Denison Mines

Wheeler River Project

Final Environmental Impact Statement

November 2024

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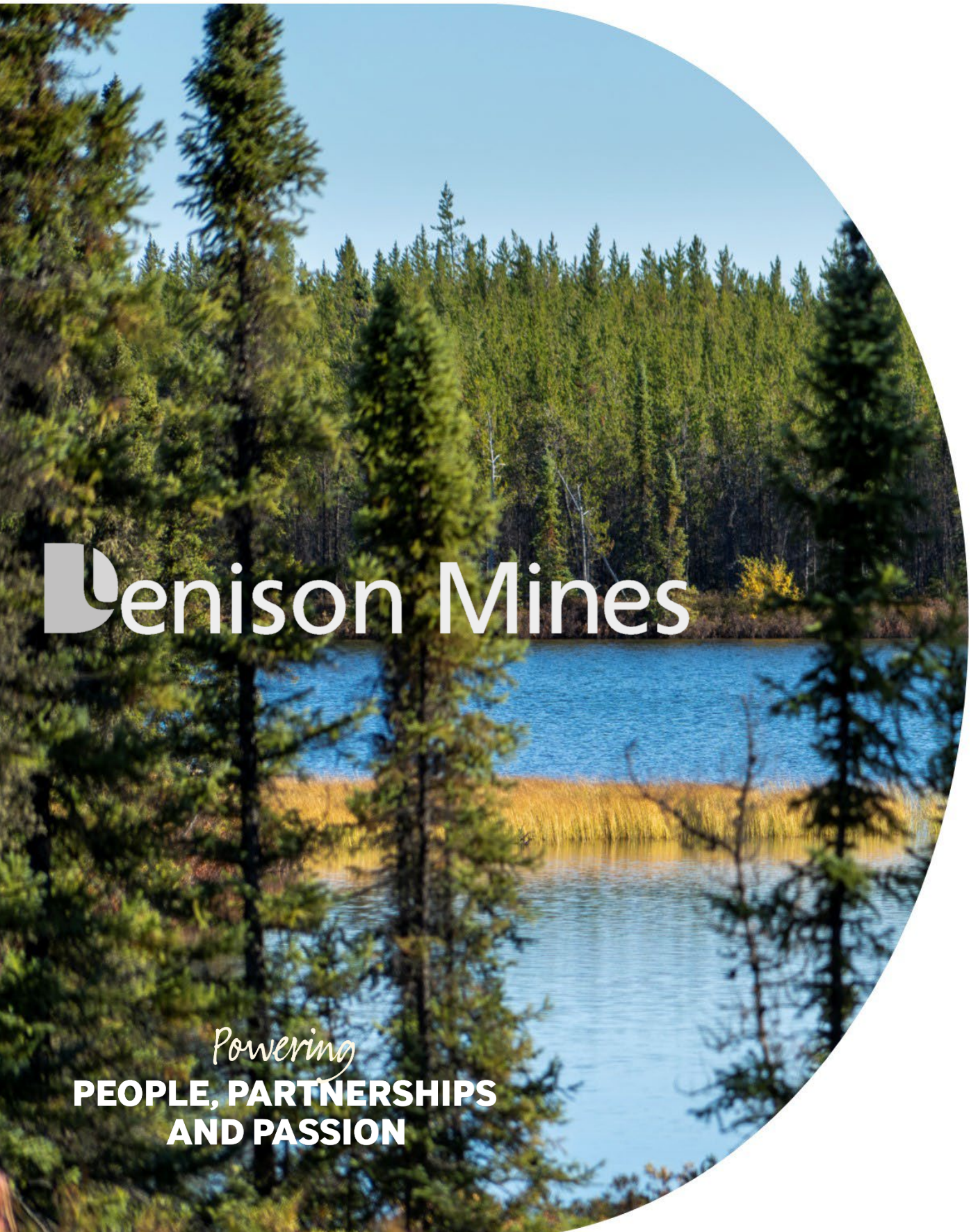
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Denison Mines Corp.

Appendix 9-D Wildlife Species At Risk

Version 3

October 2024

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Acronyms and Abbreviations

Term	Definition
BBS	Breeding Bird Survey
BC	British Columbia
CEA	Cumulative effects assessment
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
ECCC	Environment and Climate Change Canada
EIS	Environmental Impact Statement
EMS	Environmental Management System
FIRT	Federal-Indigenous Review Team
IRs	Information requests
ISR	In situ recovery
KI	Key Indicator
LSA	Local Study Area
Project	Wheeler River Project
QP	Qualified Professional
RSA	Regional Study Area
SAR	Species at risk
SARA	*Species at Risk Act*
SARGSS	Saskatchewan Activity Restriction Guidelines for Sensitive Species
SKCDC	Saskatchewan Conservation Data Centre
VC	Valued Component

1 Introduction

1.1 Background

On October 21, 2022, Denison Mines Corp. (Denison) submitted a draft Environmental Impact Statement (EIS) for the proposed Wheeler River Project (the Project). Based on their initial review, the Canadian Nuclear Safety Commission indicated that the submission contained the required information to proceed with the Federal-Indigenous Review Team (FIRT) technical review of the draft EIS. On March 20, 2023, the FIRT provided Denison with a list of information requests (IRs) for Denison to respond to and eventually submit a final EIS document.

This Appendix provides additional information to address several IRs provided by Environment and Climate Change Canada (ECCC) as part of the initial round of Federal Indigenous Review Team (FIRT) comments. These IRs were related to 16 wildlife species at risk (SAR) listed under Schedule 1 of the federal *Species at Risk Act* (SARA). The draft EIS approach was conservative in that it considered appropriate representative species as Valued Components (VCs) and Key Indicators (KIs) in sections 9.3 Ungulates, Furbearers, and Woodland Caribou and 9.4 Raptors, Migratory Breeding Birds, and Bird SAR. Of the 16 wildlife SAR listed in Table 1.1, seven had been included as VCs or KIs in the EIS after a thorough scoping process (refer to Section 1.2 for additional information).

Nine of the sixteen were not included as individual VCs or KIs but are considered important from a regulatory perspective. The SARA-listed species identified by ECCC are listed in Table 1.1. Those noted in bold font indicate those for which further assessment is provided in this appendix.

Table 1-1 Wildlife Species at Risk Listed by Environment and Climate Change Canada

Common Name	Scientific Name	Discussed in Section 9 of the draft EIS
Nine-spotted lady beetle	***Coccinella ovemnotata***	**No**
Transverse lady beetle	***Coccinella transversoguttata***	**No**
Yellow-banded bumble bee	***Bombus terricola***	**No**
Northern leopard frog	***Lithobates pipiens***	**No**
Little brown myotis	***Myotis lucifugus***	**No**
Northern myotis	***Myotis septentrionalis***	**No**
Wolverine	*Gulo gulo*	Yes
Woodland caribou	*Rangifer tarandus caribou*	Yes
Bank Swallow	***Riparia riparia***	**No**
Barn Swallow	***Hirundo rustica***	**No**
Common Nighthawk	*Chordeiles minor*	Yes
Horned Grebe	***Podiceps auritus***	**No**
Olive-sided Flycatcher	*Contopus cooperi*	Yes

Common Name	Scientific Name	Discussed in Section 9 of the draft EIS
Rusty Blackbird	*Euphagus carolinus*	Yes
Short-eared Owl	*Asio flammeus*	Yes
Yellow Rail	*Coturnicops noveboracensis*	Yes

Of the 16 species listed in Table 1.1, seven had been included as VCs or KIs in the EIS after a thorough scoping process, as summarized below.

1.2 Valued Component Selection

The VCs considered in the effects assessment for the Project are aspects of the biophysical and human environments that were considered to be likely to be affected (adversely or positively) by the Project. The VCs reflect identified scientific, local knowledge, and Indigenous Knowledge, and community interests regarding the Project and its potential effects. The potential effects are typically identified early in the environmental assessment process as a result of questions and concerns raised through engagement with Indigenous and community groups, government departments and agencies, and the general public.

Denison reviewed and considered all received input to develop a VC list that reflects the key environmental, socio-economic, heritage, and human health components and interests to appropriately focus the EA.

The initial VCs selected to represent bird SAR in the habitat-based assessment that were provided in the Terms of Reference (Denison 2019) were evaluated, consolidated, and organized to allow for the logical assessment of Project effects, and are presented in Table 1.2 and Table 1.3, which formed the basis for the subsequent VC-specific assessment.

Table 1-2 Wildlife Species at Risk Valued Component and Rationale for their Inclusion in the Habitat-based Environmental Assessment for the Denison Wheeler River Project

Valued Component	Rationale
Biophysical Environment	
Terrestrial Environment	
Furbearers	Project activities and infrastructure may affect local furbearer populations, including species at risk (SAR), resulting in non-compliance with permit conditions (e.g., *Species at Risk Act* [SARA; Government of Canada 2022], *The Wildlife Act 1998* [Government of Saskatchewan 2020]).
Woodland Caribou	Project activities and infrastructure may affect woodland caribou populations, resulting in non-compliance with permit conditions (e.g., SARA [Government of Canada 2022], *The Wildlife Act, 1998* [Government of Saskatchewan 2020]).

Valued Component	Rationale
Bird Species at Risk	Project activities and infrastructure may affect bird SAR (specifically disturbance and/or destruction of eggs, young, and adults) resulting in non-compliance with regulatory requirements (e.g., SARA [Government of Canada 2022], *Migratory Birds Convention Act 1994* [Government of Canada 2017], *Saskatchewan Activity Restriction Guidelines for Sensitive Species* [Government of Saskatchewan 2017], *The Wildlife Act 1998* [Government of Saskatchewan 2020]).

Table 1-3 Valued Components, Key Indicators, and Measurable Parameters for the Wildlife Component included in the Habitat-based Environmental Assessment for Denison Wheeler River Project

Valued Component	Key Indicator	Measurable Parameter
Furbearers	Wolverine	Amount of habitat (km^2) (not necessarily occupied) that may be altered or lost relative to its availability in the Regional Study Area (RSA). The number of wolverine mortalities directly or indirectly attributable to the Project.
Woodland Caribou	Woodland caribou	Amount of habitat (km^2) (not necessarily occupied) that may be altered or lost relative to its availability in the RSA. The number of woodland caribou mortalities directly or indirectly attributable to the Project.
Bird Species at Risk	Common Nighthawk	Percentage of habitat for Common Nighthawk altered/lost directly or indirectly as a result of Project activities. The number of Common Nighthawk mortalities directly or indirectly attributable to the Project.
	Rusty Blackbird	Percentage of habitat for Rusty Blackbird altered/lost directly or indirectly as a result of Project activities. The number of rusty blackbird mortalities directly or indirectly attributable to the Project
	Olive-sided Flycatcher	Percentage of habitat for Olive-sided Flycatcher altered/lost directly or indirectly as a result of Project activities. The number of Olive-sided Flycatcher mortalities directly or indirectly attributable to the Project
	Short-eared Owl	Percentage of habitat for Short-eared Owl altered/lost directly or indirectly as a result of Project activities. The number of Short-eared Owl mortalities directly or indirectly attributable to the Project.

Valued Component	Key Indicator	Measurable Parameter
	Yellow Rail	Percentage of habitat for Yellow Rail altered/lost directly or indirectly as a result of Project activities. The number of Yellow Rail mortalities directly or indirectly attributable to the Project.

The five bird species identified in Table 1.3 were selected as SAR VCs for the habitat-based EA in consideration of information/responses received during extensive Indigenous and community engagement completed by Denison, and they represent wildlife species of local importance. For these five species, additional information is not be provided in this Appendix. Rather, the reader is referred to the applicable sections in the EIS where appropriate information on existing conditions (Section 9.4.3.3), potential project-related effects (Section 9.4.4), mitigation measures (Section 9.4.5), residual effects and their significance (Section 9.4.6), and cumulative effects (Section 9.4.7) is provided.

2 Supplemental Information

As requested by ECCC, the following subsections provide supplemental information for the remaining nine species listed in Table 2.1 that were not included as VCs or KIs in the EIS. For these nine species, a brief overview of life history requirements (existing environment), a discussion on the effects assessment and mitigation measures, and a summary of residual and cumulative effects are included.

Table 2-1 Wildlife Species At Risk Considered in the Wheeler River Project Environmental Impact Statement

Common Name	Scientific Name	Provincial Status	Federal Status[1]	Preferred Habitat	Documented Occurrence in the Local Study Area[2]	Reference in the Environmental Impact Statement (EIS)
Arthropods						
Nine-spotted lady beetle	*Coccinella novemnotata*	S4	Endangered	Habitat generalist – uses a diverse range of habitats and consumes a variety of prey. See Section 2.1.1 for further details.	Local Study Area (LSA) is located within COSEWIC range; no observations in SKCDC and no Project-specific observations to date.	Not included as a Valued Component (VC) in the EIS. A review of life history requirements and discussion on effects assessment are included in this Appendix.
Transverse lady beetle	*Coccinella transversoguttata*	S4	Special Concern	Habitat generalist – uses a diverse range of habitats and consumes a variety of prey. See Section 2.1.2 for further details.	LSA is located within COSEWIC range; no observations in SKCDC and no Project-specific observations to date.	Not included as a VC in the EIS. A review of life history requirements and discussion on effects assessment are included in this Appendix.
Yellow-banded bumble bee	*Bombus terricola*	S4	Special Concern	Habitat generalist – uses a variety of habitats and consumes nectar and pollen from many different flowering plants. See Section 2.1.3 for further details.	LSA is located within COSEWIC range; no observations in SKCDC and no Project-specific observations to date.	Not included as a VC in the EIS. A review of life history requirements and discussion on effects assessment are included in this Appendix.
Amphibians						
Northern leopard frog	*Lithobates pipiens*	S3	Special Concern	Three district habitats: (1) overwintering waterbodies that are cold, well oxygenated, and do not freeze to bottom; (2) breeding and larval waterbodies with shallow, open habitats, neutral pH, and no fish; and (3) summering areas in shallow	LSA is located within COSEWIC range; no observations in SKCDC and no Project-specific observations to date. Amphibian nocturnal call	Not included as a VC in the EIS. A review of life history requirements and discussion on effects assessment are included in this Appendix.

Common Name	Scientific Name	Provincial Status	Federal Status[1]	Preferred Habitat	Documented Occurrence in the Local Study Area[2]	Reference in the Environmental Impact Statement (EIS)
				marshes, moist upland meadows where grass height is less than 1 m. See Section 2.2.1 for further details.	and visual search surveys were completed in the LSA and Regional Study Area (RSA) as part of the baseline program; however, only boreal chorus frogs (*Pseudacris maculata*) were detected (Appendix 9-C).	
Bats						
Little brown myotis	*Myotis lucifugus*	S4B, S4N	Endangered	Seasonal habitat requirements: (1) overwintering hibernacula that are sufficiently cool and humid and (2) summering areas that provide foraging areas and suitable locations for roosting and maternity colonies. See Section 2.3.1 for further details.	Documented during the acoustic bat surveys as part of the baseline field program as present in the LSA and RSA, and previously observed in the RSA (SKCDC 2023).	Not included as a VC in the EIS. A review of life history requirements and discussion on effects assessment are included in this Appendix.
Northern myotis	*Myotis septentrionalis*	S3	Endangered	Seasonal habitat requirements: (1) overwintering hibernacula that are sufficiently cool and humid and (2) summering areas that provide foraging areas and suitable locations for roosting and maternity colonies. See Section 2.3.2 for further details.	Documented during the acoustic bat surveys as part of the baseline field program as present in the LSA and RSA (Appendix 9-C).	Not included as a VC in the EIS. A review of life history requirements and discussion on effects assessment are included in this Appendix.

Common Name	Scientific Name	Provincial Status	Federal Status[1]	Preferred Habitat	Documented Occurrence in the Local Study Area[2]	Reference in the Environmental Impact Statement (EIS)
Terrestrial Wildlife Species						
Wolverine	*Gulo gulo*	S2	Special Concern	See Section 9.3.3.2 of the EIS for details.	LSA is located within COSEWIC range; no observations in SKCDC and no Project-specific observations to date.	Included as a Key Indicator (KI) of the Furbearer VC in the EIS. A review of life history requirements and discussion on effects assessment are included in the EIS (Section 9.3). Additional information for this species is not provided in this Appendix.
Woodland caribou	*Rangifer tarandus caribou*	S3	Threatened	See Section 9.3.3.3 of the EIS for details.	Documented within the RSA during the baseline field program (Appendix 9-C)	Included as a VC in the EIS. A review of life history requirements and discussion on effects assessment are included in the EIS (Section 9.3). Additional information for this species is not provided in this Appendix.
Avian Species						
Bank Swallow	*Riparia riparia*	S4B, S5M	Threatened	Nesting colonies are typically characterized by steep embankments with a sand, silt, or clay substrate that can be easily excavated for burrows. They are often adjacent to slow-moving or still waterbodies and may occur in natural habitats or in anthropogenic features. Bank Swallows are aerial insectivores that forage over a variety of open habitats. See Section 2.4.1 for further details.	LSA is located within COSEWIC range; no historical observations documented by the SKCDC (2023) and no Project-specific observations to date.	Not included as a KI of the Bird Species at Risk (SAR) VC in the EIS (Common Nighthawk was used as a surrogate species). A review of life history requirements and discussion on effects assessment are included in this Appendix. Any new species-specific mitigation measures identified in this appendix will be added to the final EIS (Section 9.4.5).
Barn Swallow	*Hirundo rustica*	S4B	Threatened	Breeding habitat typically requires a suitable nesting site with a vertical or horizontal surface underneath a roof of	Documented during the breeding bird surveys as part of the baseline field	Not included as a KI of the Bird SAR VC in the EIS (Common Nighthawk was used as a surrogate species). A review of life history

Common Name	Scientific Name	Provincial Status	Federal Status[1]	Preferred Habitat	Documented Occurrence in the Local Study Area[2]	Reference in the Environmental Impact Statement (EIS)
				some sort, open areas for foraging, and a waterbody with mud for nest building. Anthropogenic features such as barns, houses, bridges, and culverts are commonly used nesting sites. See Section 2.4.2 for further details.	program as present in the LSA (Appendix 9-C), and previously observed in the RSA (SKCDC 2023)	requirements and discussion on effects assessment are included in this Appendix. Any new species-specific mitigation measures identified in this appendix will be added to the final EIS (Section 9.4.5).
Common Nighthawk	*Chordeiles minor*	S4B	Special Concern	See Section 9.4.3.3 of the EIS for details.	Documented during the baseline field program as present in the LSA (Appendix 9-C), and previously observed in the RSA (SKCDC 2023)	Included as a KI of the Bird SAR VC in the EIS. A review of life history requirements and discussion on effects assessment are included in the EIS (Section 9.3). Additional information for this species is not provided in this Appendix.
Horned Grebe	*Podiceps auritus*	S5B	Special Concern	Breeding habitat consists of small to medium-sized freshwater lakes, ponds, and marshes that are shallow with open water (at least 40%), emergent vegetation, anchorage for nests, and concealment for nests and young. See Section 2.4.3 for further details.	Documented during the baseline field program as present in the LSA (Appendix 9-C).	Not included as a KI of the Bird SAR VC in the EIS (Yellow Rail was used as a surrogate species). A review of life history requirements and discussion on effects assessment are included in this Appendix. Any new species-specific mitigation measures identified in this appendix will be added to the final EIS (Section 9.4.5).
Olive-sided Flycatcher	*Contopus cooperi*	S4B	Special Concern	See Section 9.4.3.3 of the EIS for details.	Documented during the baseline field program as present in the LSA (Appendix 9-C), and previously observed in the RSA (SKCDC 2023)	Included as a KI of the Bird SAR VC in the EIS. A review of life history requirements and discussion on effects assessment are included in the EIS (Section 9.3). Additional information for this species is not provided in this Appendix.

Common Name	Scientific Name	Provincial Status	Federal Status[1]	Preferred Habitat	Documented Occurrence in the Local Study Area[2]	Reference in the Environmental Impact Statement (EIS)
Rusty Blackbird	*Euphagus carolinus*	S3B, SUN	Special Concern	See Section 9.4.3.3 of the EIS for details.	LSA is located within COSEWIC range; no historical observations documented by the SKCDC (2023) and no Project-specific observations to date.	Included as a KI of the Bird SAR VC in the EIS. A review of life history requirements and discussion on effects assessment are included in the EIS (Section 9.3). Additional information for this species is not provided in this Appendix.
Short-eared Owl	*Asio flammeus*	S3B, S2N	Special Concern	See Section 9.4.3.3 of the EIS for details.	LSA is located within COSEWIC range; no historical observations documented by the SKCDC (2023) and no Project-specific observations to date.	Included as a KI of the Bird SAR VC in the EIS. A review of life history requirements and discussion on effects assessment are included in the EIS (Section 9.3). Additional information for this species is not provided in this Appendix.
Yellow Rail	*Coturnicops noveboracensis*	S3B	Special Concern	See Section 9.4.3.3 of the EIS for details.	LSA is located within COSEWIC range; no historical observations documented by the SKCDC (2023) and no Project-specific observations to date.	Included as a KI of the Bird SAR VC in the EIS. A review of life history requirements and discussion on effects assessment are included in the EIS (Section 9.3). Additional information for this species is not provided in this Appendix.

Note: shaded rows indicate SAR was included as a VC or KI in the draft EIS.

1 Schedule 1 under the *Species at Risk Act*.

2 Potential for Occurrence – based on known species occurrence data from Saskatchewan Conservation Data Centre (2023), Omnia (Appendix 9-C), Birds of Saskatchewan (2019), and Atlas of Saskatchewan Birds (Smith 1996) and/or presence of suitable habitat.

2.1 Arthropods

2.1.1 Nine-Spotted Lady Beetle

The nine-spotted lady beetle is a small beetle species found across southern Canada and the continental United States (COSEWIC 2016a). Its northern range limit in Saskatchewan is reported to occur near Lake Athabasca (COSEWIC 2016a). Based on records provided by the Saskatchewan Conservation Data Centre Hunting, Angling and Biodiversity of Saskatchewan (HABISask) database (SKCDC 2023), there are no historical observations of this species documented in the Regional Study Area (RSA).

Source: COSEWIC (2016a).

The nine-spotted lady beetle is a habitat generalist that uses a diverse range of habitats (e.g., open to semi-open forests, grasslands, riparian areas) and consumes a variety of prey (e.g., many species of arthropods [particularly aphids], sap, nectar and pollen) (COSEWIC 2016a). Being a habitat generalist allows the nine-spotted lady beetle to exploit seasonally available prey sources, with prey availability influencing the species' distribution more than habitat availability (COSEWIC 2016a).

The nine-spotted lady beetle has four life stages (i.e., egg, larva, pupa, and adult) and may produce two generations per year (i.e., spring and fall) depending on regional climate conditions (COSEWIC 2016a). Lady beetles, in general, are highly mobile and may undertake short (few hundred metres) and long-distance (18 to 120 km) movements (COSEWIC 2016a). The nine-spotted lady beetle is not migratory nor does it display strong site fidelity (COSEWIC 2016a). The nine-spotted lady beetle overwinters in aggregations in well-ventilated habitats (e.g., in rock crevices, grass tussocks, or leaf litter, or under stones or tree bark), becoming active in the early spring when temperatures start to increase (COSEWIC 2016a).

The nine-spotted lady beetle is federally listed under Schedule 1 of SARA as Endangered (Government of Canada 2023) and is designated as an S4 species in Saskatchewan (i.e., Apparently Secure) (Saskatchewan Conservation Data Centre 2023). The species has undergone significant population declines in Canada since 1975, going from one of the more common lady beetles collected to being rarely collected relative to other lady beetles, despite comprehensive and targeted surveys (COSEWIC 2016a). Reasons for these population declines are currently unknown but are thought to be driven by competition, predation, and introduced diseases from non-native species (including non-native lady beetles), agricultural pesticide use to control aphids, habitat loss via urban expansion, and other human disturbances (COSEWIC 2016a).

2.1.2 Transverse Lady Beetle

The transverse lady beetle is a small beetle species found across the United States and Canada, including all provinces and territories (COSEWIC 2016b). The species is a habitat generalist and uses similar habitat types and consumes similar prey as the nine-spotted lady beetle, which means it is also able to exploit seasonally available prey sources (COSEWIC 2016b). According to the information from the HABISask database, there are no historical observations of this species documented in the RSA.

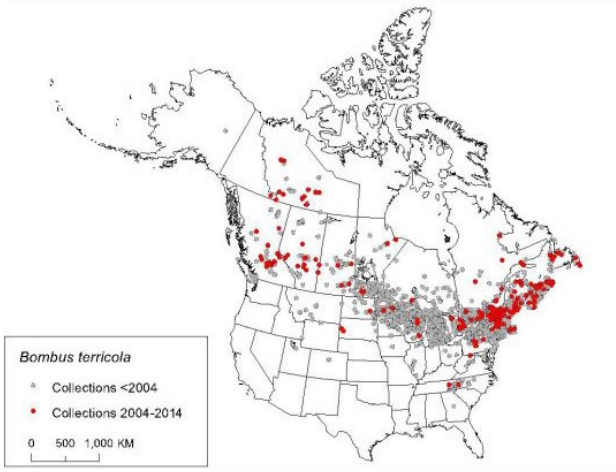
Source: COSEWIC (2016b).

The transverse lady beetle has four life stages (i.e., egg, larva, pupa, and adult) and may produce two generations per year (i.e., spring and fall) depending on regional climate conditions (COSEWIC 2016b). Lady beetles in general are highly mobile and may undertake short (few hundred metres) and long-distance (18 to 120 km) movements (COSEWIC 2016b). The transverse lady beetle is not migratory nor does it display strong site fidelity (COSEWIC 2016b). The transverse lady beetle overwinters in aggregations in well-ventilated habitats (e.g., in rock crevices, grass tussocks, or leaf litter, or under stones or tree bark), becoming active in the early spring when temperatures start to increase (COSEWIC 2016b).

The transverse lady beetle is federally listed under Schedule 1 of SARA as Special Concern (Government of Canada 2023) and is designated as an S4 species in Saskatchewan (i.e., Apparently Secure) (Saskatchewan Conservation Data Centre 2023). The species was once abundant across its range in Canada and was one of the most common lady beetles collected; however, since 1986, the species is now absent, below detection limits, or present in low numbers in many parts of its range (COSEWIC 2016b). The transverse lady beetle has not been detected in Saskatchewan since 2001 (COSEWIC 2016b). Reasons for these population declines are currently unknown but are thought to be driven by the same factors listed for the nine-spotted lady beetle in Section 2.1.1.

2.1.3 Yellow-banded Bumble Bee

The yellow-banded bumble bee is a medium-sized bumble bee species found throughout eastern North America, from eastern British Columbia (BC) to Newfoundland and Labrador and from the northern United States up to the southern portion of the territories (COSEWIC 2015). The species is a habitat generalist (e.g., boreal habitats, mixed woodlands, montane meadows) and consumes nectar and pollen from many different flowering plants (COSEWIC 2015). According to the information from the HABISask database, there are no historical observations of this species documented in the RSA.



Source: COSEWIC (2015).

The yellow-banded bumble bee has four life stages (i.e., egg, larva, pupa, and adult) and produces one generation per year, with mated queens establishing new colonies each year (COSEWIC 2015). After overwintering underground in loose soil or decomposing organic material, the mated queens emerge in the spring and search for potential nest sites, which are typically located underground in existing cavities (e.g., abandoned rodent burrows, rotten logs, openings in dead wood, and grassy hummocks) (COSEWIC 2015). Once a queen has found a suitable nest site, she forages for nectar and pollen and then returns to her nest site to lay eggs, which will develop into her future workers (i.e., unmated daughters that do not typically reproduce) (COSEWIC 2015). After the initial eggs hatch and the larva and pupa develop into adult workers, the workers take over nest and brood care, foraging duties, and colony protection while the queen continues to lay eggs (COSEWIC 2015). Males and potential queens are produced by late summer once the colony reaches maximum worker production, at which point they leave the colony and mate (COSEWIC 2015). All males and workers die by fall while the mated queens hibernate through the winter in suitable overwintering sites (COSEWIC 2015).

The yellow-banded bumble bee is federally listed under Schedule 1 of SARA as Special Concern (Government of Canada 2023) and is designated as an S4 species in Saskatchewan (i.e., Apparently Secure)

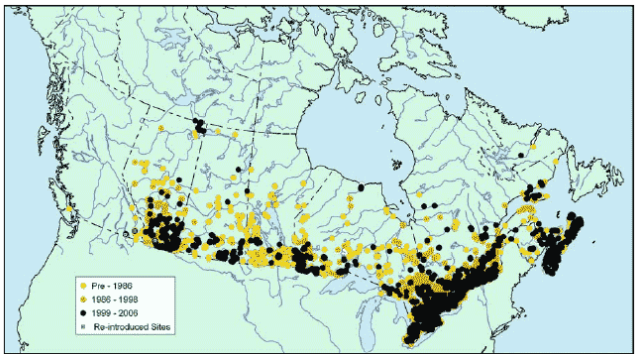
(Saskatchewan Conservation Data Centre 2023). Prior to the 1990s, the yellow-banded bumble bee was one of the more common bumble bees collected in eastern and boreal Canada (COSEWIC 2015, Environment and Climate Change Canada 2022a). Population declines started to occur in the early 1990s, with an average rate of decline of 66.5% in proportional abundance across central and southern Canada between 1992 and 2011 (COSEWIC 2015, Environment and Climate Change Canada 2022a). The species is no longer found at several historical collection sites (COSEWIC 2015).

The status of the yellow-banded bumble bee in boreal habitats and Arctic regions is unknown (COSEWIC 2015, Environment and Climate Change Canada 2022a). Reasons for these population declines are currently unknown but are thought to be driven by introduced diseases from managed bumble bee species, agricultural pesticide use, habitat loss via urban and agricultural expansion, and climate change (COSEWIC 2015).The species' unique type of sex determination, where colonies must reach maximum worker production to produce males and potential queens, has been identified as a limiting factor (COSEWIC 2015, Environment and Climate Change Canada 2022a).

2.2 Amphibians

2.2.1 Northern Leopard Frog

The northern leopard frog is found across most of west-central and northeastern North America (COSEWIC 2009a). The species is widespread in Canada, ranging from southeastern BC to Labrador, and from southcentral Northwest Territories (COSEWIC 2009a, NCC 2023).



Source: COSEWIC (2009a).

Three district habitats are used by the northern leopard frog on an annual basis: (1) overwintering waterbodies that are cold, well oxygenated, and do not freeze to bottom (e.g., rivers, streams, deep lake ponds and creeks, and spillways below dams); (2) breeding and larval waterbodies with shallow, open habitats (e.g., ponds, lakeshores, marshes, and slow-moving streams; may be permanent or semi-permanent), neutral pH, well vegetated, and no fish; and (3) summering areas in shallow marshes, moist upland meadows, forests and grasslands where grass height is less than 1 m (COSEWIC 2009a, NCC 2023). These habitats must be in proximity with suitable dispersal corridors interconnecting them (e.g., riparian areas and waterways) as the species is not capable of long-distance movements (COSEWIC 2009a, Environment Canada 2013).

Northern leopard frogs emerge from their overwintering waterbodies in early spring shortly after ice off (COSEWIC 2009a). The breeding season extends from mid-April to June, with exact timing dependent on location and latitude (COSEWIC 2009a). Females lay several thousand eggs, attaching them to submerged vegetation, which develop into tadpoles within two weeks depending on water temperatures (COSEWIC 2009a). The tadpoles in turn develop into small frogs over a two-to-three-month period, after which they migrate to their summering areas and forage on a variety of arthropods, worms, and snails, sometimes preying on small birds and smaller frogs (COSEWIC 2009a).

Three populations are recognized for the northern leopard frog in Canada: the Rocky Mountain, the Western Boreal/Prairie, and the Eastern (COSEWIC 2009a, NCC 2023). The Western Boreal/Prairie population is found in Alberta, Saskatchewan, Manitoba, and the Northwest Territories (COSEWIC 2009a,

NCC 2023). The Western Boreal/Prairie population is federally listed under Schedule 1 of SARA as Special Concern (Government of Canada 2023) and is designated as an S3 species in Saskatchewan (i.e., Vulnerable) (Saskatchewan Conservation Data Centre 2023).

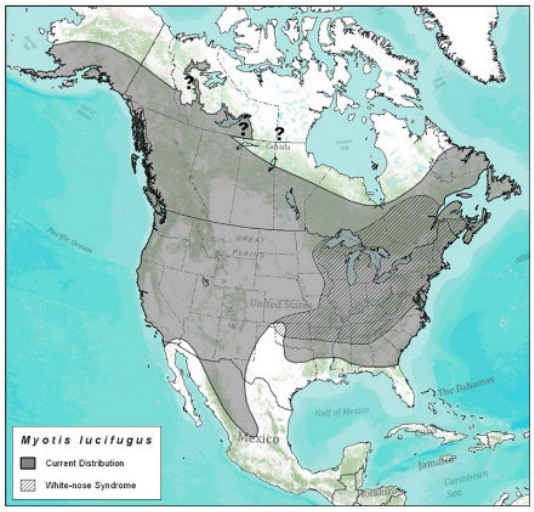
Population data are limited for the northern leopard frog in Canada (COSEWIC 2009a, Environment Canada 2013). Large-scale population declines occurred in the early 1970s, with populations in western Canada (i.e., BC and Alberta) most dramatically affected (COSEWIC 2009a). Information is lacking on the current status of northern leopard frog populations in Saskatchewan (COSEWIC 2009a, Environment Canada 2013).

Threats to the northern leopard frog include emerging diseases (e.g., *Chytridiomycosis*), introduced non-native species, habitat loss and fragmentation, environmental contamination, and increased frequency and severity of droughts (COSEWIC 2009a). The species' specific habitat requirements and vulnerability to diseases and prolonged periods of drought have been identified as limiting factors (Environment Canada 2013).

2.3 Bats

2.3.1 Little Brown Myotis

The little brown myotis is a small bat species found across North America, including across Canada south of the treeline (COSEWIC 2013a). The species is considered a short-distance regional migrant between its summer and winter ranges, with the distance travelled dependent on the location of suitable overwintering hibernacula (COSEWIC 2013a).



Source: COSEWIC (2013a).

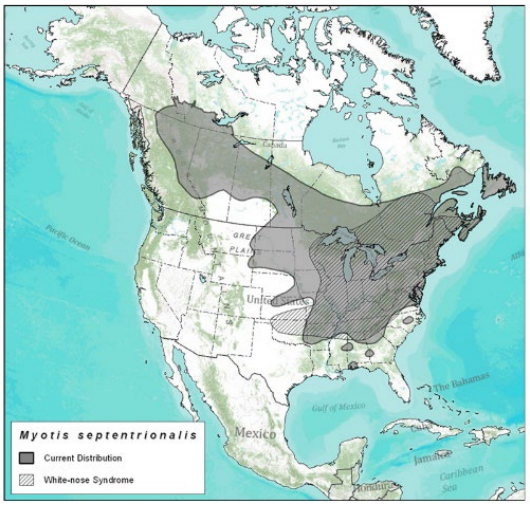
Habitat for the little brown myotis is composed of (1) overwintering hibernacula that are sufficiently cool and humid and (2) summering areas that provide foraging areas and suitable locations for roosting and maternity colonies (COSEWIC 2013a). Hibernacula and maternity sites are the main limiting habitat features for this species (COSEWIC 2013a). Hibernacula occur in parts of caves, mines, and buildings that have stable and specific temperature (-4 to 13°C) and humidity (>80%) conditions (COSEWIC 2013a). Maternity sites occur in large-diameter trees, rock crevices, buildings, and bat houses that offer warm and relatively stable microclimate conditions that allow females to avoid going into torpor so they can focus on caring for their young (COSEWIC 2013a, Slough and Jung 2020). Males are more versatile in their summer roosting requirements and use tree cavities, raised bark, foliage, rock crevices, buildings, and bridges with a broader range of microclimate conditions (COSEWIC 2013a, Johnson et al. 2019). Foraging areas for the little brown myotis include a variety of habitats situated close to roosting and maternity sites, including over water (e.g., wetlands, lakes, ponds, and rivers), along riparian areas and forest edges, and in forest gaps (COSEWIC 2013a).

The little brown myotis is federally listed under Schedule 1 of SARA as Endangered (Government of Canada 2023) and is designated as an S4B, S4N species in Saskatchewan (i.e., Apparently Secure breeding population, Apparently Secure non-breeding population) (Saskatchewan Conservation Data Centre 2023).

The current size of the little brown myotis population in Canada is unknown. Prior to the arrival of White-nose Syndrome in 2010, the population in Canada was estimated to be over one million individuals (COSEWIC 2013a, Environment and Climate Change Canada 2018). White-nose Syndrome is a disease the causes high rates of mortality among hibernating bats, and it has been identified as the main threat for bat populations in Canada (COSEWIC 2013a). Other threats to the little brown myotis include habitat loss, colony eradication, chemical contamination, and wind turbines (COSEWIC 2013a).

2.3.2 Northern Myotis

The northern myotis is a small bat species found across North America, including across Canada south of the treeline (COSEWIC 2013a). The species is considered a short-distance regional migrant between its summer and winter ranges, with the distance travelled dependent on the location of suitable overwintering hibernacula (COSEWIC 2013a).



Source: COSEWIC (2013a).

Habitat for the northern myotis is composed of (1) overwintering hibernacula that are sufficiently cool and humid and (2) summering areas that provide foraging areas and suitable locations for roosting and maternity colonies (COSEWIC 2013a). Hibernacula and maternity sites are the main limiting habitat features for this species (COSEWIC 2013a). Hibernacula occur in parts of caves, mines, and buildings that have stable and specific temperature (0.6 to 14°C) and humidity (>80%) conditions (COSEWIC 2013a). Summer roosting trees are typically found in mature to old-growth forests, swamps, and riparian areas, although retained older trees and snags in younger forests may occasionally provide suitable roosting habitat (Environment and Climate Change Canada 2018). Females strongly prefer tall, large-diameter trees (both living and dead, typically deciduous) with early- to mid-decay for maternity sites (COSEWIC 2013a, Environment and Climate Change Canada 2018). Anthropogenic features (e.g., barns) may occasionally be used as maternity sites in fragmented landscapes with few potential roost trees (Environment and Climate Change Canada 2018). Maternity sites that maintain warm and relatively stable microclimate conditions are important to reproductive females and young as they allow more energy to be directed toward growth and development (Caceres and Barclay 2000, COSEWIC 2013a). Males are more versatile in their summer roosting requirements; they most frequently roost under exfoliating, raised bark but may also roost in the cavities and crevices of trees and snags with early- to mid-decay (Jung et al. 2004, COSEWIC 2013a).

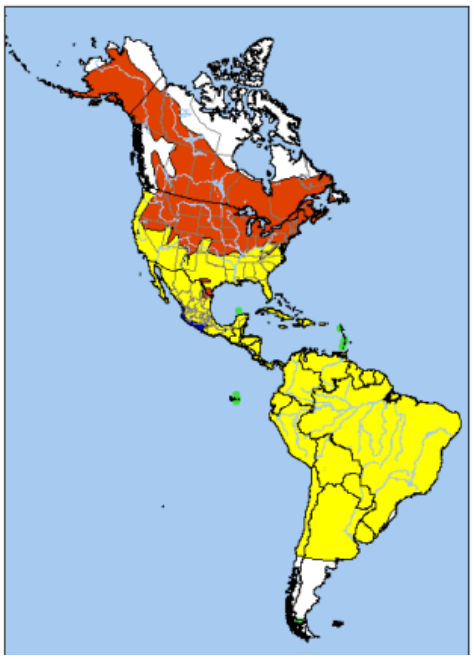
The northern myotis is well adapted to flying in areas of dense or structurally complex vegetation where it catches flying insects on the wing or feeds by gleaning prey from foliage (Caceres and Barclay 2000, Henderson and Broders 2008). The species typically forages within the interior of mature to old-growth deciduous and mixedwood forests, but may also forage in forest gaps, along forest edges and riparian areas, and over rivers (Henderson and Broders 2008, COSEWIC 2013a).

The northern myotis is federally listed under Schedule 1 of SARA as Endangered (Government of Canada 2023) and is designated as an S3 species in Saskatchewan (i.e., Vulnerable) (Saskatchewan Conservation Data Centre 2023). The current size of the northern myotis population in Canada is unknown. Prior to the arrival of White-nose Syndrome in 2010, the population in Canada was estimated to be over one million individuals (COSEWIC 2013a, Environment and Climate Change Canada 2018). White-nose Syndrome has

been identified as the main threat for northern myotis populations in Canada (COSEWIC 2013a). . Other threats to the northern myotis include habitat loss, colony eradication, chemical contamination, and wind turbines (COSEWIC 2013a).

2.4 Avian Species

2.4.1 Bank Swallow



Source: COSEWIC (2013b).

The Bank Swallow is a small songbird that occurs on every continent (except Antarctica and Australia), breeds throughout Canada, and winters primarily in South America (COSEWIC 2013b). Nesting colonies are typically characterized by steep embankments with a sand, silt, or clay substrate that can be easily excavated for burrows (COSEWIC 2013b, Government of Canada 2019a). These steep sand, silt, or clay embankments are frequently subject to erosion or slumping (COSEWIC 2013b, Garrison and Turner 2020).

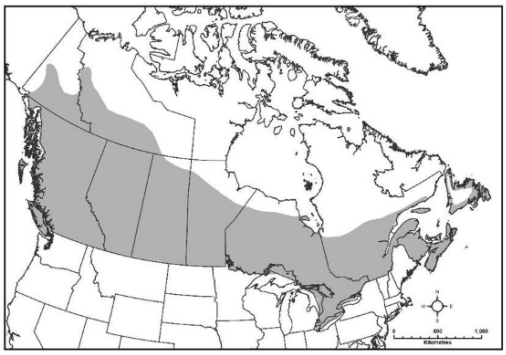
Nesting colonies are often adjacent to slow-moving or still waterbodies (e.g., low gradient rivers or lakes) and may occur in natural habitats or in anthropogenic features (e.g., quarries or road cuts) (COSEWIC 2013b, Government of Canada 2019a, Garrison and Turner 2020). Colony size can range from less than half a dozen burrows to hundreds or thousands of burrows (COSEWIC 2013b, Government of Canada 2019a). Individual burrows within colonies may be recolonized in subsequent years if the integrity of the colony remains intact (i.e., does not erode and collapse) (Garrison and Turner 2020). Bank Swallows are aerial insectivores that forage over a variety of open habitats such as lakes, ponds, rivers, wetlands, grasslands, and agricultural areas (COSEWIC 2013b, Garrison and Turner 2020).

The Bank Swallow is federally listed under Schedule 1 of SARA as Threatened (Government of Canada 2023) and is designated as an S4B, S5M species in Saskatchewan (i.e., Apparently Secure breeding population, Secure aggregating transient population [migrants]) (Saskatchewan Conservation Data Centre 2023). The most recent breeding population estimate for Canada is 2.4 million individuals (Environment and Climate Change Canada 2022b). Based on Breeding Bird Survey (BBS) data collected between 1970 and 2019, the Bank Swallow population in Canada has declined at a rate of 5.3% per year, for an overall decline of 98.0% (Environment and Climate Change Canada 2022b). The long-term population decline appears to be driven by several threats acting cumulatively, including loss of nesting and foraging habitats, incidental take during anthropogenic activities (e.g., aggregate extraction and erosion control), large-scale declines in aerial insect populations, and climate change (COSEWIC 2013b). Bank Swallows are also particularly vulnerable to collisions with vehicles partly due to the attraction of individuals to intraspecific carcasses; one swallow hit by a vehicle could attract several individuals to a road, potentially resulting in subsequent collisions and large mortality events (COSEWIC 2013b, Garrison and Turner 2020).

Although colonial nesting may provide advantages (e.g., predation protection and assistance with thermoregulation), it has been identified as a limiting factor for the Bank Swallow, potentially making

them more vulnerable to natural events or anthropogenic activities, which may result in mass mortality events (Environment and Climate Change Canada 2022b).

2.4.2 Barn Swallow

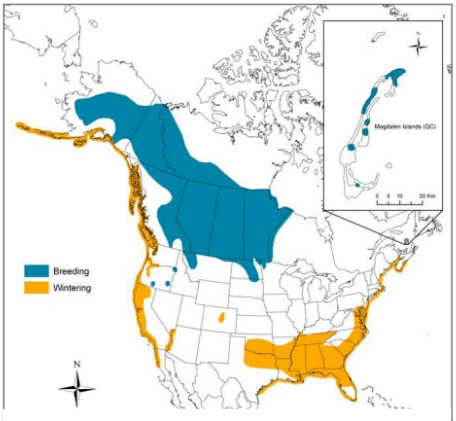


Source: COSEWIC (2021a).

The Barn Swallow is a medium-sized songbird that occurs on every continent (except Antarctica), breeds throughout Canada, and winters in the southern United States, Mexico, and southwards (COSEWIC 2021a). Breeding habitat typically requires a suitable nesting site with a vertical or horizontal surface underneath a roof of some sort, open areas for foraging (e.g., grasslands, fields, wetlands, and shorelines), and a waterbody with mud for nest building (Government of Canada 2019b, Brown and Brown 2020, COSEWIC 2021a). Historically, suitable nesting sites were likely provided by caves, cliff faces, rock leges, tree branches, and hollow trees (Brown and Brown 2020, COSEWIC 2021a). Today, nesting sites are usually located within agricultural and rural areas, and along roads and highways (Brown and Brown 2020, COSEWIC 2021a). Anthropogenic features such as barns, houses, bridges, and culverts are commonly used for nesting sites (COSEWIC 2021a). Barn Swallows nest in colonies or independently and typically return to the same nesting sites each year and may reuse old nests (Government of Canada 2019b, Brown and Brown 2020, COSEWIC 2021a).

The Barn Swallow is federally listed under Schedule 1 of SARA as Threatened (Government of Canada 2023) and is designated as an S4B species in Saskatchewan (i.e., Apparently Secure breeding population) (Saskatchewan Conservation Data Centre 2023). An estimated 6.4 million individuals currently breed in Canada, with over 60% of the population breeding throughout the prairie provinces (COSEWIC 2021a). Based on BBS data collected between 1970 and 2019, the Barn Swallow population in Canada has declined at a rate of 2.34% per year, for an overall decline of 68.6% (COSEWIC 2021a). Intensification of agriculture, loss of nesting sites, large-scale declines in aerial insect populations, and climate change are cited as the most imminent threats for the Barn Swallow, and its dependence on aerial insects for prey and low post-fledging survival rates are cited as limiting factors for the species (COSEWIC 2021a). The repeated use of anthropogenic features for nesting makes Barn Swallows vulnerable to incidental take, especially if the anthropogenic features require routine maintenance. In addition, their frequent use of anthropogenic features for nesting makes Barn Swallows vulnerable to entrapment (e.g., buildings, pipes, vents, other enclosed spaces) as they search for potential locations to build a nest (COSEWIC 2021a).

2.4.3 Horned Grebe



Source: COSEWIC 2009b.

The Horned Grebe is a small waterbird that occurs in North America and Eurasia (COSEWIC 2009b). Within North America, the species breeds across western Canada from BC and Yukon across to the Magdalen Islands in Quebec and winters along the Pacific and Atlantic coasts (COSEWIC 2009b).

Breeding habitat for the Horned Grebe consists of small to medium-sized freshwater lakes, ponds, and marshes that are shallow with open water (at least 40%), emergent vegetation,

anchorage for nests, and concealment for nests and young (COSEWIC 2009b, Stedman 2020). Horned Grebes use a range of waterbody sizes for breeding, but typically prefer waterbodies between 0.3 and 2.0 ha in size (COSEWIC 2009b). Most pairs are solitary, but loose colonies of up to 20 pairs have been found on larger waterbodies with abundant food resources (COSEWIC 2009b, Stedman 2020). Nests are typically located in shallow water near shore on a floating or emerging mass of vegetation (COSEWIC 2009b). Horned Grebes are diving birds that feed on a variety of aquatic arthropods and fish (COSEWIC 2009b, Stedman 2020).

The Western population of the Horned Grebe is federally listed under Schedule 1 of SARA as Special Concern (Government of Canada 2023) and is designated as an S5B species in Saskatchewan (i.e., Secure breeding population) (Saskatchewan Conservation Data Centre 2023). An estimated 200,000 to 500,000 individuals occur in the Western population, with most breeding in southern Alberta and Saskatchewan (COSEWIC 2009b, Environment and Climate Change Canada 2022c). Based on BBS data collected between 1970 and 2019, the Western population of the Horned Grebe in Canada has declined at a rate of 1.7% per year, for an overall decline of 57.0% (Environment and Climate Change Canada 2022c). The reasons for this population decline are unknown. Probable threats include permanent habitat loss, temporary loss of habitat during droughts, eutrophication and degradation of habitat due to fertilizers, predator expansion on the prairies, Type E botulism in the Great Lakes, entanglement in commercial fishing gear, climate change and extreme weather, and oil spills on wintering grounds (COSEWIC 2009b).

3 Mitigation Measures

The Project will require the construction, operation, and decommissioning of several components (as described in Section 2 of the EIS). Expected interactions between these Project components and activities and the wildlife VCs and their associated KIs are summarized by Project phase and activity in Tables 9.3-6 and 9.4-5 of the EIS. Based on the timing and nature of interactions identified in Tables 9.3-6 and 9.4-5 of the EIS, the following adverse effects on the wildlife VCs, including SAR, are likely to occur during the lifetime of the Project:

- alteration and/or loss of habitat; and
- change in mortality.

These potential effects apply to Wildlife SAR as well. The potential effects are described in Sections 9.3.4.2 and 9.4.4.2 of the EIS for each Project phase as they may affect the wildlife VCs and associated KIs.

Mitigation in this EIS is defined as the elimination, reduction, or control of potential adverse effects of the Project on the environment throughout all Project phases. Project-specific mitigation measures include: Project design; implementation of best management practices; development of management plans; implementation of emergency response programs; and provision of training, education and awareness (Denison 2020). Mitigation measures for each potential effect are described in Sections 9.3.5 and 9.4.5 of the EIS. The following subsections summarize mitigation measures that will be implemented to avoid or minimize adverse effects on the Wildlife SAR.

3.1 Project Design Measures

Potential adverse effects on Raptors, Migratory Breeding Birds, and Bird SAR VCs will be avoided or minimized to the extent practical through Project design. All of the Project design measures listed here are consistent with those presented in Section 9 of the EIS (i.e., there are no new Project design measures proposed in this appendix):

- The Project Area (i.e., the area of maximum physical disturbance) has been reduced to the extent practicable resulting in reduced habitat disturbance and noise propagation.
- Much of the proposed footprint will be developed within previously disturbed areas, including roads currently used for exploration activities, thereby minimizing additional habitat disturbance.
- The powerline to the main substation at the site is relatively short (i.e., approximately 7 km) and will be constructed from the existing provincial power line adjacent to Highway 914.
- During Operation, progressive reclamation activities will be completed where possible, and the progress and success of these activities will be assessed annually.
- Cleared brush will be stockpiled when possible, to be used in progressive reclamation.
- Ongoing decommissioning of Project components will be completed when possible.
- Dust deposition on vegetation and waterbodies (including potential deposition of trace metals and radionuclides) will be reduced by:
    - directing processing plant exhaust from drying and packaging areas through a stack prior to release outside of the building;
    - designing the stack height based on results of air dispersion modelling to be an appropriate height for optimal dispersion;

  - controlling access to the property with both a north and south security gate (the north gate is on a decommissioned road and the south gate is manned);
  - making a wash bay available to clean items, equipment and vehicles that may have been in contact with potentially contaminated materials. Contaminated water from the wash bay will be collected in a sump tank and routed to the water treatment plant for treatment and discharge;
  - conducting radiological clearance scanning as required for any items, equipment, and vehicles leaving the Project Area; and
  - watering and traffic controls on roads.

- Battery-powered light vehicles and mobile equipment, and an AC powered dual rotary drill for ISR wellfield development instead of a traditional diesel-powered unit, will be employed, where practical, to reduce air emissions and noise levels and improve energy efficiency.
- The main sources of noise will be related to transport of people and goods, drilling of holes for the freeze wall and wellfield, operation of the batch plant, operation of the processing plant, and operation of the pumphouses. The use of high-quality, low sound emission equipment and regular maintenance will reduce noise associated with Project activities.
- Bulk storage tanks for processing chemicals such as sulphuric and/or hydrochloric acid, sodium hydroxide, and hydrogen peroxide will sit inside appropriately designed and sized secondary containment basins, physically separated from the containment basins for other chemical systems.
- Surface pipelines will be designed to have secondary containment or catchment and have leak detection systems in place at key locations.
- A freeze wall will be established around the uranium deposit to reduce groundwater disturbance.
- Mining solution and process water will be reused throughout the mining process, reducing water use requirements to the extent feasible and reducing the volume of treated effluent requiring discharge. Make-up water will be preferentially sourced from site runoff where possible.
- Double-walled, high-density polyethylene or equivalent piping will be used in the wellfields and will be freeze protected and secured to minimize pipe movement.
- Contaminated wastes (e.g., mineralized drill cuttings, solid impurities removed from mining solution, dewatered reject solids) will be properly contained on a double lined waste pad with leak detection capabilities and an associated monitoring program. An adjacent pond will be used to collect runoff from the pad and water in the waste pond will be piped to the water treatment plant. Such waste will be disposed of either on site or off site at an approved facility.
- The ISR wellfield and processing plant will be designed to re-use most of the solutions inside each circuit; any excess water will be released to a surface water body once acceptable water quality is achieved. All treated effluent released to surface water will meet federal and provincial regulatory discharge limits.
- All contaminated areas, such as waste ponds and pads, and the domestic landfill will be fenced to avoid contact with workers and wildlife. Fences will be monitored and maintained.

3.2 General Mitigation Measures for Wildlife Species at Risk

Mitigation measures specific to the Wildlife SAR, in accordance with the *Migratory Birds Convention Act* and tailored to Project features will be incorporated into various Project management and monitoring plans such as the erosion and sediment controls, soil and vegetation monitoring, wildlife monitoring, the Decommissioning Plan, air quality monitoring, Spill Response Plan, Radiation Protection Plan, surface water and effluent monitoring and Waste Management Plan.

The management plans within the Environmental Management System (EMS) will provide specific mitigation measures based on proven and accepted mitigation measures following standard industry guidelines and best management practices. The EMS will provide guidance to avoid or minimize potential adverse effects of the Project on avian species and their habitat, including monitoring and follow-up programs, as appropriate. It will be in place during all phases of the Project and will be subject to ongoing review and revision as required. If monitoring identifies a need for additional or revised mitigation measures, a process of adaptive management (as described in the plan) will be triggered. The Project management plans provide direction on monitoring and adaptive management so that responses are timely and effective.

The following subsections provide a description of the mitigation measures that will be applicable during all Project phases and expected to be effective immediately following implementation.

3.2.1 Work Timing Windows and Habitat Disturbance

- Site clearing and other works that involve disturbance of vegetation and/or soil will be conducted outside of the nesting season, when practical. The nesting season for many Wildlife SAR in Saskatchewan spans a period from March 15 to August 31; however, the dates differ for certain species. The Wildlife Management Plans within the EMS will provide details on nesting windows for avian species, as well as other sensitive time periods (e.g., caribou calving periods) occurring in the Terrestrial RSA based on the Saskatchewan Activity Restriction Guidelines for Sensitive Species (SARGSS), which were established to support the avoidance of sensitive species' habitats during sensitive periods (SK MOE 2017).
- Prior to commencing any site clearing (i.e., vegetation clearing and/or soil disturbance) during the nesting and breeding season, pre-disturbance wildlife clearance surveys will be conducted a by a Qualified Professional (QP) at that location within the Project Area to identify sensitive species and habitat features (e.g., nests as well as roosts and hibernacula used by bat species).
- Active and/or suspected breeding and roosting locations identified during the pre- disturbance wildlife clearance surveys will be protected with a no-disturbance setback buffer consistent with regulatory guidelines (e.g., the 2017 SARGSS [SK MOE 2017]) in accordance with the level of the disturbance and species until the young have successfully fledged, the nest is confirmed as no longer active (e.g., abandoned or depredated), or the nesting window has passed (for suspected nest locations). If guidelines cannot be met, due to safety or operational concerns, SK MOE will be contacted for advice on the appropriate response to the situation.
- In addition to the species listed under Schedule 1 of SARA, if any features (e.g., nests) of species included on the Saskatchewan Activity Restriction Guidelines for Sensitive Species (SK MOE 2017) are observed during the pre-clearing wildlife surveys, the applicable activity restrictions will be implemented, as appropriate, following discussion with SK MOE.

3.2.2 Wildlife Education and Awareness

- Employees and contractors will be provided with wildlife education and awareness training, including education about potential Wildlife SAR issues on site and training on the mitigation measures to avoid or minimize potential adverse Project effects on Wildlife SAR and their habitats.
- Employees and contractors will be educated on waste management policies that limit human-avian interactions.
- Designated employees will be trained in appropriate avian deterrent techniques to minimize avian interactions with the Project.
- Employees and contractors will be requested to report avian observations on site, injured or dead birds (which will be reported to SK MOE). Avian encounters and outcomes will be monitored, and logbooks will be used to record observations. Logbooks and reports will be available to employees.

3.2.3 Wildlife and Habitat Protection

- Personal firearms will be prohibited for employees and contractors within the Project Area to prevent hunting activities.
- If any individual were seeking access around the Project area to undertake Aboriginal and/or Treaty Rights, Denison staff would facilitate this, provided it were safe to do so given activities in the area.
- Policies will be implemented prohibiting employees and contractors from feeding, approaching, or harassing avian species within the Project Area.
- To support habitat regeneration, progressive reclamation and ecosystem-based revegetation will be conducted on disturbed areas as soon as practicable in accordance with the Reclamation and Closure Plan.

3.2.4 Wildlife Deterrence and Prevention of Wildlife Entrapment

- Buildings and other Project infrastructure will be designed and maintained to exclude birds (e.g., barn swallows) and bats as much as possible. This would include installing solid barriers (e.g., corner slope panels, wooden panels) or flexible barriers (e.g., netting, tarps or geotextiles) under roof eaves or other exterior surfaces.
- Physical, visual, and/or auditory deterrents will be used to discourage bird and bat use of buildings and other Project infrastructure (e.g., water or waste treatment ponds) for refuge, shelter, breeding, and roosting, and to deter birds and bats from potentially becoming entrapped.
- Noise emitting Project activities will be managed to minimize sensory disturbance of wildlife SAR species, especially during sensitive time periods (i.e., breeding and nesting).
- Low sound emission equipment, regular maintenance of equipment, and the use of silencers or mufflers (whenever practical) will be used to reduce noise associated with Project activities, to the extent practical.
- Directed lighting or light shielding, rather than broad lighting, will be implemented to minimize sensory disturbance on the wildlife SAR, and lighting will be focused on work sites and not surrounding areas.

- Dust generation and subsequent deposition on vegetation and in waterbodies (including potential deposition of trace metals and radionuclides) will be limited through dust suppression techniques such as road watering and traffic management.

3.2.5 Road and Traffic Management

- Traffic and access control measures will be implemented will include reducing traffic volume by scheduling truck convoys, using high-volume haul trucks, and restricting public access to the Project site and roads (e.g., private vehicles, snowmobiles, all-terrain vehicles, and foot traffic). It is important to note that if any individual were seeking access around the Project area to undertake Aboriginal and / or Treaty Rights, Denison staff would facilitate this, provided it were safe to do so given activities in the area.
- Appropriate road signage will be installed (e.g., speed limits) along Project roads to raise awareness and minimize the potential for wildlife SAR-vehicle collisions.
- Wildlife will have the right-of-way on Project roads, unless it is unsafe to stop (i.e., if a collision is imminent). Vehicles will not be used to encourage wildlife to move off Project roads.
- Processes will be implemented for employees and contractors to slow down and/or stop vehicles/equipment to allow animals to move away or off the road before resuming normal road speeds for the area.
- Employees and contractors will report and communicate the location and circumstances of any roadkill observed on or alongside Project roads. Large-bodied wildlife carcasses found will be reported to SK MOE and disposed of as directed to discourage avian scavengers.
- Vegetation management, such as mowing and brush cutting, will be implemented along Project roads to reduce site attractiveness for wildlife SAR and maintain appropriate sightlines for drivers to minimize wildlife-vehicle collisions.
- Alternative measures on Project roads for de-icing and winter traction (e.g., sand, gravel) or dust suppression (e.g., water) will be implemented, whenever practicable.
- Appropriately sized gaps in the roadside snowbanks during winter will be maintained to facilitate wildlife crossing and escape thereby reducing the risk of wildlife-vehicle collisions.
- New Project site and access roads will be designed to minimize sightlines for predators, whenever practicable, while still maintaining general road safety.
- Ditches and culverts along Project roads will be designed and maintained to minimize pooling of water. Roadside pools that form may attract wildlife.

3.2.6 Waste and Hazardous Materials Management

- A "no littering policy" for employees and contractors will be implemented within the Project Area.
- Vegetation management will be incorporated in the vicinity of waste ponds to discourage wildlife SAR use of potentially affected vegetation.
- Waste will be collected and temporarily stored in wildlife-proof containers to avoid attracting scavengers and with that increase the risk for human-wildlife interaction.
- The wildlife-proof containers will be inspected regularly for evidence of avian presence (e.g., gull species) or access to waste disposal facilities. If evidence of avian presence or access to waste disposal facilities is detected, modified systems will be implemented and/or off-site waste disposal frequencies will be increased.
- The use of hazardous materials will be limited as much as possible.

- Hazardous materials will be handled, stored, and disposed of appropriately and in accordance with a Waste Management Plan to avoid attracting avian scavengers (e.g., wildlife-proof containers, exclusion fencing).
- Physical deterrents (e.g., fencing) will be employed around contaminated areas (e.g., waste ponds and waste pads), the domestic landfill, or hazardous materials storage areas to discourage wildlife use.
- Appropriate hazardous materials management practices will be implemented in accordance with industry guidelines and a Waste Management Plan to minimize the risk of accidental spills or leakage.
- Appropriate spill response kits will be positioned adjacent to areas where hazardous materials are stored in accordance with the Spill Response Plan.
- A minimum 100 m distance from any waterbody will be maintained for fuel storage, refueling activities, or equipment servicing in accordance with the Spill Response Plan.
- Appropriate fuel, chemical, and materials management practices will be followed in accordance with the Spill Response Plan to minimize the risk of accidental spills or leakage of diesel fuel, other hydrocarbons, and other hazardous materials.
- Air emissions will be reduced to the extent practical through implementation of an air quality monitoring plan within the EMS.
- All vehicles and equipment will be equipped with industry-standard emission control systems; unnecessary idling of vehicles will be prohibited.
- Vehicles and equipment will be maintained in good working condition (e.g., no leaks) and furnished with industry-standard spill response kits.
- Mitigation measures to reduce the potential for dispersion of radiological contaminants of potential concern to vegetation will be implemented in accordance with the Radiation Protection Plan.
- Education on and enforcement of proper waste and hazardous materials management practices will be provided to employees and contractors.

3.3 Species-Specific Mitigation Measures for Wildlife Species at Risk

The following provides a summary of the species-specific mitigation measures that will be implemented during Project activities. Mitigation measures specific to the Wildlife SAR have been added to Section 9 of final EIS as applicable, with species-specific details provided here in the supporting appendix. For further information on methods and timing of SAR pre-clearance sweeps, refer to Section 4 of this appendix.

3.3.1 Arthropod Species

3.3.1.1 Nine-spotted lady beetle

- Mitigation measures designed for the Soil and Organic Matter / Peat (Section 9.1.5) and Vegetation and Ecosystems (Section 9.2.5) VCs are expected to mitigate adverse effects on nine-spotted lady beetle primarily related to limiting the loss and/or disruption of suitable habitat for these species. These include:
    - The Project Area (i.e., the area of maximum physical disturbance) has been reduced to the extent safely practicable resulting in reduced habitat disturbance and noise propagation.

- Much of the proposed Project Footprint will be developed within previously disturbed areas, including roads currently used for exploration activities, thereby minimizing additional habitat disturbance.
- During Operation, progressive reclamation will be completed where possible, and the progress and success of these activities will be assessed annually.

- Herbicide use as part of vegetation management will be limited to the immediate Project Footprint and applied by licensed professional applicators, when necessary, to limit the potential for adverse effects on nine-spotted lady beetle.

3.3.1.2 Transverse lady beetle

- Mitigation measures designed for the Soil and Organic Matter / Peat (Section 9.1.5) and Vegetation and Ecosystems (Section 9.2.5) VCs are expected to mitigate adverse effects on transverse lady beetle primarily related to limiting the loss and/or disruption of suitable habitat for these species. These include:
  - The Project Area (i.e., the area of maximum physical disturbance) has been reduced to the extent safely practicable resulting in reduced habitat disturbance and noise propagation.
  - Much of the proposed Project Footprint will be developed within previously disturbed areas, including roads currently used for exploration activities, thereby minimizing additional habitat disturbance.
  - During Operation, progressive reclamation will be completed where possible, and the progress and success of these activities will be assessed annually.
- Herbicide use as part of vegetation management will be limited to the immediate Project Footprint and applied by licensed professional applicators, when necessary, to limit the potential for adverse effects on transverse lady beetle.

3.3.1.3 Yellow-banded bumble bee

- Mitigation measures designed for the Soil and Organic Matter / Peat (Section 9.1.5) and Vegetation and Ecosystems (Section 9.2.5) VCs are expected to mitigate adverse effects on yellow-banded bumble bee primarily related to limiting the loss and/or disruption of suitable habitat for these species. These include:
  - The Project Area (i.e., the area of maximum physical disturbance) has been reduced to the extent safely practicable resulting in reduced habitat disturbance and noise propagation.
  - Much of the proposed Project Footprint will be developed within previously disturbed areas, including roads currently used for exploration activities, thereby minimizing additional habitat disturbance.
  - During Operation, progressive reclamation will be completed where possible, and the progress and success of these activities will be assessed annually.
- Herbicide use as part of vegetation management will be limited to the immediate Project Footprint and applied by licensed professional applicators, when necessary, to limit the potential for adverse effects on yellow-banded bumble bee.

3.3.2 Amphibian Species

3.3.2.1 Northern leopard frog

- Mitigation measures designed for the Wetlands VC (Section 9.2.5) are expected to mitigate adverse effects on the northern leopard frog primarily related to limiting the loss and/or disruption of suitable habitat for these species. These include:
  - The Project Area (i.e., the area of maximum physical disturbance) has been reduced to the extent safely practicable resulting in reduced habitat disturbance and noise propagation.
  - Much of the proposed Project Footprint will be developed within previously disturbed areas, including roads currently used for exploration activities, thereby minimizing additional habitat disturbance.
  - During Operation, progressive reclamation will be completed where possible, and the progress and success of these activities will be assessed annually.
- Pre-disturbance wildlife clearance surveys will be conducted to identify site-specific habitat features (e.g., northern leopard frog breeding ponds) and implement the setbacks and/or timing windows (that will be defined in the Wildlife Management Plan).
- In addition to the species listed under Schedule 1 of SARA, if any features (e.g., breeding and overwintering habitat) of species included on the Saskatchewan Activity Restriction Guidelines for Sensitive Species (SK MOE 2017) are observed during the pre-clearing wildlife surveys, the applicable activity restrictions will be implemented, as appropriate, following discussion with SK MOE.
- Locations of site-specific habitat features used by northern leopard frog will be communicated to Project personnel and the requirement to limit disturbance in these areas will be implemented.
- Appropriate setback and buffer distances from wetland features where northern leopard frog are known to occur will be implemented and maintained under the direction of a wildlife QP.
- Vehicle traffic and construction activities will be restricted to the approved access routes and work areas and will not cross or enter a watercourse or wetland.

3.3.3 Bat Species

3.3.3.1 Little brown myotis

- Vegetation clearing activities will occur outside of little brown myotis roosting periods, when practical.
- Pre-disturbance wildlife clearance surveys will be completed to identify site-specific habitat features such as little brown myotis maternal rooting sites and hibernacula used by little brown myotis. If features are identified in the Project Footprint, appropriate setbacks and/or timing windows will be implemented (refer to Table 4-1 in final EIS Appendix 9-D which will also be defined in the Wildlife Management Plan).
- In the event a little brown myotis maternal roosting site is identified on the Project Footprint, exclusionary methods (e.g., installing a one-way bat exit) will be implemented following the summer maternity roost season. This installation would allow for little brown myotis to leave but not the ability to re-enter the roosting site.

- Locations of these site-specific habitat features used by little brown myotis will be communicated to the appropriate Project personnel and the requirement to limit disturbance in these areas will be implemented.
- Specific exclusion methods will be added as mitigation measures (Section 9.4.5 of the final EIS) to prevent access to buildings and other infrastructure.

3.3.3.2 Northern myotis

- Vegetation clearing activities will occur outside of northern myotis roosting periods, when practical.
- Pre-disturbance wildlife clearance surveys will be completed to identify site-specific habitat features such as northern myotis maternal rooting sites and hibernacula used by northern myotis. If features are identified in the Project Footprint, appropriate setbacks and/or timing windows will be implemented (refer to Table 4-1 in final EIS Appendix 9-D which will also be defined in the Wildlife Management Plan).
- In the event a northern myotis maternal roosting site is identified on the Project Footprint, exclusionary methods (e.g., installing a one-way bat exit) will be implemented following the summer maternity roost season. This installation would allow for northern myotis to leave but not the ability to re-enter the roosting site.
- Locations of these site-specific habitat features used by northern myotis will be communicated to the appropriate Project personnel and the requirement to limit disturbance in these areas will be implemented.
- Specific exclusion methods will be added as mitigation measures (Section 9.4.5 of the final EIS) to prevent access to buildings and other infrastructure.

3.3.4 Avian Species

3.3.4.1 Bank Swallow

- Site clearing and other works that involve disturbance of vegetation and/or soil will be conducted outside of the bank swallow nesting season, when practical. The breeding and nesting season for bank swallow in Saskatchewan typically spans a period from May 15 to July 31.
- In the event Project activities such as vegetation clearing and/or soil disturbance are required during the bank swallow breeding and nesting season, pre-disturbance wildlife clearance surveys will be conducted by a QP at that location within the Project Area before activities commence to identify the presence of bank swallow nests.
- Active and/or suspected bank swallow nests identified during the pre-disturbance wildlife clearance surveys will be protected with a no-disturbance setback buffer consistent with adopted regulatory guidelines (e.g., Manitoba Conservation [2021] as there is currently no activity restriction guidelines for bank swallow in Saskatchewan) in accordance with the level of the disturbance until the young have successfully fledged, the nest is confirmed as no longer active (e.g., abandoned or depredated), or the nesting window has passed (for suspected nest locations).
- Locations of nesting sites used by bank swallows will be communicated to appropriate Project personnel and the requirement to limit disturbance in these areas will be implemented.

3.3.4.2 Barn Swallow

- Site clearing and other works that involve disturbance of vegetation and/or soil will be conducted outside of the barn swallow nesting season, when practical. The breeding and nesting season for barn swallow in Saskatchewan typically spans a period from May 15 to September 30.
- In the event Project activities such as vegetation clearing and/or soil disturbance are required during the barn swallow breeding and nesting season, pre-disturbance wildlife clearance surveys will be conducted by a QP at that location within the Project Area before activities commence to identify the presence of barn swallow nests.
- Active and/or suspected barn swallow nests identified during the pre-disturbance wildlife clearance surveys will be protected with a no-disturbance setback buffer consistent with adopted regulatory guidelines (e.g., Manitoba Conservation [2021] as there is currently no activity restriction guidelines for barn swallow in Saskatchewan) in accordance with the level of the disturbance until the young have successfully fledged, the nest is confirmed as no longer active (e.g., abandoned or depredated), or the nesting window has passed (for suspected nest locations).
- Locations of nesting sites used by barn swallows will be communicated to appropriate Project personnel and the requirement to limit disturbance in these areas will be implemented.

3.3.4.3 Common Nighthawk

- Site clearing and other works that involve disturbance of vegetation and/or soil will be conducted outside of the common nighthawk nesting season, when practical. The breeding and nesting season for common nighthawk in Saskatchewan typically spans a period from May 1 to August 31.
- In the event Project activities such as vegetation clearing and/or soil disturbance are required during the common nighthawk breeding and nesting season, pre-disturbance wildlife clearance surveys will be conducted by a QP at that location within the Project Area before activities commence to identify the presence of common nighthawk nests.
- Active and/or suspected common nighthawk breeding and roosting locations identified during the pre-disturbance wildlife clearance surveys will be protected with a no-disturbance setback buffer consistent with regulatory guidelines (e.g., the 2017 SARGSS [SK MOE 2017]) in accordance with the level of the disturbance until the young have successfully fledged, the nest is confirmed as no longer active (e.g., abandoned or depredated), or the nesting window has passed (for suspected nest locations).

3.3.4.4 Horned Grebe

- Site clearing and other works that involve disturbance of vegetation and/or soil will be conducted outside of the horned grebe nesting season, when practical. The breeding and nesting season for horned grebe in Saskatchewan typically spans a period from May 1 to September 15.
- In the event Project activities such as vegetation clearing and/or soil disturbance are required during the horned grebe breeding and nesting season, pre-disturbance wildlife clearance surveys will be conducted by a QP at that location within the Project Area before activities commence to identify the presence of horned grebe nests.

- Active and/or suspected horned grebe nests identified during the pre-disturbance wildlife clearance surveys will be protected with a no-disturbance setback buffer consistent with regulatory guidelines (e.g., the 2017 SARGSS [SK MOE 2017]) for other grebe species (as there is currently no activity restriction guidelines for horned grebe in Saskatchewan) in accordance with the level of the disturbance until the young have successfully fledged, the nest is confirmed as no longer active (e.g., abandoned or depredated), or the nesting window has passed (for suspected nest locations).
- Locations of nesting sites used by horned grebe will be communicated to appropriate Project personnel and the requirement to limit disturbance in these areas will be implemented.

3.3.4.5 Olive-sided Flycatcher

- Site clearing and other works that involve disturbance of vegetation and/or soil will be conducted outside of the olive-sided flycatcher nesting season, when practical. The breeding and nesting season for olive-sided flycatcher in Saskatchewan typically spans a period from May 1 to August 31.
- In the event Project activities such as vegetation clearing and/or soil disturbance are required during the olive-sided flycatcher breeding and nesting season, pre-disturbance wildlife clearance surveys will be conducted by a QP at that location within the Project Area before activities commence to identify the presence of olive-sided flycatcher nests.
- Active and/or suspected olive-sided flycatcher nests identified during the pre-disturbance wildlife clearance surveys will be protected with a no-disturbance setback buffer consistent with regulatory guidelines (e.g., the 2017 SARGSS [SK MOE 2017]) in accordance with the level of the disturbance until the young have successfully fledged, the nest is confirmed as no longer active (e.g., abandoned or depredated), or the nesting window has passed (for suspected nest locations).

3.3.4.6 Rusty Blackbird

- Site clearing and other works that involve disturbance of vegetation and/or soil will be conducted outside of the rusty blackbird nesting season, when practical. The breeding and nesting season for rusty blackbird in Saskatchewan typically spans a period from May 1 to July 31.
- In the event Project activities such as vegetation clearing and/or soil disturbance are required during the rusty blackbird breeding and nesting season, pre-disturbance wildlife clearance surveys will be conducted by a QP at that location within the Project Area before activities commence to identify the presence of rusty blackbird nests.
- Active and/or suspected rusty blackbird nests identified during the pre-disturbance wildlife clearance surveys will be protected with a no-disturbance setback buffer consistent with regulatory guidelines (e.g., the 2017 SARGSS [SK MOE 2017]) in accordance with the level of the disturbance until the young have successfully fledged, the nest is confirmed as no longer active (e.g., abandoned or depredated), or the nesting window has passed (for suspected nest locations).

3.3.4.7 Short-eared Owl

- Site clearing and other works that involve disturbance of vegetation and/or soil will be conducted outside of the short-eared owl nesting season, when practical. The breeding and nesting season for short-eared owl in Saskatchewan typically spans a period from March 25 to August 1.
- In the event Project activities such as vegetation clearing and/or soil disturbance are required during the short-eared owl breeding and nesting season, pre-disturbance wildlife clearance surveys will be conducted by a QP at that location within the Project Area before activities commence to identify the presence of short-eared owl nests.
- Active and/or suspected short-eared owl nests identified during the pre-disturbance wildlife clearance surveys will be protected with a no-disturbance setback buffer consistent with regulatory guidelines (e.g., the 2017 SARGSS [SK MOE 2017]) in accordance with the level of the disturbance until the young have successfully fledged, the nest is confirmed as no longer active (e.g., abandoned or depredated), or the nesting window has passed (for suspected nest locations).

3.3.4.8 Yellow Rail

- Site clearing and other works that involve disturbance of vegetation and/or soil will be conducted outside of the yellow rail nesting season, when practical. The breeding and nesting season for yellow rail in Saskatchewan typically spans a period from May 1 to July 15.
- In the event Project activities such as vegetation clearing and/or soil disturbance are required during the yellow rail breeding and nesting season, pre-disturbance wildlife clearance surveys will be conducted by a QP at that location within the Project Area before activities commence to identify the presence of yellow rail nests.
- Active and/or suspected yellow rail nests identified during the pre-disturbance wildlife clearance surveys will be protected with a no-disturbance setback buffer consistent with regulatory guidelines (e.g., the 2017 SARGSS [SK MOE 2017]) in accordance with the level of the disturbance until the young have successfully fledged, the nest is confirmed as no longer active (e.g., abandoned or depredated), or the nesting window has passed (for suspected nest locations).

4 Pre-clearance SAR Survey Methods

The methods and timing of proposed SAR pre-clearance sweep are provided in Table 4-1.

Table 4-1 Wildlife Species at Risk Pre-clearance Sweep Methods and Timing

Species of Concern	Baseline Survey Results	Assessed in the EIS	Important Habitat and Needs	Survey Target Areas	Survey Technique [1]	Timing	Action if Species Detected	Information Source
Northern Leopard Frog	Not observed	Appendix 9-D	From winter sites, adult frogs travel up to 1.6 km to breed.	Wetlands/ water/ riparian / wet/ moist/ scrublands/ bogs/ fens.	Visual searches for egg masses or frogs	Snow/ice-free early spring and spring season	Pond setback; 10m (Low); 200m (Mod) and 500m (High)	MOE (2017)
			They breed in the shallow, warm waters of a variety of wetlands including marshes, springs, flooded ditches, dugouts, borrow pits, beaver ponds, margins of lakes, and slow-moving waters of streams and rivers.		Auditory call surveys	April 20 to June 10		
			After breeding, adults and sub-adults may disperse up to 8 km from breeding ponds.					
			Northern Leopard Frogs usually do not utilize areas that are heavily wooded.		Visual searches for egg masses or frogs	Snow/ice-free early spring and spring season		
			They forage in the summer in riparian or upland habitats. These areas are moist habitats including meadows, pastures, scrublands, riparian corridors, and drainage or irrigation ditches.		Visual searches for egg masses or frogs	Snow/ice-free early spring and spring season		
Little Brown Myotis and Northern Bat	34 ultrasonic detections of little brown/northern myotis	Appendix 9-D	The presence of large snags, tree cavities, is an important attribute in old growth forest stands that provides maternity roosts and day roosts for northern myotis and little brown bats. Buildings are also used.	Treed areas with the largest diameter and/or older trees. Focus on older forest, or areas with large snags in younger forest within the project footprint (majority is regenerating forest 1-5m).	Daytime visual search of trees and potential roost sites. Systematic meandering search of areas to be cleared during active bat season. Focus on searching for roost features (snags, cracks, stumps, cavities, bark peeling) and bat sign (e.g., guano).	May to Sept	Should a roosting bat be discovered the area will be afforded protection from clearing for 24 hours and re-surveyed. The area will only be cleared if no bats are discovered. A 100 m buffer will be given to nursery roots and 50 m to daily roosting bats. If many roosting bats are recorded compensation will be considered (e.g., bat houses).	COSEWIC (2013a); Resources Information Standards Committee (RISC) (2022)

Species of Concern	Baseline Survey Results	Assessed in the EIS	Important Habitat and Needs	Survey Target Areas	Survey Technique [1]	Timing	Action if Species Detected	Information Source
			Foraging habitat in proximity to roosting sites is also an important factor in roost selection.	Treed areas in proximity to clearings, wetlands and open water.		Year Round	Roost/Foraging site; 100m (Low); 500m (Mod) and 500m (High)	MOE (2017)
Wolverine	Not observed	Section 9.3	A wide variety of forested and vegetation associations are used by wolverine. Habitats must have an adequate year-round supply of food, mainly consisting of smaller prey such as rodents and Snowshoe Hares, and the carcasses of large ungulates, like Moose, Caribou, and Muskox. Females den under snow-covered rocks, logs or within snow tunnels. Wolverines reproduce in areas where snow cover persists at least into April.	All areas of project activity.	Winter den searches	Snow cover months	Setback of 250m when occupied and 100m when unoccupied.	COSEWIC (2014); Environmental Protection and Management Guideline (2024)
Woodland Caribou	Observed	Section 9.3	Woodland caribou may occupy all potential project areas but prefer forests greater than 40 years of age.	All areas of project activity.	Visual search to ensure no caribou are in the area. Ongoing vigilance.	Year Round	If caribou are in the area cease operations until they are clear of the area.	SME (2021)
Rusty Blackbird	Not observed	Section 9.4	Rusty blackbird primarily nests in small conifers, predominantly spruce. In Canada, nests have also been found in Balsam Fir, Eastern White Cedar, Paper Birch, Balsam Poplar, Red Maple, Pin Cherry, emergent sedges, cattails, and on the ground on a beaver dam We only have spruce, birch and poplar at Wheeler.	All habitat with spruce, white birch and balsam poplar. Very limited suitable (spruce) habitat within project footprint.	Visual search for nests	MBCA window May 1 to July 31	A 75 m buffer around coniferous bogs, fens and other wetlands suitable for Rusty blackbirds (Odsen and Pyper 2019). Nest setback of 0-50m (Low activity); 150m (Mod activity) and 300m (High activity)	Environment Canada. (2015); Odsen and Pyper (2019); Wildlife Division (2020) Manitoba Conservation (2021)
Yellow Rail	Not observed	Section 9.4	Yellow rails inhabit shallow wetlands and other wet areas with grass-like vegetation. They breed in wetlands such as damp hay fields or meadows, floodplains, bogs, upper levels of estuaries, and salt marshes.	Using available mapping conduct daytime Ecosite verification and stratify surveys in appropriate	Mid May to mid to late June. Triplicate nocturnal (23:00-03:00) call-playback surveys spaced at least 4			Environment Canada (2012); SME (2014) Detection surveys per Saskatchewan Species Detection Survey Protocol (SDSP) https://publications.saskatchewan.ca/#/products/79508

Species of Concern	Baseline Survey Results	Assessed in the EIS	Important Habitat and Needs	Survey Target Areas	Survey Technique [1]	Timing	Action if Species Detected	Information Source
			These wetlands are generally dominated by short, fine-stemmed herbaceous vegetation, especially sedges (*Carex* spp.), as well as other graminoid vegetation of the families Cyperaceae, Poaceae, and Juncaceae. Vegetation structure (e.g. short, grass-like, and dense) is likely more important than its taxon.	habitat only. Based on available mapping, no suitable habitat within project footprint.	days apart. Or use Autonomous Recording Units throughout the breeding season.			
			Breeding habitats may have up to 50 cm of standing water, but typically nesting sites are less than 15 cm deep.			May 1 to July 15	Nest site setback; 100m (Low); 150m (Mod) and 350m (High)	MOE (2017)
Bank Swallow	Not observed	Appendix 9-D	The Bank Swallow readily breeds in a wide variety of low elevation (< 900 m), natural and anthropogenic habitats, including: lake and ocean bluffs; stream and river banks; sand and gravel pits; roadcuts; and piles of sand, topsoil, sawdust, coal ash, and other materials.	Survey key habitat features identified as important.	Visual survey during timing window	May 15 to July 31	Nesting Colony Setback; 50m (Low); 150m (Mod) and 300m (High)	Manitoba Conservation (2021)
			Nest burrows are nearly always in a vertical or near-vertical bank (range: 76-105° slope).					
			In some cases, Bank Swallows have nested in drain pipes and in structures designed and built specifically for nesting Bank Swallows.					COSEWIC (2013b)
Barn Swallow	Four visual/auditory detections	Appendix 9-D	Nest on horizontal and vertical structures that include natural sites, such as cliffs and caves, as well as human-made structures, such as barns, bridges, and culverts. The nesting substrate must be rough, or have a ledge or projecting objects, such as bolts or light fixtures, to provide additional structural support to the nest.	Open areas in proximity to water. All buildings and man-made structures.	Visual	May 15 to Sept 30	Nest site setback; 50m (Low); 100m (Mod) and 100m (High)	Manitoba Conservation (2021)
			Nesting sites must provide access to open areas with an abundant supply of aerial insects to feed on; features such as wetlands, waterbodies, watercourses, meadows, grazed grassland, and farmland are preferred. Proximity to a waterbody or moist area with a supply of wet mud is needed to facilitate nest construction.					COSEWIC (2021a)

Species of Concern	Baseline Survey Results	Assessed in the EIS	Important Habitat and Needs	Survey Target Areas	Survey Technique [1]	Timing	Action if Species Detected	Information Source
Common Nighthawk	Two nests, five visuals, and 76 auditory/visual detections	Section 9.4	Nests are typically in open sites with dry, well-drained substrates that will not overheat and that have shade nearby for young to shelter from the sun and predators. Nest sites include forest clearings, bare patches in grassland, gravel pits, outcrops, road or rail sides, and, rarely, fenceposts.	All upland habitat.	Call-playback	May 1 to Aug 31	Nest site setback; 0-50m (Low); 150m (Mod) and 300m (High)	MOE (2017) Detection surveys per Saskatchewan Species Detection Survey Protocol (SDSP) https://publications.saskatchewan.ca/api/v1/products/79502/formats/117104/download
Horned Grebe	One observation	Appendix 9-D	More than 90% of the Horned Grebes in North America breed in ponds and lakes in western and northern Canada.	Water bodies within the project area.	Visual searches	May 1 to Sept 15	Nest site setback; 100m (Low); 200m (Mod) and 400m (High)	Manitoba Conservation (2021)
								COSEWIC (2009b)
Olive-sided Flycatcher	Fourteen observations	Section 9.4	Olive-sided Flycatcher has been widely observed in open coniferous or mixed coniferous forests, often located near water or wetlands with the presence of tall snags or trees.	All conifer and/treed upland areas.	Call-playback	May 1 to Aug 31	Nest setback; 100m (Low); 300m (Mod) and 500m (High)	MOE (2017)
			Data gathered from points across Canada indicate that mature conifer stands within patchy landscapes influenced by natural disturbance (e.g., recent burns) support the highest densities.					Environment Canada (2016)
			Olive-sided Flycatcher prefers post-burn areas or wetlands that create open habitats for the species to forage.					Detection surveys per Saskatchewan Species Detection Survey Protocol (SDSP)
Short-eared Owl	Not observed	Section 9.4	Nesting generally occurs in large open areas.	Open upland and lowland areas with no trees and some shrub cover.	Call-playback	March 25 to Aug 1	100m (Low); 300m (Mod) and 500m (High)	MOE (2017)
			Requires a minimum area of about 50-100 ha, consistent with the mean territory size of 82 ha reported in Manitoba.					COSEWIC (2021b)
			In the north, nests are primarily in tundra (Sinclair et al. 2003), and sometimes beside a small shrub that provides cover.					Detection surveys per Saskatchewan Species Detection Survey Protocol (SDSP) https://publications.saskatchewan.ca/api/v1/products/79506/formats/117101/download

[1] Surveys will be completed by qualified professional biologists; in their capacity as professional biologists, they will refer to available guidance such as the Saskatchewan species detection survey protocols to develop details of the surveys (e.g., selecting the appropriate time of day for the survey).

5 Residual and Cumulative Effects Summary

The approach to assessing residual Project effects on wildlife VCs followed the methodology outlined in Section 5.8 of the EIS, which included a habitat-based approach. For each VC and associated KI, each residual effect was assessed in the context of the Project activities that will occur within each Project phase. Each residual effect was then characterized based on the combined predicted residual effect for all phases. See Sections 9.3.6 and 9.4.6 of the EIS for specific details regarding the residual effects assessment for wildlife VCs (i.e., residual effect characterization and significance determination). A summary of the environmental assessment considerations and determination for predicted residual effects for Wildlife SAR is provided in Table 5-1.

The cumulative effects assessment (CEA) followed standard methodology as per provincial (e.g., Guidelines for an Environmental Assessment under the [Saskatchewan] *Environmental Assessment Act* 1980) and federal (e.g., Assessing Cumulative Environmental Effects under the *Canadian Environmental Assessment Act 2012*) guidance, and is discussed in detail in Section 5.9 of the EIS. Similar to the residual effects assessment, the CEA included a habitat-based approach. See Sections 9.3.7 and 9.4.7 of the EIS for specific details regarding the CEA for wildlife VCs. A summary of the significance determination of the cumulative effects on Wildlife SAR is provided in Table 5-2.

Table 5-1 Summary of the Environmental Assessment Considerations and Determination for Predicted Residual Effects for Wildlife Species At Risk

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures	Predicted Residual Effect	Significance
Terrestrial Environment	Nine-spotted lady beetle	Amount of habitat that is altered or lost relative to its availability in the Terrestrial Regional Study Area (RSA).	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, levelling, and grading of the Project Area. • Waste management (composting, domestic and industrial landfill operation, recycling). • Water management (including treatment). • Surface water withdrawal. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Construction	• The proposed mitigation measures outlined in the EIS, particularly those designed for the Valued Components (VCs) Soil and Organic Matter / Peat (Section 9.1.5) and Vegetation and Ecosystems (Section 9.2.5), adequately and appropriately address potential for adverse effects on nine-spotted lady beetle, primarily related to limiting the loss and/or disruption of suitable habitat. These include the following: - The Project Area (i.e., the area of maximum physical disturbance) has been reduced to the extent safely practicable resulting in reduced habitat disturbance and noise propagation. - Much of the proposed Project Footprint will be developed within previously disturbed areas, including roads currently used for	Alteration and/or loss of habitat: predicted to be low magnitude, local geographical extent, long-term duration, frequent, and fully reversible.	Not Significant: the predicted residual effect of alteration and/or loss of habitat is not expected to alter the integrity of the habitat for nine-spotted lady beetle within the Terrestrial RSA to the point where it is not sustainable or available to contribute to ecological functions.
			• Water withdrawal from groundwater or surface water body. • Management of surface water (including seepage and site runoff). • Water release to groundwater and/or surface water body. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Operation			
			• Site water management, treatment, and release	Decommissioning			

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures	Predicted Residual Effect	Significance
			• Process water treatment and release. • Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.		exploration activities, thereby minimizing additional habitat disturbance. - During Operation, progressive reclamation will be completed where possible, and the progress and success of these activities will be assessed annually. • Herbicide use as part of vegetation management will be limited to the immediate Project Footprint applied by licensed professional applicators when necessary to limit the potential for adverse effects on nine-spotted lady beetle.		
		Nine-spotted lady beetle mortalities directly or indirectly attributable to the Project.	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, levelling, and grading of the Project Area. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Construction		Change in mortality: predicted to be low magnitude, local in geographical extent, long-term duration, infrequent, and fully reversible.	The predicted residual effect of change in mortality is not expected to alter the integrity of the regional populations of nine-spotted lady beetle to the point where they are not sustainable or available to contribute to ecological functions.
			• On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Operation			
			• Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.	Decommissioning			
			• Development of access roads and airstrip.	Construction			

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures	Predicted Residual Effect	Significance
Terrestrial Environment	Transverse lady beetle	Amount of habitat that is altered or lost relative to its availability in the Terrestrial Regional Study Area (RSA).	• Site preparation and earthworks; clearing, levelling, and grading of the Project Area. • Waste management (composting, domestic and industrial landfill operation, recycling). • Water management (including treatment). • Surface water withdrawal. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.		• The proposed mitigation measures outlined in the EIS, particularly those designed for the Valued Components (VCs) Soil and Organic Matter / Peat (Section 9.1.5) and Vegetation and Ecosystems (Section 9.2.5), adequately and appropriately address potential for adverse effects on transverse lady beetle, primarily related to limiting the loss and/or disruption of suitable habitat. These include the following: - The Project Area (i.e., the area of maximum physical disturbance) has been reduced to the extent safely practicable resulting in reduced habitat disturbance and noise propagation. - Much of the proposed Project Footprint will be developed within previously disturbed areas, including roads currently used for	Alteration and/or loss of habitat: predicted to be low magnitude, local geographical extent, long-term duration, frequent, and fully reversible.	Not Significant: the predicted residual effect of alteration and/or loss of habitat is not expected to alter the integrity of the habitat for transverse lady beetle within the Terrestrial RSA to the point where it is not sustainable or available to contribute to ecological functions.
			• Water withdrawal from groundwater or surface water body. • Management of surface water (including seepage and site runoff). • Water release to groundwater and/or surface water body. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Operation			
			• Site water management, treatment, and release • Process water treatment and release.	Decommissioning			

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures	Predicted Residual Effect	Significance
			• Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.		exploration activities, thereby minimizing additional habitat disturbance. - During Operation, progressive reclamation will be completed where possible, and the progress and success of these activities will be assessed annually. • Herbicide use as part of vegetation management will be limited to the immediate Project Footprint applied by licensed professional applicators when necessary to limit the potential for adverse effects on transverse lady beetle.		
		Transverse lady beetle mortalities directly or indirectly attributable to the Project.	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, levelling, and grading of the Project Area. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Construction		Change in mortality: predicted to be low magnitude, local in geographical extent, long-term duration, infrequent, and fully reversible.	The predicted residual effect of change in mortality is not expected to alter the integrity of the regional populations of transverse lady beetle to the point where they are not sustainable or available to contribute to ecological functions.
			• On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Operation			
			• Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.	Decommissioning			
Terrestrial Environment	Yellow-banded bumble bee	Amount of habitat that is altered or lost relative to its availability in the	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, levelling, and grading of the Project Area.	Construction	• The proposed mitigation measures outlined in the EIS, particularly those designed for the Valued Components (VCs)	Alteration and/or loss of habitat: predicted to be low magnitude, local	Not Significant: the predicted residual effect of alteration and/or loss of

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures	Predicted Residual Effect	Significance
		Terrestrial Regional Study Area (RSA).	• Waste management (composting, domestic and industrial landfill operation, recycling). • Water management (including treatment). • Surface water withdrawal. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.		Soil and Organic Matter / Peat (Section 9.1.5) and Vegetation and Ecosystems (Section 9.2.5), adequately and appropriately address potential for adverse effects on yellow-banded bumble bee, primarily related to limiting the loss and/or disruption of suitable habitat. These include the following: - The Project Area (i.e., the area of maximum physical disturbance) has been reduced to the extent safely practicable resulting in reduced habitat disturbance and noise propagation. - Much of the proposed Project Footprint will be developed within previously disturbed areas, including roads currently used for exploration activities, thereby minimizing additional habitat disturbance. - During Operation, progressive reclamation will	geographical extent, long-term duration, frequent, and fully reversible.	habitat is not expected to alter the integrity of the habitat for yellow-banded bumble bee within the Terrestrial RSA to the point where it is not sustainable or available to contribute to ecological functions.
			• Water withdrawal from groundwater or surface water body. • Management of surface water (including seepage and site runoff). • Water release to groundwater and/or surface water body. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Operation			
			• Site water management, treatment, and release • Process water treatment and release. • Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials.	Decommissioning			

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures	Predicted Residual Effect	Significance
			• Reclamation of disturbed areas.		be completed where possible, and the progress and success of these activities will be assessed annually. • Herbicide use as part of vegetation management will be limited to the immediate Project Footprint applied by licensed professional applicators when necessary to limit the potential for adverse effects on yellow-banded bumble bee.		
		Yellow-banded bumble bee mortalities directly or indirectly attributable to the Project.	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, levelling, and grading of the Project Area. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Construction		Change in mortality: predicted to be low magnitude, local in geographical extent, long-term duration, infrequent, and fully reversible.	The predicted residual effect of change in mortality is not expected to alter the integrity of the regional populations of yellow-banded bumble bee to the point where they are not sustainable or available to contribute to ecological functions.
			• On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Operation			
			• Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.	Decommissioning			
Terrestrial Environment	Northern leopard frog	Amount of habitat that is altered or lost relative to its availability in the Terrestrial RSA.	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, leveling and grading of the Project Area. • Water management (including treatment and site runoff). • Surface water withdrawal.	Construction	• The proposed mitigation measures outlined in the EIS, particularly those designed for the Wetlands VC (Section 9.2.5), adequately and appropriately address potential adverse effects on northern leopard frogs,	Alteration and/or loss of habitat: predicted to be low magnitude, local geographical extent, long-term duration,	Not Significant: the predicted residual effect of alteration and/or loss of habitat is not expected to alter the integrity of the

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures	Predicted Residual Effect	Significance
			• On-site and off-site operation of vehicles and transport of materials.		primarily related to limiting the loss and/or disruption of suitable habitat for this species. These include the following: - The Project Area (i.e., the area of maximum physical disturbance) has been reduced to the extent safely practicable resulting in reduced habitat disturbance and noise propagation. - Much of the proposed Project Footprint will be developed within previously disturbed areas, including roads currently used for exploration activities, thereby minimizing additional habitat disturbance. - During Operation, progressive reclamation will be completed where possible, and the progress and success of these activities will be assessed annually. • Pre-disturbance wildlife clearance surveys will be conducted to	frequent, fully reversible.	habitat for northern leopard frog within the Terrestrial RSA to the point where it is not sustainable or available to contribute to ecological functions.
			• Water withdrawal from groundwater or surface water body. • Management of surface water (including seepage and site runoff). • Water release to surface water body. • On-site and off-site operation of vehicles and transport of materials.	Operation			
			• Site water management, treatment, and release. • Process water treatment and release. • Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.	Decommissioning			
		Northern leopard frog mortalities directly or indirectly attributable to the Project.	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, leveling and grading of the Project Area. • On-site and off-site operation of vehicles and transport of materials.	Construction		Change in mortality: predicted to be low magnitude, local in geographical extent, long-term duration, infrequent, and fully reversible.	The predicted residual effect of change in mortality is not expected to alter the integrity of the regional populations of northern leopard frog to the point
			• Water withdrawal from groundwater or surface water body.	Operation			

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures	Predicted Residual Effect	Significance
			• Management of surface water (including seepage and site runoff). • Water release to surface water body. • On-site and off-site operation of vehicles and transport of materials		identify site-specific habitat features (e.g., amphibian breeding ponds) and implement the setbacks and/or timing windows (that will be defined in the Wildlife Management Plan). • Locations of site-specific habitat features used by amphibians will be communicated to Project personnel and the requirement to limit disturbance in these areas will be implemented. • Appropriate setback and buffer distances from wetland features where amphibians are known to occur will be implemented and maintained under the direction of a wildlife QP. • Vehicle traffic and construction activities will be restricted to the approved access routes and work areas and will not cross or enter a watercourse or wetland.		where they are not sustainable or available to contribute to ecological functions
			• Site water management, treatment, and release. • Demolition and disposal of non-salvageable surface infrastructure and materials. • Reclamation of disturbed areas). • On-site and off-site operation of vehicles and transport of materials.	Decommissioning			
Terrestrial Environment	Little brown myotis	Amount of habitat that is altered or lost relative to its	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, leveling and grading of the Project Area.	Construction	• Vegetation clearing activities will occur outside of roosting periods, when practical.	Alteration and/or loss of habitat: predicted to be low magnitude, local	Not Significant: the predicted residual effect of alteration and/or loss of

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures	Predicted Residual Effect	Significance
		availability in the Terrestrial RSA.	• On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.		• Pre-disturbance wildlife clearance surveys will be completed to identify site-specific habitat features such as maternal rooting sites and hibernacula used by little brown myotis. If features are identified in the Project Footprint, appropriate setbacks and/or timing windows will be implemented (refer to Table 4-1 in final EIS Appendix 9-D which will also be defined in the Wildlife Management Plan). • In the event a little brown myotis maternal roosting site is identified on the Project Footprint, exclusionary methods (e.g., installing a one-way bat exit) will be implemented following the summer maternity roost season. This installation would allow for little brown myotis to leave but not the ability to re-enter the roosting site. • Locations of these site-specific habitat features used by little brown myotis will be communicated to appropriate Project personnel and the	geographical extent, long-term duration, frequent, fully reversible.	habitat is not expected to alter the integrity of the habitat for little brown myotis within the Terrestrial RSA to the point where it is not sustainable or available to contribute to ecological functions.
			• On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Operation			
			• Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.	Decommissioning			
		Little brown myotis mortalities directly or indirectly attributable to the Project.	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, leveling and grading of the Project Area. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Construction		Change in mortality: predicted to be low magnitude, local in geographical extent, long-term duration, infrequent, and fully reversible.	The predicted residual effect of change in mortality is not expected to alter the integrity of the regional populations of little brown myotis to the point where they are not sustainable or available to contribute to ecological functions
			• On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Operation			
			• Demolition and disposal of non-salvageable surface infrastructure and materials.	Decommissioning			

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures	Predicted Residual Effect	Significance
			• On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.		requirement to limit disturbance in these areas will be implemented. • Specific exclusion methods will be added as mitigation measures (Section 9.4.5 of the final EIS) to prevent access to buildings and other infrastructure.		
Terrestrial Environment	Northern myotis	Amount of habitat that is altered or lost relative to its availability in the Terrestrial RSA.	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, leveling and grading of the Project Area. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Construction	• Vegetation clearing activities will occur outside of northern myotis roosting periods, when practical. • Pre-disturbance wildlife clearance surveys will be completed to identify site-specific habitat features such as northern myotis maternal rooting sites and hibernacula used by northern myotis. If features are identified in the Project Footprint, appropriate setbacks and/or timing windows will be implemented (refer to Table 4-1 in final EIS Appendix 9-D which will also be defined in the Wildlife Management Plan). • In the event a northern myotis maternal roosting site is	Alteration and/or loss of habitat: predicted to be low magnitude, local geographical extent, long-term duration, frequent, fully reversible.	Not Significant: the predicted residual effect of alteration and/or loss of habitat is not expected to alter the integrity of the habitat for northern myotis within the Terrestrial RSA to the point where it is not sustainable or available to contribute to ecological functions.
			• On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Operation			
			• Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.	Decommissioning			
			• Development of access roads and airstrip.	Construction			

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures	Predicted Residual Effect	Significance
		Northern myotis mortalities directly or indirectly attributable to the Project.	• Site preparation and earthworks; clearing, leveling and grading of the Project Area. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.		identified on the Project Footprint, exclusionary methods (e.g., installing a one-way bat exit) will be implemented following the summer maternity roost season. This installation would allow for northern myotis to leave but not the ability to re-enter the roosting site. • Locations of these site-specific habitat features used by northern myotis will be communicated to appropriate Project personnel and the requirement to limit disturbance in these areas will be implemented. • Specific exclusion methods will be added as mitigation measures (Section 9.4.5 of the final EIS) to prevent access to buildings and other infrastructure.	Change in mortality: predicted to be low magnitude, local in geographical extent, long-term duration, infrequent, and fully reversible.	The predicted residual effect of change in mortality is not expected to alter the integrity of the regional populations of northern myotis to the point where they are not sustainable or available to contribute to ecological functions
			• On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Operation			
			• Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.	Decommissioning			
Terrestrial Environment	Bank Swallow	Amount of habitat that is altered or lost relative to its availability in the Terrestrial RSA.	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, leveling and grading of the Project Area. • Water management (including treatment and site runoff). • Surface water withdrawal.	Construction	• Site clearing and other works that involve disturbance of vegetation and/or soil will be conducted outside of the bank swallow nesting season, when practical. The breeding and nesting season for most bank swallows in	Alteration and/or loss of habitat: predicted to be low magnitude, local geographical extent, long-term duration,	Not Significant: the predicted residual effect of alteration and/or loss of habitat is not expected to alter the integrity of the

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures	Predicted Residual Effect	Significance
			• On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.		Saskatchewan typically spans a period from May 15 to July 31. • In the event Project activities such as vegetation clearing and/or soil disturbance are required during the bank swallow breeding and nesting season, pre-disturbance wildlife clearance surveys will be conducted a by a QP at that location within the Project Area before activities commence to identify the presence of bank swallow nests. • Active and/or suspected bank swallow nests identified during the pre- disturbance wildlife clearance surveys will be protected with a no-disturbance setback buffer consistent with adopted regulatory guidelines (e.g., Manitoba Conservation [2021] as there is currently no activity restriction guidelines for bank swallow in Saskatchewan) in accordance with the level of the disturbance until the young have successfully fledged, the nest is	frequent, fully reversible.	habitat for bank swallow within the Terrestrial RSA to the point where it is not sustainable or available to contribute to ecological functions.
			• Management of surface water (including seepage and site runoff). • Water release to surface water body. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Operation			
			• Site water management, treatment, and release. • Process water treatment and release. • Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.	Decommissioning			
		Bank Swallow mortalities directly or indirectly attributable to the Project.	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, leveling and grading of the Project Area. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Construction		Change in mortality: predicted to be low magnitude, regional in geographical extent, long-term duration, infrequent, and fully reversible.	The predicted residual effect of change in mortality is not expected to alter the integrity of the regional populations of bank swallow to the point where they are not

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures	Predicted Residual Effect	Significance
			• On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Operation	confirmed as no longer active (e.g., abandoned or depredated), or the nesting window has passed (for suspected nest locations). • Locations of nesting sites used by bank swallows will be communicated to appropriate Project personnel and the requirement to limit disturbance in these areas will be implemented. • Minimize height of salvaged soil stockpiles and avoid vertical slopes to deter bank swallows from creating nesting cavities.		sustainable or available to contribute to ecological functions.
			• Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.	Decommissioning			
Terrestrial Environment	Barn Swallow	Amount of habitat that is altered or lost relative to its availability in the Terrestrial RSA.	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, leveling and grading of the Project Area. • Water management (including treatment and site runoff). • Surface water withdrawal. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Construction	• Site clearing and other works that involve disturbance of vegetation and/or soil will be conducted outside of the barn swallow nesting season, when practical. The breeding and nesting season for barn swallow in Saskatchewan typically spans a period from May 15 to September 30. • In the event Project activities such as vegetation clearing	Alteration and/or loss of habitat: predicted to be low magnitude, local geographical extent, long-term duration, frequent, fully reversible.	Not Significant: the predicted residual effect of alteration and/or loss of habitat is not expected to alter the integrity of the habitat for barn swallow within the Terrestrial RSA to the point where it is not

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures	Predicted Residual Effect	Significance
			• Management of surface water (including seepage and site runoff). • Water release to surface water body. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Operation	and/or soil disturbance are required during the barn swallow breeding and nesting season, pre-disturbance wildlife clearance surveys will be conducted by a QP at that location within the Project Area before activities commence to identify the presence of barn swallow nests. • Active and/or suspected barn swallow nests identified during the pre-disturbance wildlife clearance surveys will be protected with a no-disturbance setback buffer consistent with adopted regulatory guidelines (e.g., Manitoba Conservation [2021] as there is currently no activity restriction guidelines for barn swallow in Saskatchewan) in accordance with the level of the disturbance until the young have successfully fledged, the nest is confirmed as no longer active (e.g., abandoned or depredated), or the nesting window has		sustainable or available to contribute to ecological functions.
			• Site water management, treatment, and release. • Process water treatment and release. • Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.	Decommissioning			
		Barn Swallow mortalities directly or indirectly attributable to the Project.	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, leveling and grading of the Project Area. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Construction		Change in mortality: predicted to be low magnitude, regional in geographical extent, long-term duration, infrequent, and fully reversible.	The predicted residual effect of change in mortality is not expected to alter the integrity of the regional populations of barn swallow to the point where they are not sustainable or available to contribute to ecological functions.
			• On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Operation			

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures	Predicted Residual Effect	Significance
			• Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.	Decommissioning	passed (for suspected nest locations). • Locations of nesting sites used by barn swallows will be communicated to appropriate Project personnel and the requirement to limit disturbance in these areas will be implemented.		
Terrestrial Environment	Common Nighthawk	Amount of habitat that is altered or lost relative to its availability in the Terrestrial RSA.	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, leveling and grading of the Project Area. • Water management (including treatment and site runoff). • Surface water withdrawal. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Construction	• Site clearing and other works that involve disturbance of vegetation and/or soil will be conducted outside of the common nighthawk nesting season, when practical. The breeding and nesting season for common nighthawk in Saskatchewan typically spans a period from May 1 to August 31. • In the event Project activities such as vegetation clearing and/or soil disturbance are required during the common nighthawk breeding and nesting season, pre-disturbance wildlife clearance surveys will be conducted by a QP at that	Alteration and/or loss of habitat: predicted to be low magnitude, local geographical extent, long-term duration, frequent, fully reversible.	Not Significant: the predicted residual effect of alteration and/or loss of habitat is not expected to alter the integrity of the habitat for common nighthawk within the Terrestrial RSA to the point where it is not sustainable or available to contribute to ecological functions.
			• Management of surface water (including seepage and site runoff). • Water release to surface water body. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Operation			

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures	Predicted Residual Effect	Significance
			• Site water management, treatment, and release. • Process water treatment and release. • Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.	Decommissioning	location within the Project Area before activities commence to identify the presence of common nighthawk nests. • Active and/or suspected common nighthawk nests identified during the pre-disturbance wildlife clearance surveys will be protected with a no-disturbance setback buffer consistent with regulatory guidelines (e.g., the 2017 SARGSS [SK MOE 2017]) in accordance with the level of the disturbance until the young have successfully fledged, the nest is confirmed as no longer active (e.g., abandoned or depredated), or the nesting window has passed (for suspected nest locations).		
		Common Nighthawk mortalities directly or indirectly attributable to the Project.	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, leveling and grading of the Project Area. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Construction		Change in mortality: predicted to be low magnitude, regional in geographical extent, long-term duration, infrequent, and fully reversible.	The predicted residual effect of change in mortality is not expected to alter the integrity of the regional populations of common nighthawk to the point where they are not sustainable or available to contribute to ecological functions.
			• On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Operation			
			• Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.	Decommissioning			

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures	Predicted Residual Effect	Significance
Terrestrial Environment	Horned Grebe	Amount of habitat that is altered or lost relative to its availability in the Terrestrial RSA.	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, leveling and grading of the Project Area. • Water management (including treatment and site runoff). • Surface water withdrawal. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Construction	• Site clearing and other works that involve disturbance of vegetation and/or soil will be conducted outside of the horned grebe nesting season, when practical. The breeding and nesting season for horned grebe in Saskatchewan typically spans a period from May 1 to September 15. • In the event Project activities such as vegetation clearing and/or soil disturbance are required during the horned grebe breeding and nesting season, pre-disturbance wildlife clearance surveys will be conducted by a QP at that location within the Project Area before activities commence to identify the presence of horned grebe nests. • Active and/or suspected horned grebe nests identified during the pre-disturbance wildlife clearance surveys will be protected with a no-disturbance setback buffer consistent with	Alteration and/or loss of habitat: predicted to be low magnitude, local geographical extent, long-term duration, frequent, fully reversible.	Not Significant: the predicted residual effect of alteration and/or loss of habitat is not expected to alter the integrity of the habitat for horned grebe within the Terrestrial RSA to the point where it is not sustainable or available to contribute to ecological functions.
			• Management of surface water (including seepage and site runoff). • Water release to surface water body. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Operation			
			• Site water management, treatment, and release. • Process water treatment and release. • Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.	Decommissioning			

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures	Predicted Residual Effect	Significance
		Horned Grebe mortalities directly or indirectly attributable to the Project.	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, leveling and grading of the Project Area. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Construction	regulatory guidelines (e.g., the 2017 SARGSS [SK MOE 2017]) for other grebe species (as there is currently no activity restriction guidelines for horned grebe in Saskatchewan) in accordance with the level of the disturbance until the young have successfully fledged, the nest is confirmed as no longer active (e.g., abandoned or depredated), or the nesting window has passed (for suspected nest locations). • Locations of nesting sites used by horned grebe will be communicated to appropriate Project personnel and the requirement to limit disturbance in these areas will be implemented.	Change in mortality: predicted to be low magnitude, regional in geographical extent, long-term duration, infrequent, and fully reversible.	The predicted residual effect of change in mortality is not expected to alter the integrity of the regional populations of horned grebe to the point where they are not sustainable or available to contribute to ecological functions.
			• On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Operation			
			• Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.	Decommissioning			
Terrestrial Environment	Olive-Sided Flycatcher	Amount of habitat that is altered or lost relative to its availability in the Terrestrial RSA.	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, leveling and grading of the Project Area. • Water management (including treatment and site runoff). • Surface water withdrawal.	Construction	• Site clearing and other works that involve disturbance of vegetation and/or soil will be conducted outside of the olive-sided flycatcher nesting season, when practical. The breeding and nesting season for olive-sided	Alteration and/or loss of habitat: predicted to be low magnitude, local geographical extent, long-term duration,	Not Significant: the predicted residual effect of alteration and/or loss of habitat is not expected to alter the integrity of the

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures	Predicted Residual Effect	Significance
			• On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.		flycatcher in Saskatchewan typically spans a period from May 1 to August 31. • In the event Project activities such as vegetation clearing and/or soil disturbance are required during the olive-sided flycatcher breeding and nesting season, pre-disturbance wildlife clearance surveys will be conducted by a QP at that location within the Project Area before activities commence to identify the presence of olive-sided flycatcher nests. • Active and/or suspected olive-sided flycatcher nests identified during the pre-disturbance wildlife clearance surveys will be protected with a no-disturbance setback buffer consistent with regulatory guidelines (e.g., the 2017 SARGSS [SK MOE 2017]) in accordance with the level of the disturbance until the young have successfully fledged, the nest is confirmed as no longer active (e.g., abandoned or depredated),	frequent, fully reversible.	habitat for olive-sided flycatcher within the Terrestrial RSA to the point where it is not sustainable or available to contribute to ecological functions.
			• Management of surface water (including seepage and site runoff). • Water release to surface water body. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Operation			
			• Site water management, treatment, and release. • Process water treatment and release. • Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.	Decommissioning			
		Olive-Sided Flycatcher mortalities directly or indirectly attributable to the Project.	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, leveling and grading of the Project Area. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Construction		Change in mortality: predicted to be low magnitude, regional in geographical extent, long-term duration, infrequent, and fully reversible.	The predicted residual effect of change in mortality is not expected to alter the integrity of the regional populations of olive-sided flycatcher to the point where they

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures	Predicted Residual Effect	Significance
			• On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Operation	or the nesting window has passed (for suspected nest locations).		are not sustainable or available to contribute to ecological functions.
			• Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.	Decommissioning			
Terrestrial Environment	Rusty Blackbird	Amount of habitat that is altered or lost relative to its availability in the Terrestrial RSA.	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, leveling and grading of the Project Area. • Water management (including treatment and site runoff). • Surface water withdrawal. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Construction	• Site clearing and other works that involve disturbance of vegetation and/or soil will be conducted outside of the rusty blackbird nesting season, when practical. The breeding and nesting season for rusty blackbird in Saskatchewan typically spans a period from May 1 to July 31. • In the event Project activities such as vegetation clearing and/or soil disturbance are required during the rusty blackbird breeding and nesting season, pre-disturbance wildlife clearance surveys will be conducted by a QP at that location within the Project Area	Alteration and/or loss of habitat: predicted to be low magnitude, local geographical extent, long-term duration, frequent, fully reversible.	Not Significant: the predicted residual effect of alteration and/or loss of habitat is not expected to alter the integrity of the habitat for rusty blackbird within the Terrestrial RSA to the point where it is not sustainable or available to contribute to ecological functions.
			• Management of surface water (including seepage and site runoff). • Water release to surface water body. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Operation			

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures	Predicted Residual Effect	Significance
			• Site water management, treatment, and release. • Process water treatment and release. • Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.	Decommissioning	before activities commence to identify the presence of rusty blackbird nests. • Active and/or suspected rusty blackbird nests identified during the pre-disturbance wildlife clearance surveys will be protected with a no-disturbance setback buffer consistent with regulatory guidelines (e.g., the 2017 SARGSS [SK MOE 2017]) in accordance with the level of the disturbance until the young have successfully fledged, the nest is confirmed as no longer active (e.g., abandoned or depredated), or the nesting window has passed (for suspected nest locations).		
		Rusty Blackbird mortalities directly or indirectly attributable to the Project.	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, leveling and grading of the Project Area. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Construction		Change in mortality: predicted to be low magnitude, regional in geographical extent, long-term duration, infrequent, and fully reversible.	The predicted residual effect of change in mortality is not expected to alter the integrity of the regional populations of rusty blackbird to the point where they are not sustainable or available to contribute to ecological functions.
			• On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Operation			
			• Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.	Decommissioning			

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures	Predicted Residual Effect	Significance
Terrestrial Environment	Short-eared Owl	Amount of habitat that is altered or lost relative to its availability in the Terrestrial RSA.	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, leveling and grading of the Project Area. • Water management (including treatment and site runoff). • Surface water withdrawal. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Construction	• Site clearing and other works that involve disturbance of vegetation and/or soil will be conducted outside of the short-eared owl nesting season, when practical. The breeding and nesting season for short-eared owl in Saskatchewan typically spans a period from March 25 to August 1. • In the event Project activities such as vegetation clearing and/or soil disturbance are required during the short-eared owl breeding and nesting season, pre-disturbance wildlife clearance surveys will be conducted by a QP at that location within the Project Area before activities commence to identify the presence of short-eared owl nests. • Active and/or suspected short-eared owl nests identified during the pre-disturbance wildlife clearance surveys will be protected with a no-disturbance setback buffer consistent with	Alteration and/or loss of habitat: predicted to be low magnitude, local geographical extent, long-term duration, frequent, fully reversible.	Not Significant: the predicted residual effect of alteration and/or loss of habitat is not expected to alter the integrity of the habitat for short-eared owl within the Terrestrial RSA to the point where it is not sustainable or available to contribute to ecological functions.
			• Management of surface water (including seepage and site runoff). • Water release to surface water body. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Operation			
			• Site water management, treatment, and release. • Process water treatment and release. • Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.	Decommissioning			

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures	Predicted Residual Effect	Significance
		Short-eared Owl mortalities directly or indirectly attributable to the Project.	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, leveling and grading of the Project Area. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Construction	regulatory guidelines (e.g., the 2017 SARGSS [SK MOE 2017]) in accordance with the level of the disturbance until the young have successfully fledged, the nest is confirmed as no longer active (e.g., abandoned or depredated), or the nesting window has passed (for suspected nest locations).	Change in mortality: predicted to be low magnitude, regional in geographical extent, long-term duration, infrequent, and fully reversible.	The predicted residual effect of change in mortality is not expected to alter the integrity of the regional populations short-eared owl to the point where they are not sustainable or available to contribute to ecological functions.
			• On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Operation			
			• Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.	Decommissioning			
Terrestrial Environment	Yellow Rail	Amount of habitat that is altered or lost relative to its availability in the Terrestrial RSA.	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, leveling and grading of the Project Area. • Water management (including treatment and site runoff). • Surface water withdrawal. • On-site and off-site operation of vehicles and transport of materials.	Construction	• Site clearing and other works that involve disturbance of vegetation and/or soil will be conducted outside of the yellow rail nesting season, when practical. The breeding and nesting season for yellow rail in Saskatchewan typically spans a period from May 1 to July 15.	Alteration and/or loss of habitat: predicted to be low magnitude, local geographical extent, long-term duration, frequent, fully reversible.	Not Significant: the predicted residual effect of alteration and/or loss of habitat is not expected to alter the integrity of the habitat for yellow rail within the Terrestrial RSA to the

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures	Predicted Residual Effect	Significance
			• Air transportation for workers.		• In the event Project activities such as vegetation clearing and/or soil disturbance are required during the yellow rail breeding and nesting season, pre-disturbance wildlife clearance surveys will be conducted by a QP at that location within the Project Area before activities commence to identify the presence of yellow rail nests. • Active and/or suspected yellow rail nests identified during the pre-disturbance wildlife clearance surveys will be protected with a no-disturbance setback buffer consistent with regulatory guidelines (e.g., the 2017 SARGSS [SK MOE 2017]) in accordance with the level of the disturbance until the young have successfully fledged, the nest is confirmed as no longer active (e.g., abandoned or depredated), or the nesting window has passed (for suspected nest locations).		point where it is not sustainable or available to contribute to ecological functions.
			• Management of surface water (including seepage and site runoff). • Water release to surface water body. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Operation			
			• Site water management, treatment, and release. • Process water treatment and release. • Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.	Decommissioning			
		Yellow Rail mortalities directly or indirectly attributable to the Project.	• Development of access roads and airstrip. • Site preparation and earthworks; clearing, leveling and grading of the Project Area. • On-site and off-site operation of vehicles and transport of materials. • Air transportation for workers.	Construction		Change in mortality: predicted to be low magnitude, regional in geographical extent, long-term duration, infrequent, and fully reversible.	The predicted residual effect of change in mortality is not expected to alter the integrity of the regional populations of yellow rail to the point where they are not sustainable or available to
			• On-site and off-site operation of vehicles and transport of materials.	Operation			

Component	Wildlife SAR	Measurable Parameters	Project Activities Resulting in Primary Interactions	Project Phase	Species-Specific Mitigation Measures	Predicted Residual Effect	Significance
			• Air transportation for workers.				contribute to ecological functions.
			• Demolition and disposal of non-salvageable surface infrastructure and materials. • On-site and off-site operation of vehicles and transport of materials. • Reclamation of disturbed areas.	Decommissioning			

Table 5-2 Summary of Significance of the Cumulative Effects on Wildlife Species At Risk

Component	Valued Component	Key Indicator	Cumulative Effects	Summary of Significance of the Cumulative Effects
Terrestrial Environment	Wildlife Species at Risk	• Nine-spotted lady beetle • Transverse lady beetle • Yellow-banded bumble bee • Northern leopard frog • Little brown myotis • Northern myotis • Bank Swallow • Barn Swallow • Common Nighthawk • Horned Grebe • Olive-sided Flycatcher • Rusty Blackbird • Short-eared Owl • Yellow Rail	Alteration and/or loss of habitat.	**Not significant:** The cumulative effect of alteration and/or loss of habitat is not expected to alter the integrity of the Wildlife Species at Risk habitat within the Terrestrial RSA to the point where it is not sustainable or available to contribute to ecological functions.
			Change in mortality.	**Not significant:** The cumulative effect of change in mortality is not expected to alter the integrity of the regional populations to the point where they are not sustainable or available to contribute to ecological functions.

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