deposit a substance that is harmful to migratory birds, or permit such a substance to be deposited, in waters or an area frequented by migratory birds or in a place from which the substance may enter such waters or such an area.</p> <p>5.1 (3) Subsections (1) and (2) do not apply if</p> <ul style="list-style-type: none"> (a) the deposit is authorized under the Canada Shipping Act, 2001; or (b) the substance is of a type and quantity, and the deposit is made under conditions, authorized under an Act of Parliament other than the Canada Shipping Act, 2001, or authorized by the Minister for scientific purposes. <p>Regulations</p> <p>Section 12. (1) The Governor in Council may make any regulations that the Governor in Council considers necessary to carry out the purposes and provisions of this Act and the Convention, including regulations</p> <ul style="list-style-type: none"> (a) providing for the periods during which, and the areas in which, <ul style="list-style-type: none"> (i) migratory birds may be killed, captured or taken, (ii) nests may be damaged, destroyed, removed or disturbed, or (iii) migratory birds or nests may be bought, sold, exchanged, given or made the subject of a commercial transaction; (b) for limiting the number of migratory birds that a person may kill, capture or take in any period when doing so is permitted by the regulations, and providing for the manner in which those birds may then be killed, captured or taken and the equipment that may be used; (i) prescribing protection areas for migratory birds and nests, and for the control and management of those areas.
Migratory Birds Regulations	<p>Regulations</p> <p>Section 2 (1) In these Regulations...</p> <p>“hunt” means chase, pursue, worry, follow after or on the trail of, lie in wait for, or attempt in any manner to capture, kill, injure or harass a migratory bird, whether or not the migratory bird is captured, killed or injured;</p> <p>General Prohibitions</p> <p>Section 5 (1) No person shall hunt a migratory bird except under the authority of a permit therefor.</p> <p>Section 6. Subject to subsection 5(9), no person shall</p> <ul style="list-style-type: none"> (a) disturb, destroy or take a nest, egg, nest (b) have in his possession a live migratory bird, or a carcass, skin, nest or egg of a migratory bird except under authority of a permit therefor.

Table A 1

Federal Acts and Legislation Protecting Bird Species

Acts/Legislation	Applicable Sections
Species at Risk Act	<p>General Prohibitions</p> <p>Section 32 (1) No person shall kill, harm, harass, capture or take an individual of a species listed under SARA as extirpated, endangered or threatened</p> <p>Section 32(2) No person shall possess, collect, buy, sell or trade an individual of a species listed under SARA as extirpated, endangered or threatened, or any part or derivative of such an individual</p> <p>Section 33 No person shall damage or destroy the residence of one or more individuals of a listed endangered or threatened species or of a listed extirpated species if a recovery strategy has recommended its reintroduction into the wild in Canada [Section 33 (1)]</p> <p>Protection of Critical Habitat</p> <p>58 (1) Subject to this section, no person shall destroy any part of the critical habitat of any listed endangered species or of any listed threatened species — or of any listed extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada — if</p> <p>(a) the critical habitat is on federal land, in the exclusive economic zone of Canada or on the continental shelf of Canada;</p> <p>(b) the listed species is an aquatic species; or</p> <p>(c) the listed species is a species of migratory birds protected by the Migratory Birds Convention Act, 1994.</p> <p>58 (5.1) Despite subsection (4), with respect to the critical habitat of a species of bird that is a migratory bird protected by the Migratory Birds Convention Act, 1994 that is not on federal land, in the exclusive economic zone of Canada, on the continental shelf of Canada or in a migratory bird sanctuary referred to in subsection (2), subsection (1) applies only to those portions of the critical habitat that are habitat to which that Act applies and that the Governor in Council may, by order, specify on the recommendation of the competent minister.</p> <p>Management of Species of Special Concern</p> <p>Section 71. (1) The Governor in Council may, on the recommendation of the competent minister, make any regulations with respect to aquatic species or species of birds that are migratory birds protected by the Migratory Birds Convention Act, 1994, regardless of where they are located, or with respect to any other wildlife species on federal lands, that the Governor in Council considers appropriate for the purpose of implementing the measures included in the management plan.</p> <p>Agreements and Permits</p> <p>Section 73 (1)</p> <p>The competent minister may enter into an agreement or issue a permit authorizing a person to engage in an activity affecting a listed wildlife species, any part of its critical habitat, or the residences of its individuals.</p>

Table A-2

Provincial and Territorial Acts Protecting Bird Species

Acts/Legislation	Act	Applicable Sections
British Columbia	British Columbia Wildlife Act	<p>Birds, nests and eggs</p> <p>Section 34 A person commits an offence if the person, except as provided by regulation, possesses, takes, injures, molests or destroys</p> <ul style="list-style-type: none"> (a) a bird or its eggs, (b) the nest of an eagle, peregrine falcon, gyrfalcon, osprey, heron or burrowing owl, or (c) the nest of a bird not referred to in paragraph (b) when the nest is occupied by a bird or its egg.
Yukon	Yukon Wildlife Act, 2002	<p>Nests and eggs</p> <p>17(1) A person shall not destroy, take or possess any egg or nest of a bird that belongs to a species that is wild by nature.</p> <p>(2) Subsection (1) does not apply to a person issued a permit in the circumstances prescribed by the regulations.</p> <p>(3) This section does not apply to eggs or nests that are subject to the Migratory Birds Convention Act, 1994 (Canada). S.Y. 2002, c.229, s.17</p>
Alberta	Alberta Wildlife Act, 2000 Alberta Wildlife Regulation, 1997	<p>Disturbance, etc., of wildlife habitation (AWR)</p> <p>96 Section 36(1) of the Act applies</p> <ul style="list-style-type: none"> (a) to the nests and dens, so far as applicable, of <ul style="list-style-type: none"> · (i) endangered animals that are treated under section 7 the same as non-game animals other than raven, throughout Alberta and throughout the year, · (i.1) upland game birds throughout Alberta and throughout the year, · (ii) migratory game birds, migratory insectivorous birds and migratory nongame birds as defined in the Migratory Birds Convention Act (Canada), throughout Alberta and throughout the year, and · (iii) bats throughout Alberta and from September 1 in one year to April 30 in the next, (a.1) to the dens of snakes used as hibernacula or birthing dens, throughout Alberta and throughout the year, (b) to the houses and dens of beaver, on any land that is not privately owned land described in section 1(1)(z)(i) or (ii) of the Act throughout the year, (c) to the houses, nests and dens of all wildlife, in a wildlife sanctuary throughout the year, and (d) to the nests of game birds, in a game bird sanctuary throughout the year.
Northwest Territories	Northwest Territories Wildlife Act	<p>Respect for Wildlife</p> <p>Section 51. (1) Subject section 17, no person shall, unless authorized by a license or permit to do so, destroy, disturb or take</p> <ul style="list-style-type: none"> (a) an egg of a bird; (b) the nest of a bird when the nest is occupied by a bird or its egg; or (c) the nest of a prescribed bird.

Table A-2

Provincial and Territorial Acts Protecting Bird Species Table

Acts/Legislation	Act	Applicable Sections
Nunavut	Nunavut Wildlife Act	<p>Respect for Wildlife</p> <p>Bird's eggs</p> <p>72. (1) Unless lawfully harvesting eggs, no person shall injure, molest or destroy an egg of a bird.</p> <p>Bird's nests</p> <p>(2) Unless lawfully harvesting down, no person shall injure, molest or destroy</p> <p>(a) the nest of a bird when the nest is occupied by a bird or its egg; or</p> <p>(b) the nest of any bird of prey or prescribed bird.</p>
Saskatchewan	Saskatchewan Wildlife Act Saskatchewan Wildlife Regulations	<p>Captivity of Wildlife (SWA)</p> <p>Section 32 No person shall take into or keep in captivity or willfully destroy or disturb any wildlife, or the eggs or nests of any bird protected pursuant to this Part or the regulations or pursuant to the Migratory Birds Convention Act, 1994 (Canada) or the regulations made pursuant to that Act without the written permission of the director or without a license to do so.</p> <p>Activity Prohibited (SWA)</p> <p>Section 51(1) Subject to subsection (2) and (3), no person shall do any of the following:</p> <p>(a) kill, injure, possess, disturb, take, capture, harvest, genetically manipulate or interfere with or attempt to do any of those things to any designated species;</p> <p>(b) export or cause to be exported from Saskatchewan any designated species;</p> <p>(c) traffic in any designated species</p> <p>Protected Wildlife (SWR)</p> <p>Section 6(1) Subject to subsection (2), (2.1), (3) and (4), no person shall, without a license for the purpose, kill, disturb or molest any wildlife or the den, house, nest, dam or usual place of habitation of any wildlife protected under the Act or under the Migratory Birds Convention Act, 1994 (Canada), as amended from time to time, or under any regulations made under either Act.</p> <p>(2) The director may issue a license:</p> <p>(a) to capture or kill any wildlife that is wounded, diseased, a danger to the public or a public nuisance;</p> <p>(b) to remove or destroy the den, house, nest, dam or usual place of habitation of any wildlife that is causing or likely to cause damage to property; or</p> <p>(c) to capture or kill any domestic game farm animal that has escaped from a domestic game farm and poses a threat to wildlife or wildlife habitat.</p>

Table A-2 continued

Provincial and Territorial Acts Protecting Bird Species Table

Acts/Legislation	Act	Applicable Sections
Manitoba	Manitoba Wildlife Act	<p>License Requirement (MWA)</p> <p>Section 15(1) Except as may be otherwise permitted by this Act or a regulation under this Act, no person shall hunt, trap, take, kill or capture or attempt to trap, take, kill or capture a wild animal unless the person does so under the authority of a license.</p> <p>Exception-15(2) Subsection(1) does not apply to a person taking a wild animal listed in Division 5 of Schedule A for his own use.</p> <p>Destruction of nest or eggs (MWA)</p> <p>Section 49 No person shall take or have possession of or willfully destroy the nest or eggs of any game bird or any bird listed in Division 6 of Schedule A, except as may be authorized by a license or permit.</p> <p>Permit for wildlife or exotic wildlife, nests or eggs (MWA)</p> <p>Section 65 Notwithstanding any other provision in this Act or the regulations, the minister may grant, subject to such terms and conditions as he may prescribe, a permit to hunt, trap or take or be in possession of any wildlife or exotic wildlife or the nest or eggs of any bird, for:</p> <ul style="list-style-type: none"> (a) educational or scientific purposes; or (b) any other purpose that the minister deems to be in the public interest.
Ontario	Ontario Fish and Wildlife Conservation Act Ontario Endangered Species Act	<p>No hunting or trapping certain species (FWCA)</p> <p>Section 5(1) A person shall not hunt or trap specially protected wildlife or any bird that belongs to a species that is wild by nature and is not a game bird.</p> <p>(2) Subsection (1) does not apply to,</p> <ul style="list-style-type: none"> (a) an American crow, brown-headed cowbird, common grackle, house sparrow, red-winged blackbird or starling; (b) a bird that is declared to be a migratory game bird in the Convention set out in the Schedule to the Migratory Birds Convention Act, 1994 (Canada); (c) a bird that has been transported into Ontario, or propagated from stock that was transported into Ontario, and that is released with the Minister’s authorization under section 54, other than a specially protected bird or a member of a species prescribed by the regulations for the purpose of this clause; or (d) any other bird, other than a specially protected bird, that is hunted with the authorization of the Minister. 1997, c. 41, s. 5 (2); 2009, c. 33, Sched. 22, s. 2 (6).

Table A-2 continued

Provincial and Territorial Acts Protecting Bird Species Table

Acts/ Legislation	Act	Applicable Sections
		<p>Nests and eggs (FWCA)</p> <p>Section 7(1) A person shall not destroy, take or possess the nest or egg of a bird that belongs to a species that is wild by nature.</p> <p>Exceptions-</p> <p>(2) Subsection (1) does not apply to the nest or eggs of an American crow, brown-headed cowbird, common grackle, house sparrow, red-winged blackbird or starling. 1997, c. 41, s. 7 (2).</p> <p>Same</p> <p>(3) Subsection (1) does not apply to a person who destroys, takes or possesses the nest or eggs of a bird described in that subsection,</p> <p>(a) in accordance with the authorization of the Minister; or</p> <p>(b) in the circumstances prescribed by the regulations. 2012, c. 8, Sched. 16, s. 2.</p> <p>Migratory birds</p> <p>(4) This section does not apply to nests or eggs that are subject to the Migratory Birds Convention Act, 1994 (Canada).</p> <p>Birds of prey</p> <p>Section 27(1) A person shall not hunt with a specially protected raptor or any other bird of prey.</p> <p>Exception-</p> <p>(2) Subsection (1) does not apply to a person who hunts in accordance with the regulations with a specially protected raptor or other bird of prey that belongs to a species prescribed by the regulations for the purpose of this subsection. 1997, c. 41, s. 27.</p> <p>Protection and Recovery of Species (OESA)</p> <p>Prohibition on killing, etc.</p> <p>Section 9(1) No person shall,</p> <p>(a) kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species;</p> <p>(b) possess, transport, collect, buy, sell, lease, trade or offer to buy, sell, lease or trade,</p> <p>(i) a living or dead member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species,</p> <p>(ii) any part of a living or dead member of a species referred to in subclause (i),</p> <p>(iii) anything derived from a living or dead member of a species referred to in subclause (i); or</p> <p>(c) sell, lease, trade or offer to sell, lease or trade anything that the person represents to be a thing described in subclause (b) (i), (ii) or (iii). 2007, c. 6, s. 9 (1).</p> <p>Prohibition on damage to habitat, etc.</p> <p>Section 10(1) No person shall damage or destroy the habitat of,</p> <p>(a) a species that is listed on the Species at Risk in Ontario List as an endangered or threatened species; or</p> <p>(b) a species that is listed on the Species at Risk in Ontario List as an extirpated species, if the species is prescribed by the regulations for the purpose of this clause. 2007, c. 6, s. 10 (1).</p>

Table A-2 continued

Provincial and Territorial Acts Protecting Bird Species Table

Acts/Legislation	Act	Applicable Sections
Quebec	Québec Loi sur la conservation et la mise en valeur de la faune	<p>General Provisions</p> <p>Section 26 No person may disturb, destroy or damage a beaver dam or the eggs, nest or den of an animal.</p> <p>Wildlife Habitats</p> <p>Application</p> <p>Section 128.1 This chapter applies to wildlife habitats having the features specified by regulation or in which the conditions specified by regulation prevail and, in the cases prescribed by regulation, which are demarcated on a chart prepared by the Minister.</p> <p>Activities in Wildlife Habitat</p> <p>Section 128.15 The Minister may make an order on ascertaining that an activity that may result in serious or irreparable damage to a wildlife habitat has begun or is about to begin without authorization; violates the conditions attached to the authorization; violates the standards or conditions of management prescribed by regulation.</p> <p>The order shall require the person concerned to suspend the activity until he obtains the required authorization or, as the case may be, to observe the conditions attached to the authorization or the standards or conditions of management prescribed by regulation.</p>
New Brunswick	<p>New Brunswick Fish and Wildlife Act</p> <p>New Brunswick Species at Risk Act</p>	<p>Fish and Wildlife Offences (NB FWA)</p> <p>37(2) Every person who at any time disturbs, injures, gathers or takes the nest or eggs of any bird except as authorized by this Act and regulations commits an offence</p> <p>Prohibitions (NB SARA)</p> <p>28(1) The prohibitions contained in subsections (2), (3) and (5) do not apply in respect of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species unless the regulations provide for their application.</p> <p>28(2) No person shall kill, harm, harass or take any individual that is listed as an extirpated species, an endangered species or a threatened species.</p>
Newfoundland and Labrador	Wildlife Regulations (under the Wildlife Act)	<p>Prohibition</p> <p>75. (1) A person shall not hunt, take or kill small game except during the open season prescribed under these regulations or the Migratory Birds Regulations (Canada).</p> <p>(2) A person shall not take or destroy the nests or eggs of any wild birds except when authorized under the provisions of the Migratory Birds Convention Act (Canada) and the regulations.</p>

Table A-2 continued

Provincial and Territorial Acts Protecting Bird Species Table

Acts/Legislation	Act	Applicable Sections
Nova Scotia	Nova Scotia Wildlife Act	<p>Protected Wildlife (NSWA)</p> <p>50(1) Except with a permit issued by the Minister, no person shall take, hunt or kill or attempt to take, hunt or kill or possess any</p> <ul style="list-style-type: none"> a) Eagle; b) Osprey; c) Falcon; d) Hawk; e) Owl; f) Repealed 1990, c. 50, s. 3 g) Wildlife declared by regulation to be protected wildlife pursuant to this act <p>51 Except with a permit issued by the Minister, no person shall</p> <ul style="list-style-type: none"> (a) destroy, take, possess, buy or sell any egg of a bird or turtle or disturb the nest of a bird or turtle; or (b) use a snare, net or trap to take any bird. 1995-96, c. 25, s. 3.
	Nova Scotia Endangered Species Act	
Prince Edward Island	Wildlife Conservation Act	<p>Migratory Birds</p> <p>Section 9. A person may hunt, take and be in possession of migratory birds in the province in accordance with the provisions of the Migratory Birds Convention Act (Canada) and regulations.</p> <p>Prohibited Activities</p> <p>Section 19. (1) No person shall</p> <ul style="list-style-type: none"> (a) take, hunt or kill any game or wildlife designated in the regulations except as may be prescribed in the regulations or by the Migratory Birds Convention Act or regulations or the fishery regulations; (l) take any egg or young of any fish, bird or fur-bearing animal unless authorized by the regulations; <p>Regulations</p> <p>Section 28. The Lieutenant Governor in Council may make regulations</p> <ul style="list-style-type: none"> (i) protecting the habitat of wildlife including their nests, dens, dams and burrows; (w) regulating the destruction of, or interference with the den or nest of any other wildlife;

Appendix B
Bird Awareness Training

Table B-1

Overview of Bird Awareness Training Programs & Criteria

Steps	Guidance
Who Requires Bird Awareness Training	Employees and contractors conducting activities during the bird breeding and nesting period (depending on region) should receive bird awareness training. All crews on site should have at least one trained employee or contractor.
When Bird Awareness is Required	Training should be completed prior to the start of the nesting period (i.e., generally before early April), or before the start of project work if it does not begin until later in spring or summer.
Planning Bird Awareness Training	<p>When planning bird awareness training with a qualified biologist, the following steps must be taken:</p> <ol style="list-style-type: none"> 1. A qualified biologist should prepare the training agenda in compliance with the criteria below. 2. The training agenda is provided to the company's Environmental staff for review. 3. Bird awareness training can proceed once the company's Environmental staff has reviewed the agenda for compliance with the criteria. 4. A list of attendees should be submitted to the company's Environmental staff when bird awareness training is complete. 5. If applicable, applicable permits may be required for undertaking nesting sweeps.
Criteria to be Included in Bird Awareness Training	<p>Bird awareness training should be delivered by a qualified biologist. The training should:</p> <ul style="list-style-type: none"> · Include both a classroom and field component <ul style="list-style-type: none"> · The field component is to occur during the active time of day for birds under suitable weather conditions. · Include appropriate timing of nesting sweeps. · Bird identification criteria for bird species most likely to be encountered across the company's service area, as well as an overview of timing restrictions and setback guidelines. · The training should specify which birds are provincially and federally listed with additional requirements for listed species. · Discuss the corporate and regulatory requirements that protect birds, nests and eggs, including the penalties and fines for contravening the regulatory requirements. · Include an understanding of life stages associated with nesting and general nesting periods. · Include identification of habitat types encountered in or around the company's facilities. <ul style="list-style-type: none"> · Discuss signs associated with nesting birds, including: <ul style="list-style-type: none"> · Visual clues (e.g., flushing, swooping, wing drag, whitewash) · Auditory clues (e.g., singing, alarm calling) · Breeding evidence (e.g., adult pair, presence of nest, nestlings or fledglings, birds carrying nesting material or food) · Methods for nesting sweeps, including coverage of areas where activity is planned at the company's facilities. · Identify where a provincial or territorial wildlife permit is required. · Include methods to prevent from encroaching on suspected nests and reducing the chance of nest disturbance or abandonment. · Include discussion and duration of setbacks.

Table B-1 Continued

Overview of Bird Awareness Training Programs & Criteria

Steps	Guidance
Criteria to be Included in Bird Awareness Training	<p>Include standard data to be collected when a nest is discovered, and what information must be reported to the company or to the qualified biologist, such as:</p> <ul style="list-style-type: none"> . Species or species family, if known . UTM coordinates and distance to the applicable facility boundary . Date and time . Photos (avoid disrupting nesting birds) . Site description and/or site sketch . Stage of nesting (e.g., nest building, eggs, hatchlings, almost fledged) . Additional information about adult bird presence/absence or behavior . Include methods for marking the setback boundary and describing the location of the nest (without flagging it directly). . Include when a qualified biologist should be consulted.
When and Where Nesting Sweeps are Required	<p>Nesting sweeps must be completed prior to activities occurring within the regional breeding and nesting period.</p> <p>Generally, sweeps should happen no more than seven days prior to activities; consult federal and provincial/territorial regulatory agencies on recommended timing.</p>