

Appendix A Wildlife Habitat Models

HABITAT MODELS

Little Brown Myotis

Little brown myotis are found in forested areas near large lakes and rivers, with roosting occurring in buildings, rocks, trees, and piles of wood. The little brown myotis model is based on covertime and proximity to water. All forest covertime within 1,000 m of a waterbody are included in the model to account for feeding opportunities.

"COVTYPE" = 211 OR "COVTYPE" = 212 OR "COVTYPE" = 213 OR "COVTYPE" = 221 OR "COVTYPE" = 231 OR "COVTYPE" = 34 OR "COVTYPE" = 82

Northern Myotis

Northern myotis are found in forested areas (aspen and aspen mixedwood are preferred) near large lakes and rivers, with roosting occurring in buildings, rocks, trees, and piles of wood. The little brown myotis model is based on covertime and proximity to water. All forest covertime within 1,000 m of a waterbody are included in the model to account for feeding opportunities.

"COVTYPE" = 211 OR "COVTYPE" = 212 OR "COVTYPE" = 213 OR "COVTYPE" = 221 OR "COVTYPE" = 231 OR "COVTYPE" = 34 OR "COVTYPE" = 82

Yellow Rail

Yellow rails are typically found in wet sedge meadows and marshes and range throughout Manitoba. The yellow rail model is based on a single covertime, wetland herb, and has no other restrictions.

"COVTYPE" = 83

Least Bittern

Least bitterns are associated with freshwater marshes with dense tall growth, particularly cattails. Model includes only wetland covertime.

"COVTYPE" = 80 OR "COVTYPE" = 81 OR "COVTYPE" = 82 OR "COVTYPE" = 83

Short-eared Owl

Short-eared owls are found in open country including large expanses of prairie and tundra where they prey on a number of small mammals. The short-eared owl model has no geographic restrictions and uses grassland, perennial crops and pasture, and wetland herb covertime.

"COVTYPE" = 100 OR "COVTYPE" = 110 OR "COVTYPE" = 121 OR "COVTYPE" = 83

Common Nighthawk

Common nighthawks are most often seen overhead foraging for insects at dusk and dawn in urban and wilderness environments. Common nighthawks nest in exposed areas such as beaches, slashburned forests, prairie, sagebrush, and especially on exposed areas and rock

outcrops where they are camouflaged. The common nighthawk model consisted of the following covertypes: wetland herb, low shrub, grasslands, open and sparse coniferous, broadleaf and mixedwood forests, and burns (coniferous, broadleaf, and mixedwood dense covertypes less than ten years in age).

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("COVTYPE" =83 OR "COVTYPE" =52 OR "COVTYPE" =110) OR( "COVTYPE" = 212 OR  
"COVTYPE" = 213 OR "COVTYPE" = 222 OR "COVTYPE" = 223 OR "COVTYPE" = 232) OR(  
"COVTYPE" = 211 OR "COVTYPE" = 221 OR "COVTYPE" = 231 AND ( "FIRE_YEAR" >2000  
)
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Whip-poor-will

Whip-poor-will are rarely observed visually, however their call is often heard. While nests are rarely observed, calling adults are typically found in dry deciduous or mixed forests with little to understory. The whip-poor-will model consisted of dense broadleaf and mixedwood forests

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"COVTYPE" = 221 OR "COVTYPE" = 231
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Rusty Blackbird

Rusty blackbirds are typically found in wet coniferous and mixedwood forests, particularly in open wet areas such as lake and stream edges and beaver floods. In addition, rusty blackbirds can be seen in open areas in forests caused by burns. The covertypes used in the model include all wetland types and all forest types less than 20 years of age to simulate burns.

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( "COVTYPE" = 80 OR "COVTYPE" = 81 OR "COVTYPE" = 82 OR "COVTYPE" = 83 OR ( "FIRE_YEAR" >1990 AND( "COVTYPE" = 211 OR "COVTYPE" = 212 OR "COVTYPE" = 213 OR "COVTYPE" = 221 OR "COVTYPE" = 231 )))
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Moose

Moose habitat includes forests, shrubs, and wetlands habitats that are commonly associated with willow, an important forage species. In the absence of such habitat, moose select stands that originate after fire or logging, which feature early successional vegetation.

Primary

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("COVTYPE" = 211 OR "COVTYPE" = 212 OR "COVTYPE" = 213 OR "COVTYPE" = 221 OR "COVTYPE" = 231 OR "COVTYPE" = 51) AND "FIRE_YEAR" <1952
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Secondary

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("COVTYPE" = 211 OR "COVTYPE" = 212 OR "COVTYPE" = 213 OR "COVTYPE" = 221 OR "COVTYPE" = 231 OR "COVTYPE" = 51) AND "FIRE_YEAR" >1952
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All forest type stands and shrub less than 60 years of age is primary.

All forest type stands and shrub greater than 60 years of age is secondary.

American Marten

American martens are associated with contiguous, mature, or old forest with a minimum of 30% canopy cover. A well-established understory of fallen logs and stumps is important for denning and dense shrub and forb vegetation supports small mammal prey populations.

"COVTYPE" = 211 OR "COVTYPE" = 231 OR "COVTYPE" = 212 OR "COVTYPE" = 232 OR "COVTYPE" = 213

Bald Eagle

Bald eagles are found in forested areas near large lakes and rivers, particularly during the breeding season. Nesting occurs in old-growth forests with edge. The bald eagle model is based on covertype and proximity to water. All forest covertypes within 500 m of a waterbody are included in the model.

("COVTYPE" = 210 OR "COVTYPE" = 211 OR "COVTYPE" = 212 OR "COVTYPE" = 220 OR "COVTYPE" = 221 OR "COVTYPE" = 222 OR "COVTYPE" = 230 OR "COVTYPE" = 231 OR "COVTYPE" = 232)

Spruce Grouse

Spruce grouse are closely associated with mature mixedwood forests, particularly conifer dominant forests or spruce bogs. The model for spruced grouse is fairly broad and is based on covertypes for coniferous and mixedwood forests.

"COVTYPE" = 211 OR "COVTYPE" = 212 OR "COVTYPE" = 213 OR "COVTYPE" = 81

Canada Warbler

Canada warblers are found throughout deciduous forests and to a lesser extent coniferous forests; however they are most prominent in mixedwood forests with a well developed understory. The Canada warbler model incorporates both open and dense broadleaf and mixedwood forests.

"COVTYPE" = 221 OR "COVTYPE" = 222 OR "COVTYPE" = 232 OR "COVTYPE" = 231

Olive-Sided Flycatcher

Olive-sided flycatchers are found along the edges of natural and anthropogenic openings in coniferous, broadleaf, and mixedwood early successional forests. The olive-sided flycatcher model uses covertypes for open and sparse coniferous, broadleaf, and mixedwood forests.

"COVTYPE" = 80 OR "COVTYPE" = 81 OR "COVTYPE" = 82 OR "COVTYPE" = 83 OR "COVTYPE" = 212 OR "COVTYPE" = 213 OR "COVTYPE" = 233 OR "COVTYPE" = 232 OR "COVTYPE" = 223 OR "COVTYPE" = 222 OR "COVTYPE" = 211 OR "COVTYPE" = 221 OR "COVTYPE" = 231

MODEL RESULTS

Table A-1: Modeled Results of Proportions of Listed Species and Valued Ecosystem Component Habitat Crossed by the LWESI Transmission Project along Alternative Routes A, B, and C

Group	Species	Area (km ²)			Proportion of Route (%)		
		Route A	Route B	Route C	Route A	Route B	Route C
Listed species	Little brown myotis	100.19	94.14	86.66	68	64	61
	Northern myotis	100.19	94.14	86.66	68	64	61
	Yellow rail	0.49	0.53	0.63	0	0	0
	Least bittern	49.19	43.83	45.84	33	30	32
	Short-eared owl	5.95	6.01	5.64	4	4	4
	Common nighthawk	67.05	72.49	68.42	45	49	48
	Whip-poor-will	17.93	16.55	14.98	12	11	11
	Rusty blackbird	77.85	72.44	77.67	53	49	54
Valued environmental components	Moose (primary habitat)	49.33	56.47	48.17	33	38	34
	Moose (secondary habitat)	42.81	42.48	45.29	29	29	32
	American marten	65.97	71.21	66.88	45	49	47
	Bald eagle	20.55	20.14	16.13	14	14	11
	Spruce grouse	62.07	68.15	66.21	42	46	46
	Olive-sided flycatcher	122.78	122.08	119.10	83	83	84
	Canada warbler	17.93	16.55	14.98	12	11	11
Total		148.16	146.70	142.62			

Table A-2: Modeled Results of Proportions of Listed Species and Valued Environmental Component Habitat Crossed by the LWESI Transmission Project along the Preferred Route

Group	Species	Habitat in Project Study Area (km ²)	Habitat in Transmission Line Footprint (km ²)	Proportion in Project Study Area Affected by Transmission Line (%)	Habitat in Manigotagan Corner Station Footprint (km ²)	Proportion in Project Study Area Affected by Manigotagan Corner Station (%)
Valued environmental components	Moose (primary habitat)	867.94	1.48	0.07	<0.01	<0.01
	Moose (secondary habitat)	348.09	1.30	0.06	0.01	<0.01
	American marten	826.48	1.93	0.09	0	0
	Bald eagle	231.76	0.52	0.02	0	0
	Spruce grouse	837.77	1.69	0.08	0	0
	Olive-sided flycatcher	1645.64	3.62	0.17	0.04	<0.01
	Canada warbler	306.58	0.44	0.02	0	0
	Little brown myotis	591.69	3.14	0.15	0.04	<0.01
	Northern myotis	591.69	3.14	0.15	0.04	<0.01
	Yellow rail	42.35	0	0	0	0
Listed species	Least bittern	672.29	1.60	0.08	0.04	<0.01
	Short-eared owl	124.50	0.14	0.01	0	0
	Common nighthawk	909.05	1.72	0.08	0	0
	Whip-poor-will	306.58	0.44	0.02	0	0
	Rusty blackbird	773.69	2.42	0.11	0.04	<0.01

Appendix B Mammal Species in the Project Study Area

Mammal Species in the Project Study Area

Group	Common Name	Scientific Name	Nature of Occurrence ^a	Breeding Status ¹
Small mammals	Masked shrew	<i>Sorex cinereus</i>	Resident	Breeding
	Water shrew	<i>Sorex palustris</i>	Resident	Breeding
	Arctic shrew	<i>Sorex arcticus</i>	Resident	Breeding
	Pygmy shrew	<i>Sorex hoyi</i>	Resident	Breeding
	Northern short-tailed shrew	<i>Blarina brevicauda</i>	Resident	Breeding
	Star-nosed mole	<i>Condylura cristata</i>	Resident	Breeding
	Little brown myotis	<i>Myotis lucifugus</i>	Resident	Breeding
	Northern myotis	<i>Myotis septentrionalis</i>	Migratory	Breeding
	Silver-haired bat	<i>Lasionycteris noctivagans</i>	Migratory	Breeding
	Big brown bat	<i>Eptesicus fuscus</i>	Resident	Breeding
	Eastern red bat	<i>Lasiurus borealis</i>	Migratory	Breeding
	Hoary bat	<i>Lasiurus cinereus</i>	Migratory	Breeding
	Eastern chipmunk	<i>Tamias striatus</i>	Resident	Breeding
	Least chipmunk	<i>Tamias minimus</i>	Resident	Breeding
	Red squirrel	<i>Tamiasciurus hudsonicus</i>	Resident	Breeding
	Northern flying squirrel	<i>Glaucomys sabrinus</i>	Resident	Breeding
	Deer mouse	<i>Peromyscus maniculatus</i>	Resident	Breeding
	Southern red-backed vole	<i>Clethrionomys gapperi</i>	Resident	Breeding
	Southern bog lemming	<i>Synaptomys cooperi</i>	Resident	Breeding
	Northern bog lemming	<i>Synaptomys borealis</i>	Resident	Breeding
	Heather vole	<i>Phenacomys intermedius</i>	Resident	Breeding
	Meadow vole	<i>Microtus pennsylvanicus</i>	Resident	Breeding
	House mouse	<i>Mus musculus</i>	Resident	Breeding
Meadow jumping mouse	<i>Zapus hudsonius</i>	Resident	Breeding?	
Woodland jumping mouse	<i>Napaeozapus insignis</i>	Resident	Breeding	
Aquatic furbearers	American beaver	<i>Castor canadensis</i>	Resident	Breeding
	Muskrat	<i>Ondatra zibethicus</i>	Resident	Breeding
	River otter	<i>Lontra canadensis</i>	Resident	Breeding
	American mink	<i>Mustela vison</i>	Resident	Breeding
Terrestrial furbearers	Snowshoe hare	<i>Lepus americanus</i>	Resident	Breeding
	White-tailed jack rabbit	<i>Lepus townsendii</i>	Resident?	Non-breeding?
	Woodchuck	<i>Marmota monax</i>	Resident	Breeding
	American porcupine	<i>Erethizon dorsatum</i>	Resident	Breeding
	Arctic fox	<i>Alopex lagopus</i>	Resident- nomadic?	Non-breeding?
	Red fox	<i>Vulpes vulpes</i>	Resident	Breeding
	Raccoon	<i>Procyon lotor</i>	Resident	Breeding
	American marten	<i>Martes americana</i>	Resident	Breeding
	Fisher	<i>Martes pennanti</i>	Resident	Breeding
Ermine	<i>Mustela erminea</i>	Resident	Breeding	

Mammal Species in the Project Study Area

Group	Common Name	Scientific Name	Nature of Occurrence ^a	Breeding Status ¹
Terrestrial furbearers	Long-tailed weasel	<i>Mustela frenata</i>	Resident?	Non-breeding?
	Least weasel	<i>Mustela nivalis</i>	Resident	Breeding
	Wolverine	<i>Gulo gulo</i>	Resident	Breeding
	American badger	<i>Taxidea taxus</i>	Resident?	Non-breeding?
	Striped skunk	<i>Mephitis mephitis</i>	Resident	Breeding
	Lynx	<i>Lynx canadensis</i>	Resident	Breeding
	Bobcat	<i>Lynx rufus</i>	Resident?	Breeding?
	Coyote	<i>Canis latrans</i>	Resident	Breeding
Large carnivores	Gray wolf	<i>Canis lupus</i>	Resident	Breeding
	American black bear	<i>Ursus americanus</i>	Resident	Breeding
	Cougar	<i>Puma concolor</i>	Resident	Breeding?
Ungulates	Woodland caribou	<i>Rangifer tarandus</i>	Resident- nomadic	Breeding
	White-tailed deer	<i>Odocoileus virginianus</i>	Resident	Breeding
	Moose	<i>Alces alces</i>	Resident	Breeding

a) Question mark indicates uncertainty

Appendix C Results of Bat Survey

Results of Bat Survey

Land Cover Classification Covertypes	Point	Species	Number
Water	ES.B-186		
	ES.B-097		
	ES.B-183	Unknown	1
	ES.B-187		
Exposed land	4		
	5	Unknown bat	1
	9		
	11		
	ES.B-003		
	ES.B-010	Unknown bat	2
	ES.B-011		
	ES.B-021		
	ES.B-025	Hoary bat	1
		Unknown bat	1
	ES.B-031		
	ES.B-034		
	ES.B-047		
	ES.B-049	Unknown bat	1
	ES.B-050	Hoary bat	1
	ES.B-052		
	ES.B-055		
	ES.B-056		
	ES.B-060	Hoary bat	1
	ES.B-064		
	ES.B-066		
	ES.B-070	Unknown	1
	ES.B-072		
	ES.B-076		
	ES.B-079		
	ES.B-087		
	ES.B-091	Unknown	1
	ES.B-107		
	ES.B-112	Hoary bat	1
	ES.B-119		
ES.B-126	Hoary bat	1	
ES.B-130			
ES.B-134			

Results of Bat Survey

Land Cover Classification Covertypes	Point	Species	Number
Exposed land	ES.B-136		
	ES.B-139		
	ES.B-141		
	ES.B-143		
	ES.B-146		
	ES.B-156		
	ES.B-173		
	ES.B-206		
	ES.B-224		
Shrub tall	ES.B-061	Hoary bat	1
	ES.B-062	Little brown myotis	1
	ES.B-150		
	ES.B-175	Hoary bat	1
Wetland shrub	8		
	ES.B-006		
	ES.B-016		
	ES.B-026	Hoary bat	1
	ES.B-027		
	ES.B-036		
	ES.B-041		
	ES.B-043		
	ES.B-044		
	ES.B-109		
	ES.B-131		
	ES.B-218	Hoary bat	1
Grassland	ES.B-002		
	ES.B-077		
	ES.B-185		
Cultivated agricultural land	10		
Mixedwood dense	ES.B-083		
	WPWL		

Appendix D Bird Species in the Project Study Area

Bird Species in the Project Study Area

Group	Common Name	Scientific Name	Breeding Status ^(a)	Observed During Field Studies	Present in Project Region ^(b)
Waterfowl and other waterbirds	Red-throated loon	<i>Gavia stellata</i>	Non-Breeding		
	Common loon	<i>Gavia immer</i>	Breeding	Yes	Observed/Yes
	Greater white-fronted goose	<i>Anser albifrons</i>	Non-Breeding		
	Snow goose	<i>Chen caerulescens</i>	Non-Breeding		
	Ross's goose	<i>Chen rossii</i>	Non-Breeding		
	Canada goose	<i>Branta canadensis</i>	Breeding		Breeding/Yes
	Trumpeter swan	<i>Cygnus buccinators</i>	Non-Breeding		Observed
	Tundra swan	<i>Cygnus columbianus</i>	Non-Breeding		
	Wood duck	<i>Aix sponsa</i>	Breeding		Observed
	Gadwall	<i>Anas strepera</i>	Breeding?		
	American wigeon	<i>Anas americana</i>	Breeding		Observed
	American black duck	<i>Anas rubripes</i>	Breeding?		
	Mallard	<i>Anas platyrhynchos</i>	Breeding		Breeding
	Blue-winged teal	<i>Anas discors</i>	Breeding		Breeding/Yes
	Northern shoveler	<i>Anas clypeata</i>	Breeding		Breeding
	Northern pintail	<i>Anas acuta</i>	Breeding?		
	Green-winged teal	<i>Anas crecca</i>	Breeding		Observed
	Canvasback	<i>Aythya valisineria</i>	Breeding?		
	Redhead	<i>Aythya Americana</i>	Breeding?		
	Ring-necked duck	<i>Aythya collaris</i>	Breeding		Breeding
	Greater scaup	<i>Aythya marila</i>	Non-Breeding?		
	Lesser scaup	<i>Aythya affinis</i>	Breeding		Observed
	Surf scoter	<i>Melanitta perspicillata</i>	Non-Breeding		
	White-winged scoter	<i>Melanitta fusca</i>	Breeding?		
	Black scoter	<i>Melanitta nigra</i>	Non-Breeding		
	Long-tailed duck	<i>Clangula hyemalis</i>	Non-Breeding		
	Bufflehead	<i>Bucephala albeola</i>	Breeding?		Breeding
	Common goldeneye	<i>Bucephala clangula</i>	Breeding		Breeding
	Hooded merganser	<i>Lophodytes cucullatus</i>	Breeding		Breeding
	Common merganser	<i>Mergus merganser</i>	Breeding		Breeding/Yes
	Red-breasted merganser	<i>Mergus serrator</i>	Breeding?		
	Ruddy duck	<i>Oxyura jamaicensis</i>	Breeding?		
	Yellow rail	<i>Coturnicops noveboracensis</i>	Breeding		
King rail	<i>Rallus elegans</i>	Non-Breeding			
Virginia rail	<i>Rallus limicola</i>	Breeding			
Sora	<i>Porzana carolina</i>	Breeding		Observed	
American coot	<i>Fulica americana</i>	Breeding			
Sandhill crane	<i>Grus canadensis</i>	Breeding		Observed	

Bird Species in the Project Study Area

Group	Common Name	Scientific Name	Breeding Status ^(a)	Observed During Field Studies	Present in Project Region ^(b)
	Whooping crane	<i>Grus americana</i>	Non-Breeding		
Colonial waterbirds	Pied-billed grebe	<i>Podilymbus podiceps</i>	Breeding		
	Horned grebe	<i>Podiceps auritus</i>	Non-Breeding?		
	Red-necked grebe	<i>Podiceps grisegna</i>	Breeding		
	Eared grebe	<i>Podiceps nigricollis</i>	Non-Breeding?		
	Western grebe	<i>Aechmophorus occidentalis</i>	Non-Breeding		
	American white pelican	<i>Pelicanus erythrorhynchos</i>	Breeding?		Breeding/Yes
	Double-crested cormorant	<i>Phalacrocorax auritus</i>	Breeding?		Breeding/Yes
	American bittern	<i>Botaurus lentiginosus</i>	Breeding		Observed
	Least bittern	<i>Ixobrychus exilis</i>	Non-Breeding?		
	Great blue heron	<i>Ardea Herodias</i>	Breeding		Observed/Yes
	Great egret	<i>Casmerodius albus</i>	Non-Breeding		
	Snowy egret	<i>Egretta thula</i>	Non-Breeding		
	Little blue heron	<i>Egretta caerulea</i>	Non-Breeding		
	Tricolored heron	<i>Egretta tricolor</i>	Non-Breeding		
	Green heron	<i>Butorides virescens</i>	Non-Breeding?		
	Black crowned night-heron	<i>Nycticorax nycticorax</i>	Non-Breeding?		
	Turkey vulture	<i>Cathartes aura</i>	Breeding		Observed/Yes
	Black-bellied plover	<i>Pluviaws squatarola</i>	Non-Breeding		
	American golden plover	<i>Pluvialis dominica</i>	Non-Breeding		
	Semipalmated plover	<i>Charadrius semipalmatus</i>	Non-Breeding		
	Piping plover	<i>Charadrius melodus</i>	Breeding		
	Killdeer	<i>Charadrius vociferus</i>	Breeding		Breeding
	American avocet	<i>Recurvirostra Americana</i>	Non-Breeding		
	Greater yellowlegs	<i>Tringa melanoleuca</i>	Breeding		
	Lesser yellowlegs	<i>Tringa flavipes</i>	Non-Breeding?		
	Solitary sandpiper	<i>Tringa solitaria</i>	Breeding		Observed
	Willet	<i>Catoptrophours semipalmatus</i>	Non-Breeding		
	Spotted sandpiper	<i>Atitis macularia</i>	Breeding		Observed
	Upland sandpiper	<i>Bartramia longicauda</i>	Breeding?		
	Whimbrel	<i>Numenis phaeopus</i>	Non-Breeding		
	Hudsonian godwit	<i>Limosa haemastica</i>	Non-Breeding		
	Marbled godwit	<i>Limosa fedoa</i>	Breeding?		Observed
	Ruddy turnstone	<i>Arenaria interpres</i>	Non-Breeding		
Red knot	<i>Calidris canutus</i>	Non-Breeding			
Sanderling	<i>Calidris alba</i>	Non-Breeding			
Semipalmated sandpiper	<i>Calidris pusilla</i>	Non-Breeding			

Bird Species in the Project Study Area

Group	Common Name	Scientific Name	Breeding Status ^(a)	Observed During Field Studies	Present in Project Region ^(b)
Colonial waterbirds	Least sandpiper	<i>Calidris minutilla</i>	Non-Breeding		
	White-rumped sandpiper	<i>Calidris fuscicollis</i>	Non-Breeding		
	Baird's sandpiper	<i>Calidris bairdii</i>	Non-Breeding		
	Pectoral sandpiper	<i>Calidris melanotos</i>	Non-Breeding		
	Dunlin	<i>Calidris alpina</i>	Non-Breeding		
	Stilt sandpiper	<i>Calidris himantopus</i>	Non-Breeding		
	Buff-breasted sandpiper	<i>Tryngites subruficollis</i>	Non-Breeding		
	Short-billed dowitcher	<i>Limnodromus griseus</i>	Non-Breeding		
	Long-billed dowitcher	<i>Limnodromus scolopaceus</i>	Non-Breeding		
	Wilson's snipe	<i>Gallinago gallinago</i>	Breeding	Yes	Observed/Yes
	American woodcock	<i>Scolopax minor</i>	Breeding		Observed
	Wilson's phalarope	<i>Phalaropus tricolor</i>	Breeding?		
	Red-necked phalarope	<i>Phalaropus lobatus</i>	Non-Breeding		
	Red phalarope	<i>Phalaropusfulcarius</i>	Non-Breeding		
	Parasitic jaeger	<i>Stercorarius parasiticus</i>	Non-Breeding		
	Long-tailed jaeger	<i>Stercorarius longicaudus</i>	Non-Breeding		
	Franklin's gull	<i>Larus pipixcan</i>	Breeding?		
	Bonaparte's gull	<i>Larusphiladelphia</i>	Breeding		Breeding
	Ring-billed gull	<i>Larus delawarensis</i>	Breeding	Yes	Observed
	California gull	<i>Larus californicus</i>	Non-Breeding		
	Herring gull	<i>Larus argentatus</i>	Breeding		Breeding
	Thayer's gull	<i>Larus thayeri</i>	Non-Breeding		
	Iceland gull	<i>Larus glaucooides</i>	Non-Breeding		
	Glaucous gull	<i>Larus hyperboreus</i>	Non-Breeding		
	Sabine's gull	<i>Xema sabini</i>	Non-Breeding		
	Caspian tern	<i>Sterna caspia</i>	Breeding?		Observed
	Common tern	<i>Sterna hirundo</i>	Breeding		Breeding
	Arctic tern	<i>Sterna paradisaea</i>	Non-Breeding		
Forster's tern	<i>Sterna forsteri</i>	Breeding?			
Least tern	<i>Sterna antillarum</i>	Non-Breeding?			
Black tern	<i>Chlidonias niger</i>	Breeding			
Birds of prey	Osprey	<i>Pandion haliaetus</i>	Breeding		
	Bald eagle	<i>Haliaeetus leucocephalus</i>	Breeding		Breeding
	Northern harrier	<i>Circus cyaneus</i>	Breeding		Observed/Yes
	Sharp-shinned hawk	<i>Accipiter striatus</i>	Breeding		
	Cooper's hawk	<i>Accipiter cooperii</i>	Breeding		Observed
	Northern goshawk	<i>Accipiter gentilis</i>	Breeding		Yes
	Broad-winged hawk	<i>Buteo platypterus</i>	Breeding	Yes	Observed

Bird Species in the Project Study Area

Group	Common Name	Scientific Name	Breeding Status ^(a)	Observed During Field Studies	Present in Project Region ^(b)
Birds of prey	Swainson's hawk	<i>Buteo swainsoni</i>	Non-Breeding		
	Red-tailed hawk	<i>Buteo jamaicensis</i>	Breeding		Observed/Yes
	Ferruginous hawk	<i>Buteo regalis</i>	Non-Breeding		
	Rough-legged hawk	<i>Buteo lagopus</i>	Non-Breeding		
	Golden eagle	<i>Aquila chrysaetos</i>	Non-Breeding?		
	American kestrel	<i>Falco sparverius</i>	Breeding		Breeding/Yes
	Merlin	<i>Falco columbarius</i>	Breeding		
	Gyr Falcon	<i>Falco rusticolus</i>	Non-Breeding		
	Peregrine falcon	<i>Falco peregrinus</i>	Non-Breeding		
	Prairie falcon	<i>Falco mexicanus</i>	Non-Breeding		
	Barn owl	<i>Tyto alba</i>	Non-Breeding		
	Eastern screech owl	<i>Otus asio</i>	Breeding?		
	Great horned owl	<i>Bubo virginianus</i>	Breeding		Observed
	Snowy owl	<i>Nyctea scandiaca</i>	Non-Breeding		
	Northern hawk owl	<i>Surnia ulula</i>	Breeding		Observed/Yes
	Burrowing owl	<i>Athene cunicularia</i>	Non-Breeding		
	Barred owl	<i>Strix varia</i>	Breeding		Observed/Yes
	Great gray owl	<i>Strix nebulosa</i>	Breeding		Observed
	Long-eared owl	<i>Asio otus</i>	Breeding		Observed/Yes
	Short-eared owl	<i>Asio flammeus</i>	Breeding?		Observed
Boreal owl	<i>Aegolius funereus</i>	Breeding		Observed	
Northern saw-whet owl	<i>Aegolius acadicus</i>	Breeding		Observed	
Upland game birds	Gray partridge	<i>Perdix perdix</i>	Non-Breeding?		
	Ring-necked pheasant	<i>Phasianus colchicus</i>	Non-Breeding		
	Ruffed grouse	<i>Bonasa umbellus</i>	Breeding		Breeding
	Spruce grouse	<i>Dendragapus canadensis</i>	Breeding		Observed
	Willow ptarmigan	<i>Lagopus lagopus</i>	Non-Breeding		
	Sharp-tailed grouse	<i>Tympanuchus phasianellus</i>	Breeding		Observed
	Wild turkey	<i>Meleagris gallopavo</i>	Non-Breeding?		
Woodpeckers	Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>	Breeding		
	Red-bellied woodpecker	<i>Melanerpes carolinus</i>	Non-Breeding?		
	Yellow-bellied sapsucker	<i>Sphyrapicus varius</i>	Breeding		Breeding
	Downy woodpecker	<i>Picoides pubescens</i>	Breeding	Yes	Observed
	Hairy woodpecker	<i>Picoides villosus</i>	Breeding	Yes	Observed
	Three-toed woodpecker	<i>Picoides tridactylus</i>	Breeding		Breeding
	Black-backed woodpecker	<i>Picoides arctus</i>	Breeding		

Bird Species in the Project Study Area

Group	Common Name	Scientific Name	Breeding Status ^(a)	Observed During Field Studies	Present in Project Region ^(b)
Woodpeckers	Northern flicker (yellow-shafted)	<i>Colaptes auratus</i>	Breeding	Yes	Observed
	Pileated woodpecker	<i>Dryocopus pileatus</i>	Breeding	Yes	Observed
Songbirds and other birds	Rock dove	<i>Columba livia</i>	Breeding		Observed
	Mourning dove	<i>Zenaida macroura</i>	Breeding		Observed
	Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>	Breeding	Yes	Observed
	Yellow-billed cuckoo	<i>Coccyzus americanus</i>	Non-Breeding		
	Common nighthawk	<i>Chordeiles minor</i>	Breeding	Yes	Yes
	Whip-poor-will	<i>Caprimulgus vociferus</i>	Breeding	Yes	Observed
	Chimney swift	<i>Chaetura pelagica</i>	Breeding?		
	Ruby-throated hummingbird	<i>Archilochus colubris</i>	Breeding		Observed
	Rufous hummingbird	<i>Selasphorus rufus</i>	Non-Breeding		
	Belted kingfisher	<i>Ceryle alcyon</i>	Breeding		Observed
	Olive-sided flycatcher	<i>Contopus borealis</i>	Breeding	Yes	Observed
	Western wood-pewee	<i>Contopus sordidulus</i>	Breeding?		
	Eastern wood-pewee	<i>Contopus virens</i>	Breeding	Yes	Observed
	Yellow-bellied flycatcher	<i>Empidonax flaviventris</i>	Breeding		Observed
	Alder flycatcher	<i>Empidonax alnorum</i>	Breeding	Yes	Observed/Yes
	Willow flycatcher	<i>Empidonax traillii</i>	Non-Breeding?		
	Least flycatcher	<i>Empidonax minimus</i>	Breeding	Yes	Observed/Yes
	Eastern phoebe	<i>Sayornis phoebe</i>	Breeding		Breeding
	Great crested flycatcher	<i>Myiarchus crinitus</i>	Breeding	Yes	Observed
	Western kingbird	<i>Tyrannus verticalis</i>	Breeding		Observed
	Eastern kingbird	<i>Tyrannus tyrannus</i>	Breeding	Yes	Observed/Yes
	Scissor-tailed flycatcher	<i>Tyrannus forficatus</i>	Non-Breeding		
	Loggerhead shrike	<i>Lanius ludocicianus</i>	Non-Breeding?		
	Northern shrike	<i>Lanius excubitor</i>	Non-Breeding		
	Yellow-throated vireo	<i>Vireo flavifrons</i>	Non-Breeding?		
	Solitary vireo (blue-headed)	<i>Vireo solitarius</i>	Breeding	Yes	
	Warbling vireo	<i>Vireo gilvus</i>	Breeding	Yes	Observed
	Philadelphia vireo	<i>Vireo philadelphicus</i>	Breeding	Yes	Observed
	Red-eyed vireo	<i>Vireo olivaceus</i>	Breeding	Yes	Observed
	Gray jay	<i>Perisoreus canadensis</i>	Breeding	Yes	Breeding/Yes
	Blue jay	<i>Cyanocitta cristata</i>	Breeding	Yes	Observed
	Steller's jay	<i>Cyanocitta stelleri</i>	Non-Breeding		
Black-billed magpie	<i>Pica pica</i>	Breeding		Breeding	
American crow	<i>Corvus brachyrhynchos</i>	Breeding	Yes	Breeding/Yes	
Common raven	<i>Corvus corax</i>	Breeding	Yes	Breeding	
Horned lark	<i>Eremophila alpestris</i>	Breeding?			

Bird Species in the Project Study Area

Group	Common Name	Scientific Name	Breeding Status ^(a)	Observed During Field Studies	Present in Project Region ^(b)
Songbirds and other birds	Purple martin	<i>Progne subis</i>	Breeding		Observed
	Tree swallow	<i>Tachycineta bicolor</i>	Breeding		Breeding
	Northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>	Breeding?		
	Bank swallow	<i>Riparia riparia</i>	Breeding		Breeding
	Cliff swallow	<i>Petrochelidon pyrrhonota</i>	Breeding		Breeding/Yes
	Barn swallow	<i>Hirundo rustica</i>	Breeding		Breeding/Yes
	Black-capped chickadee	<i>Poecile atricapillus</i>	Breeding	Yes	Breeding
	Boreal chickadee	<i>Poecile hudsonicus</i>	Breeding	Yes	Observed/Yes
	Red-breasted nuthatch	<i>Sitta canadensis</i>	Breeding	Yes	Observed
	White-breasted nuthatch	<i>Sitta carolinensis</i>	Breeding		Observed
	Brown creeper	<i>Certhia americana</i>	Breeding	Yes	Breeding
	House wren	<i>Troglodytes aedon</i>	Breeding	Yes	Observed
	Winter wren	<i>Troglodytes troglodytes</i>	Breeding		Breeding
	Sedge wren	<i>Cistothorus platensis</i>	Breeding		Observed
	Marsh wren	<i>Cistothorus palustris</i>	Breeding		Observed
	Golden-crowned kinglet	<i>Regulus satrapa</i>	Breeding	Yes	Observed
	Ruby-crowned kinglet	<i>Regulus calendula</i>	Breeding	Yes	Observed
	Eastern bluebird	<i>Sialia sialis</i>	Breeding		Observed
	Mountain bluebird	<i>Sialia currucoides</i>	Breeding?		
	Townsend's solitaire	<i>Myadestes townsendi</i>	Non-Breeding		
	Veery	<i>Catharus fuscescens</i>	Breeding	Yes	Observed
	Gray-cheeked thrush	<i>Catharus minimus</i>	Non-Breeding		
	Swainson's thrush	<i>Catharus ustulatus</i>	Breeding	Yes	Observed
	Hermit thrush	<i>Catharus guttatus</i>	Breeding	Yes	Observed
	Wood thrush	<i>Hylocichla mustelina</i>	Non-Breeding?		
	American robin	<i>Turdus migratorius</i>	Breeding	Yes	Breeding/Yes
	Varied thrush	<i>Ixoreus naevius</i>	Non-Breeding		
	Gray catbird	<i>Dumetella carolinensis</i>	Breeding		Observed
	Northern mockingbird	<i>Mimus polyglottos</i>	Breeding?		Breeding
	Brown thrasher	<i>Toxostoma rufum</i>	Breeding		Observed
	European starling	<i>Sturnus vulgaris</i>	Breeding		Breeding/Yes
	American pipit (water)	<i>Anthus rubescens</i>	Non-Breeding		
	Sprague's pipit	<i>Anthus spragueii</i>	Breeding?		
	Bohemian waxwing	<i>Bombycilla garrulus</i>	Non-Breeding?		
	Cedar waxwing	<i>Bombycilla cedrorum</i>	Breeding	Yes	Breeding/yes
	Golden-winged warbler	<i>Vermivora chrysoptera</i>	Breeding?		
	Tennessee warbler	<i>Vermivora peregrina</i>	Breeding	Yes	Observed
	Orange-crowned warbler	<i>Vermivora celata</i>	Breeding		

Bird Species in the Project Study Area

Group	Common Name	Scientific Name	Breeding Status ^(a)	Observed During Field Studies	Present in Project Region ^(b)
Songbirds and other birds	Nashville warbler	<i>Vermivora ruficapilla</i>	Breeding	Yes	Breeding
	Northern parula	<i>Parula americana</i>	Breeding	Yes	Observed
	Yellow warbler	<i>Dendroica petechia</i>	Breeding	Yes	Breeding/Yes
	Chestnut-sided warbler	<i>Dendroica pensylvanica</i>	Breeding	Yes	Observed
	Magnolia warbler	<i>Dendroica magnolia</i>	Breeding	Yes	Observed
	Cape May warbler	<i>Dendroica tigrina</i>	Breeding	Yes	
	Black-throated blue warbler	<i>Dendroica caerulescens</i>	Non-Breeding?	Yes	
	Yellow-rumped warbler	<i>Dendroica coronata</i>	Breeding	Yes	Observed
	Black-throated green Warbler	<i>Dendroica virens</i>	Breeding		Observed
	Blackburnian warbler	<i>Dendroica fusca</i>	Breeding	Yes	Observed
	Pine warbler	<i>Dendroica pinus</i>	Breeding		
	Palm warbler	<i>Dendroica palmarum</i>	Breeding		
	Bay-breasted warbler	<i>Dendroica castanea</i>	Breeding	Yes	
	Blackpoll warbler	<i>Dendroica striata</i>	Non-Breeding?		
	Cerulean warbler	<i>Dendroica cerulea</i>	Non-Breeding		
	Black-and-white warbler	<i>Mniotilta varia</i>	Breeding	Yes	Breeding
	American redstart	<i>Setophaga ruticilla</i>	Breeding	Yes	Breeding
	Ovenbird	<i>Seiurus aurocapillus</i>	Breeding	Yes	Observed/Yes
	Northern waterthrush	<i>Seiurus noveboracensis</i>	Breeding	Yes	Observed
	Connecticut warbler	<i>Oporornis agilis</i>	Breeding	Yes	Observed
	Mourning warbler	<i>Oporornis philadelphia</i>	Breeding	Yes	Breeding
	Common yellowthroat	<i>Geothlypis trichas</i>	Breeding	Yes	Breeding/Yes
	Wilson's warbler	<i>Wilsonia pusilla</i>	Breeding		
	Canada warbler	<i>Wilsonia canadensis</i>	Breeding	Yes	Observed
	Yellow-breasted Chat	<i>Icteria virens</i>	Non-Breeding		
	Scarlet tanager	<i>Piranga olivacea</i>	Breeding		Observed
	Eastern towhee	<i>Pipilo erythrophthalmus</i>	Breeding?		
	American tree sparrow	<i>Spizella arborea</i>	Non-Breeding		
	Chipping sparrow	<i>Spizella passerina</i>	Breeding	Yes	Breeding
	Clay-colored sparrow	<i>Spizella pallida</i>	Breeding		Observed
	Field sparrow	<i>Spizella pusilla</i>	Non-Breeding?		
	Vesper sparrow	<i>Poocetes gramineus</i>	Breeding		Observed
	Lark sparrow	<i>Chondestes grammacus</i>	Non-Breeding?		
	Savannah sparrow	<i>Passerculus sandwichensis</i>	Breeding		Observed
Grasshopper sparrow	<i>Ammodramus savannarum</i>	Non-Breeding?			
Baird's sparrow	<i>Ammodramus bairdii</i>	Non-Breeding?			
Le Conte's sparrow	<i>Ammodramus leconteii</i>	Breeding		Observed	

Bird Species in the Project Study Area

Group	Common Name	Scientific Name	Breeding Status ^(a)	Observed During Field Studies	Present in Project Region ^(b)
Songbirds and other birds	Nelson's sharp-tailed Sparrow	<i>Ammodramus nelsoni</i>	Breeding?		
	Fox sparrow	<i>Passerella iliaca</i>	Breeding?		
	Song sparrow	<i>Melospiza melodia</i>	Breeding		Breeding
	Lincoln's sparrow	<i>Melospiza lincolni</i>	Breeding	Yes	Observed
	Swamp sparrow	<i>Melospiza georgiana</i>	Breeding	Yes	Breeding
	White-throated sparrow	<i>Zonotrichia albicollis</i>	Breeding		Breeding/Yes
	Harris' sparrow	<i>Zonotrichia querula</i>	Non-Breeding		
	White-crowned sparrow	<i>Zonotrichia leucophrys</i>	Non-Breeding?		
	Golden-crowned sparrow	<i>Zonotrichia atricapilla</i>	Non-Breeding		
	Dark-eyed junco	<i>Junco hyemalis</i>	Breeding	Yes	Observed
	Lapland longspur	<i>Calcarius lapponicus</i>	Non-Breeding		
	Smith's longspur	<i>Calcarius pictus</i>	Non-Breeding		
	Chestnut-collared longspur	<i>Calcarius ornatus</i>	Non-Breeding?		
	Snow bunting	<i>Plectrophenax nivalis</i>	Non-Breeding		
	Northern cardinal	<i>Cardinalis cardinalis</i>	Non-Breeding?		
	Rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>	Breeding	Yes	Observed
	Blue grosbeak	<i>Guiraca caerulea</i>	Non-Breeding		
	Lazuli bunting	<i>Passerian amoena</i>	Non-Breeding		
	Indigo bunting	<i>Passerian cyanea</i>	Breeding		Observed
	Dickcissel	<i>Spiza americana</i>	Non-Breeding		
	Bobolink	<i>Dolichonyx oryzivorus</i>	Breeding		Observed
	Red-winged blackbird	<i>Agelaius phoeniceus</i>	Breeding	Yes	Breeding/Yes
	Eastern meadowlark	<i>Sturnella magna</i>	Non-Breeding?		
	Western meadowlark	<i>Sturnella neglecta</i>	Breeding		Observed
	Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	Breeding		
	Rusty blackbird	<i>Euphagus carolinus</i>	Breeding	Yes	Observed
	Brewer's blackbird	<i>Euphagus cyanocephalus</i>	Breeding		Breeding
	Common grackle	<i>Quiscalus quiscula</i>	Breeding		Breeding/Yes
	Brown-headed cowbird	<i>Molothrus ater</i>	Breeding		Observed
	Orchard oriole	<i>Icterus spurius</i>	Non-Breeding?		
	Baltimore oriole	<i>Icterus galbula</i>	Breeding		Breeding
	Gray-crowned rosy-finch	<i>Leucosticte lephrocotis</i>	Non-Breeding		
	Pine grosbeak	<i>Pinicola enucleator</i>	Breeding?		
Purple finch	<i>Carpodacus purpureus</i>	Breeding		Breeding	
House finch	<i>Carpodacus mexicanus</i>	Breeding?			
Red crossbill	<i>Loxia curvirostra</i>	Breeding			
White-winged crossbill	<i>Loxia leucoptera</i>	Breeding		Observed	
Common redpoll	<i>Carduelis flamma</i>	Non-Breeding			

Bird Species in the Project Study Area

Group	Common Name	Scientific Name	Breeding Status^(a)	Observed During Field Studies	Present in Project Region^(b)
Songbirds and other birds	Hoary redpoll	<i>Carduelis hornemanni</i>	Non-Breeding		
	Pine siskin	<i>Carduelis pinus</i>	Breeding	Yes	Observed/Yes
	American goldfinch	<i>Carduelis tristis</i>	Breeding	Yes	Breeding/Yes
	Evening grosbeak	<i>Coccothraustes vespertinus</i>	Breeding	Yes	Breeding
	House sparrow	<i>Passer domesticus</i>	Breeding		Observed

- a) Question mark indicates uncertainty
- b) Observed or breeding: data is from Manitoba Breeding Bird Atlas 2012
 Yes: data is from Joro Consultants Inc. 2011

Appendix E Results of Breeding Bird Survey

Results of Breeding Bird Survey

Land Cover Classification Coverture	Point	Species	Number
Dense tall shrub	D003	Blackburnian warbler	1
		White-throated sparrow	1
	D004	Common yellowthroat	1
		Ovenbird	1
		Veery	1
	D005	American redstart	1
		Chestnut-sided warbler	1
		Evening grosbeak	1
		Unknown yellow-rumped warbler	1
		White-throated sparrow	2
	D006	Ovenbird	1
		Red-eyed vireo	1
	D007	American robin	1
		Common raven	1
		Red-eyed vireo	1
		Rose-breasted grosbeak	1
		Veery	1
		White-throated sparrow	1
	D008	Unknown	1
		White-throated sparrow	1
	D009	Alder flycatcher	1
		American goldfinch	1
		Cedar waxwing	1
		Chestnut-sided warbler	2
	D012	American robin	1
		Black-capped chickadee	1
		Blue jay	1
		Cedar waxwing	1
		Common yellowthroat	1
		Evening grosbeak	1
		Nashville warbler	1
		Red-breasted nuthatch	1
		White-throated sparrow	1
D013	American redstart	1	
	White-throated sparrow	1	
H014	Golden-crowned kinglet	1	
	Nashville warbler	1	

Results of Breeding Bird Survey

Land Cover Classification Covertypes	Point	Species	Number
Dense tall shrub	H014	Unknown yellow-rumped warbler	2
		White-throated sparrow	1
		White-winged crossbill	2
Wetland treed	E008	Nashville warbler	multiple
		Rose-breasted grosbeak	1
		Ruby-crowned kinglet	1
		Swainson's thrush	2
		Unknown yellow-rumped warbler	1
		White-throated sparrow	1
		White-winged crossbill	1
		Winter wren	1
	K008	American redstart	1
		Black-and-white warbler	1
		Hermit thrush	1
		Magnolia warbler	1
		Nashville warbler	1
		Ovenbird	2
		Red-eyed vireo	2
		Rose-breasted grosbeak	1
		White-throated sparrow	multiple
		Wetland shrub	001N
Black-and-white warbler	1		
Black-billed cuckoo	1		
Blackburnian warbler	1		
Brown creeper	1		
Cedar waxwing	1		
Chestnut-sided warbler	1		
Chipping sparrow	1		
Common yellowthroat	2		
House wren	1		
Magnolia warbler	1		
Nashville warbler	1		
Pine siskin	1		
Red-breasted nuthatch	1		
Red-eyed vireo	multiple		
Rose-breasted grosbeak	1		
Tennessee warbler	1		

Results of Breeding Bird Survey

Land Cover Classification Coverture	Point	Species	Number
Wetland shrub	001N	White-throated sparrow	2
	009N	American goldfinch	1
		Black-and-white warbler	1
		Blue jay	1
	009N	Cedar waxwing	1
		Chipping sparrow	1
		Common loon	1
		Common yellowthroat	2
		Gray jay	1
		Magnolia warbler	1
		Nashville warbler	2
		Red-eyed vireo	1
		Rose-breasted grosbeak	1
		Swamp sparrow	1
		Unknown yellow-rumped warbler	1
		Veery	1
		White-throated sparrow	2
		Winter wren	1
		011N	American crow
	American goldfinch		1
	Black-and-white warbler		1
	Cedar waxwing		1
	Chipping sparrow		1
	Common yellowthroat		2
	Connecticut warbler		1
	Nashville warbler		1
	Northern waterthrush		1
	Red-eyed vireo		1
	Rose-breasted grosbeak		1
	White-throated sparrow		2
	White-winged crossbill		1
	Yellow-bellied flycatcher	1	
	012N	American redstart	2
Black-and-white warbler		1	
Blackburnian warbler		1	
Chipping sparrow		1	
Common yellowthroat		1	

Results of Breeding Bird Survey

Land Cover Classification Coverture	Point	Species	Number
Wetland shrub	012N	Eastern wood-pewee	1
		Evening grosbeak	1
		Nashville warbler	1
		Ovenbird	1
		Pine siskin	1
		Red-breasted nuthatch	1
		Red-eyed vireo	1
		White-throated sparrow	1
	A004	American goldfinch	1
		Chipping sparrow	2
		Common yellowthroat	2
		Least flycatcher	2
		Red-eyed vireo	1
		Rose-breasted grosbeak	1
		White-throated sparrow	1
	B001	American redstart	2
		American robin	1
		Blackburnian warbler	1
		Blue jay	1
		Cape May warbler	1
		Chestnut-sided warbler	1
		Common raven	1
		Eastern wood-pewee	1
		Evening grosbeak	1
		Mourning warbler	1
		Ovenbird	2
		Red-eyed vireo	1
		Red-winged blackbird	1
		Swainson's thrush	1
		White-throated sparrow	1
	B005	American redstart	1
		American robin	1
		Blackburnian warbler	1
Canada warbler		2	
Eastern wood-pewee		1	
Least flycatcher		1	
Ovenbird		2	

Results of Breeding Bird Survey

Land Cover Classification Covertypes	Point	Species	Number
Wetland shrub	B005	Red-eyed vireo	1
		Rose-breasted grosbeak	1
		White-throated sparrow	2
	B007	American redstart	1
		Black-and-white warbler	1
		Blackburnian warbler	1
		Duck	1
		Eastern wood-pewee	1
	B007	Least flycatcher	2
		Ovenbird	1
		Pileated woodpecker	1
		Red-eyed vireo	2
		Rose-breasted grosbeak	1
		Veery	2
		White-throated sparrow	1
		Winter wren	1
	B011	Black-capped chickadee	1
		Cedar waxwing	1
		Golden-crowned kinglet	1
		Mourning warbler	1
		Ovenbird	1
		Red-breasted nuthatch	1
		Red-eyed vireo	1
		White-throated sparrow	2
		Winter wren	1
	E009b	American redstart	2
		Cedar waxwing	1
		Nashville warbler	1
		Ovenbird	1
		Red-eyed vireo	1
		Rose-breasted grosbeak	1
		White-throated sparrow	1
	I002	American goldfinch	1
American redstart		2	
Black-and-white warbler		1	
Black-capped chickadee		1	
Blue jay		2	

Results of Breeding Bird Survey

Land Cover Classification Coverture	Point	Species	Number
Wetland shrub	I002	Cedar waxwing	1
		Chestnut-sided warbler	1
		Chipping sparrow	1
		Common yellowthroat	2
		Least flycatcher	1
		Nashville warbler	1
		Ovenbird	2
		Red-eyed vireo	1
		White-throated sparrow	2
	I004	Black-and-white warbler	1
		Hairy woodpecker	1
		Least flycatcher	1
		Ovenbird	2
		Red-eyed vireo	2
		Rose-breasted grosbeak	1
		Unidentified dark-eyed junco	1
		White-throated sparrow	1
	I005	American goldfinch	1
		American redstart	1
		Boreal chickadee	1
		Chestnut-sided warbler	1
		Chipping sparrow	1
		Common yellowthroat	1
		Gray jay	1
		Magnolia warbler	1
		Nashville warbler	1
		Northern waterthrush	1
		Pine siskin	1
		Rose-breasted grosbeak	1
		Ruby-crowned kinglet	1
Swainson's thrush		1	
Swamp sparrow		1	
Tennessee warbler		1	
Veery		1	
White-throated sparrow		2	
White-winged crossbill		1	
I006	American redstart	2	

Results of Breeding Bird Survey

Land Cover Classification Coverture	Point	Species	Number
Wetland shrub	I006	Chestnut-sided warbler	1
		Common yellowthroat	1
		Evening grosbeak	1
		Nashville warbler	1
		Northern parula	1
		Pine siskin	1
		Red-eyed vireo	1
		Rose-breasted grosbeak	1
		Ruby-crowned kinglet	1
		Rusty blackbird	1
		Veery	1
	White-throated sparrow	1	
	I007	American redstart	1
		Black-and-white warbler	1
		Blue jay	1
		Chipping sparrow	multiple
		Common yellowthroat	1
		Hairy woodpecker	1
		Red-eyed vireo	1
		Ruby-crowned kinglet	1
		Veery	1
		White-throated sparrow	2
		Yellow-bellied flycatcher	1
	J010	Alder flycatcher	2
		American redstart	1
		Black-and-white warbler	1
		Cedar waxwing	2
		Chestnut-sided warbler	multiple
		Common raven	1
		Common yellowthroat	1
		Mourning warbler	2
		Northern parula	1
		Pine siskin	multiple
Red-eyed vireo		1	
Rose-breasted grosbeak	1		
Swamp sparrow	1		
Warbling vireo	1		

Results of Breeding Bird Survey

Land Cover Classification Coverture	Point	Species	Number
Wetland shrub	J010	White-throated sparrow	multiple
	J013	Black-and-white warbler	1
		Chestnut-sided warbler	2
		Chipping sparrow	1
		Common yellowthroat	1
		Gray jay	1
		Magnolia warbler	1
		Mourning warbler	1
		Red-eyed vireo	1
		Rose-breasted grosbeak	1
		Swamp sparrow	1
		Tennessee warbler	1
		White-throated sparrow	2
		Yellow-bellied sapsucker	1
	K001	American redstart	2
		Black-and-white warbler	1
		Chestnut-sided warbler	1
		Nashville warbler	2
		Ovenbird	2
		Red-eyed vireo	1
		Rose-breasted grosbeak	1
		Tennessee warbler	2
		Veery	1
		White-throated sparrow	2
		White-winged crossbill	1
	Yellow-shafted flicker	1	
	K002	American redstart	multiple
		Black-and-white warbler	1
		Cedar waxwing	1
		Chestnut-sided warbler	2
		Chipping sparrow	1
		Evening grosbeak	1
		Pileated woodpecker	1
Red-eyed vireo		multiple	
Rose-breasted grosbeak		1	
Veery		1	
White-throated sparrow		1	

Results of Breeding Bird Survey

Land Cover Classification Covertypes	Point	Species	Number
Wetland shrub	K005	American crow	1
		American redstart	multiple
		Black-and-white warbler	1
		Broad-winged hawk	1
		Chestnut-sided warbler	1
		Chipping sparrow	1
		Least flycatcher	2
		Mourning warbler	1
		Ovenbird	1
		Red-breasted nuthatch	1
		Red-eyed vireo	2
		Rose-breasted grosbeak	1
	White-throated sparrow	1	
	K006	American redstart	2
		Black-and-white warbler	1
		Blackburnian warbler	1
	K006	Canada warbler	1
		Chipping sparrow	1
		Eastern wood-pewee	1
		Hairy woodpecker	1
		Least flycatcher	2
		Magnolia warbler	1
		Mourning warbler	1
		Ovenbird	1
		Red-breasted nuthatch	1
		Red-eyed vireo	2
		Rose-breasted grosbeak	1
		Tennessee warbler	1
		White-throated sparrow	1
		Winter wren	1
	Yellow-bellied sapsucker	1	
	K009	Canada warbler	1
		Cedar waxwing	1
Chestnut-sided warbler		1	
Least flycatcher		multiple	
Mourning warbler		1	
Ovenbird		2	

Results of Breeding Bird Survey

Land Cover Classification Coverture	Point	Species	Number
Wetland shrub	K009	Red-eyed vireo	2
		White-throated sparrow	2
	K010	American redstart	1
		Chestnut-sided warbler	1
		Chipping sparrow	1
		Common raven	1
		Eastern wood-pewee	1
		Least flycatcher	multiple
		Mourning warbler	1
		Northern parula	1
		Northern waterthrush	1
		Ovenbird	1
		Pileated woodpecker	1
		Red-eyed vireo	1
		Rose-breasted grosbeak	1
		Veery	2
White-throated sparrow	1		
Coniferous dense	E004	American redstart	1
		Chestnut-sided warbler	1
		Common raven	1
		Golden-crowned kinglet	1
		Hairy woodpecker	1
		Least flycatcher	1
		Northern waterthrush	1
		Pine siskin	1
		Red-breasted nuthatch	1
		Rose-breasted grosbeak	1
		Swainson's thrush	1
		Tennessee warbler	1
		White-throated sparrow	1
		White-winged crossbill	multiple
	Winter wren	1	
	E006	Black-and-white warbler	1
		Boreal chickadee	1
		Cape May warbler	1
		Golden-crowned kinglet	1
		Magnolia warbler	1

Results of Breeding Bird Survey

Land Cover Classification Coverture	Point	Species	Number
Coniferous dense	E006	Nashville warbler	2
		Northern waterthrush	1
		Red-eyed vireo	1
		Rose-breasted grosbeak	1
		Ruby-crowned kinglet	1
		Tennessee warbler	1
		White-throated sparrow	1
		White-winged crossbill	1
	F002	Blue-headed vireo	1
		Common yellowthroat	1
		Golden-crowned kinglet	1
		Gray jay	1
		Magnolia warbler	1
		Nashville warbler	1
		Northern waterthrush	1
		Pine siskin	multiple
		Red-breasted nuthatch	1
		Ruby-crowned kinglet	1
		Swainson's thrush	1
		F002	Veery
	White-throated sparrow		multiple
	White-winged crossbill		multiple
	Winter wren		1
	Yellow-bellied flycatcher		1
	F003	Black-capped chickadee	1
		Blue-headed vireo	2
		Common yellowthroat	2
		Gray jay	1
		Least flycatcher	1
		Lincoln's sparrow	1
		Mourning warbler	1
		Nashville warbler	2
		Northern waterthrush	1
Olive-sided flycatcher		1	
Ruby-crowned kinglet		1	
Tennessee warbler		2	
White-throated sparrow	1		

Results of Breeding Bird Survey

Land Cover Classification Coverture	Point	Species	Number
Coniferous dense	F003	White-winged crossbill	1
	J001	Chestnut-sided warbler	1
		Hermit thrush	1
		Magnolia warbler	1
		Nashville warbler	2
		Ovenbird	1
		Rose-breasted grosbeak	1
		White-throated sparrow	1
		J002	Golden-crowned kinglet
	Hermit thrush		1
	Ovenbird		1
	Red-breasted nuthatch		1
	Red-eyed vireo		1
	Ruby-crowned kinglet		1
	White-throated sparrow		1
	Yellow-bellied flycatcher		1
	J003	Chipping sparrow	1
		Hermit thrush	1
		Magnolia warbler	1
		Red-breasted nuthatch	1
		Unknown yellow-rumped warbler	2
		White-throated sparrow	2
	J011	Alder flycatcher	1
		Common yellowthroat	1
		Gray jay	1
		Hermit thrush	1
		Lincoln's sparrow	2
		Magnolia warbler	1
		Nashville warbler	2
		Unknown yellow-rumped warbler	1
		White-throated sparrow	multiple
		Yellow-bellied sapsucker	1
	J012	American robin	1
		Blue jay	1
		Cedar waxwing	1
		Chestnut-sided warbler	1
		Common raven	1

Results of Breeding Bird Survey

Land Cover Classification Coverture	Point	Species	Number
Coniferous dense	J012	Common yellowthroat	1
		Evening grosbeak	1
		Great crested flycatcher	1
		Nashville warbler	1
		Pine siskin	1
		Tennessee warbler	1
		Unknown yellow-rumped warbler	1
		White-throated sparrow	2
		Winter wren	1
	J015	Common nighthawk	1
		Common raven	2
		Eastern wood-pewee	1
		Nashville warbler	1
		Ovenbird	1
		Rose-breasted grosbeak	1
		Ruby-crowned kinglet	1
		White-throated sparrow	2
		Winter wren	1
		Yellow-bellied flycatcher	1
		Yellow-shafted flicker	1
Coniferous open mixedwood	C001	American redstart	multiple
		Black-and-white warbler	1
		Canada warbler	1
		Least flycatcher	1
		Northern parula	1
		Ovenbird	2
		Red-eyed vireo	2
		Veery	1
		White-throated sparrow	1
	C002	American goldfinch	1
		American redstart	2
		Black-and-white warbler	1
		Chestnut-sided warbler	1
		Common yellowthroat	1
		Ovenbird	1
		Pine siskin	multiple
		Red-eyed vireo	1

Results of Breeding Bird Survey

Land Cover Classification Coverture	Point	Species	Number
Coniferous open mixedwood	C002	Swamp sparrow	1
		White-throated sparrow	multiple
	C003	Black-and-white warbler	1
		Chestnut-sided warbler	1
		Chipping sparrow	1
		Common yellowthroat	1
		Eastern wood-pewee	1
		Nashville warbler	1
		Red-eyed vireo	1
		Veery	2
		White-throated sparrow	2
	C004	Brown creeper	1
		Cedar waxwing	1
		Least flycatcher	1
		Red-eyed vireo	1
		Veery	2
		White-throated sparrow	2
	D001	American redstart	1
		Black-throated green warbler	1
		Canada warbler	1
		Cape May warbler	1
		Eastern wood-pewee	1
		Mourning warbler	1
		Nashville warbler	1
		Red-eyed vireo	2
		Rose-breasted grosbeak	1
		Veery	1
		White-throated sparrow	1
	D002	Blackburnian warbler	1
		Canada warbler	1
		Chestnut-sided warbler	1
		Magnolia warbler	1
	D014	White-throated sparrow	2
	E002	Gray jay	1
		Least flycatcher	2
		Nashville warbler	1
		Pine siskin	1

Results of Breeding Bird Survey

Land Cover Classification Coverture	Point	Species	Number
Coniferous open mixedwood	E002	Rose-breasted grosbeak	1
		Swainson's thrush	1
		Unknown yellow-rumped warbler	2
		Veery	1
		White-throated sparrow	1
		White-winged crossbill	1
	E003	Cedar waxwing	1
		Common raven	1
		Hairy woodpecker	1
		Magnolia warbler	1
		Northern parula	1
		Northern waterthrush	1
		Pine siskin	1
		Rose-breasted grosbeak	1
		Unidentified dark-eyed junco	1
		Veery	1
		White-throated sparrow	1
		White-winged crossbill	1
		Winter wren	1
		E005	American goldfinch
	Black-and-white warbler		1
	Cedar waxwing		1
	Chipping sparrow		1
	Hairy woodpecker		1
	Magnolia warbler		1
	Nashville warbler		1
	Northern parula		1
	E005	Northern waterthrush	2
		Philadelphia vireo	1
		Pileated woodpecker	1
Rose-breasted grosbeak		1	
Swainson's thrush		1	
Tennessee warbler		1	
Unknown yellow-rumped warbler		1	
White-throated sparrow		2	
White-winged crossbill		multiple	
E007	Evening grosbeak	1	

Results of Breeding Bird Survey

Land Cover Classification Coverture	Point	Species	Number
Coniferous open mixedwood	E007	Magnolia warbler	1
		Nashville warbler	multiple
		Ovenbird	1
		Red-eyed vireo	1
		Swainson's thrush	1
		White-throated sparrow	1
		White-winged crossbill	multiple
	F001	Alder flycatcher	1
		American redstart	1
		Common yellowthroat	1
		Nashville warbler	multiple
		Philadelphia vireo	1
		Swainson's thrush	1
		Veery	1
		White-throated sparrow	multiple
		White-winged crossbill	1
		Wilson's warbler	1
		Winter wren	1
	F016	American goldfinch	1
		American redstart	multiple
		Black-and-white warbler	1
		Chipping sparrow	1
		Common yellowthroat	1
		Magnolia warbler	1
		Red-eyed vireo	2
		Rose-breasted grosbeak	1
		Veery	2
		White-throated sparrow	multiple
		Yellow-bellied sapsucker	1
	Yellow-shafted flicker	1	
	J014	Black-and-white warbler	1
		Canada warbler	1
		Cedar waxwing	1
Chestnut-sided warbler		2	
Gray jay		1	
Magnolia warbler		2	
Mourning warbler		1	

Results of Breeding Bird Survey

Land Cover Classification Coverture	Point	Species	Number
Coniferous open mixedwood	J014	Pine siskin	multiple
		Rose-breasted grosbeak	1
		White-throated sparrow	2
		Yellow-bellied sapsucker	1
		Yellow-shafted flicker	1
Broadleaf dense	004N	American redstart	1
		Least flycatcher	1
		Mourning warbler	1
		Northern parula	1
		Red-eyed vireo	2
		White-throated sparrow	1
	010N	Black-and-white warbler	2
		Chipping sparrow	1
		Magnolia warbler	1
		Nashville warbler	1
		White-throated sparrow	1
	013N	American robin	1
		Cedar waxwing	1
		Chipping sparrow	2
		Common yellowthroat	1
		Eastern kingbird	1
		Red-eyed vireo	1
		Swamp sparrow	1
		Unidentified dark-eyed junco	1
		Veery	1
	D010	Hermit thrush	1
		Ovenbird	1
		Winter wren	1
	D015	American redstart	1
		Common yellowthroat	1
		Tennessee warbler	1
		White-throated sparrow	1
	H001	Common yellowthroat	1
		Magnolia warbler	1
		Nashville warbler	2
Northern parula		1	
Northern waterthrush		1	

Results of Breeding Bird Survey

Land Cover Classification Coverture	Point	Species	Number
Broadleaf dense	H001	Red-breasted nuthatch	1
		Red-eyed vireo	1
		Ring-billed gull	1
		White-throated sparrow	2
		White-winged crossbill	1
	H015	Magnolia warbler	2
		Nashville warbler	2
		White-throated sparrow	2
Mixedwood dense	A001	American goldfinch	1
		American redstart	1
		American robin	1
		Chestnut-sided warbler	1
		Common yellowthroat	1
		Least flycatcher	1
		Mourning warbler	2
		Ovenbird	1
		Red-eyed vireo	1
		White-throated sparrow	1
		Wilson's snipe	1
		Yellow-shafted flicker	1
		A002	American crow
	American robin		1
	Chipping sparrow		1
	Common yellowthroat		2
	Least flycatcher		1
	Red-eyed vireo		1
	Rose-breasted grosbeak		1
	Veery		1
	White-throated sparrow	2	
	A003	American goldfinch	2
		American redstart	1
		American robin	1
		Black-and-white warbler	1
		Chestnut-sided warbler	2
		Common yellowthroat	multiple
		Lincoln's sparrow	1
		Ovenbird	1

Results of Breeding Bird Survey

Land Cover Classification Coverture	Point	Species	Number
Mixedwood dense	A003	Tennessee warbler	1
		White-throated sparrow	1
	A014	American crow	1
		American robin	1
		Black-and-white warbler	1
		Canada warbler	1
		Cedar waxwing	1
		Chestnut-sided warbler	1
		Common yellowthroat	1
		Eastern wood-pewee	1
		Least flycatcher	2
		Mourning warbler	1
		Northern waterthrush	1
		Red-breasted nuthatch	1
		Ruby-crowned kinglet	1
		Swainson's thrush	1
		White-throated sparrow	2
		White-winged crossbill	1
		Winter wren	1
	Yellow-bellied sapsucker	1	
	A015	American crow	1
		American goldfinch	1
		American robin	1
		Black-and-white warbler	1
		Chestnut-sided warbler	1
		Common yellowthroat	1
		Least flycatcher	1
		Mourning warbler	1
		Ovenbird	1
		Red-eyed vireo	1
		Swamp sparrow	1
		White-throated sparrow	2
	Yellow warbler	1	
B002	American redstart	1	
	Blackburnian warbler	1	
	Canada warbler	1	
	Cape May warbler	1	

Results of Breeding Bird Survey

Land Cover Classification Coverture	Point	Species	Number
Mixedwood dense	B002	Golden-crowned kinglet	1
		Mourning warbler	1
		Nashville warbler	1
		Ovenbird	1
		Red-eyed vireo	1
		White-throated sparrow	2
	B003	American redstart	2
		Black-and-white warbler	1
		Blue jay	1
		Canada warbler	1
		Cedar waxwing	1
		Chestnut-sided warbler	1
		Evening grosbeak	1
		Mourning warbler	1
		Ovenbird	2
		White-throated sparrow	1
	B006	American robin	1
		Blackburnian warbler	1
		Brown creeper	1
		Canada warbler	1
		Eastern wood-pewee	1
		Great crested flycatcher	1
		Least flycatcher	1
		Mourning warbler	1
		Ovenbird	1
		Red-breasted nuthatch	1
		Red-eyed vireo	1
		Veery	1
		White-throated sparrow	1
	B008	American redstart	1
		Bay-breasted warbler	1
		Black-billed cuckoo	1
		Black-throated green warbler	1
Blue-headed vireo		1	
Brown creeper		1	
Gray jay		1	
Mourning warbler		1	

Results of Breeding Bird Survey

Land Cover Classification Coverture	Point	Species	Number
Mixedwood dense	B008	Ovenbird	1
		Rose-breasted grosbeak	1
		Ruby-crowned kinglet	1
		White-throated sparrow	2
		Yellow-bellied sapsucker	1
	B009	American redstart	1
		Black-capped chickadee	multiple
		Blue-headed vireo	1
		Cedar waxwing	1
		Common raven	1
		Mourning warbler	1
		Ovenbird	2
		Red-breasted nuthatch	1
		Rose-breasted grosbeak	1
		White-throated sparrow	1
	B010	American redstart	2
		Black-and-white warbler	1
		Black-billed cuckoo	1
		Black-capped chickadee	1
		Cedar waxwing	1
		Common raven	1
		Downy woodpecker	1
		Gray jay	1
		Mourning warbler	1
		Nashville warbler	1
		Ovenbird	1
		Pileated woodpecker	1
		Red-eyed vireo	2
		White-throated sparrow	1
		White-winged crossbill	1
	Yellow-shafted flicker	1	
	B012	Black-and-white warbler	multiple
		Brown creeper	1
Chestnut-sided warbler		2	
Least flycatcher		1	
Mourning warbler		1	
Ovenbird		1	

Results of Breeding Bird Survey

Land Cover Classification Coverture	Point	Species	Number	
Mixedwood dense	B012	Red-eyed vireo	1	
		Rose-breasted grosbeak	1	
		Swainson's thrush	1	
		Tennessee warbler	1	
		White-throated sparrow	1	
		Yellow-shafted flicker	1	
	B013	Bay-breasted warbler	1	
		Black-and-white warbler	1	
		Black-capped chickadee	1	
		Boreal chickadee	1	
		Canada warbler	1	
		Common yellowthroat	1	
		Magnolia warbler	2	
		Mourning warbler	1	
		Nashville warbler	2	
		Red-eyed vireo	2	
		Swainson's thrush	1	
		White-throated sparrow	2	
		B014	American redstart	2
			Black-and-white warbler	2
	Brown creeper		1	
	Cedar waxwing		1	
	Chestnut-sided warbler		1	
	Great crested flycatcher		1	
	Least flycatcher		1	
	Mourning warbler		1	
	Ovenbird		1	
	Red-eyed vireo		1	
	Swainson's thrush		1	
	White-throated sparrow		multiple	
Wilson's snipe	1			
Yellow-shafted flicker	1			
B015	Black-throated green warbler	1		
	Cedar waxwing	1		
	Mourning warbler	1		
	Nashville warbler	1		
	Ovenbird	1		

Results of Breeding Bird Survey

Land Cover Classification Covertypes	Point	Species	Number
Mixedwood dense	E001	Tennessee warbler	1
		White-throated sparrow	1
		Black-and-white warbler	1
		Blackburnian warbler	1
		Eastern wood-pewee	1
		Hermit thrush	1
		Nashville warbler	2
		Ovenbird	multiple
		Red-eyed vireo	2
		White-throated sparrow	2
		Wilson's snipe	1
	I001	American redstart	2
		Blackburnian warbler	1
		Cedar waxwing	1
		Chestnut-sided warbler	2
		Common yellowthroat	1
		Hairy woodpecker	1
		Magnolia warbler	1
		Mourning warbler	2
		Ovenbird	2
		Red-breasted nuthatch	2
		Red-eyed vireo	1
		White-throated sparrow	2
		White-winged crossbill	1
		I003	American redstart
	Black-capped chickadee		2
	Chestnut-sided warbler		1
	Common yellowthroat		1
	Magnolia warbler		1
	Mourning warbler		1
	Ovenbird		1
	Veery		1
	White-throated sparrow		2
	White-winged crossbill		multiple
	J009	Black-and-white warbler	1
		Cedar waxwing	1
		Least flycatcher	1

Results of Breeding Bird Survey

Land Cover Classification Coverture	Point	Species	Number
Mixedwood dense	J009	Mourning warbler	1
		Nashville warbler	1
		Ovenbird	1
		Red-breasted nuthatch	1
		Red-eyed vireo	1
		Swainson's thrush	1
		Veery	1
		White-throated sparrow	2
		Winter wren	1
	K003	Blue jay	1
		Canada warbler	1
		Chestnut-sided warbler	2
		Eastern wood-pewee	1
		Hermit thrush	1
		Ovenbird	2
		Pileated woodpecker	1
		Red-eyed vireo	2
		Veery	1
		White-throated sparrow	multiple
	K004	American robin	1
		Black-and-white warbler	1
		Chestnut-sided warbler	1
		Gray jay	1
		Hairy woodpecker	1
		Least flycatcher	2
		Nashville warbler	1
		Pileated woodpecker	1
		Red-eyed vireo	2
		White-throated sparrow	1
		Yellow-bellied sapsucker	1
	K007	American redstart	1
		Cedar waxwing	1
Golden-crowned kinglet		1	
Least flycatcher		1	
Magnolia warbler		1	
Nashville warbler		1	
Ovenbird	2		

Results of Breeding Bird Survey

Land Cover Classification Coverture	Point	Species	Number
Mixedwood dense	K007	Pine siskin	1
		Red-eyed vireo	1
		Rose-breasted grosbeak	1
		Swainson's thrush	1
		White-throated sparrow	2

Appendix F Amphibian and Reptile Species in the Project Study Area

Amphibian and Reptile Species in the Project Study Area

Group	Common Name	Scientific Name	Nature of Occurrence ^a	Breeding Status ^a	Observed During Field Studies
Amphibians	Mudpuppy	<i>Necturus maculosus</i>	Resident	Breeding	
	Blue-spotted salamander	<i>Ambystoma laterale</i>	Resident?	Non-breeding?	
	American toad	<i>Bufo americanus</i>	Resident	Breeding	Yes
	Spring peeper	<i>Hyla crucifer</i>	Resident	Breeding	Yes
	Gray treefrog	<i>Hyla versicolor</i>	Resident	Breeding	Yes
	Boreal chorus frog	<i>Pseudacris triseriata</i>	Resident	Breeding	Yes
	Wood frog	<i>Rana sylvatica</i>	Resident	Breeding	Yes
	Northern leopard frog	<i>Rana pipiens</i>	Resident	Breeding	Yes
Reptiles	Common snapping turtle	<i>Chelydra serpentina</i>	Resident	Breeding	
	Western painted turtle	<i>Chrysemys picta</i>	Resident	Breeding	
	Red-sided garter snake	<i>Thamnophis sirtalis</i>	Resident	Breeding	

a) Question mark indicates uncertainty

Appendix G Results of Amphibian Survey

Results of Amphibian Survey

Land Cover Classification Covertypes	Point	Species	Number
0	ESA-A-259	American toad	Full chorus
		Gray treefrog	Full chorus
		Spring peeper	Individuals can be counted, calls not overlapping
Water	ESA-A-167	Gray treefrog	Full chorus
	ESA-A-230	American toad	Individuals can be counted, calls not overlapping
		Gray treefrog	Individuals can be counted, calls not overlapping
	ESA-A-232	American toad	Full chorus
		Gray treefrog	Some individuals can be counted, other calls overlapping
ESA-A-251	Gray treefrog	Individuals can be counted, calls not overlapping	
Exposed land	046	American toad	Full chorus
		Gray treefrog	Individuals can be counted, calls not overlapping
		Northern leopard frog	Individuals can be counted, calls not overlapping
		Spring peeper	Full chorus
	ES.A-003	American toad	1 individual
		Boreal chorus frog	Individuals can be counted, calls not overlapping
		Gray treefrog	Full chorus
		Spring peeper	Full chorus
	ES.A-004	American toad	Individuals can be counted, calls not overlapping
		Boreal chorus frog	Some individuals can be counted, other calls overlapping
		Gray treefrog	Full chorus
		Spring peeper	Individuals can be counted, calls not overlapping
		Wood Frog	Individuals can be counted, calls not overlapping
	ES.A-007	American toad	Individuals can be counted, calls not overlapping
		Boreal chorus frog	Full chorus
		Gray treefrog	Some individuals can be counted, other calls overlapping
		Spring peeper	Individuals can be counted, calls not overlapping
	ES.A-008	American toad	Full chorus
		Boreal chorus frog	Full chorus
		Gray treefrog	Some individuals can be counted, other calls overlapping
		Spring peeper	Individuals can be counted, calls not overlapping
	ES.A-009	American toad	Some individuals can be counted, other calls overlapping
		Boreal chorus frog	Individuals can be counted, calls not overlapping
		Gray treefrog	Full chorus
		Spring peeper	Individuals can be counted, calls not overlapping
	ES.A-010	American toad	Individuals can be counted, calls not overlapping

Results of Amphibian Survey

Land Cover Classification Covertypes	Point	Species	Number
Exposed land	ES.A-010	Boreal chorus frog	Some individuals can be counted, other calls overlapping
		Gray treefrog	Full chorus
		Spring peeper	Some individuals can be counted, other calls overlapping
	ES.A-011	American toad	Full chorus
		Boreal chorus frog	Individuals can be counted, calls not overlapping
		Gray treefrog	Some individuals can be counted, other calls overlapping
		Spring peeper	Individuals can be counted, calls not overlapping
		Wood Frog	Individuals can be counted, calls not overlapping
	ES.A-013	American toad	Individuals can be counted, calls not overlapping
		Boreal chorus frog	Individuals can be counted, calls not overlapping
		Gray treefrog	Some individuals can be counted, other calls overlapping
		Spring peeper	Full chorus
	ES.A-014	American toad	Some individuals can be counted, other calls overlapping
		Boreal chorus frog	Individuals can be counted, calls not overlapping
		Gray treefrog	Full chorus
		Spring peeper	Full chorus
	ES.A-020	American toad	Individuals can be counted, calls not overlapping
		Gray treefrog	Full chorus
		Spring peeper	Some individuals can be counted, other calls overlapping
	ES.A-022	American toad	Individuals can be counted, calls not overlapping
		Gray treefrog	Full chorus
		Spring peeper	Full chorus
	ES.A-023	American toad	Full chorus
		Gray treefrog	Full chorus
		Spring peeper	Full chorus
	ES.A-024	American toad	Some individuals can be counted, other calls overlapping
		Gray treefrog	Some individuals can be counted, other calls overlapping
		Spring peeper	Full chorus
	ES.A-025	American toad	Full chorus
		Boreal chorus frog	Individuals can be counted, calls not overlapping
		Spring peeper	Full chorus
	ES.A-028	American toad	Full chorus
		Gray treefrog	Individuals can be counted, calls not overlapping
		Spring peeper	Full chorus
ES.A-034	American toad	Full chorus	

Results of Amphibian Survey

Land Cover Classification Covertypes	Point	Species	Number
Exposed land	ES.A-034	Gray treefrog	Individuals can be counted, calls not overlapping
		Spring peeper	Full chorus
	ES.A-035	American toad	Full chorus
		Boreal chorus frog	Individuals can be counted, calls not overlapping
		Gray treefrog	Full chorus
		Spring peeper	Full chorus
	ES.A-036	American toad	Some individuals can be counted, other calls overlapping
		Spring peeper	Full chorus
	ES.A-037	American toad	Full chorus
		Spring peeper	Some individuals can be counted, other calls overlapping
		Wood Frog	Individuals can be counted, calls not overlapping
	ES.A-045	American toad	Full chorus
		Gray treefrog	Full chorus
		Spring peeper	Full chorus
	ES.A-047	American toad	Full chorus
		Gray treefrog	Some individuals can be counted, other calls overlapping
		Spring peeper	Some individuals can be counted, other calls overlapping
	ES.A-066	Gray treefrog	Individuals can be counted, calls not overlapping
		Spring peeper	Some individuals can be counted, other calls overlapping
	ES.A-086	Boreal chorus frog	Individuals can be counted, calls not overlapping
		Gray treefrog	Full chorus
		Spring peeper	Full chorus
	ES.A-172	American toad	Individuals can be counted, calls not overlapping
		Boreal chorus frog	Individuals can be counted, calls not overlapping
		Northern leopard frog	Individuals can be counted, calls not overlapping
		Spring peeper	Some individuals can be counted, other calls overlapping
	ES.A-173	American toad	Individuals can be counted, calls not overlapping
		Boreal chorus frog	Individuals can be counted, calls not overlapping
		Spring peeper	Individuals can be counted, calls not overlapping
	ES.A-174	American toad	Some individuals can be counted, other calls overlapping
		Boreal chorus frog	Some individuals can be counted, other calls overlapping
		Spring peeper	Some individuals can be counted, other calls overlapping
	ES.A-203	Boreal chorus frog	Full chorus
Spring peeper		Full chorus	
ES.A-204	Boreal chorus frog	Some individuals can be counted, other calls overlapping	

Results of Amphibian Survey

Land Cover Classification Covertypes	Point	Species	Number
Exposed land	ES.A-204	Gray treefrog	Some individuals can be counted, other calls overlapping
		Spring peeper	Some individuals can be counted, other calls overlapping
	ES.A-205	Boreal chorus frog	Full chorus
		Gray treefrog	Individuals can be counted, calls not overlapping
		Spring peeper	Full chorus
	ES.A-208	American toad	Some individuals can be counted, other calls overlapping
		Spring peeper	Individuals can be counted, calls not overlapping
	ESA-A-042	American toad	Individuals can be counted, calls not overlapping
		Gray treefrog	Individuals can be counted, calls not overlapping
		Spring peeper	Individuals can be counted, calls not overlapping
	ESA-A-045	American toad	Full chorus
		Gray treefrog	Individuals can be counted, calls not overlapping
		Spring peeper	Individuals can be counted, calls not overlapping
	ESA-A-049	American toad	Some individuals can be counted, other calls overlapping
		Gray treefrog	Individuals can be counted, calls not overlapping
		Spring peeper	Individuals can be counted, calls not overlapping
	ESA-A-053	American toad	Full chorus
		Gray treefrog	Full chorus
		Spring peeper	Individuals can be counted, calls not overlapping
	ESA-A-056	American toad	Full chorus
		Gray treefrog	Individuals can be counted, calls not overlapping
		Spring peeper	Some individuals can be counted, other calls overlapping
	ESA-A-057	Gray treefrog	Some individuals can be counted, other calls overlapping
		Northern leopard frog	Individuals can be counted, calls not overlapping
		Spring peeper	Some individuals can be counted, other calls overlapping
	ESA-A-059	American toad	Full chorus
		Gray treefrog	Individuals can be counted, calls not overlapping
		Northern leopard frog	Individuals can be counted, calls not overlapping
		Spring peeper	Some individuals can be counted, other calls overlapping
	ESA-A-063	American toad	Full chorus
		Gray treefrog	Some individuals can be counted, other calls overlapping
		Spring peeper	Full chorus
	ESA-A-064	American toad	Full chorus
		Gray treefrog	Individuals can be counted, calls not overlapping
		Spring peeper	Individuals can be counted, calls not overlapping

Results of Amphibian Survey

Land Cover Classification Covertypes	Point	Species	Number
Exposed land	ESA-A-068	American toad	Full chorus
		Gray treefrog	Individuals can be counted, calls not overlapping
		Spring peeper	Individuals can be counted, calls not overlapping
	ESA-A-070	American toad	Full chorus
		Gray treefrog	Individuals can be counted, calls not overlapping
		Spring peeper	Individuals can be counted, calls not overlapping
	ESA-A-072	American toad	Full chorus
		Gray treefrog	Some individuals can be counted, other calls overlapping
		Spring peeper	Some individuals can be counted, other calls overlapping
	ESA-A-076	American toad	Some individuals can be counted, other calls overlapping
		Gray treefrog	Individuals can be counted, calls not overlapping
		Spring peeper	Individuals can be counted, calls not overlapping
	ESA-A-079	Gray treefrog	Individuals can be counted, calls not overlapping
		Spring peeper	Individuals can be counted, calls not overlapping
	ESA-A-142	American toad	Full chorus
		Gray treefrog	Some individuals can be counted, other calls overlapping
		Spring peeper	Some individuals can be counted, other calls overlapping
		Wood Frog	Individuals can be counted, calls not overlapping
	ESA-A-149	American toad	Full chorus
		Gray treefrog	Some individuals can be counted, other calls overlapping
		Spring peeper	Individuals can be counted, calls not overlapping
	ESA-A-153	Gray treefrog	Some individuals can be counted, other calls overlapping
	ESA-A-154	Gray treefrog	Some individuals can be counted, other calls overlapping
		Spring peeper	Some individuals can be counted, other calls overlapping
	ESA-A-155	American toad	Some individuals can be counted, other calls overlapping
		Gray treefrog	Some individuals can be counted, other calls overlapping
	ESA-A-157	American toad	Full chorus
		Gray treefrog	Some individuals can be counted, other calls overlapping
		Spring peeper	Individuals can be counted, calls not overlapping
	ESA-A-158	American toad	Full chorus
Gray treefrog		Full chorus	
Spring peeper		Individuals can be counted, calls not overlapping	
ESA-A-161	American toad	Some individuals can be counted, other calls overlapping	
	Gray treefrog	Full chorus	
	Northern leopard frog	Individuals can be counted, calls not overlapping	

Results of Amphibian Survey

Land Cover Classification Covertypes	Point	Species	Number	
Exposed land	ESA-A-161	Spring peeper	Some individuals can be counted, other calls overlapping	
		ESA-A-210	American toad	Some individuals can be counted, other calls overlapping
	ESA-A-210	Boreal chorus frog	Some individuals can be counted, other calls overlapping	
		Gray treefrog	Some individuals can be counted, other calls overlapping	
		Spring peeper	Some individuals can be counted, other calls overlapping	
		ESA-A-218	American toad	Individuals can be counted, calls not overlapping
	ESA-A-218	Gray treefrog	Individuals can be counted, calls not overlapping	
		Spring peeper	Individuals can be counted, calls not overlapping	
		ESA-A-253	Boreal chorus frog	Individuals can be counted, calls not overlapping
	ESA-A-253	Gray treefrog	Individuals can be counted, calls not overlapping	
		Northern leopard frog	Full chorus	
		ESA-A-254	American toad	Individuals can be counted, calls not overlapping
	ESA-A-254	Boreal chorus frog	Some individuals can be counted, other calls overlapping	
		Gray treefrog	Some individuals can be counted, other calls overlapping	
		ESA-A-256	Boreal chorus frog	Some individuals can be counted, other calls overlapping
	ESA-A-256	Gray treefrog	Full chorus	
		Spring peeper	Some individuals can be counted, other calls overlapping	
		Developed	ES.A-031	American toad
	Spring peeper			Some individuals can be counted, other calls overlapping
	ESA-A-078		American toad	Individuals can be counted, calls not overlapping
			Gray treefrog	Individuals can be counted, calls not overlapping
Spring peeper			Individuals can be counted, calls not overlapping	
Tall shrub			ES.A-177	American toad
	Boreal chorus frog	Some individuals can be counted, other calls overlapping		
	Gray treefrog	Some individuals can be counted, other calls overlapping		
	Northern leopard frog	Individuals can be counted, calls not overlapping		
	Spring peeper	Some individuals can be counted, other calls overlapping		
	ES.A-200	American toad	Individuals can be counted, calls not overlapping	
		Boreal chorus frog	Individuals can be counted, calls not overlapping	
		Gray treefrog	Individuals can be counted, calls not overlapping	
		Spring peeper	Some individuals can be counted, other calls overlapping	
	ES.A-201	American toad	Some individuals can be counted, other calls overlapping	
Boreal chorus frog		Individuals can be counted, calls not overlapping		
Gray treefrog		Individuals can be counted, calls not overlapping		
Spring peeper		Some individuals can be counted, other calls overlapping		

Results of Amphibian Survey

Land Cover Classification Covertypes	Point	Species	Number
Tall shrub	ESA-A-258	American toad	Some individuals can be counted, other calls overlapping
		Boreal chorus frog	Full chorus
		Gray treefrog	Full chorus
		Spring peeper	Some individuals can be counted, other calls overlapping
Wetland shrub	ES.A-005	American toad	Individuals can be counted, calls not overlapping
		Gray treefrog	Individuals can be counted, calls not overlapping
		Spring peeper	Individuals can be counted, calls not overlapping
	ES.A-006	American toad	Individuals can be counted, calls not overlapping
		Gray treefrog	Full chorus
		Spring peeper	Individuals can be counted, calls not overlapping
	ES.A-012	American toad	Individuals can be counted, calls not overlapping
		Gray treefrog	Some individuals can be counted, other calls overlapping
		Spring peeper	Some individuals can be counted, other calls overlapping
		Wood Frog	Individuals can be counted, calls not overlapping
	ES.A-015	American toad	Some individuals can be counted, other calls overlapping
		Gray treefrog	Full chorus
		Spring peeper	Full chorus
		Wood Frog	Individuals can be counted, calls not overlapping
	ES.A-018	American toad	Individuals can be counted, calls not overlapping
		Gray treefrog	Individuals can be counted, calls not overlapping
		Spring peeper	Full chorus
	ES.A-019	American toad	Some individuals can be counted, other calls overlapping
		Gray treefrog	Full chorus
		Spring peeper	Full chorus
	ES.A-026	American toad	Full chorus
		Spring peeper	Full chorus
	ES.A-027	American toad	Full chorus
		Spring peeper	Full chorus
	ES.A-039	American toad	Individuals can be counted, calls not overlapping
		Spring peeper	Full chorus
	ES.A-041	American toad	1 individual
		Gray treefrog	Some individuals can be counted, other calls overlapping
		Spring peeper	Full chorus
	ES.A-043	American toad	Full chorus
		Gray treefrog	Individuals can be counted, calls not overlapping

Results of Amphibian Survey

Land Cover Classification Covertypes	Point	Species	Number
Wetland shrub	ES.A-043	Spring peeper	Full chorus
	ES.A-044	American toad	Full chorus
		Gray treefrog	Some individuals can be counted, other calls overlapping
	ES.A-165	Northern leopard frog	Individual(s) seen but not heard
		Spring peeper	Some individuals can be counted, other calls overlapping
	ES.A-166	Spring peeper	Some individuals can be counted, other calls overlapping
	ES.A-167	Spring peeper	Individuals can be counted, calls not overlapping
	ES.A-168	Gray treefrog	Individuals can be counted, calls not overlapping
		Spring peeper	Individuals can be counted, calls not overlapping
	ES.A-169	Gray treefrog	Individuals can be counted, calls not overlapping
		Spring peeper	Individuals can be counted, calls not overlapping
	ES.A-170	Gray treefrog	Individuals can be counted, calls not overlapping
		Spring peeper	Some individuals can be counted, other calls overlapping
	ES.A-181	American toad	Individuals can be counted, calls not overlapping
		Boreal chorus frog	Some individuals can be counted, other calls overlapping
		Gray treefrog	Some individuals can be counted, other calls overlapping
		Northern leopard frog	Individuals can be counted, calls not overlapping
		Spring peeper	Some individuals can be counted, other calls overlapping
	ES.A-182	American toad	Individuals can be counted, calls not overlapping
		Boreal chorus frog	Individuals can be counted, calls not overlapping
		Gray treefrog	Individuals can be counted, calls not overlapping
		Northern leopard frog	Individuals can be counted, calls not overlapping
		Spring peeper	Some individuals can be counted, other calls overlapping
	ES.A-216	American toad	Individuals can be counted, calls not overlapping
		Gray treefrog	Individuals can be counted, calls not overlapping
		Spring peeper	Some individuals can be counted, other calls overlapping
	ES.A-219	American toad	Full chorus
		Boreal chorus frog	Full chorus
		Gray treefrog	Full chorus
		Spring peeper	Full chorus
	ESA-A-043	American toad	Some individuals can be counted, other calls overlapping
		Gray treefrog	Individuals can be counted, calls not overlapping
		Spring peeper	Individuals can be counted, calls not overlapping
	ESA-A-044	American toad	Full chorus
		Gray treefrog	Some individuals can be counted, other calls overlapping

Results of Amphibian Survey

Land Cover Classification Covertypes	Point	Species	Number
Wetland shrub	ESA-A-044	Spring peeper	Individuals can be counted, calls not overlapping
	ESA-A-051	American toad	Some individuals can be counted, other calls overlapping
		Gray treefrog	Individuals can be counted, calls not overlapping
		Spring peeper	Some individuals can be counted, other calls overlapping
	ESA-A-073	American toad	Full chorus
		Gray treefrog	Some individuals can be counted, other calls overlapping
		Spring peeper	Individuals can be counted, calls not overlapping
	ESA-A-150	American toad	Some individuals can be counted, other calls overlapping
		Gray treefrog	Some individuals can be counted, other calls overlapping
		Spring peeper	Individuals can be counted, calls not overlapping
	ESA-A-151	American toad	Individuals can be counted, calls not overlapping
		Gray treefrog	Some individuals can be counted, other calls overlapping
		Spring peeper	Individuals can be counted, calls not overlapping
	ESA-A-165	American toad	Individuals can be counted, calls not overlapping
		Gray treefrog	Full chorus
		Spring peeper	Full chorus
	ESA-A-166	Gray treefrog	Full chorus
		Spring peeper	Full chorus
	ESA-A-250	American toad	Individuals can be counted, calls not overlapping
		Boreal chorus frog	Full chorus
		Gray treefrog	Full chorus
		Spring peeper	Individuals can be counted, calls not overlapping
	ESA-A-252	Gray treefrog	Individuals can be counted, calls not overlapping
		Spring peeper	Individuals can be counted, calls not overlapping
	ESA-A-255	Boreal chorus frog	Some individuals can be counted, other calls overlapping
		Gray treefrog	Some individuals can be counted, other calls overlapping
	ESA-A-257	Boreal chorus frog	Full chorus
		Gray treefrog	Full chorus
		Spring peeper	Full chorus
	incidental	Northern leopard frog	Individual(s) seen but not heard
	Herb	ES.A-184	Boreal chorus frog
Gray treefrog			Individuals can be counted, calls not overlapping
Spring peeper			Individuals can be counted, calls not overlapping
Grassland	ES.A-001	Boreal chorus frog	Full chorus
		Gray treefrog	Some individuals can be counted, other calls overlapping

Results of Amphibian Survey

Land Cover Classification Covertime	Point	Species	Number	
Grassland	ES.A-001	Northern leopard frog	Individuals can be counted, calls not overlapping	
	ES.A-002	American toad	Individuals can be counted, calls not overlapping	
		Boreal chorus frog	Full chorus	
		Gray treefrog	Full chorus	
		Spring peeper	Full chorus	
	ES.A-183	Boreal chorus frog	Full chorus	
		Gray treefrog	Full chorus	
		Spring peeper	Individuals can be counted, calls not overlapping	
	ES.A-185	Boreal chorus frog	Some individuals can be counted, other calls overlapping	
		Gray treefrog	Individuals can be counted, calls not overlapping	
	Coniferous open	ESA-A-098	American toad	Some individuals can be counted, other calls overlapping
			Gray treefrog	Individuals can be counted, calls not overlapping
Spring peeper			Individuals can be counted, calls not overlapping	
Coniferous sparse	ESA-A-231	American toad	Individuals can be counted, calls not overlapping	
		Gray treefrog	Individuals can be counted, calls not overlapping	
		Spring peeper	1 individual	
Mixedwood dense	ES.A-178	Boreal chorus frog	Individuals can be counted, calls not overlapping	
		Gray treefrog	Individuals can be counted, calls not overlapping	
		Spring peeper	Individuals can be counted, calls not overlapping	
	ES.A-221	American toad	Full chorus	
		Boreal chorus frog	Full chorus	
		Gray treefrog	Some individuals can be counted, other calls overlapping	
		Spring peeper	Individuals can be counted, calls not overlapping	
	ESA-A-075	American toad	Some individuals can be counted, other calls overlapping	
		Gray treefrog	Individuals can be counted, calls not overlapping	
Spring peeper		Some individuals can be counted, other calls overlapping		

Appendix H Photo of Potential Caribou Scat in the Project Study Area



Photo 1: Potential caribou scat found near the south shore of the O’Hanley River, west of Provincial Road #304.

Appendix I Buffers and Setbacks

Manitoba Hydro
Lake Winnipeg East System Improvement Transmission Project

Feature	Activity	Non Frozen Ground Setback distance (no work allowed)	Frozen Ground Setback Distance (no work allowed)	Winter Vegetated Buffer Distance (shrub and herbaceous vegetation retained)	Effective Period	Rationale
Mammals						
Mineral licks	All	120 m		120 m		Protect from disturbance
Occupied dens	All	50 m	50 m			Protect from disturbance
Bat hibernacula	All	200 m	200 m			Protect from disturbance
Birds						
Nests of eagles, ospreys, and heron rookeries	All	200 m			April 1 to July 31	Protect from sensory disturbance during breeding season
Nesting colonies	All	1,000 m			April 1 to July 31	Protect from sensory disturbance during breeding season
Active large stick nests	All	200 m			April 1 to July 31	Protect from sensory disturbance during breeding season
Sharp-tailed grouse leks	All	400 m			March 15 to June 1	Protect from sensory disturbance during breeding season
Yellow rail	All	350 m			May 15 to July 31	Protect from sensory disturbance during breeding season
Least bittern	All	400 m			May 15 to July 31	Protect from sensory disturbance during breeding season
Short-eared owl	All	500 m			April 15 to Sept 15	Protect from sensory disturbance during breeding season
Common nighthawk	All	200 m			June 1 to July 15	Protect from sensory disturbance during breeding season
Whip-poor-will	All	200 m			May 15 to July 15	Protect from sensory disturbance during breeding season

Manitoba Hydro
Lake Winnipeg East System Improvement Transmission Project

Feature	Activity	Non Frozen Ground Setback distance (no work allowed)	Frozen Ground Setback Distance (no work allowed)	Winter Vegetated Buffer Distance (shrub and herbaceous vegetation retained)	Effective Period	Rationale
Rusty blackbird	All	100 m			May 20 to July 10	Protect from sensory disturbance during breeding season
Olive-sided flycatcher	All	300 m			May 15 to July 15	Protect from sensory disturbance during breeding season
Canada warbler	All	300 m			May 20 to July 31	Protect from sensory disturbance during breeding season
Amphibians						
Northern leopard frog (known breeding pond, watering site)	Tower foundation siting	30 m	30 m			Protect from disturbance
	Clearing and construction	30 m		30 m	April 1 to May 31	Protect from disturbance
	Maintenance	30 m			April 1 to May 31	Protect from disturbance
	Access trail	30 m	30 m			Protect from disturbance
Reptiles						
Garter snake hibernacula	Tower foundation siting	200 m	200 m			Protect from disturbance
	Clearing and construction	200 m		200 m		Protect from disturbance
	Maintenance	200 m		200 m		Protect from disturbance
	Access trail	200 m				Protect from disturbance

NOTE: All measurements are from edge of feature.