

APPENDIX 3

Field Investigation Details



SURVEY	TIME	DATE	STAFF	TEMP.	WIND (beaufort)	CLOUD COVER (%)	PRECIP.	PAST PRECIP. (24 HOURS)
Woodpecker cavity search, bat habitat assessment, SAR assessment, and SWH assessment	09:25-11:15	19-Mar-24	H. Dixon and B. Varcoe	-5	3	100	Light snow	Light snow
Wetland delineation, spring botanical, ELC, aquatic habitat assessment, SAR assessment, and SWH assessment	09:22-13:30	09-May-24	H. Dixon and S. Davison	9	2	10	None	None
Grassland breeding bird survey 1	05:44-11:00	29-May-24	B. Varcoe	9	1	50	None	None
Grassland breeding bird survey 2	05:59-10:13	17-Jun-24	B. Varcoe	17	1	10	None	None
Summer botanical, SAR assessment, and SWH assessment	08:47-10:47	25-Jun-24	S. Davison	21	2	100	None	None
Grassland breeding bird survey 3	06:06-10:10	05-Jul-24	B. Varcoe	17	0	0	None	None
Aquatic Habitat Assessment	11:00-14:00	25-Mar-26	J. Widmaier	8	1	50	None	None

APPENDIX 4
Ecological Land Classification Forms



POLYGON DESCRIPTION

STAND DESCRIPTION

HT CODES: 1= $>25\text{m}$ 2= $10 < \text{HT} \leq 25\text{m}$ 3= $2 < \text{HT} \leq 10\text{m}$ 4= $1 < \text{HT} \leq 2\text{m}$ 5= $0.5 < \text{HT} \leq 1\text{m}$ 6= $0.2 < \text{HT} \leq 0.5\text{m}$ 7= $\text{HT} \leq 0.2\text{m}$

CVR CODES: 0= NONE. 1= $0\% < \text{CVR} \leq 10\%$ 2= $10\% < \text{CVR} \leq 25\%$ 3= $25\% < \text{CVR} \leq 60\%$ 4= $\text{CVR} > 60\%$

ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT

SOIL ANALYSIS:

COMMUNITY CLASSIFICATION

NOTES:

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT

NOTES:

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POLYGON DESCRIPTION

STAND DESCRIPTION

HT CODES: 1= >25m 2= 10<HT≤25m 3= 2<HT≤10m 4= 1<HT≤2m 5= 0.5<HT≤1m 6= 0.2<HT≤0.5m 7= HT≤0.2m
CVR CODES: 0= NONE, 1= 0%<CVR≤10% 2= 10%<CVR≤25% 3= 25%<CVR≤60% 4= CVR>60%

ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT

TEXTURE: Silt loam	DEPTH TO MOTTLES/GLEY	M=20	G= 30
MOISTURE: Moist	DEPTH OF ORGANICS:	3	(cm)
HOMOGENEOUS/VARIABLE	DEPTH TO BEDROCK	>100	(cm)

COMMUNITY CLASS: Swamp		CODE: SW
COMMUNITY SERIES: Deciduous Swamp		CODE: SWD
ECOSITE: Maple Mineral Deciduous Swamp Ecosite		CODE: SWDM3
VEGETATION TYPE: Red Maple Mineral Deciduous Swamp Type		CODE: SWDM3-1
INCLUSION		CODE:
COMPLEX		CODE:

Temp (°C)	Wind*	Cloud Cover	Precipitation	Precipitation(24hrs)
9	2	0	None	None

[illegible][illegible]

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CVR CODES: 0= NONE 1= $0\% \leq \text{CVR} \leq 10\%$ 2= $10\% \leq \text{CVR} \leq 25\%$ 3= $25\% \leq \text{CVR} \leq 60\%$ 4= $\text{CVR} > 60\%$

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Representative Photographs of Vegetation Community:



APPENDIX 5
Vascular Plant List



Season		Plant Type ¹	Scientific Name	Common Name	CC ²	CW ³	SARO ⁴ Status	SARA ⁵ Status	Global ⁶ Rank	Prov. ⁷ Rank	Region of ⁸ Waterloo
Spring	Summer										
✓	✓	TR	<i>Acer negundo</i>	Manitoba Maple	0	0			G5	SU	
✓	✓	TR	<i>Acer rubrum</i>	Red Maple	4	0			G5	S5	
✓	✓	TR	<i>Acer saccharinum</i>	Silver Maple	5	-3			G5	S5	
✓	✓	FO	<i>Alliaria petiolata</i>	Garlic Mustard	*	0			GNR	SNA	
	✓	FO	<i>Arctium minus</i>	Common Burdock	*	3			GNR	SNA	
✓		FO	<i>Arisaema triphyllum</i>	Jack-in-the-pulpit	5	-3			G5	S5	
✓	✓	FO	<i>Asclepias syriaca</i>	Common Milkweed	0	5			G5	S5	
	✓	FO	<i>Asclepias incarnata</i>	Swamp Milkweed	6	-5			G6	S6	
	✓	FO	<i>Bidens frondosa</i>	Devil's Beggarticks	3	-3			G5	S5	
	✓	FO	<i>Brassica rapa</i>	Field Mustard	*	5			GNR	SNA	
	✓	GR	<i>Bromus erectus</i>	Meadow Brome	*	5			GNR	SNA	
✓		FO	<i>Caltha palustris</i>	Yellow Marsh Marigold	5	-5			G5	S5	
✓		FO	<i>Cardamine pratensis</i>	Meadow Bittercress		-3			GU	SNA	S
	✓	SE	<i>Carex arctata</i>	Woodland Drooping Sedge	5	5			G5	S5	
✓	✓	SE	<i>Carex lacustris</i>	Lake Sedge	5	-5			G5	S5	
	✓	SE	<i>Carex spicata</i>	Spiked Sedge	*	5			GNR	SNA	
✓	✓	SE	<i>Carex stricta</i>	Tussock Sedge	4	-5			G5	S5	
	✓	TR	<i>Celtis occidentalis</i>	Common Hackberry	8	0			G5	S4	T
✓	✓	FO	<i>Chelidonium majus</i>	Greater Celadine		5			GNR	SNA	
✓	✓	FO	<i>Cirsium arvense</i>	Canada Thistle	*	3			G5	SNA	
✓		FO	<i>Cirsium vulgare</i>	Bull Thistle	*	3			GNR	SNA	
✓	✓	SH	<i>Cornus alternifolia</i>	Alternate-leaved Dogwood	6	3			G5	S5	
✓	✓	SH	<i>Cornus sericea</i>	Red-osier Dogwood	2	-3			G5	S5	
	✓	GR	<i>Dactylis glomerata</i>	Orchard Grass	*	3			GNR	SNA	
	✓	FO	<i>Daucus carota</i>	Wild Carrot	*	5			GNR	SNA	
✓	✓	FO	<i>Dipsacus fullonum</i>	Common Teasel		3			GNR	SNA	
	✓	VI	<i>Echinocystis lobata</i>	Wild Mock-Cucumber	3	-3			G5	S5	
	✓	GR	<i>Elymus repens</i>	Creeping Wildrye	*	3			GNR	SNA	
✓	✓	FE	<i>Equisetum arvense</i>	Field Horsetail	0	0			G5	S5	
	✓	FO	<i>Erigeron annuus</i>	Annual Fleabane	0	3			G5	S5	

Season		Plant Type ¹	Scientific Name	Common Name	CC ²	CW ³	SARO ⁴ Status	SARA ⁵ Status	Global ⁶ Rank	Prov. ⁷ Rank	Region of ⁸ Waterloo
Spring	Summer										
✓	✓	TR	<i>Fraxinus pennsylvanica</i>	Green Ash	3	-3			G5	S4	
✓	✓	FO	<i>Galium aparine</i>	Cleavers	4	3			G5	S5	
✓		FO	<i>Galium asprellum</i>	Rough Bedstraw	6	-5			G5	S5	
✓	✓	FO	<i>Galium mollugo</i>	Smooth Bedstraw	*	5			GNR	SNA	
	✓	FO	<i>Galium obtusum</i>	Blunt-leaved Bedstraw	6	-3			G5	S4S5	
✓		FO	<i>Geranium maculatum</i>	Spotted Geranium	6	3			G5	S5	
✓	✓	FO	<i>Geranium robertianum</i>	Herb-Robert	2	3			G5	S5	
	✓	FO	<i>Geum aleppicum</i>	Yellow Avens	2	0			G5	S5	
	✓	FO	<i>Geum canadense</i>	White Avens	3	0			G5	S5	
	✓	GR	<i>Glyceria striata</i>	Fowl Mannagrass	3	-5			G5T5	S5	
	✓	FO	<i>Hesperis matronalis</i>	Dame's Rocket	*	3			G4G5	SNA	
✓	✓	FO	<i>Impatiens capensis</i>	Spotted Jewelweed	4	-3			G5	S5	
	✓	TR	<i>Juglans nigra</i>	Black Walnut	5	3			G5	S4?	N
	✓	FO	<i>Juncus tenuis</i>	Path Rush	0	0			G5	S5	
	✓	TR	<i>Larix decidua</i>	European Larch	*	5			G5	SNA	
✓	✓	TR	<i>Larix laricina</i>	Tamarack	7	-3			G5	S5	
✓	✓	FO	<i>Lemna minor</i>	Lesser Duckweed	5	-5			G5	S5	
	✓	SH	<i>Lonicera</i> sp.	Honeysuckle species							
	✓	FO	<i>Lotus corniculatus</i>	Bird's-foot Trefoil	*	3			GNR	SNA	
✓		FE	<i>Matteuccia struthiopteris</i>	Ostrich Fern	5	0			G5T5	S5	
	✓	FO	<i>Medicago lupulina</i>	Black Medic	*	3			GNR	SNA	
✓		FO	<i>Myosotis sylvatica</i>	Woodland Forget-me-not	*	5			G5	SNA	
	✓	FO	<i>Oxalis stricta</i>	Upright Yellow Wood-sorrel	0	3			G5	SNA	
	✓	VW	<i>Parthenocissus quinquefolia</i>	Virginia Creeper	6	3			G5	S4?	N
✓		FO	<i>Pastinaca sativa</i>	Wild Parsnip	*	5			GNR	SNA	
✓	✓	GR	<i>Phalaris arundinacea</i>	Reed Canary Grass	0	-3			G5	S5	
	✓	GR	<i>Poa palustris</i>	Fowl Bluegrass	5	-3			G5	S5	
	✓	GR	<i>Poa pratensis</i>	Kentucky Bluegrass	0	3			G5T5	SNA	
✓		SH	<i>Prunus virginiana</i>	Choke Cherry	2	3			G5	S5	
	✓	TR	<i>Quercus macrocarpa</i>	Bur Oak	5	3			G5	S5	

Season		Plant Type ¹	Scientific Name	Common Name	CC ²	CW ³	SARO ⁴ Status	SARA ⁵ Status	Global ⁶ Rank	Prov. ⁷ Rank	Region of ⁸ Waterloo
Spring	Summer										
✓	✓	SH	<i>Rhamnus cathartica</i>	Common Buckthorn	*	0			GNR	SNA	
✓		SH	<i>Ribes americanum</i>	Wild Black Currant	4	-3			G5	S5	
✓		SH	<i>Ribes hirtellum</i>	Smooth Gooseberry	6	-3			G5	S5	
✓	✓	SH	<i>Rubus idaeus ssp. strigosus</i>	Wild Red Raspberry	2	3			G5T5	S5	
	✓	SH	<i>Rubus occidentalis</i>	Black Raspberry	2	5			G5	S5	
✓	✓	TR	<i>Salix euxina</i>	Crack Willow		0			GNR	SNA	
✓	✓	SH	<i>Salix interior</i>	Sandbar Willow	1	-3			GNR	S5	
✓	✓	SH	<i>Salix petiolaris</i>	Meadow Willow	3	-3			G5	S5	
✓	✓	SH	<i>Sambucus canadensis</i>	Common Elderberry	5	-3			G5	S5	
	✓	FO	<i>Securigera varia</i>	Common Crown-vetch		5			GNR	SNA	
	✓	VI	<i>Solanum dulcamara</i>	Bittersweet Nightshade	*	0			GNR	SNA	
✓	✓	FO	<i>Solidago sp.</i>	Goldenrod species							
	✓	FO	<i>Sonchus arvensis</i>	Field Sow-thistle		3			GNRTNR	SNA	
	✓	FO	<i>Symphyotrichum novae-angliae</i>	New England Aster	2	-3			G5	S5	
✓	✓	FO	<i>Taraxacum officinale</i>	Common Dandelion	*	3			G5	SNA	
✓		FO	<i>Thalictrum pubescens</i>	Tall Meadow-rue	5	-3			G5	S5	
✓	✓	TR	<i>Thuja occidentalis</i>	Eastern White Cedar	4	-3			G5	S5	
	✓	FO	<i>Trifolium pratense</i>	Red Clover	*	3			GNR	SNA	
	✓	FO	<i>Trifolium repens</i>	White Clover	*	3			GNR	SNA	
✓	✓	FO	<i>Tussilago farfara</i>	Colt's-foot	*	3			GNR	SNA	
	✓	FO	<i>Typha angustifolia</i>	Narrow-leaved Cattail		-5			G5	SNA	
✓	✓	FO	<i>Typha latifolia</i>	Broad-leaved Cattail	1	-5			G5	S5	
✓	✓	TR	<i>Ulmus americana</i>	American Elm	3	-3			G5	S5	
✓	✓	FO	<i>Urtica dioica ssp. dioica</i>	European Stinging Nettle	*	0			G5T5?	SNA	
	✓	FO	<i>Verbena hastata</i>	Blue Vervain	4	-3			G5	S5	
	✓	SH	<i>Viburnum lentago</i>	Nannyberry	4	0			G5	S5	
	✓	FO	<i>Vicia cracca</i>	Tufted Vetch	*	5			GNR	SNA	
✓		FO	<i>Viola sororia</i>	Woolly Blue Violet	4	0			G5	S5	
	✓	VW	<i>Vitis riparia</i>	Riverbank Grape	0	0			G5	S5	

1. Plant Types: AL = Algae; FE = Fern; FO = Forb; GR = Grass; LC = Lichen; LV = Liverwort; MO = Moss; RU = Rush; SE = Sedge; SH = Shrub; TR = Tree; VI = Herbaceous vine; VW = Woody Vine
2. CC: Coefficient of Conservatism reflects a species' fidelity to a specific habitat. Range from 0 to 10; 10 = very conservative, not likely in disturbed habitats, 1 = least conservative, likely found in a broad range of habitat.
* = value not assigned because they are non-native
3. CW: Coefficient of Wetness reflects a species' affinity for wet soil conditions. Range from -5 to 5; -5 = obligate wetland species, 5 = obligate upland species.
4. SARO: Status under the Provincial Endangered Species Act, listed on the Species at Risk in Ontario (SARO) list. In order of severity, statuses include: EXP = Extirpated; END = Endangered; THR = Threatened; SC = Special Concern
5. SARA: Status under the National Species at Risk Act (SARA), assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). In order of severity, statuses include: EXP = Extirpated; END = Endangered; THR = Threatened; SC = Special Concern
6. Global rarity rank. Range from G1 to G5; G1 = Extremely rare, G5 = Very Common. NR = Unranked; U = Unrankable.
7. Provincial rarity rank. Range from S1 to S5; S1 = Extremely rare, S5 = Very Common. NR = Unranked; U = Unrankable.
8. Waterloo Region Significant Species (2007): S = Significant; T = Significant, but possibly common?; N = Significant only if native status can be demonstrated

APPENDIX 6
Breeding Bird Survey Point Count Results & Evidence Codes



COMMON NAME	SCIENTIFIC NAME	COSSARO	SCA	COSEWIC	SARA	S-RANK	G-RANK	AREA SENSITIVE	AREA REQUIRED	PIF SPECIES	GRCA (date unk.)	REGION OF WATERLOO (1986-2007)	PC 1 Habitat: SWDM3-1-Deciduous Swamp														PC 2 Habitat: MAMM1-2																						
													R1						R2						Max Sum		R1						R2						R3						Max Sum				
													>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE			
Mallard	Anas platyrhynchos					S5	G5										0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA			
Rock Pigeon	Columba livia					SNA	G5										0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA			
Mourning Dove	Zenaida macroura					S5	G5										0	NA				1	0	X					0	NA	0	X					0	NA					0	NA	0	NA			
Chimney Swift	Chaetura pelagica	THR	NL	THR	THR	S3B	G4G5			✓							0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA			
Killdeer	Charadrius vociferus					S4B	G5									1	0	X					0	NA					0	NA	0	X					0	NA					0	NA	0	NA			
Ring-billed Gull	Larus delawarensis					S5	G5										0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA			
Great Blue Heron	Ardea herodias					S4	G5					R					0	NA				1	0	X					0	NA	0	X					0	NA					0	NA	0	NA			
Turkey Vulture	Cathartes aura					S5B, S3N	G5				CP	R					0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA			
Bald Eagle	Haliaeetus leucocephalus	NL	NL	NAR	NL	S4	G5	✓		✓							0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA			
Red-tailed Hawk	Buteo jamaicensis		NAR	NAR		S5	G5										0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA			
Belted Kingfisher	Megaceryle alcyon					S5B,S4N	G5			✓		R				1	0	X					0	NA					0	NA	0	X					0	NA					0	NA	0	NA			
Red-bellied Woodpecker	Melanerpes carolinus					S5	G5				CP	R					0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA			
Northern Flicker	Colaptes auratus					S5	G5			✓						1		1	S				0	NA					0	NA	1	S					0	NA					0	NA	0	NA			
Eastern Kingbird	Tyrannus tyrannus					S4B	G5			✓	CP						0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA			
Eastern Wood-Pewee	Contopus virens	SC	NL	SC	SC	S4B	G5			✓					1		1	S					0	NA		1	T		1	T	2	T					0	NA					0	NA	0	NA			
Willow Flycatcher	Empidonax traillii					S4B	G5			✓		R			1	1		2	S			1		1	T			0	NA	3	T			1		1	S					0	NA	2	S				
Warbling Vireo	Vireo gilvus					S5B	G5					R				1		1	S				0	NA					0	NA	1	S					0	NA					0	NA	0	NA			
Blue Jay	Cyanocitta cristata					S5	G5										0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA			
American Crow	Corvus brachyrhynchos					S5	G5										0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA			
Common Raven	Corvus corax					S5	G5										0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA			
Black-capped Chickadee	Poecile atricapillus					S5	G5				CP						0	NA			1		1	S					0	NA	1	S					0	NA					0	NA	0	NA			
Horned Lark	Eremophila alpestris					S4	G5				CP						0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA			
Tree Swallow	Tachycineta bicolor					S4S5B	G5										0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA			
Northern Rough-winged Swallow	Stelgidopteryx serripennis					S4B	G5				CP						0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA			
Barn Swallow	Hirundo rustica	SC	NL	THR	THR	S4B	G5				CP						0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA			
Cedar Waxwing	Bombycilla cedrorum					S5	G5										0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA			
White-breasted Nuthatch	Sitta carolinensis					S5	G5	✓	>10ha							1		1	S				0	NA					0	NA	1	S					0	NA					0	NA	0	NA			
House Wren	Troglodytes aedon					S5B	G5									1		1	S			2		2	T			0	NA	3	T			2		2	S			1		1	T	2		2	T	5	T
Carolina Wren	Thryothorus ludovicianus					S4	G5				CP	R					0	NA					0	NA					0	NA	0	NA					0	NA			1			1	S	1	S		
Gray Catbird	Dumetella carolinensis					S5B,S3N	G5				CP					1		1	S				0	NA				0	NA	1	S			1		1	S			1			0	NA	2	T			
European Starling	Sturnus vulgaris					SNA	G5										0	NA			4		4	S					0	NA	4	S																	

COMMON NAME	SCIENTIFIC NAME	COSSARO	SCA	COSEWIC	SARA	S-RANK	G-RANK	AREA SENSITIVE	AREA REQUIRED	PIF SPECIES	GRCA (date unk.)	REGION OF WATERLOO (1986-2007)	PC 1	Habitat: SWDM3-1-Deciduous Swamp												PC 2	Habitat: MAMM1-2																									
													R1	date: May 29, 2024					R2	date: June 17, 2024					R3	date: July 5, 2024					Max Sum		R1	date: May 29, 2024					R2	date: June 17, 2024					R3	date: July 5, 2024					Max Sum	
													>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE						
American Redstart	<i>Setophaga ruticilla</i>					S5B	G5	✓	>100ha		CP	R							0	NA					0	NA	0	NA		1			1	S				0	NA	1	S											
Yellow Warbler	<i>Dendroica petechia</i>					S5B	G5							2					2	S	1	1			2	S					0	NA	4	S	2				2	T	1	T	5	T								
Northern Cardinal	<i>Cardinalis cardinalis</i>					S5	G5							1					1	S		1			1	S	2	S		1			1	S				0	NA	1	T	2	T									
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>					S5B	G5			✓									0	NA		1			1	S	1	S					0	NA	1				1	S		1	S									
Indigo Bunting	<i>Passerina cyanea</i>					S5B	G5												0	NA					0	NA	0	NA					0	NA				0	NA		0	NA										

Breeding Evidence:

Observed

FO-flyover

X- species observed in breeding season

Possible

H-suitable habitat

S-singing male

Probable

M-multiple singing individuals

P-pair observed in suitable habitat

T-presumed territory based on presence of singing bird at least one week ap

D-courtship or display

V-visiting probabale nest site

A-agitated behaviour

B-brood patch or cloacal protuberance

N-nest building by wrens or woodpeckers

Confirmed

NB-nest building

AE-adult entering, occupying or leaving nest site

NU-empty nest used in the same season

FY-recently fledged young

DD-distraction display

FS-adult carrying fecal sac

CF-adult carrying food

NE-nest with eggs

NY-nest with young

		PC 3 Habitat:														PC 4 Habitat: OAGM1														PC 5 Habitat: OAGM1																							
		R1		date: May 29, 2024				R2		date: June 17, 2024				R3		date: July 5, 2024				Max Sum		R1		date: May 29, 2024				R2		date: June 17, 2024				R3		date: July 5, 2024				Max Sum		R1		date: May 29, 2024				R2		date: June 17, 2024			
		>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE						
Mallard	Anas platyrhynchos				1	0 X					0 NA							0 NA		0 X							0 NA								0 NA												0 NA						
Rock Pigeon	Columba livia					0 NA					0 NA							0 NA		0 NA							0 NA																					0 NA					
Mourning Dove	Zenaida macroura		1			1 S			4			4 T		1				1 T		6 T							0 NA																					0 NA					
Chimney Swift	Chaetura pelagica					0 NA			1			1 H						0 NA		1 H							0 NA																					0 NA					
Killdeer	Charadrius vociferus		1			1 S						0 NA						0 NA		1 S		1	1				2 S																				4	0 X					
Ring-billed Gull	Larus delawarensis					0 NA						0 NA						0 NA		0 NA							0 NA																						0 NA				
Great Blue Heron	Ardea herodias					0 NA				1		0 X						0 NA		0 X							0 NA																					1	0 X				
Turkey Vulture	Cathartes aura					0 NA						0 NA						0 NA		0 NA							0 NA																						0 NA				
Bald Eagle	Haliaeetus leucocephalus					0 NA						0 NA						0 NA		0 NA							0 NA																						0 NA				
Red-tailed Hawk	Buteo jamaicensis					0 NA						0 NA						0 NA		0 NA							0 NA																						0 NA				
Belted Kingfisher	Megasceryle alcyon					0 NA						0 NA						0 NA		0 NA							0 NA																						0 NA				
Red-bellied Woodpecker	Melanerpes carolinus					0 NA						0 NA						0 NA		0 NA							0 NA																						0 NA				
Northern Flicker	Colaptes auratus					0 NA						0 NA						0 NA		0 NA							0 NA																						0 NA				
Eastern Kingbird	Tyrannus tyrannus					0 NA						0 NA						0 NA		0 NA							0 NA																						0 NA				
Eastern Wood-Pewee	Contopus virens			1		0 NA						0 NA						0 NA		0 NA							0 NA																						0 NA				
Willow Flycatcher	Empidonax traillii		1			1 S						0 NA						0 NA		1 S							0 NA																						0 NA				
Warbling Vireo	Vireo gilvus					0 NA						0 NA						0 NA		0 NA							0 NA																						0 NA				
Blue Jay	Cyanocitta cristata					0 NA						0 NA						0 NA		0 NA							0 NA																						0 NA				
American Crow	Corvus brachyrhynchos					0 NA						0 NA						0 NA		0 NA							0 NA																						0 NA				
Common Raven	Corvus corax					0 NA						0 NA						0 NA		0 NA							0 NA																						0 NA				
Black-capped Chickadee	Poecile atricapillus					0 NA						0 NA						0 NA		0 NA							0 NA																						0 NA				
Horned Lark	Eremophila alpestris					0 NA						0 NA						0 NA		0 NA			2				2 S																						0 NA				
Tree Swallow	Tachycineta bicolor		1			1 S		2				2 T						0 NA		3 T							0 NA																						0 NA				
Northern Rough-winged Swallow	Stelgidopteryx serripennis					0 NA			1			1 S						0 NA		1 S							0 NA																						0 NA				
Barn Swallow	Hirundo rustica					0 NA						0 NA						0 NA		0 NA							0 NA																						0 NA				
Cedar Waxwing	Bombycilla cedrorum					0 NA						0 NA						0 NA		0 NA							0 NA																						0 NA				
White-breasted Nuthatch	Sitta carolinensis					0 NA						0 NA						0 NA		0 NA							0 NA																						0 NA				
House Wren	Troglodytes aedon					0 NA						0 NA						0 NA		0 NA							0 NA																						0 NA				
Carolina Wren	Thryothorus ludovicianus					0 NA						0 NA						0 NA		0 NA							0 NA																						0 NA				
Gray Catbird	Dumetella carolinensis					0 NA						0 NA						0 NA		0 NA							0 NA																						0 NA				
European Starling	Sturnus vulgaris				4	0 X						0 NA			25	</																																					

COMMON NAME	SCIENTIFIC NAME	PC 3 Habitat:														PC 4 Habitat: OAGM1														PC 5 Habitat: OAGM1																							
		R1 date: May 29, 2024						R2 date: June 17, 2024						R3 date: July 5, 2024						Max Sum		R1 date: May 29, 2024						R2 date: June 17, 2024						R3 date: July 5, 2024						Max Sum		R1 date: May 29, 2024						R2 date: June 17, 2024					
		>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE						
American Redstart	<i>Setophaga ruticilla</i>					0 NA					0 NA			0 NA						0 NA						0 NA			0 NA						0 NA					0 NA					0 NA								
Yellow Warbler	<i>Dendroica petechia</i>					0 NA					0 NA			0 NA						0 NA						0 NA			0 NA						0 NA					0 NA					0 NA								
Northern Cardinal	<i>Cardinalis cardinalis</i>					0 NA					0 NA			0 NA						0 NA						0 NA			0 NA						0 NA					0 NA					0 NA								
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>					0 NA					0 NA			0 NA						0 NA						0 NA			0 NA						0 NA					0 NA					0 NA								
Indigo Bunting	<i>Passerina cyanea</i>					0 NA					0 NA			0 NA						0 NA						0 NA			0 NA						0 NA					0 NA					0 NA								

COMMON NAME	SCIENTIFIC NAME	PC 6 Habitat: OAGM1																PC 7 Habitat: OAGM1																															
		R3 date: July 5, 2024						Max Sum		R1 date: May 29, 2024						R2 date: June 17, 2024						R3 date: July 5, 2024						Max Sum		R1 date: May 29, 2024						R2 date: June 17, 2024						R3 date: July 5, 2024						Max Sum	
		>50	50-100	>100	FO	total	HBE	TOTAL	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE						
Mallard	Anas platyrhynchos					0 NA		0 NA						0 NA						0 NA		0 NA					0 NA		0 NA						0 NA				0 NA		0 NA		0 NA		0 NA				
Rock Pigeon	Columba livia					0 NA		0 NA						0 NA						0 NA		0 NA					0 NA		0 NA						0 NA				15	0 X				0 NA		0 X			
Mourning Dove	Zenaida macroura					0 NA		0 NA						0 NA						0 NA		0 NA					0 NA		0 NA						0 NA					0 NA		0 NA		0 NA		0 NA			
Chimney Swift	Chaetura pelagica					0 NA		0 NA						0 NA						0 NA		0 NA					0 NA		0 NA						0 NA					0 NA		0 NA		0 NA		0 NA			
Killdeer	Charadrius vociferus					0 NA		0 X						0 NA				2	0 X						1	0 X	0 X		0 X						1	S			4	0 X			4	T	5 T				
Ring-billed Gull	Larus delawarensis					0 NA		0 NA						0 NA						0 NA		0 NA					0 NA		0 NA						0 NA				1	0 X				0 NA		0 X			
Great Blue Heron	Ardea herodias					0 NA		0 X						0 NA				1	0 X								0 NA		0 X						0 NA				2	0 X				0 NA		0 X			
Turkey Vulture	Cathartes aura					0 NA		0 NA						0 NA						0 NA		0 NA					0 NA		0 NA						0 NA					0 NA		0 NA		0 NA		0 NA			
Bald Eagle	Haliaeetus leucocephalus					0 NA		0 NA						0 NA						0 NA		0 NA					0 NA		0 NA						0 NA					0 NA		0 NA		0 NA		0 NA			
Red-tailed Hawk	Buteo jamaicensis					0 NA		0 X				1		0 NA						0 NA		0 NA					0 NA		0 NA						0 NA				1	0 X				0 NA		0 X			
Belted Kingfisher	Megasceryle alcyon					0 NA		0 NA						0 NA						0 NA		0 NA					0 NA		0 NA						0 NA					0 NA		0 NA		0 NA		0 NA			
Red-bellied Woodpecker	Melanerpes carolinus					0 NA		0 NA						0 NA						0 NA		0 NA					0 NA		0 NA						0 NA					0 NA		0 NA		0 NA		0 NA			
Northern Flicker	Colaptes auratus					0 NA		0 NA						0 NA						0 NA		0 NA					0 NA		0 NA						0 NA					0 NA		0 NA		0 NA		0 NA			
Eastern Kingbird	Tyrannus tyrannus					0 NA		0 NA						0 NA						0 NA		0 NA					0 NA		0 NA						0 NA					0 NA		0 NA		0 NA		0 NA			
Eastern Wood-Pewee	Contopus virens			1		0 NA		0 NA						0 NA						0 NA		0 NA					0 NA		0 NA						0 NA					0 NA		0 NA		0 NA		0 NA			
Willow Flycatcher	Empidonax traillii					0 NA		0 NA						0 NA						0 NA		0 NA					0 NA		0 NA						0 NA					0 NA		0 NA		0 NA		0 NA			
Warbling Vireo	Vireo gilvus					0 NA		0 NA						0 NA						0 NA		0 NA					0 NA		0 NA						0 NA					0 NA		0 NA		0 NA		0 NA			
Blue Jay	Cyanocitta cristata					0 NA		0 NA						0 NA						0 NA		0 NA					0 NA		0 NA						0 NA					0 NA		0 NA		0 NA		0 NA			
American Crow	Corvus brachyrhynchos					0 NA		0 NA						0 NA						0 NA		0 NA					0 NA		0 NA						0 NA					0 NA		0 NA		0 NA		0 NA			
Common Raven	Corvus corax					0 NA		0 NA				1		0 NA						0 NA		0 NA					0 NA		0 NA						0 NA					0 NA		0 NA		0 NA		0 NA			
Black-capped Chickadee	Poecile atricapillus					0 NA		0 NA						0 NA						0 NA		0 NA					0 NA		0 NA						0 NA					0 NA		0 NA		0 NA		0 NA			
Horned Lark	Eremophila alpestris					0 NA		0 NA						0 NA						0 NA		0 NA					0 NA		0 NA						0 NA					0 NA		0 NA		0 NA		0 NA			
Tree Swallow	Tachycineta bicolor					0 NA		0 NA						0 NA						0 NA		0 NA					0 NA		0 NA						0 NA					0 NA		0 NA		0 NA		0 NA			
Northern Rough-winged Swallow	Stelgidopteryx serripennis					0 NA		0 NA						0 NA						0 NA		0 NA					0 NA		0 NA						0 NA					0 NA		0 NA		0 NA		0 NA			
Barn Swallow	Hirundo rustica					0 NA		0 NA				3		3 H				2		0 H				2			2 H	3 H		1				1 H			1			1 H		1		1 H		3 H			
Cedar Waxwing	Bombycilla cedrorum					0 NA		0 NA						0 NA						0 NA		0 NA					0 NA		0 NA						0 NA					0 NA		0 NA		0 NA		0 NA			
White-breasted Nuthatch	Sitta carolinensis					0 NA		0 NA						0 NA						0 NA		0 NA					0 NA		0 NA						0 NA					0 NA		0 NA		0 NA		0 NA			
House Wren	Troglodytes aedon					0 NA		0 NA						0 NA						0 NA		0 NA					0 NA		0 NA						0 NA					0 NA		0 NA		0 NA		0 NA			
Carolina Wren	Thryothorus ludovicianus					0 NA		0 NA						0 NA						0 NA		0 NA					0 NA		0 NA						0 NA					0 NA		0 NA		0 NA		0 NA			
Gray Catbird	Dumetella carolinensis																																																

COMMON NAME	SCIENTIFIC NAME			PC 6 Habitat: OAGM1														PC 7 Habitat: OAGM1																															
		R3	date: July 5, 2024					Max Sum		R1	date: May 29, 2024					R2	date: June 17, 2024					R3	date: July 5, 2024					Max Sum		R1	date: May 29, 2024					R2	date: June 17, 2024					R3	date: July 5, 2024					Max Sum	
		>50	50-100	>100	FO	total	HBE	TOTAL	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE						
American Redstart	Setophaga ruticilla					0 NA	0 NA							0 NA						0 NA	0 NA	0 NA	0 NA						0 NA						0 NA	0 NA						0 NA	0 NA						
Yellow Warbler	Dendroica petechia					0 NA	0 NA							0 NA						0 NA	0 NA	0 NA	0 NA						0 NA						0 NA	0 NA						0 NA	0 NA						
Northern Cardinal	Cardinalis cardinalis					0 NA	0 NA				1			0 NA				1		0 NA	0 NA	0 NA	0 NA						0 NA						0 NA	0 NA						0 NA	0 NA						
Rose-breasted Grosbeak	Pheucticus ludovicianus					0 NA	0 NA							0 NA						0 NA	0 NA	0 NA	0 NA						0 NA						0 NA	0 NA						0 NA	0 NA						
Indigo Bunting	Passerina cyanea					0 NA	1 S							0 NA						0 NA	0 NA	0 NA	0 NA						0 NA						0 NA	0 NA						0 NA	0 NA						

COMMON NAME	SCIENTIFIC NAME	PC 8 Habitat: OAGM1														PC 9 Habitat: OAGM1														PC 10 Habitat: OAGM1																								
		R1 date: May 29, 2024						R2 date: June 17, 2024						R3 date: July 5, 2024						Max Sum		R1 date: May 29, 2024						R2 date: June 17, 2024						R3 date: July 5, 2024						Max Sum		R1 date: May 29, 2024						R2 date: June 17, 2024						
		>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE													
Mallard	Anas platyrhynchos					0	NA					0	NA		0	NA				0	NA					0	NA		0	NA					0	NA				1	0	X					0	NA						
Rock Pigeon	Columba livia					0	NA					0	NA		0	NA				0	NA			20			20	H					0	NA	20	H					0	NA					0	NA						
Mourning Dove	Zenaida macroura					0	NA				1	0	X		0	NA	0	X				1	0	X				0	NA					0	NA	1	S	1	S					0	NA				0	NA				
Chimney Swift	Chaetura pelagica					0	NA					0	NA		0	NA	0	NA									0	NA		0	NA	0	NA					0	NA	0	NA					0	NA							
Killdeer	Charadrius vociferus					0	NA				1	0	X	1	2			3	S	3	S			1	1	0	X					0	NA			1	S	1	S			1	1	0	H				0	NA				
Ring-billed Gull	Larus delawarensis					0	NA					0	NA		0	NA	0	NA									0	NA		0	NA	0	NA					0	NA	0	NA					0	NA							
Great Blue Heron	Ardea herodias					0	NA				3	0	X					0	NA	0	X					0	NA				2	0	X					0	NA	0	X			2	0	X				0	NA			
Turkey Vulture	Cathartes aura				1	0	X					0	NA					0	NA	0	X					0	NA					0	NA	0	NA					0	NA	0	NA					0	NA					
Bald Eagle	Haliaeetus leucocephalus					0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA	0	NA					0	NA					
Red-tailed Hawk	Buteo jamaicensis					0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA	0	NA					0	NA					
Belted Kingfisher	Megaceryle alcyon					0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA	0	NA					0	NA					
Red-bellied Woodpecker	Melanerpes carolinus					0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA	0	NA					0	NA					
Northern Flicker	Colaptes auratus					0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA	0	NA					0	NA					
Eastern Kingbird	Tyrannus tyrannus					0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA	0	NA					0	NA					
Eastern Wood-Pewee	Contopus virens					0	NA					0	NA					0	NA	0	NA			1		0	NA					0	NA	0	NA					0	NA	0	NA					0	NA					
Willow Flycatcher	Empidonax traillii					0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	1	S					0	NA	1	S					0	NA					
Warbling Vireo	Vireo gilvus					0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA	0	NA					0	NA					
Blue Jay	Cyanocitta cristata			2		0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA	0	NA					0	NA					
American Crow	Corvus brachyrhynchos					0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					6				0	NA				0	NA				
Common Raven	Corvus corax					0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA										0	NA				0	NA			
Black-capped Chickadee	Poecile atricapillus					0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA										0	NA				0	NA			
Horned Lark	Eremophila alpestris					0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA										0	NA				0	NA			
Tree Swallow	Tachycineta bicolor					0	NA		1			1	S					0	NA	1	S					0	NA	3				3	S					0	NA	3	S			4			4	S			7		7	T
Northern Rough-winged Swallow	Stelgidopteryx serripennis					0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA	0	NA					0	NA					
Barn Swallow	Hirundo rustica					0	NA					0	NA		1			1	H	1	H					0	NA	1				1	H	3			3	T	4	T	10				10	S	1	2			3	H		
Cedar Waxwing	Bombycilla cedrorum					0	NA					0	NA					0	NA	0	NA			3		0	NA					0	NA	0	NA					0	NA	0	NA					0	NA					
White-breasted Nuthatch	Sitta carolinensis					0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA	0	NA					0	NA					
House Wren	Troglodytes aedon					0	NA					0	NA			1		0	NA	0	NA			1		1	S			1		1	T			1		1	T	3	T					0	NA				0	NA		
Carolina Wren	Thryothorus ludovicianus					0	NA					0	NA					0	NA	0	NA					0	NA																											

American Redstart	<i>Setophaga ruticilla</i>					0 NA				0 NA				0 NA	0 NA				0 NA				0 NA	0 NA				0 NA				0 NA				
Yellow Warbler	<i>Dendroica petechia</i>					0 NA				0 NA				0 NA	0 NA	2			2 S				0 NA				0 NA	2 S				0 NA	1		0 NA	
Northern Cardinal	<i>Cardinalis cardinalis</i>					0 NA				0 NA				0 NA	0 NA				0 NA				0 NA				0 NA	0 NA						0 NA		
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>					0 NA				0 NA				0 NA	0 NA				0 NA				0 NA				0 NA	0 NA			1		0 NA	1		0 NA
Indigo Bunting	<i>Passerina cyanea</i>					0 NA				0 NA				0 NA	0 NA				0 NA				0 NA				0 NA	0 NA					0 NA		0 NA	

COMMON NAME	SCIENTIFIC NAME	PC 11 Habitat: OAGM1														PC 12 Habitat: OAGM1																																	
		R3 date: July 5, 2024						Max Sum		R1 date: May 29, 2024						R2 date: June 17, 2024						R3 date: July 5, 2024						Max Sum		R1 date: May 29, 2024						R2 date: June 17, 2024						R3 date: July 5, 2024						Max Sum	
		>50	50-100	>100	FO	total	HBE	TOTAL	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE						
Mallard	Anas platyrhynchos					0 NA		0 X						0 NA						0 NA			0 NA						0 NA								0 NA				0 NA			0 NA					
Rock Pigeon	Columba livia				3	0 X		0 X						0 NA						0 NA			1 S	1 S			2		10	2 S			5			5 H			20	0 X	7 S								
Mourning Dove	Zenaida macroura		1			1 S		1 S		1	1			2 S	3					3 T			3 T	8 T					0 NA			1			1 S	1	2			3 T	4 T								
Chimney Swift	Chaetura pelagica					0 NA		0 NA						0 NA		4				4 H			0 NA	4 H					0 NA			2			2 H	1			1 NA	3 H									
Killdeer	Charadrius vociferus				1	0 X		0 H						0 NA						0 NA			4 S	4 S					0 NA			1			1 S				0 NA	1 S									
Ring-billed Gull	Larus delawarensis					0 NA		0 NA						0 NA						0 NA			0 NA	0 NA					0 NA						0 NA				0 NA	0 NA									
Great Blue Heron	Ardea herodias					0 NA		0 X					1	0 X						0 NA			0 NA	0 X					0 NA						0 NA				0 NA	0 NA									
Turkey Vulture	Cathartes aura					0 NA		0 NA						0 NA						0 NA			0 NA	0 NA					0 NA						0 NA				0 NA	0 NA									
Bald Eagle	Haliaeetus leucocephalus					0 NA		0 NA						0 NA						0 NA			0 NA	0 NA					0 NA						0 NA				0 NA	0 NA									
Red-tailed Hawk	Buteo jamaicensis					0 NA		0 NA						0 NA						0 NA			0 NA	0 NA					0 NA						0 NA				0 NA	0 NA									
Belted Kingfisher	Megaceryle alcyon					0 NA		0 NA						0 NA						0 NA			0 NA	0 NA					0 NA						0 NA				0 NA	0 NA									
Red-bellied Woodpecker	Melanerpes carolinus					0 NA		0 NA						0 NA			1			1 S	1 S				1 S				0 NA						0 NA				0 NA	0 NA									
Northern Flicker	Colaptes auratus					0 NA		0 NA						0 NA						0 NA			0 NA	0 NA					0 NA						0 NA				0 NA	0 NA									
Eastern Kingbird	Tyrannus tyrannus					0 NA		0 NA						0 NA						0 NA			0 NA	0 NA					0 NA				2		2 P				0 NA	2 P									
Eastern Wood-Pewee	Contopus virens					0 NA		0 NA						0 NA						0 NA			0 NA	0 NA					0 NA						0 NA				0 NA	0 NA									
Willow Flycatcher	Empidonax traillii					0 NA		0 NA						0 NA						0 NA			0 NA	0 NA					0 NA						0 NA				0 NA	0 NA									
Warbling Vireo	Vireo gilvus					0 NA		0 NA						0 NA						0 NA			0 NA	0 NA					0 NA						0 NA				0 NA	0 NA									
Blue Jay	Cyanocitta cristata					0 NA		0 NA						0 NA						0 NA			0 NA	0 NA					0 NA						0 NA				0 NA	0 NA									
American Crow	Corvus brachyrhynchos					0 NA		0 NA				1	1	0 X						0 NA			0 NA	0 X					0 NA						0 NA				0 NA	0 NA									
Common Raven	Corvus corax					0 NA		0 NA						0 NA						0 NA			0 NA	0 NA					0 NA						0 NA				0 NA	0 NA									
Black-capped Chickadee	Poecile atricapillus					0 NA		0 NA						0 NA						0 NA			0 NA	0 NA					0 NA						0 NA				0 NA	0 NA									
Horned Lark	Eremophila alpestris					0 NA		0 NA		2				2 S		1				1 T			0 NA	3 T					0 NA						0 NA				0 NA	0 NA									
Tree Swallow	Tachycineta bicolor					0 NA		11 T		2				2 S						0 NA			0 NA	2 S			2		2 S						0 NA				0 NA	2 S									
Northern Rough-winged Swallow	Stelgidopteryx serripennis					0 NA		0 NA						0 NA						0 NA			0 NA	0 NA					0 NA						0 NA				0 NA	0 NA									
Barn Swallow	Hirundo rustica	3				3 H		16 H						0 NA	3					3 V	2		2 V	5 V		5	5		10 V	3			3 V	2			2 V	15 V											
Cedar Waxwing	Bombycilla cedrorum					0 NA		0 NA						0 NA	2					2 S			0 NA	2 S					0 NA					0 NA				0 NA	0 NA										
White-breasted Nuthatch	Sitta carolinensis					0 NA		0 NA						0 NA						0 NA			0 NA	0 NA					0 NA						0 NA				0 NA	0 NA									
House Wren	Troglodytes aedon					0 NA		0 NA						0 NA						0 NA			0 NA	0 NA					0 NA						0 NA				0 NA	0 NA									
Carolina Wren	Thryothorus ludovicianus					0 NA		0 NA						0 NA						0 NA			0 NA	0 NA					0 NA						0 NA				0 NA	0 NA									
Gray Catbird	Dumetella carolinensis					0 NA		0 NA						0 NA						0 NA			0 NA	0 NA					0 NA						0 NA				0 NA	0 NA									
European Starling	Sturnus vulgaris				20	0 X		10 S		25				25 S		5				5 T			0 NA	30 T			2		2 S					0 NA				0 NA	2 S										
Veery	Catharus fuscescens					0 NA		0 NA						0 NA						0 NA			0 NA	0 NA					0 NA						0 NA				0 NA	0 NA									
American Robin	Turdus migratorius		1			1 S		2 S		2	2			4 S	4					4 T	3		3 T	11 T		1			1 S		1		1 T	1	2		3 T	5 T											
House Sparrow	Passer domesticus					0 NA		0 NA						0 NA						0 NA			0 NA	0 NA					0 NA				2		2 P		5		5 S	7 P									
American Goldfinch	Carduelis tristis					0 NA		0 X						0 NA				2	0 X			1		1 S	1 S		1	2		1 S					0 NA				0 NA	1 S									
Chipping Sparrow	Spizella passerina		1			1 S		1 S		1				1 S	1	1				2 T	4		4 T	7 T					0 NA		1			1 S		2		2 T	3 T										
Field Sparrow	Spizella pusilla					0 NA		0 NA						0 NA						0 NA			0 NA	0 NA					0 NA						0 NA				0 NA	0 NA									
Savannah Sparrow	Passerculus sandwichensis	5	1			6 S		18 A			2			2 S		6				6 P	2	2		4 T	12 T		2	5		7 P	3	1		4 T	1	3		4 T	15 T										
Song Sparrow	Melospiza melodia		2			2																																											

COMMON NAME	SCIENTIFIC NAME	PC 11 Habitat: OAGM1														PC 12 Habitat: OAGM1																									
		R3 date: July 5, 2024						Max Sum		R1 date: May 29, 2024						R2 date: June 17, 2024		R3 date: July 5, 2024						Max Sum		R1 date: May 29, 2024						R2 date: June 17, 2024		R3 date: July 5, 2024						Max Sum	
		>50	50-100	>100	FO	total	HBE	TOTAL	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE				
American Redstart	<i>Setophaga ruticilla</i>					0	NA	0	NA						0	NA						0	NA	0	NA						0	NA					0	NA	0	NA	
Yellow Warbler	<i>Dendroica petechia</i>					0	NA	0	NA						0	NA						0	NA	0	NA						0	NA					0	NA	0	NA	
Northern Cardinal	<i>Cardinalis cardinalis</i>					0	NA	0	NA						0	NA						0	NA	0	NA						0	NA					0	NA	0	NA	
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>					0	NA	0	NA						0	NA						0	NA	0	NA						0	NA					0	NA	0	NA	
Indigo Bunting	<i>Passerina cyanea</i>					0	NA	0	NA						0	NA						0	NA	0	NA						0	NA					0	NA	0	NA	

		PC 13 Habitat: OAGM1																		SITE SUMMARY			
		R1	date: May 29, 2024					R2	date: June 17, 2024					R3	date: July 5, 2024							Max Sum	
COMMON NAME	SCIENTIFIC NAME	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE	TOTAL	HBE
Mallard	Anas platyrhynchos					0	NA					0	NA					0	NA	0	NA	0	FO
Rock Pigeon	Columba livia					0	NA					0	NA					0	NA	0	NA	30	S
Mourning Dove	Zenaida macroura					0	NA				2	0	X		1			1	S	1	S	21	T
Chimney Swift	Chaetura pelagica					0	NA					0	NA					0	NA	0	NA	8	H
Killdeer	Charadrius vociferus					0	NA					0	NA		4			4	S	4	S	21	T
Ring-billed Gull	Larus delawarensis					0	NA					0	NA					0	NA	0	NA	1	X
Great Blue Heron	Ardea herodias					0	NA					0	NA					0	NA	0	NA	0	FO
Turkey Vulture	Cathartes aura					0	NA					0	NA					0	NA	0	NA	0	FO
Bald Eagle	Haliaeetus leucocephalus					0	NA					0	NA					0	NA	0	NA	0	NA
Red-tailed Hawk	Buteo jamaicensis					0	NA					0	NA					0	NA	0	NA	0	FO
Belted Kingfisher	Megaceryle alcyon					0	NA					0	NA					0	NA	0	NA	0	FO
Red-bellied Woodpecker	Melanerpes carolinus					0	NA					0	NA					0	NA	0	NA	1	S
Northern Flicker	Colaptes auratus					0	NA					0	NA					0	NA	0	NA	1	S
Eastern Kingbird	Tyrannus tyrannus					0	NA					0	NA					0	NA	0	NA	2	P
Eastern Wood-Pewee	Contopus virens					0	NA					0	NA					0	NA	0	NA	3	T
Willow Flycatcher	Empidonax traillii					0	NA					0	NA					0	NA	0	NA	7	T
Warbling Vireo	Vireo gilvus					0	NA					0	NA					0	NA	0	NA	1	S
Blue Jay	Cyanocitta cristata					0	NA					0	NA					0	NA	0	NA	0	NA
American Crow	Corvus brachyrhynchos					0	NA					0	NA					0	NA	0	NA	0	FO
Common Raven	Corvus corax					0	NA					0	NA					0	NA	0	NA	0	NA
Black-capped Chickadee	Poecile atricapillus					0	NA					0	NA					0	NA	0	NA	1	S
Horned Lark	Eremophila alpestris					0	NA					0	NA		4			4	S	4	S	15	T
Tree Swallow	Tachycineta bicolor					0	NA					0	NA					0	NA	0	NA	23	T
Northern Rough-winged Swallow	Stelgidopteryx serripennis					0	NA					0	NA					0	NA	0	NA	1	S
Barn Swallow	Hirundo rustica					0	NA					0	NA					0	NA	0	NA	47	V
Cedar Waxwing	Bombycilla cedrorum					0	NA					0	NA					0	NA	0	NA	2	S
White-breasted Nuthatch	Sitta carolinensis					0	NA					0	NA					0	NA	0	NA	1	S
House Wren	Troglodytes aedon					0	NA					0	NA					0	NA	0	NA	11	T
Carolina Wren	Thryothorus ludovicianus					0	NA					0	NA					0	NA	0	NA	1	S
Gray Catbird	Dumetella carolinensis					0	NA					0	NA					0	NA	0	NA	3	T
European Starling	Sturnus vulgaris		1			1	S					0	NA					0	NA	1	S	80	T
Veery	Catharus fuscescens					0	NA					0	NA					0	NA	0	NA	1	S
American Robin	Turdus migratorius		1			1	S		1			1	T					0	NA	2	T	40	T
House Sparrow	Passer domesticus					0	NA					0	NA					0	NA	0	NA	7	P
American Goldfinch	Carduelis tristis		2		4	2	S	1				1	T					0	NA	3	T	18	T
Chipping Sparrow	Spizella passerina					0	NA					0	NA					0	NA	0	NA	17	T
Field Sparrow	Spizella pusilla					0	NA					0	NA					0	NA	0	NA	1	S
Savannah Sparrow	Passerculus sandwichensis	3	4			7	P	5	4			9	P	1	2			3	S	19	P	149	FY
Song Sparrow	Melospiza melodia					0	NA	1	2			3	S					0	NA	3	S	52	T
Bobolink	Dolichonyx oryzivorus		1			1	S					0	NA					0	NA	1	S	1	S
Baltimore Oriole	Icterus galbula					0	NA					0	NA					0	NA	0	NA	3	T
Red-winged Blackbird	Agelaius phoeniceus	3	3			6	P	2	9			11	CF			1		0	NA	17	CF	202	CF
Brown-headed Cowbird	Molothrus ater					0	NA					0	NA					0	NA	0	NA	12	T
Common Grackle	Quiscalus quiscula					0	NA					0	NA					0	NA	0	NA	21	T
Common Yellowthroat	Geothlypis trichas					0	NA					0	NA					0	NA	0	NA	2	S

COMMON NAME	SCIENTIFIC NAME	PC 13 Habitat: OAGM1																		SITE SUMMARY				
		R1	date: May 29, 2024					R2	date: June 17, 2024					R3	date: July 5, 2024							Max Sum		
		>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE	TOTAL	HBE	
American Redstart	<i>Setophaga ruticilla</i>					0	NA						0	NA					0	NA	0	NA	1	S
Yellow Warbler	<i>Dendroica petechia</i>					0	NA						0	NA					0	NA	0	NA	11	T
Northern Cardinal	<i>Cardinalis cardinalis</i>					0	NA						0	NA					0	NA	0	NA	4	T
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>					0	NA						0	NA					0	NA	0	NA	2	S
Indigo Bunting	<i>Passerina cyanea</i>					0	NA						0	NA					0	NA	0	NA	1	S

APPENDIX 7
Breeding Bird Survey Area Search Results & Evidence Codes



COMMON NAME	SCIENTIFIC NAME	COSSARO	SCA	COSEWIC	SARA	S-RANK	G-RANK	AREA SENSITIVE	AREA REQUIRED (HA)	PIF SPECIES (BCR 13)	GRCA (date unk.)	REGION OF WATERLOO (1986-2007)	Polygon: A		Habitat: OAGM1				Polygon: B		Habitat: SWDM3-1				Polygon: C		Habitat: IAGM1/CVR4				SITE							
													Date: 05/29/24		Date: 06/17/24		Date: 07/05/24		Totals		Date: 05/29/24		Date: 06/17/24		Date: 07/05/24		Totals		Date: 05/29/24		Date: 06/17/24		Date: 07/05/24		Totals		SUMMARY	
													COUNT	HBE	COUNT	HBE	COUNT	HBE	MAX	HBE	COUNT	HBE	COUNT	HBE	COUNT	HBE	MAX	HBE	COUNT	HBE	COUNT	HBE	COUNT	HBE	MAX	HBE	TOTAL	HBE
Canada Goose	Branta canadensis					S5	G5				CP		10+	FO		NA		NA	10+	FO		NA		NA		NA		NA		NA		10+	FO					
Wild Turkey	Meleagris gallopavo					S5	G5						1	H		NA		NA	1	H		NA		NA		NA		NA		NA		1	H					
Rock Pigeon	Columba livia					SNA	G5						10+	H		NA		NA	10+	H		NA		NA		NA		NA		NA		10+	H					
Great Blue Heron	Ardea herodias					S4	G5				R		1	FO	1	FO		NA	1	FO		NA		NA		NA		1	FO		NA	1	FO	2	FO			
Bald Eagle	Haliaeetus leucocephalus					S4	G5	✓		✓			1	H		NA		NA	1	H		NA		NA		NA		NA		NA		NA		1	H			
Red-tailed Hawk	Buteo jamaicensis					S5	G5						1	H		NA		NA	1	H		NA		NA		NA		NA		NA		NA		1	H			
Northern Flicker	Colaptes auratus					S5	G5			✓				NA	1	S		NA	1	S		NA		NA		NA		NA		NA		NA		1	S			
Willow Flycatcher	Empidonax traillii					S4B	G5			✓	R			NA		NA		NA	0	NA	1	S		NA		NA	1	S		NA		NA		1	S			
Blue Jay	Cyanocitta cristata					S5	G5						1	FO		NA		NA	1	FO		NA		NA		NA		NA		NA		NA		1	FO			
Tree Swallow	Tachycineta bicolor					S4S5B	G5						12	S	5	S		NA	12	S		NA		NA		NA		NA		NA		NA		17	S			
Barn Swallow	Hirundo rustica	SC	NL	THR	THR	S4B	G5				CP		30	S	4	S		NA	30	S	2	S		NA		NA	2	S		NA		NA		NA	36	S		
Cedar Waxwing	Bombycilla cedrorum					S5	G5							NA		NA		NA	0	NA		NA	2	S		NA	2	S	2	S		NA		NA	2	S	4	S
American Robin	Turdus migratorius					S5	G5						1	S		NA		NA	1	S	3	S		NA		NA	3	S		NA		NA		NA	4	S		
House Sparrow	Passer domesticus					SNA	G5							NA	10+	H		NA	10+	H		NA		NA		NA		NA		NA		NA		10+	H			
American Goldfinch	Carduelis tristis					S5	G5				CP		1	S		NA		NA	1	S		NA		NA		NA		NA		NA		NA		1	S			
Savannah Sparrow	Passerculus sandwichensis					S5B,S3N	G5	✓	>50	✓	CP		26+	S	13	NY	10+	FY	26+	NY		NA		NA		NA		NA		NA		NA		59+	NY			
Song Sparrow	Melospiza melodia					S5	G5						2	S		NA		NA	2	S		NA		NA		NA		NA		NA		NA		2	S			
Bobolink	Dolichonyx oryzivorus	THR	NL	THR	THR	S4B	G5	✓	>10	✓	CP		1	S		NA		NA	1	S		NA		NA		NA		NA		NA		NA		1	S			
Red-winged Blackbird	Agelaius phoeniceus					S5	G5						30+	P	8	P		NA	30+	P	3	S		NA		NA	3	S		NA		NA		NA	41+	P		
Common Grackle	Quiscalus quiscula					S5	G5						1	S		NA		NA	1	S		NA		NA		NA		NA		NA		NA		1	S			

Probable

- M-multiple singing individuals
- P-pair observed in suitable habitat
- T-presumed territory based on presence of singing bird at least one week apart
- D-courtship or display
- V-visiting probable nest site
- A-agitated behaviour
- B-brood patch or cloacal protuberance
- N-nest building by wrens or woodpeckers

Confirmed

- NB-nest building
- AE-adult entering, occupying or leaving nest site
- NU-empty nest used in the same season
- FY-recently fledged young
- DD-distraction display
- FS-adult carrying fecal sac
- CF-adult carrying food
- NE-nest with eggs
- NY-nest with young

APPENDIX 8
Significant Wildlife Habitat Assessment



APPENDIX 8. CANDIDATE SIGNIFICANT WILDLIFE HABITAT ASSESSMENT

PROJECT #: AA23-232A

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	SWH protected area	Site assessment details	Candidate SWH	Field studies required/ completed	Confirmed SWH
1	Waterfowl Stopover and Staging Areas (Terrestrial)	Seasonal concentration areas of animals	- Fields with Sheet water in spring (incl. agricultural)	- Mixed species aggregations of 100 or more individuals confirms SWH	Flooded field ecosite and 100-300m radius is the SWH	No habitat matching criteria identified in study area	No	None required	No
2	Waterfowl Stopover and Staging (Aquatic)	Seasonal concentration areas of animals	- Ponds, marshes, lakes, bays, coastal inlets and watercourses and reservoirs - SWTP & SWMP are not SWH	- Aggregations of 100 or more listed species for 7 days (i.e., >700 waterfowl use days) confirms SWH	Aquatic ecosite and 100m radius is the SWH	No habitat matching criteria identified in study area	No	None required	No
3	Shorebird Migratory Stopover	Seasonal concentration areas of animals	- Shorelines of Lakes, rivers, wetlands, beaches, bars; seasonally flooded, muddy, and un-vegetated shoreline habitat	- 3 or more listed species and >1000 shorebird use days, or >100 whimbrel, confirms SWH	Shoreline ecosite and 100m radius is the SWH	No habitat matching criteria identified in study area, >5km from any Lake Ontario	No	None required	No
4	Raptor Wintering Area	Seasonal concentration areas of animals	- Combination of upland field and woodland habitat >20ha total (includes, >15ha upland field) - Least disturbed sites, idle, fallow or lightly grazed field/meadow best	- 1 or more Short-eared Owl, or at least 10 individuals and 2 listed species for a minimum of 20 days, and 3 of 5 years, confirms SWH	Ecosite communities (field and woodland) is the SWH	No habitat matching criteria identified in study area	No	None required	No
5	Bat Hibernacula	Seasonal concentration areas of animals	- Caves, mine shafts, underground foundations, karsts. - Buildings are not SWH	- All sites with confirmed hibernating bats, confirms SWH	Ecosite and 200m radius is the SWH	No habitat matching criteria identified in study area	No	None required	No

APPENDIX 8. CANDIDATE SIGNIFICANT WILDLIFE HABITAT ASSESSMENT

PROJECT #: AA23-232A

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	SWH protected area	Site assessment details	Candidate SWH	Field studies required/ completed	Confirmed SWH
6	Bat Maternity Colony	Seasonal concentration areas of animals	- All forested ecosites, FOD, FOC, FOM, SWD, SWM, SWC with >10/ha trees (>25cm DBH) in early stages of decay (class 1-3) - Buildings are not SWH	- >10 Big Brown Bats, >5 adult female Silver-haired Bats confirms SWH	Entire woodland or forest stand ELC ecosite containing colony is the SWH	Forested ecosites present in Study area with trees >25cm DBH.	Yes	Bat habitat assessment completed for trees on the subject lands.	No
7	Turtle Wintering Area	Seasonal concentration areas of animals	- Areas with permanent water deep enough not to freeze, with mud/soft substrates	- 5 over-wintering Midland Painted Turtles, 1 or more Northern Map Turtle or Snapping Turtle confirms SWH	Mapped ELC ecosite, or deep pool element where turtles overwinter is the SWH	Watercourse with deep water and deep sediment present in study area.	Yes	No turtles identified incidentally or observed in community during spring and summer surveys. No anticipated affects-outside study area	No
8	Reptile Hibernaculum	Seasonal concentration areas of animals	- Sites below the frost line; rock barren, crevice and cave, talus, alvar, rock piles, slopes, stone fences, and crumbling foundations	- Presence of hibernacula with minimum 5 individuals of 1 snake species/ individuals of 2 or more species confirms SWH. - Congregations of a minimum of 5 snakes of 1 species/ individuals of 2 or more snake species, near potential hibernacula on sunny warm days in spring and fall confirms SWH	Feature hibernacula is in, and 30m radius is the SWH	No habitat matching criteria identified in study area	No	None required	No

APPENDIX 8. CANDIDATE SIGNFICANT WILDLIFE HABITAT ASSESSMENT

PROJECT #: AA23-232A

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	SWH protected area	Site assessment details	Candidate SWH	Field studies required/ completed	Confirmed SWH
9	Colonially-nesting Bird Habitat (Cliff/bank)	Seasonal concentration areas of animals	- Eroding banks, sandy hills, borrow pits, steep slopes, sand piles, cliff faces, bridge abutments, silos, barns	- 1 or more nest sites with 8 or more Cliff Swallow or, 50 Bank Swallow and Rough-winged Swallow pairs during the breeding season.	Colony and 50m radius around peripheral nest are the SWH	No habitat matching criteria identified in study area	No	None required	No
10	Colonially-nesting Bird Habitat (Tree/shrub)	Seasonal concentration areas of animals	- Live or dead standing trees in wetlands, lakes, islands and peninsulas, occasionally shrubby and emergent vegetation	- 5 or more active Great-blue Heron or other listed species nests	Edge of the colony plus minimum 300m radius, or extent of the forest ecosite, or entire island <15ha is the SWH	No habitat matching criteria identified in study area	No	None required	No
11	Colonially-nesting Bird Habitat (Ground)	Seasonal concentration areas of animals	- Rocky islands or peninsulas within a lake or large river (natural or artificial)	- >25 active nests of Herring Gull, Ring-billed Gull, >5 active nests of Common Tern, or >2 active nests of Caspian Tern. 5 or more pairs of Brewer's Blackbird. Any active nesting colony of Little Gull, Great Black-backed Gull.	Edge of colony plus min 150m radius or extent of ELC ecosite, or island <3ha is the SWH	No habitat matching criteria identified in study area	No	None required	No
12	Migratory Butterfly Stopover Area	Seasonal concentration areas of animals	- At least 10ha, with undisturbed field/meadow and forest or woodland edge habitat present, within 5km of Lake Ontario.	- Presence of Monarch use days >5000 or >3000 where there is a mix of Monarch with Painted Ladies or White Admirals	Field/meadow and forest/woodland is the SWH	No habitat matching criteria identified in study area, >5km from Lake Ontario	No	None required	No
13	Land bird Migratory Stopover Area	Seasonal concentration areas of animals	- Woodlots >5ha in size - Within 5km of Lake Ontario	- Use by >200 birds/day, with >35species, with at least 10sp recorded on 5 different survey dates.	Woodlot is the SWH	No habitat matching criteria identified in study area, >5km from Lake Ontario	No	None required	No

APPENDIX 8. CANDIDATE SIGNIFICANT WILDLIFE HABITAT ASSESSMENT

PROJECT #: AA23-232A

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	SWH protected area	Site assessment details	Candidate SWH	Field studies required/ completed	Confirmed SWH
14	Deer Yarding Areas	Seasonal concentration areas of animals	- ELC communities providing Thermal cover (FOM, FOC, SWM, SWC, CUP2, CUP3, FOD3, CUT)	- Deer yards are managed by MNRF, available through district offices and LIO.	LIO mapping	No Deer yarding areas identified on LIO Mapping	No	None required.	No
15	Deer Winter Congregation Areas	Seasonal concentration areas of animals	- All forested ecosites >100ha - Conifer Plantations <50ha may be used	- Deer management is the responsibility of the MNRF. - Contact MNRF or LIO for known deer winter areas.	LIO mapping	No Deer Winter Congregation areas identified on LIO Mapping	No	None required.	No
16	Cliffs & Talus Slopes	Rare vegetation communities	- Cliff: vertical to near vertical bedrock >3m in height - Talus slope: rock rubble at the base of a cliff made up of coarse rocky debris	- Confirm any ELC Vegetation Type for Cliffs or Talus Slopes	Area of ELC sites: TAO, TAS, TAT, CLO, CLS, CLT	No habitat matching criteria identified in study area	No	None required	No
17	Sand Barren	Rare vegetation communities	- Exposed, sparsely vegetated & caused by lack of moisture, fires, and erosion.	- Area >0.5ha in size - Confirm any ELC vegetation Type for Sand Barren - Not dominated by exotic or introduced species	Area of ELC ecosite is the SWH	No habitat matching criteria identified in study area	No	None required	No
18	Alvar	Rare vegetation communities	- Level, mostly un-fractured calcareous bedrock feature, overlain by a thin veneer or soil	- Area >0.5ha in size - Field Studies that identify four of the five Alvar Indicator Species - Not dominated by exotic or introduced species	Area of ELC ecosite is the SWH	No habitat matching criteria identified in study area	No	None required	No
19	Old Growth Forest	Rare vegetation communities	- >30ha forests with at least 10ha interior habitat and multi-layered canopy	- Dominant Tree Species >140 years old - No recognizable signs forestry practices (old stumps)	Area of ELC ecosite is the SWH	No habitat matching criteria identified in study area	No	None required	No

APPENDIX 8. CANDIDATE SIGNIFICANT WILDLIFE HABITAT ASSESSMENT

PROJECT #: AA23-232A

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	SWH protected area	Site assessment details	Candidate SWH	Field studies required/ completed	Confirmed SWH
20	Savannah	Rare vegetation communities	- Tall Grass Prairie Habitat with 25%-60% Tree cover - Remnant sites such as Railway Right of ways are not SWH	- No minimum size and must be restored to a natural state. - Confirm one or more savannah indicator species. - Not dominated by exotic or introduced species	Area of ELC ecosite is the SWH	No habitat matching criteria identified in study area	No	None required	No
21	Tallgrass Prairie	Rare vegetation communities	- Ground cover dominated by prairie grasses with <25% tree cover. - Remnant sites such as Railway Right of ways are not SWH	- No minimum size and must be restored to a natural state. - Confirm one or more prairie indicator species. - Not dominated by exotic or introduced species	Area of ELC ecosite is the SWH	No habitat matching criteria identified in study area	No	None required	No
22	Other Rare Vegetation Communities	Rare vegetation communities	- All Provincially Rare S1, S2, S3 Vegetation Communities (Appendix M of SWHTG)	- Field Studies Confirming ELC vegetation type is a rare vegetation community	Area of ELC ecosite is the SWH	No communities identified on site are S1-S3 communities	No	None required	No
23	Waterfowl Nesting Areas	Specialized habitat for wildlife	- Upland Habitat, adjacent to Wetland ELC ecosites (except SWC, SWM) - Extends 120m from a wetland (>0.5ha) and any small wetlands (<0.5ha) within a cluster of at least 3. - Upland area at least 120m wide	- Presence of 3 or more nesting pairs of listed species excluding Mallards - Presence of 10 or more nesting pairs including mallards - Any active Black Duck nesting site	SWH may be greater than or less than 120m from the wetland edge and must provide enough habitat for waterfowl to successfully nest	No habitat matching criteria identified in study area	No	None required	No

APPENDIX 8. CANDIDATE SIGNIFICANT WILDLIFE HABITAT ASSESSMENT

PROJECT #: AA23-232A

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	SWH protected area	Site assessment details	Candidate SWH	Field studies required/ completed	Confirmed SWH
24	Bald Eagle or Osprey Nesting, Foraging and Perching Habitat	Specialized habitat for wildlife	- Forest communities, adjacent to riparian areas - Osprey nests usually at top of tree - Bald Eagle nest usually in super canopy tree in a notch within canopy	- Studies confirm one or more active Bald Eagle or Osprey nest. - Alternate nests included in SWH. - Nests must be used annually, if found inactive, must be known inactive at least 3 years, or suspected unused for 5 years if unknown	- Active nest plus 300m for OSPR - Active nest plus 400-800m for BAEA	No habitat matching criteria identified in study area	No	None required	No
25	Woodland Raptor Nesting Habitat	Specialized habitat for wildlife	- Forested communities, forested swamp communities and cultural Plantations - Natural Forested/conifer plantations >30ha with >10ha interior habitat (200m buffer)	- One or more active nest of listed species	Nest protection radius: - RSHA, NOGA 400m - BAOW 200m. - Broad-winged Hawk, COHA 100m - SSHA 50	No habitat matching criteria identified in study area	No	None required	No
26	Turtle Nesting Areas	Specialized habitat for wildlife	- Exposed Mineral soil (sand or gravel) adjacent (<100m) or within shallow marsh, shallow submerged, shallow floating, bog or fen communities. - Located in open sunny areas, away from roads and less prone to predation. - Municipal and provincial road shoulders are not SWH.	- Confirm 5 or more nesting Midland Painted Turtles, 1 or more nesting Northern Map Turtle or Snapping Turtle	Area or sites with exposed mineral soils, plus a radius of 30-100m around the nesting area is the SWH.	No habitat matching criteria identified in study area	No	None required	No

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	SWH protected area	Site assessment details	Candidate SWH	Field studies required/ completed	Confirmed SWH
27	Seeps and Springs	Specialized habitat for wildlife	- Areas where ground water comes to the surface. - Any forested area within the headwaters of a stream or river system	- Confirm site with 2 or more seeps/springs.	Area of ELC forest ecosite containing seep/spring is the SWH	No habitat matching criteria identified in study area	No	None required	No
28	Amphibian Breeding Habitat (Woodland)	Specialized habitat for wildlife	- Breeding pools within woodlands - Wetland, pond, or pool >500m² within or adjacent (<120m) to a woodland. - Woodlands with permanent ponds, or those with water until mid-July more likely to be used.	- Confirm Breeding population of 1 or more listed newt/salamander species, 2 or more of the listed frog species with at least 20 individuals (adults or egg masses), 2 or more of the listed frog species with call code levels of 3. - Wetland adjacent to woodlands includes travel corridor connecting features as SWH.	Wetland area, plus 230m radius of woodland is the SWH.	No habitat matching criteria identified in study area	No	None required	No

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	SWH protected area	Site assessment details	Candidate SWH	Field studies required/ completed	Confirmed SWH
29	Amphibian Breeding Habitat (Wetland)	Specialized habitat for wildlife	- Swamp, marsh, fen, bog, open aquatic, and shallow aquatic ELC communities. - Typically isolated from woodlands (>120m) but includes larger wetlands with primarily aquatic species (bull frogs) that are adjacent to woodlands. - Wetlands >500m2 - Presence of shrubs & logs - Bullfrogs require permanent water bodies and abundant emergent vegetation.	- Confirm Breeding populations of 1 or more listed newt/salamander species, or 2 or more listed frog/toad species with at least 20 individuals (adults or egg masses), or 2 or more listed frog/toad species with a call code level of 3 - Or any wetland with confirmed breeding Bullfrog.	- ELC ecosite and shoreline is the SWH. - Movement corridors (SWH) must be considered if this habitat is significant	No habitat matching criteria identified in study area	No	None required	No
30	Area-sensitive Breeding Bird Habitat	Specialized habitat for wildlife	- Habitats where interior breeding birds are breeding. - Large mature (>60 years) forest stands or woodlots >30ha. - Forest and swamp ELC communities - Interior habitat at least 200m from edge	- Presence of nesting or breeding pairs of 3 or more of the listed species - Any site with Cerulean Warbler or Canada Warbler is SWH	ELC ecosite is the SWH	No habitat matching criteria identified in study area	No	None required	No

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	SWH protected area	Site assessment details	Candidate SWH	Field studies required/ completed	Confirmed SWH
31	Marsh Bird Breeding Habitat	Habitats of species of conservation concern considered SWH	- Some meadow marsh, shallows submerged, shallow floating, mixed shallow floating, fen, and bog communities (see SWH Ecoregion guide for specifics) - Nesting occurs in wetlands, all wetland habitat is considered with presence of shallow water with emergent aquatic vegetation - Green heron at edge of water sheltered by shrubs and trees.	- 5 or more nesting pairs of Sedge Wren or Marsh Wren, 1 pair of Sandhill Crane, or breeding by any combination of 5 or more of the listed species - Any Wetland with 1 or more breeding pair Black Tern, Trumpeter Swan, Green Heron or Yellow Rail	ELC ecosite is the SWH	No habitat matching criteria identified in study area	No	None required	No
32	Open Country Bird Breeding Habitat	Habitats of species of conservation concern considered SWH	- Grassland area >30ha (natural & cultural fields and meadows) - Grasslands not class 1 or 2 agriculture (no row crops or intensive hay or livestock pasturing) - Mature hayfields or pasture at least 5 years old	- Nesting or breeding of 2 or more of the listed species - Field with 1 or more Short-eared Owls	Contiguous ELC ecosite is the SWH	Grassland Habitat >30ha identified in study area.	Yes	Grassland Breeding Bird Surveys completed	No-only one listed species identified (Savannah Sparrow). Grasslands are actively being used for row crops, hay, and livestock pasture.

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	SWH protected area	Site assessment details	Candidate SWH	Field studies required/ completed	Confirmed SWH
33	Shrub/Early Successional Bird Breeding Habitat	Habitats of species of conservation concern considered SWH	- Cultural thickets, savannah, and woodland habitat - Large field area succeeding to shrub and thicket habitat >10ha in size - Patches of shrub ecosite may be complexed into larger old field ecosites for some species	- Confirm nesting or breeding of 1 of the listed indicator species and at least 2 of the common species - Habitat with Yellow-breasted Chat or Golden-winged Warbler is SWH	SWH is contiguous ELC ecosite field/thicket area	No habitat matching criteria identified in study area	No	None required	No
34	Terrestrial Crayfish	Habitats of species of conservation concern considered SWH	- Meadow marsh, shallow marsh, swamp thicket, deciduous swamp, and mixed swamp communities - Cultural meadow with inclusions of meadow marsh may be used - Wet edges of marshes and wet meadows should be surveyed for crayfish	- Presence of 1 or more individuals of listed species or their chimneys in suitable habitat	Area of ELC ecosite or Eco element area of meadow marsh or swamp within the larger ecosite area is the SWH	Candidate habitat identified in study area.	Yes	Candidate habitat reviewed for evidence during completion of ELC.	No

APPENDIX 8. CANDIDATE SIGNIFICANT WILDLIFE HABITAT ASSESSMENT

PROJECT #: AA23-232A

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	SWH protected area	Site assessment details	Candidate SWH	Field studies required/ completed	Confirmed SWH
35	Special Concern & Rare Wildlife Species	Habitats of species of conservation concern considered SWH	- All Special concern and Provincially Rare plant and animal species - Where an element occurrence is identified within a 1 or 10km grid for a species listed, linking candidate habitat on the site must be completed to ELC ecosites	- Assessment/inventory of site for identified special concern or rare species completed during time of year when species is present or easily identifiable - Habitat must be easily mapped and cover an important life stage component (specific nesting habitat, foraging)	SWH is the finest ELC scale that protects the form and function of the habitat	Background Atlas review identified 10 Special concern species within 10km of the Study Area - Barn Swallow (OBBA, eBird) - Eastern Wood-pewee (NHIC, OBBA, eBird) - Olive-sided Flycatcher (eBird, iNat) - Peregrine Falcon (iNat) - Rusty Blackbird (eBird, iNat) - Wood Thrush (NHIC, OBBA, eBird) - Monarch (OBA, iNat) - Milksnake (ORAA) - Midland Painted Turtle (ORAA) - Snapping Turtle (ORAA, iNat)	Yes-Woodlands on site and within 120m may provide habitat for Eastern-Wood-pewee, Wood Thrush and Canada Warbler. Watercourse may provide habitat for Snapping Turtle. Areas along watercourse may provide habitat for Eastern Ribbonsnake	Two season Botanical Survey completed, Grassland Breeding Bird Surveys completed, Aquatic Habitat Assessment completed, incidental wildlife noted during all completed field investigations.	Yes, Eastern Wood-pewee and Barn Swallow identified during breeding bird surveys and incidentally near suitable nesting habitat. Monarch was identified incidentally within subject lands. Habitat for Snapping Turtle assumed present within Municipal Drain No. 1. Habitat for Eastern Ribbonsnake assumed present along Municipal Drain No. 1 and meadow marsh community.

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	SWH protected area	Site assessment details	Candidate SWH	Field studies required/ completed	Confirmed SWH
36	Amphibian Movement Corridor	Animal movement corridors	- Corridors may occur in all ecosites associated with water. - Presence of significant amphibian breeding indicates the requirement for identifying corridors - Movement corridors between breeding habitat and summer habitat	- Corridors typically include areas with native vegetation, with several layers of vegetation, unbroken by roads, waterways or waterbodies are most significant - At least 15 of vegetation on both sides of the waterway or up to 200m wide of woodland habitat with gaps of <20m - Shorter corridors are more significant than longer, but amphibians must be able to get to and from their summer breeding habitat	Corridor is the SWH	No Habitat matching Criteria identified in Study Area	No	None required	No
37	Deer Movement Corridor	Animal movement corridors	- May occur in all forested ecosites. - Determined when deer wintering habitat is confirmed as SWH	- Corridors at least 200m wide with gaps <20m leading to wintering habitat - Unbroken by roads and residential areas - Shorter corridors are more significant	Corridor is the SWH	No Habitat matching Criteria identified in Study Area	No	None required	No

APPENDIX 9.1
Species at Risk Habitat Assessment



Common name	Scientific name	Group	SCA	SARA	COSEWIC	S-rank	Direct Habitat requirements	Field Studies Completed	Direct habitat present? Project Location	Direct habitat present? Study Area	Recent Observation within 10kms?	Potential to occur? (low, medium, high)	Potential to impact direct species habitat? (None, Low, Moderate, High)	Observed by AA	Additional studies recommended?
Gypsy Cuckoo Bumble Bee	<i>Bombus bohemicus</i>	Insects & Arachnids	END	END	END	S1S2	Occurs in diverse habitats, including open meadows, mixed farmlands, urban areas, boreal forest, and montane meadows. Feed on pollen and nectar from a variety of plant genera (COSEWIC 2014).	Ecological Land Classification, Two-season botanical inventory.	Mixed farmlands within the subject property may be suitable; however, the species has not been observed outside of the Pinery Provincial Park in the past 10 years.	Mixed farmlands within the study area may be suitable; however, the species has not been observed outside of the Pinery Provincial Park in the past 10 years.	Yes.	Low. The species has not been observed outside of the Pinery Provincial Park in the past 10 years.	None.	None observed.	No further studies recommended.
Wavy-rayed Lampmussel	<i>Lamslilis fasciola</i>	Molluscs	THR	SC	SC	S1	Inhabits clear rivers and streams of various sizes with steady flows and stable substrates and is typically found in gravel or sand substrates in and around riffle areas. Most abundant in small to medium-sized stream and occurs at sites that support a great diversity of other mussel species (COSEWIC 2010)	None required.	No suitable direct habitat present within the subject property.	No suitable direct habitat present within the study area.	Yes.	Low. No suitable direct habitat present within the subject property or study area.	None.	None observed.	No further studies recommended.
Eastern Red Bat	<i>Lasiurus borealis</i>	Mammals	END	NL	END	S4	Typically roosts among the foliage of trees and occasionally shrubs. They use both deciduous and coniferous forests of any age class, but in some parts of their range will avoid conifer species when suitable deciduous species are present. Trees used as maternity roosts tend to be large diameter and tall, reaching or exceeding the height of the surrounding canopy. They forage in both forested and non-forested habitats, in both open and semi-cluttered habitats, both above and below forest canopies, and in both early and later stage forests (COSEWIC 2023).	Bat maternity habitat surveys, Ecological Land Classification, Two-season botanical inventory.	Suitable direct habitat present along limits of subject property.	Suitable direct habitat present within the treed communities of the study area.	No.	Medium. Suitable direct habitat present within the subject property and study area.	Low. Potential development will not impact the overall availability of suitable direct habitat in the study area.	None observed.	No further studies recommended.

Common name	Scientific name	Group	SCA	SARA	COSEWIC	S-rank	Direct Habitat requirements	Field Studies Completed	Direct habitat present? Project Location	Direct habitat present? Study Area	Recent Observation within 10kms?	Potential to occur? (low, medium, high)	Potential to impact direct species habitat? (None, Low, Moderate, High)	Observed by AA	Additional studies recommended?
Eastern Small-footed Myotis	<i>Myotis leibii</i>	Mammals	END	END	NA	S2	Associated with hilly or mountainous terrain, in or near coniferous or deciduous forest habitat. Maternity roosts located in cracks and crevices of talus slopes and rocky outcrops, or, occasionally in bridges, old buildings, hollow trees (or loose bark) and caves and mines during the maternity season. Hibernate singly or in small clusters in mines and caves (NatureServe, 2015).	Bat maternity habitat surveys, Ecological Land Classification, Two-season botanical inventory.	Suitable direct habitat present along limits of subject property.	Suitable direct habitat present within the treed communities of the study area.	No.	Medium. Suitable direct habitat present within the subject property and study area.	Low. Potential development will not impact the overall availability of suitable direct habitat in the study area.	None observed.	No further studies recommended.
Hoary Bat	<i>Lasiurus cinereus</i>	Mammals	END	NL	END	S3	Roosts solitarily in trees, with preferences including maple, oak, ash, elder, hemlock, and redwood trees. Typically roosts among the foliage of trees and occasionally shrubs, and use both deciduous and coniferous forests, of any age class. Trees used as maternity roosts tend to be large diameter and tall, reaching or exceeding the height of the surrounding canopy. Forages in the open, and suitable habitats may include wetlands, grasslands and open fields with patchily distributed trees (COSEWIC 2023).	Bat maternity habitat surveys, Ecological Land Classification, Two-season botanical inventory.	Suitable direct habitat present along limits of subject property.	Suitable direct habitat present within the treed communities of the study area.	No.	Medium. Suitable direct habitat present within the subject property and study area.	Low. Potential development will not impact the overall availability of suitable direct habitat in the study area.	None observed.	No further studies recommended.
Little Brown Myotis	<i>Myotis lucifugus</i>	Mammals	END	END	END	S3	Hibernate in Caves; maternity colonies located in warm sites, often associated with human habitation; including attics, old buildings, under bridges, rock crevices and cavities in canopy trees in wooded areas (COSEWIC, 2013c).	Bat maternity habitat surveys, Ecological Land Classification, Two-season botanical inventory.	Suitable direct habitat present along limits of subject property.	Suitable direct habitat present within the treed communities of the study area.	No.	Medium. Suitable direct habitat present within the subject property and study area.	Low. Potential development will not impact the overall availability of suitable direct habitat in the study area.	None observed.	No further studies recommended.

Common name	Scientific name	Group	SCA	SARA	COSEWIC	S-rank	Direct Habitat requirements	Field Studies Completed	Direct habitat present? Project Location	Direct habitat present? Study Area	Recent Observation within 10kms?	Potential to occur? (low, medium, high)	Potential to impact direct species habitat? (None, Low, Moderate, High)	Observed by AA	Additional studies recommended?
Northern Myotis	<i>Myotis septentrionalis</i>	Mammals	END	END	END	S3	Hibernate in Caves; maternity colonies usually located in trees, and are closely associated with specific tree characteristics and density of suitable trees. Characterized by tall, large diameter trees in early stages of decay, located in openings in mature forest canopies (COSEWIC, 2013c).	Bat maternity habitat surveys, Ecological Land Classification, Two-season botanical inventory.	Suitable direct habitat present along limits of subject property.	Suitable direct habitat present within the treed communities of the study area.	No.	Medium. Suitable direct habitat present within the subject property and study area.	Low. Potential development will not impact the overall availability of suitable direct habitat in the study area.	None observed.	No further studies recommended.
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	Mammals	END	NL	END	S3	Roosting occurs primarily under bark and in the cavities of trees, making them reliant on habitats where large, decaying trees are available. Roosts in a variety of large diameter coniferous and deciduous trees. Roost-tree species and type differ depending on the region but tree size, height, roost aspect, and cavity temperature are important characteristics. Deciduous species (especially <i>Populus</i> spp.) often have decay characteristics that make them ideal as roost sites, particularly in older forests where these features are more likely to occur. Heart-rot infections at the site of limb breakages often result in large well-protected inner chambers and large sheets of exfoliating bark are ideal for roosting. In other parts of their range, coniferous species are used. Several studies report the frequent use of old woodpecker cavities (COSEWIC 2023).	Bat maternity habitat surveys, Ecological Land Classification, Two-season botanical inventory.	Suitable direct habitat present along limits of subject property.	Suitable direct habitat present within the treed communities of the study area.	No.	Medium. Suitable direct habitat present within the subject property and study area.	Low. Potential development will not impact the overall availability of suitable direct habitat in the study area.	None observed.	No further studies recommended.

Common name	Scientific name	Group	SCA	SARA	COSEWIC	S-rank	Direct Habitat requirements	Field Studies Completed	Direct habitat present? Project Location	Direct habitat present? Study Area	Recent Observation within 10kms?	Potential to occur? (low, medium, high)	Potential to impact direct species habitat? (None, Low, Moderate, High)	Observed by AA	Additional studies recommended?
Tri-colored Bat	<i>Perimyotis subflavus</i>	Mammals	END	END	END	S3	Hibernate in caves, abandoned mines, wells, and tunnels. Summer roosts include clumps of dead foliage and lichens, typically found in forested habitat close to water sources. May also use anthropogenic structures such as barns for maternity roosts. Foraging habitat includes forested riparian areas over water in relatively open areas (Environment Canada 2015).	Bat maternity habitat surveys, Ecological Land Classification, Two-season botanical inventory.	Suitable direct habitat present along limits of subject property.	Suitable direct habitat present within the treed communities of the study area.	No.	Medium. Suitable direct habitat present within the subject property and study area.	Low. Potential development will not impact the overall availability of suitable direct habitat in the study area.	None observed.	No further studies recommended.
Butternut	<i>Juglans cinerea</i>	Vascular plants	END	END	END	S2	Occur in rich moist sites, that are well-drained, often found along stream banks or gravelly sites. Butternut is shade intolerant (COSEWIC, 2003b).	Ecological Land Classification, Two-season botanical inventory.	No suitable direct habitat identified within the subject property.	No suitable direct habitat present within the study area.	Yes.	Low. No suitable direct habitat present within the subject property or study area.	None. No suitable direct habitat present within the subject property or study area.	None observed.	No further studies recommended.
Dense Blazing Star	<i>Liatis spicata</i>	Vascular plants	THR	THR	THR	S2	Occurs in open tallgrass prairies. It can grow in a range of moisture regimes from dry to very moist (COSEWIC 2010)	Ecological Land Classification, Two-season botanical inventory.	No suitable direct habitat identified within the subject property.	No suitable direct habitat present within the study area.	Yes.	Low. No suitable direct habitat present within the subject property or study area.	None. No suitable direct habitat present within the subject property or study area.	None observed.	No further studies recommended.

Background Source References:

OBBA: Cadman, M.D.,D.A. Sutherland, G.G. Beck, D. Lepage, and A.R. Couturier. 2007. The Atlas of the Breeding Birds Ontario 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto,xxii + 706pp.
(Available online here:<http://www.birdsontario.org/atlas/datasummaries.jsp>)

OBAO: Colin Jones, Ross Layberry, and Alan Macnaughton. Ontario Butterfly Atlas Online. (Available online here: Toronto Entomologists’ Association: http://www.ontarioinsects.org/atlas_online.htm)

OMA: Dobbyn, J. 1994. Atlas of the Mammals of Ontario. Federation of Ontario Naturalists, Altona Manitoba, Canada. (Available online here: <http://www.ontarionature.org/discover/resources/publications.php>)

NHIC: NHIC, 2024. MNRf Make a map: Natural Heritage Areas. (Available online: <http://www.ontario.ca/environment-and-energy/make-natural-heritage-area-map>)

ORAA: Ontario Nature. 2024. Ontario Reptile and Amphibian Atlas: a citizen science project to map the distribution of Ontario’s reptiles and amphibians. Ontario Nature, Ontario. (Available online here: <http://www.ontarionature.org/atlas>)

iNat: iNaturalist. 2024. (Available online here: <https://www.inaturalist.org/>)

Ebird: eBird. 2024. (Available online here: <https://ebird.org/home>)

Bumble Bee Watch: Bumble Bee Watch. 2024. (Available online here: <https://www.bumblebeewatch.org/>)

Species Habitat Requirement References:

Scientific name	References
<i>Bombus bohemicus</i>	COSEWIC. 2014. COSEWIC assessment and status report on the Gypsy Cuckoo Bumble (<i>Bombus bohemicus</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 56 pp.
<i>Lamslilis fasciola</i>	COSEWIC. 2010. COSEWIC assessment and status report on the Wavy-rayed Lamprussel (<i>Lampsilis fasciola</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 60 pp.
<i>Lasiurus borealis</i>	COSEWIC. 2023. COSEWIC assessment and status report on the Hoary Bat <i>Lasiurus cinereus</i> , Eastern Red Bat <i>Lasiurus borealis</i> and Silver-haired Bat, <i>Lasionycteris noctivagans</i> , in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxi + 100 pp. (https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html).
<i>Myotis leibii</i>	COSEWIC. 2013. COSEWIC assessment and status report on the Little Brown Myotis (<i>Myotis lucifugus</i>), Northern Myotis (<i>Myotis septentrionalis</i>) and Tri-colored Bat (<i>Perimyotis subflavus</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxiv + 93 pp.
<i>Lasiurus cinereus</i>	COSEWIC. 2023. COSEWIC assessment and status report on the Hoary Bat <i>Lasiurus cinereus</i> , Eastern Red Bat <i>Lasiurus borealis</i> and Silver-haired Bat, <i>Lasionycteris noctivagans</i> , in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxi + 100 pp. (https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html).
<i>Myotis lucifugus</i>	COSEWIC. 2013. COSEWIC assessment and status report on the Little Brown Myotis (<i>Myotis lucifugus</i>), Northern Myotis (<i>Myotis septentrionalis</i>) and Tri-colored Bat (<i>Perimyotis subflavus</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxiv + 93 pp.

Scientific name	References
<i>Myotis septentrionalis</i>	COSEWIC. 2013. COSEWIC assessment and status report on the Little Brown Myotis (<i>Myotis lucifugus</i>), Northern Myotis (<i>Myotis septentrionalis</i>) and Tri-colored Bat (<i>Perimyotis subflavus</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxiv + 93 pp.
<i>Lasionycteris noctivagans</i>	COSEWIC. 2023. COSEWIC assessment and status report on the Hoary Bat <i>Lasiurus cinereus</i> , Eastern Red Bat <i>Lasiurus borealis</i> and Silver-haired Bat, <i>Lasionycteris noctivagans</i> , in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxi + 100 pp. (https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html).
<i>Perimyotis subflavus</i>	Environment Canada. 2015. Recovery Strategy for Little Brown Myotis (<i>Myotis lucifugus</i>), Northern Myotis (<i>Myotis septentrionalis</i>), and Tri-colored Bat (<i>Perimyotis subflavus</i>) in Canada [Proposed]. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. ix + 110 pp
<i>Juglans cinerea</i>	COSEWIC 2003. COSEWIC assessment and status report on the butternut (<i>Juglans cinerea</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 32 pp.
<i>Liatris spicata</i>	COSEWIC. 2010. COSEWIC assessment and status report on the Dense Blazing Star (<i>Liatris spicata</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 23 pp.

APPENDIX 9.2
Species of Conservation Concern Habitat Assessment



Common name	Scientific name	Group	SCA	SARA	COSEWIC	S-rank	Direct Habitat requirements	Field Studies Completed	Direct habitat present? Project Location	Direct habitat present? Study Area	Recent Observation within 10kms?	Potential to occur? (low, medium, high)	Potential to impact direct species habitat? (None, Low, Moderate, High)	Observed by AA	Additional studies recommended?
Monarch	<i>Danaus plexippus</i>	Insects & Arachnids	NL	END	END	S2N,S4B	Requires milkweed for larval feeding, other wildflower species are also important for adult feeding when milkweed is not in flower; often found in abandoned farmland, along roadsides, and other open spaces (COSEWIC 2010b)	Ecological Land Classification, Two-season botanical inventory	Suitable direct habitat is present within the meadow marsh community on the subject property.	Suitable direct habitat is present within the meadow communities in the study area.	Yes.	High. Milkweed present within meadow and meadow marsh communities.	None. No development is proposed to occur in the meadow and/or meadow marsh communities.	Observed during Breeding Bird surveys.	No further studies recommended.
Bank Swallow	<i>Riparia riparia</i>	Birds	NL	THR	THR	S2B	Breeds in a variety of natural and artificial bank type habitat, such as bluffs, stream and river banks, sand and gravel pits, piles of sand, topsoil and other material. Nests are typically in vertical or near-vertical surfaces (COSEWIC 2013b).	Breeding Bird surveys.	No suitable direct habitat present on the subject property.	No suitable direct habitat present within the study area.	Yes.	Low. No suitable direct habitat present within the subject property or study area.	None. No suitable direct habitat present within the subject property or study area.	None observed.	No further studies recommended.
Barn Swallow	<i>Hirundo rustica</i>	Birds	NL	THR	SC	S4B	Occurs in farmland, along lake/river shorelines, in wooded clearings and in urban populated areas. Nesting may occur inside or outside buildings; under bridges and in road culverts (COSEWIC 2011a).	Breeding Bird Surveys	Agricultural infrastructure within the subject property may provide suitable direct habitat.	Agricultural infrastructure within the study area may provide suitable direct habitat.	Yes.	High. Suitable direct habitat present within the subject property.	Low. Proposed removal of suitable buildings proposed. Impacts to be mitigated through timing windows.	Multiple individuals observed around existing agricultural infrastructure.	No further studies recommended.
Bobolink	<i>Dolichonyx oryzivorus</i>	Birds	NL	THR	SC	S3B	Nest in grassland habitats, including hayfields and meadows with a mixture of grasses and broad-leaved forbs with a high litter cover. Area Sensitive, with increased density in grasslands greater than 10ha (Renfrew et. al. 2015)	Breeding Bird (incl. Grassland) surveys.	Suitable direct habitat may be present on the subject property due to existing hay fields.	Suitable direct habitat may be present on adjacent agricultural lands in the study area.	Yes.	High. Suitable direct habitat identified in the subject property, and study area.	Low. Removal of suitable direct habitat necessary. Mitigation will be incorporated through timing windows.	Three males identified singing within the open agricultural community during first breeding bird survey.	No further studies recommended.
Chimney Swift	<i>Chaetura pelagica</i>	Birds	NL	THR	THR	S3B	Typically nests in traditional chimneys of older buildings, which also provide roosting sites for many individuals during spring and fall migration (MNRF 2013).	Breeding Bird Surveys.	Suitable direct habitat may be present within the chimneys of existing buildings on the subject property.	No suitable direct habitat identified within the study area.	Yes.	High. Suitable direct habitat present on the subject property. Surveys determined they were not utilizing the chimneys for nesting purposes.	Low. Removal of suitable direct habitat necessary. Mitigation will be incorporated through timing windows.	Observed during breeding bird surveys.	No further studies recommended.

Common name	Scientific name	Group	SCA	SARA	COSEWIC	S-rank	Direct Habitat requirements	Field Studies Completed	Direct habitat present? Project Location	Direct habitat present? Study Area	Recent Observation within 10kms?	Potential to occur? (low, medium, high)	Potential to impact direct species habitat? (None, Low, Moderate, High)	Observed by AA	Additional studies recommended?
Eastern Meadowlark	<i>Sturnella magna</i>	Birds	NL	THR	THR	S4B, S3N	Nest in grassland habitats, including hayfields, pasture, savannahs, and other open areas. Preferential habitat includes areas with good grass and thatch (litter) cover (Jaster et. al. 2012). Typically, grassland habitat must be ≥5 ha of contiguous patches to be considered suitable for nesting (SARA (2022)).	Breeding Bird (incl. Grassland) surveys.	Suitable direct habitat may be present on the subject property due to existing hay fields.	Suitable direct habitat may be present on adjacent agricultural lands in the study area.	Yes.	High. Suitable direct habitat identified in the subject property, and study area.	Low. Removal of suitable direct habitat necessary. Mitigation will be incorporated through timing windows.	None observed.	No further studies recommended.
Eastern Wood-Pewee	<i>Contopus virens</i>	Birds	NL	SC	SC	S4B	Associated with mid-age mixed and deciduous forest stands, often dominated by Maple (Acer), Elm (Ulmus) or Oak (Quercus), and include areas with clear-cuts, openings or forest edges. Also prefers forest stands with little to no understory vegetation (COSEWIC 2012a).	Breeding Bird Surveys.	No suitable direct habitat identified within the subject property.	Suitable direct habitat identified in the Red Maple Deciduous Swamp communities in the study area.	Yes.	Medium. Suitable direct habitat identified in the study area.	None. No removal of the suitable direct habitat proposed.	Observed during Breeding Bird surveys.	No further studies recommended.
Olive-sided Flycatcher	<i>Contopus cooperi</i>	Birds	NL	SC	SC	S1	Associated with natural forest openings (usually conifer or mixed), and edges of forests adjacent wetlands or watercourses, will also use open and semi-open forests and clear-cuts. Presence of tall snags and residual live trees required for nesting and foraging (COSEWIC 2007c).	Breeding Bird surveys.	No suitable direct habitat identified in the subject property.	No suitable direct habitat identified in the study area.	Yes.	Low. No suitable direct habitat identified in the subject property or study area.	None. No suitable direct habitat identified in the subject property or study area.	None observed.	No further studies recommended.
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	Birds	NL	END	END	S3	Found in a variety of open areas, with a high density of dead or dying trees, particularly forests dominated by oak or beech (COSEWIC 2007d).	Breeding bird surveys.	No suitable direct habitat identified in the subject property.	No suitable direct habitat identified in the study area.	Yes.	Low. No suitable direct habitat identified in the subject property or study area.	None. No suitable direct habitat identified in the subject property or study area.	None observed.	No further studies recommended.
Rusty Blackbird	<i>Euphagus carolinus</i>	Birds	NL	SC	SC	S4B	Breeding habitat is characterized by coniferous-dominated forests adjacent to wetlands, such as slow-moving streams, peat bogs, sedge meadows, marshes, swamps and beaver ponds. On migration, the Rusty Blackbird is primarily associated with wooded wetlands (COSSARO 2017).	Breeding Bird surveys.	No suitable direct habitat identified in the subject property.	No suitable direct habitat identified in the study area.	Yes.	Low. No suitable direct habitat identified in the subject property or study area.	None. No suitable direct habitat identified in the subject property or study area.	None observed.	No further studies recommended.
Wood Thrush	<i>Hylocichla mustelina</i>	Birds	NL	THR	THR	S2N, S4B	Prefers second growth moist deciduous forests, with tall trees, and a dense understory of low saplings and an open forest floor with decaying leaf litter. Often nests in saplings, shrubs or occasionally dead stumps (COSEWIC 2012b).	Breeding Bird surveys.	No suitable direct habitat identified on the subject property.	Suitable direct habitat may be present within the Red Maple Deciduous Swamp communities.	Yes.	Medium. Suitable direct habitat may be present in the study area.	None. No removal of the suitable direct habitat is proposed.	None observed.	No further studies recommended.

Common name	Scientific name	Group	SCA	SARA	COSEWIC	S-rank	Direct Habitat requirements	Field Studies Completed	Direct habitat present? Project Location	Direct habitat present? Study Area	Recent Observation within 10kms?	Potential to occur? (low, medium, high)	Potential to impact direct species habitat? (None, Low, Moderate, High)	Observed by AA	Additional studies recommended?
Silver Shiner	<i>Notropis photogenis</i>	Fish	NL	THR	THR	S3	Associated with large, wide streams (usually >20m) in deep riffles and pools, with substrates of gravel, boulder, rubble, and sand (COSEWIC, 2011d).	Aquatic habitat assessment	No suitable direct habitat identified on the subject property.	No suitable direct habitat identified in the study area.	Yes.	Low. No suitable direct habitat identified in the subject property or study area.	None. No suitable direct habitat identified in the subject property or study area.	None observed.	No further studies recommended.
Rainbow	<i>Villosa iris</i>	Molluscs	NL	SC	SC	S1	Most abundant in small to medium-sized rivers but can also be found in inland lakes. Usually found in or near riffles and along the edges of emergent vegetation in moderate to strong current. Occupies substrate mixtures of cobble, gravel, sandy and occasionally mud or boulder (COSEWIC 2015)	Aquatic habitat assessment	No suitable direct habitat identified on the subject property.	No suitable direct habitat identified in the study area.	Yes.	Low. No suitable direct habitat identified in the subject property or study area.	None. No suitable direct habitat identified in the subject property or study area.	None observed.	No further studies recommended.
Midland Painted Turtle	<i>Chrysemys picta marginata</i>	Reptiles	NL	SC	SC	S3	Occupy slow moving, relatively shallow and well-vegetated wetlands and water bodies with abundant basking sites and organic substrate. Found in association with submergent aquatic plants, which are used for cover and feeding. Semi - tolerant of human-altered landscapes, occasionally found occupying urban ponds and lands subject to anthropogenic disturbance. Suitable nesting habitat includes open, often south-facing, and sloped areas with sandy-loamy and/or gravel substrate usually within 1200 m of aquatic active season habitats. Overwinter in shallow water with deep sediment (COSEWIC 2018).	None required.	No suitable direct habitat identified on the subject property.	No suitable direct habitat identified in the study area.	Yes.	Low. No suitable direct habitat identified in the subject property or study area.	None. No suitable direct habitat identified in the subject property or study area.	None observed.	No further studies recommended.
Snapping Turtle	<i>Chelydra serpentina</i>	Reptiles	NL	SC	SC	S4	Inhabit slow-moving waters with soft, muck bottom and dense aquatic vegetation. Ponds, sloughs and shallow bays are all often used as summering and overwintering habitat (COSEWIC 2008d).	None required.	No suitable direct habitat identified on the subject property.	Municipal Drain No. 1 may provide suitable direct habitat.	Yes.	Medium. Suitable direct habitat identified within Municipal Drain No. 1	None. No negative impacts to the watercourse anticipated.	None observed.	No further studies recommended.
Eastern Ribbonsnake	<i>Thamnophis sauritus</i>	Reptiles	NL	SC	SC	S3	A semi-aquatic species that inhabits dense, low- vegetation, edges of ponds, streams, marshes, fens and bogs, with open sunlit areas for basking (COSEWIC 2002c).	None required.	No suitable direct habitat identified on the subject property.	Reed Canary Grass Graminoid Meadow habitat adjacent to Municipal Drain No. 1 may provide suitable direct habitat.	Yes	Medium. Suitable direct habitat identified within the Reed Canary Grass Graminoid Meadow habitat adjacent to Municipal Drain No. 1.	None. No alteration to the Reed Canary Grass Graminoid Meadow habitat is proposed	None observed.	No further studies recommended.

Common name	Scientific name	Group	SCA	SARA	COSEWIC	S-rank	Direct Habitat requirements	Field Studies Completed	Direct habitat present? Project Location	Direct habitat present? Study Area	Recent Observation within 10kms?	Potential to occur? (low, medium, high)	Potential to impact direct species habitat? (None, Low, Moderate, High)	Observed by AA	Additional studies recommended?
Milksnake	<i>Lampropeltis triangulum</i>	Reptiles	NL	SC	SC	S4	Habitat generalists often associated with edge habitat, meadows, prairies, pastures, rocky outcrops and human disturbances such as hydro corridors and railway embankments. Habitat is usually close to a water source. Hibernation occurs in a variety of natural and man-made features, including rotting logs, old foundations, basements and burrows (COSEWIC 2014).	None required.	No suitable direct habitat identified on the subject property.	The railway embankment adjacent Municipal Drain No. 1 may provide suitable direct habitat.	Yes.	Medium. Suitable direct habitat identified along the railway embankment adjacent Municipal Drain No. 1.	None. No alteration to the railway embankment proposed.	None observed.	No further studies recommended.

Background Source References:

OBBA: Cadman, M.D.,D.A. Sutherland, G.G. Beck, D. Lepage, and A.R. Couturier. 2007. The Atlas of the Breeding Birds Ontario 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto,xxii + 706pp. (Available online here:<http://www.birdsontario.org/atlas/datasummaries.jsp>)

OBAO: Colin Jones, Ross Layberry, and Alan Macnaughton. Ontario Butterfly Atlas Online. (Available online here: Toronto Entomologists’ Association: http://www.ontarioinsects.org/atlas_online.htm)

OMA: Dobbyn, J. 1994. Atlas of the Mammals of Ontario. Federation of Ontario Naturalists, Altona Manitoba, Canada. (Available online here: <http://www.ontarionature.org/discover/resources/publications.php>)

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ORAA: Ontario Nature. 2024. Ontario Reptile and Amphibian Atlas: a citizen science project to map the distribution of Ontario’s reptiles and amphibians. Ontario Nature, Ontario. (Available online here: <http://www.ontarionature.org/atlas>)

iNat:

Ebird:

Bumble Bee Watch:

Species Habitat Requirement References:

Scientific name	References
<i>Danaus plexippus</i>	COSEWIC. 2010. COSEWIC assessment and status report on the Monarch (<i>Danaus plexippus</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 43 pp.
<i>Riparia riparia</i>	COSEWIC. 2013. COSEWIC assessment and status report on the Bank Swallow (<i>Riparia riparia</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 48 pp.
<i>Hirundo rustica</i>	COSEWIC. 2011. COSEWIC assessment and status report on the Barn Swallow (<i>Hirundo rustica</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 37 pp.
<i>Dolichonyx oryzivorus</i>	Renfrew, R., A.M. Strong, N.G. Perlut, S.G. Martin and T.A. Gavin. 2015. Bobolink (<i>Dolichonyx oryzivorus</i>), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Birds of North America Online: http://bna.birds.cornell.edu/bna/species/176
<i>Chaetura pelagica</i>	MNRF, 2013. General Habitat Description for the Chimney Swift (<i>Chaetura pelagica</i>). Ontario Ministry of Natural Resources and Forestry. July 2, 2013.
<i>Sturnella magna</i>	Jaster, Levi A., William E. Jensen and Wesley E. Lanyon. (2012). Eastern Meadowlark (<i>Sturnella magna</i>), The Birds of North America (P. G. Rodewald, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America: https://birdsna.org/Species-Account/bna/species/easmea
<i>Contopus virens</i>	COSEWIC. 2012. COSEWIC assessment and status report on the Eastern Wood-Pewee (<i>Contopus virens</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 39 pp.
<i>Contupus cooperi</i>	COSEWIC. 2007. COSEWIC assessment and status report on the Olive-sided Flycatcher (<i>Contopus cooperi</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 25 pp.
<i>Melanerpes erythrocephalus</i>	COSEWIC 2007. COSEWIC assessment and update status report on the Red-headed Woodpecker (<i>Melanerpes erythrocephalus</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 27 pp.
<i>Euphagus carolinus</i>	COSEWIC. 2017. COSEWIC assessment and status report on the Rusty Blackbird (<i>Euphagus carolinus</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 64 pp.
<i>Hylocichla mustelina</i>	COSEWIC. 2012. COSEWIC assessment and status report on the Wood Thrush (<i>Hylocichla mustelina</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 46 pp.
<i>Villosa iris</i>	COSEWIC. 2015. COSEWIC assessment and status report on the Rainbow (<i>Villosa iris</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xii + 82 pp.
<i>Villosa fabalis</i>	COSEWIC. 2010. COSEWIC assessment and status report on the Rayed Bean (<i>Villosa fabalis</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 40 pp.
<i>Obovaria subrotunda</i>	COSEWIC. 2003. COSEWIC assessment and update status on the Round Hickorynut (<i>Obovaria subrotunda</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 31 pp.
<i>Pleurobema sintoxia</i>	COSEWIC. 2004. COSEWIC assessment and status report on the Round Pigtoe (<i>Pleurobema sintoxia</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 33 pp.
<i>Simpsonaias ambigua</i>	COSEWIC. 2001. COSEWIC assessment and status report on the Mudpuppy Mussel (<i>Simpsonaias ambigua</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 48 pp.
<i>Epioblasma triquetra</i>	COSEWIC. 2011. COSEWIC assessment and status report on the Snuffbox (<i>Epioblasma triquetra</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 50 pp.
<i>Obliquaria reflexa</i>	COSEWIC. 2013. COSEWIC assessment and status report on the Threehorn Wartyback (<i>Obliquaria reflexa</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 58 pp.
<i>Delphinapterus leucas</i>	
<i>Rangifer tarandus</i>	
<i>Scalopus aquaticus</i>	COSEWIC. 2010. COSEWIC assessment and status report on the Eastern Mole (<i>Scalopus aquaticus</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 29 pp.
<i>Microtus pinetorum</i>	COSEWIC. 2010. COSEWIC assessment and status report on the Woodland Vole (<i>Microtus pinetorum</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 35 pp.
<i>Sternotherus odoratus</i>	COSEWIC. 2012. COSEWIC assessment and status report on the Eastern Musk Turtle (<i>Sternotherus odoratusin</i>) Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiii + 68 pp.
<i>Chrysemys picta marginata</i>	COSEWIC. 2018. COSEWIC assessment and status report on the Midland Painted Turtle (<i>Chrysemys picta marginata</i>) and the Eastern Painted Turtle (<i>Chrysemys picta picta</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xvi + 107 pp.

Scientific name	References
<i>Graptemys geographica</i>	COSEWIC 2002. COSEWIC assessment and status report on the Northern Map Turtle (<i>Graptemys geographica</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 34 pp.
<i>Chelydra serpentina</i>	COSEWIC. 2008. COSEWIC assessment and status report on the Snapping Turtle (<i>Chelydra serpentina</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 47 pp.
<i>Thamnophis sauritus</i>	COSEWIC 2002. COSEWIC assessment and status report on the Eastern Ribbonsnake (<i>Thamnophis sauritus</i>). Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 24 pp.
<i>Nerodia sipedon insularum</i>	COSEWIC. 2015. COSEWIC assessment and status report on the Lake Erie Watersnake (<i>Nerodia sipedon insularum</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 37 pp.
<i>Lampropeltis triangulum</i>	COSEWIC. 2014. COSEWIC assessment and status report on the Eastern Milksnake (<i>Lampropeltis Triangulum</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 61 pp.
<i>Asplenium scolopendrium</i>	Environment Canada. 2013. Management Plan for the Hart's-tongue Fern (<i>Asplenium scolopendrium</i>) in Canada. Species at Risk Act Management Plan Series. Environment Canada, Ottawa. iii + 16 pp
<i>Phegopteris hexagonoptera</i>	van Overbeeke, J.C., J.V. Jalava and R.H. Donley. 2013. Management Plan for the Broad Beech Fern (<i>Phegopteris hexagonoptera</i>) in Ontario. Ontario Management Plan Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. V + 25 pp.
<i>Rosa setigera</i>	COSEWIC. 2003. COSEWIC assessment and update status on report on the Climbing Prairie Rose (<i>Rosa setigera</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 15 pp.
<i>Ptelea trifoliata</i>	COSEWIC. 2015. COSEWIC assessment and status report on the Common Hoptree (<i>Ptelea trifoliata</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 33 pp.
<i>Symphyotrichum prenanthoides</i>	COSEWIC. 2012. COSEWIC assessment and status report on the Crooked-stem Aster (<i>Symphyotrichum prenanthoides</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 33 pp.
<i>Iris lacustris</i>	COSEWIC. 2010. COSEWIC assessment and status report on the Dwarf Lake Iris (<i>Iris lacustris</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 29 pp.
<i>Enemion biternatum</i>	COSEWIC. 2005. COSEWIC assessment and update status report on the False Rue-anemone (<i>Enemion biternatum</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 19 pp.
<i>Hydrastis canadensis</i>	COSEWIC. 2019. COSEWIC assessment and status report on the Goldenseal (<i>Hydrastis canadensis</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xii + 35 pp.
<i>Arisaema dracontium</i>	Donley, R., J.V. Jalava and J. van Overbeeke. 2013. Management Plan for the Green Dragon (<i>Arisaema dracontium</i>) in Ontario. Ontario Management Plan Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. vi + 43 pp.
<i>Tetraeneuris herbacea</i>	COSEWIC. 2002. COSEWIC assessment and status report on the Lakeside Daisy (<i>Hymenoxys herbacea</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 24 pp.
<i>Solidago riddellii</i>	Environment Canada. 2015. Management Plan for the Riddell's Goldenrod (<i>Solidago riddellii</i>) in Canada. Species at Risk Act Management Plan Series. Environment Canada, Ottawa. iv + 18 pp.
<i>Quercus shumardii</i>	COSEWIC. 1999. COSEWIC assessment and update status report on the Shumard Oak (<i>Quercus shumardii</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 11 pp.
<i>Hibiscus moscheutos</i>	COSEWIC. 2004. COSEWIC assessment and update status report on the Swamp Rose-mallow (<i>Hibiscus moscheutos</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 43 pp.
<i>Arnoglossum plantagineum</i>	COSEWIC 2002. COSEWIC assessment and update status report on the tuberous Indian-plantain (<i>Arnoglossum plantagineum</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 11 pp.
<i>Eurybia divaricata</i>	COSEWIC. 2002. COSEWIC assessment and update status report on the White Wood Aster (<i>Eurybia divaricate</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 23 pp.
<i>Symphyotrichum praealtum</i>	COSEWIC. 2003. COSEWIC assessment and status report on the Willowleaf Aster (<i>Symphyotrichum praealtum</i>) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 16 pp.

APPENDIX 10
Background Wildlife List



SOURCE	COMMON NAME	SCIENTIFIC NAME	COSSARO ¹	SCA ²	COSEWIC ³	SARA ⁴	S-RANK ⁵	G-RANK ⁶	N-RANK ⁷	AREA SENSITIVE ⁸	AREA REQUIRED ⁸	PIF SPECIES ⁹	GRCA (date unk.) ¹⁰	WATERLOO REGION (BUTTERFLIES & MOTHS) (LINTON, 2012) ¹¹	REGION OF WATERLOO (1986-2007) ¹²
	INSECTS														
iNat (2022)	Asian Lady Beetle	<i>Harmonia axyridis</i>					SNA		NNA						
iNat (2021)	Common Drone Fly	<i>Eristalis tenax</i>					SNA		NNA						
iNat (2021)	Common Red Soldier Beetle	<i>Rhagonycha fulva</i>					SNA		NNA						
iNat (2023)	Eastern Yellowjacket	<i>Vespula maculifrons</i>					S4		N5						
iNat (2021)	European Mantis	<i>Mantis religiosa</i>					SNA		NNA						
iNat (2021)	Eye-Spotted Lady Beetle	<i>Anatis mali</i>					S4S5		N5						
iNat (2023)	German Yellowjacket	<i>Vespula germanica</i>					SNA		NNA						
iNat (2019)	Goldenrod Leaf Beetle	<i>Trirhabda canadensis</i>					S4S5		N5						
iNat (2023)	Margined Calligrapher	<i>Toxomerus marginatus</i>					S5		N5						
iNat (2019)	Red Milkweed Beetle	<i>Tetraopes tetrophthalmus</i>					S5		N5						
iNat (2023)	Red-legged Grasshopper	<i>Melanoplus femurrubrum</i>					S5	G5	N5						
iNat (2020)	Rough Hermit Beetle	<i>Osmoderma scabra</i>					S4S5		N5						
iNat (2020)	Six-spotted Tiger Beetle	<i>Cicindela sexguttata</i>					S5		N5						
iNat (2021)	Spotted Lady Beetle	<i>Coleomegilla maculata</i>					S4S5		N5						
iNat (2021)	Western Conifer Seed Bug	<i>Leptoglossus occidentalis</i>													
iNat (2023)	Eastern Hornet Fly	<i>Spilomyia longicornis</i>					S4	G5	N4						
iNat (2020)	Mottled Tortoise Beetle	<i>Deloyala guttata</i>					S4S5	G5	N5						
iNat (2022)	Short-winged Meadow Katydid	<i>Conocephalus brevipennis</i>					S4	G5	N4N5						
	BEES														
iNat (2019)	Hairy-banded Mining Bee	<i>Andrena hirticincta</i>					S3S4	GNR	N5						
iNat (2020)	Western Honey Bee	<i>Apis mellifera</i>					SNA		NNA						
iNat (2021)	Two-spotted Bumble Bee	<i>Bombus bimaculatus</i>					S5		N5						
NHIC	Gypsy Cuckoo Bumble Bee	<i>Bombus bohemicus</i>	END	END	END	END	S1S2	GH	N1						
iNat (2018)	Common Eastern Bumble Bee	<i>Bombus impatiens</i>					S5		N5						
iNat (2023)	Red-belted Bumble Bee	<i>Bombus rufocinctus</i>					S5		NNR						
iNat (2022)	Virginia Carpenter Bee	<i>Xylocopa virginica</i>					S4S5		N4N5						
	BUTTERFLIES & MOTHS														
OBA (2021)	Delaware Skipper	<i>Anatrytone logan</i>					S4	G5	N4N5					C	C
OBA (2019)	Hobomok Skipper	<i>Poanes hobomok</i>					S5	G5	N5					C	C
OBA (2017)	European Skipper	<i>Thymelicus lineola</i>					SNA	G5	NNA					VC	VC

SOURCE	COMMON NAME	SCIENTIFIC NAME	COSSARO ¹	SCA ²	COSEWIC ³	SARA ⁴	S-RANK ⁵	G-RANK ⁶	N-RANK ⁷	AREA SENSITIVE ⁸	AREA REQUIRED ⁸	PIF SPECIES ⁹	GRCA (date unk.) ¹⁰	WATERLOO REGION (BUTTERFLIES & MOTHS) (LINTON, 2012) ¹¹	REGION OF WATERLOO (1986-2007) ¹²
OBA (1970)	Northern Broken-Dash	<i>Wallengrenia egeremet</i>					S5	G5	N5					C	C
OBA (1970)	Summer Azure	<i>Celastrina neglecta</i>					S5	G5	N5					VC	VC
iNat (2023)	Silvery Blue	<i>Glaucopsyche lygdamus</i>					S5	G5	N5						
OBA (1967)	Meadow Fritillary	<i>Boloria bellona</i>					S5	G5	N5					VC	VC
OBA (1967)	Silver-bordered Fritillary	<i>Boloria selene</i>					S5	G5	N5					R	R
OBA (2017)	Common Wood-Nymph	<i>Cercyonis pegala</i>					S5	G5	N5					VC	VC
OBA (2022)	Common Ringlet	<i>Coenonympha tullia</i>					S5	G5	N5					C	C
OBA (2022), iNat (2023)	Monarch	<i>Danaus plexippus</i>	SC	NL	END	SC	S2N,S4B	G5	N3B,NNRM					VC	VC
OBA (2020)	Northern Pearly-Eye	<i>Enodia anthedon</i>					S5	G5	N5					C	C
OBA (2022)	Viceroy	<i>Limenitis archippus</i>					S5	G5	N5					VC	VC
OBA (1970)	White Admiral	<i>Limenitis arthemis arthemis</i>					S5	G5T5	N5						
OBA (2022)	Red-spotted Purple	<i>Limenitis arthemis astyanax</i>					S5	G5T5	N5					C	C
OBA (2022)	Mourning Cloak	<i>Nymphalis antiopa</i>					S5	G5	N5					VC	VC
OBA (2021)	Northern Crescent	<i>Phyciodes cocyta</i>					S5	G5	N5					UC	UC
OBA (2022), iNat (2023)	Eastern Comma	<i>Polygonia comma</i>					S5	G5	N5					VC	VC
OBA (2017)	Question Mark	<i>Polygonia interrogationis</i>					S5	G5	N5B,N4N5M					VC	VC
OBA (2022)	Great Spangled Fritillary	<i>Speyeria cybele</i>					S5	G5	N5					VC	VC
OBA (2021), iNat (2023)	Red Admiral	<i>Vanessa atalanta</i>					S5B	G5	N5B,N5M					VC	VC
OBA (2019)	Painted Lady	<i>Vanessa cardui</i>					S5B	G5	N5B,N5M					C	C
OBA (2017)	Giant Swallowtail	<i>Papilio cresphontes</i>					S4	G5	N4					C	UC
OBA (2013)	Eastern Tiger Swallowtail	<i>Papilio glaucus</i>					S5	G5	N4					VC	VC
OBA (2021)	Black Swallowtail	<i>Papilio polyxenes</i>					S5	G5	N5					VC	VC
OBA (2022)	Orange Sulphur	<i>Colias eurytheme</i>					S5	G5	N5B,N5M					VC	VC
OBA (2022), iNat (2022)	Clouded Sulphur	<i>Colias philodice</i>					S5	G5	N5					VC	VC
OBA (2022)	Cabbage White	<i>Pieris rapae</i>					SNA	G5	NNA					VC	VC
OBA (1968)	Little Yellow	<i>Pyrisitia lisa</i>					SNA	G5	NNA					R	R
iNat (2021)	Virginia Ctenucha	<i>Ctenucha virginica</i>					S5	G5	N5						
iNat (2023)	Common Looper Moth	<i>Autographa precatonis</i>					S5	G5	N5						
iNat (2022)	Bristly Cutworm Moth	<i>Lacinipolia renigera</i>					S5	G5	N5						
iNat (2023)	Hummingbird Clearwing	<i>Hemaris thysbe</i>					S5	G5	N5						
iNat (2021)	Spongy Moth	<i>Lymantria dispar</i>					SNA	G5	NNA						

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iNat (2018)	Isabella Tiger Moth	<i>Pyrrharctia isabella</i>					S5	G5	N5						
iNat (2021)	Carolina Sphinx	<i>Manduca sexta</i>					S2		N2						
iNat (2021)	Cecropia Moth	<i>Hyalophora cecropia</i>					S4S5		N5						
iNat (2018)	Bedstraw Hawkmoth	<i>Hyles gallii</i>					S5?	G5	N5						
iNat (2021)	Chickweed Geometer Moth	<i>Haematopis grataria</i>					S4S5	G5	N5						
iNat (2023)	Green Pug	<i>Pasiphila rectangulata</i>					SNA	G5	NNA						
iNat (2022)	Two-banded Petrophila	<i>Petrophila bifascialis</i>					S4S5	GNR	NNR						
iNat (2021)	Western Bean Cutworm Moth	<i>Striacosta albicosta</i>					S4S5	GNR	NU						
	DRAGONFLIES & DAMSELFLIES														
iNat (2020)	Widow Skimmer	<i>Libellula luctuosa</i>					S5	G5	N5						
iNat (2021)	Shadow Darner	<i>Aeshna umbrosa</i>					S5	G5	N5						
iNat (2019)	Twelve-spotted Skimmer	<i>Libellula pulchella</i>					S5	G5	N5						
	AMPHIBANS														
ORAA (2019), iNat (2019)	American Toad	<i>Anaxyrus americanus</i>					S5	G5	N5						
ORAA (2019), iNat (2009)	Gray Treefrog	<i>Hyla versicolor</i>					S5	G5	N5						
ORAA (1978)	American Bullfrog	<i>Lithobates catesbeianus</i>					S4	G5	N5	✓					R
ORAA (2019), iNat (2022)	Green Frog	<i>Lithobates clamitans</i>					S5	G5	N5						
ORAA (1978)	Northern Leopard Frog	<i>Lithobates pipiens</i>		NAR	NAR		S5	G5	N5						
ORAA (1989)	Wood Frog	<i>Lithobates sylvaticus</i>					S5	G5	N5						
ORAA (2018)	Eastern Red-backed Salamander	<i>Plethodon cinereus</i>					S5	G5	N5						R
ORAA (2018)	Mudpuppy	<i>Necturus maculosus</i>		NAR	NAR		S4	G5	N4N5						R
	SNAKES AND LIZARDS														
ORAA (1971)	Milksnake	<i>Lampropeltis triangulum</i>	NAR	NAR	SC	SC	S4	G5T5	N3						R
ORAA (2017)	Red-bellied Snake	<i>Storeria occipitomaculata occipitomaculata</i>					S5	G5	N5						R
ORAA (1978)	Eastern Gartersnake	<i>Thamnophis sirtalis sirtalis</i>					S5	G5T5	N5						
	TURTLES														
ORAA (2019), iNat (2023)	Snapping Turtle	<i>Chelydra serpentina</i>	NL	NL	SC	SC	S4	G5T5	N4						
ORAA (1981)	Midland Painted Turtle	<i>Chrysemys picta marginata</i>	NAR	NAR	SC	SC	S4	G5T5	N4						
ORAA (2006)	Pond Slider	<i>Trachemys scripta</i>					SNA	GNR	NNA						
	BIRDS														
OBBA, eBird (2023), iNat (2022)	Canada Goose	<i>Branta canadensis</i>					S5	G5	N5B,N5N,N5M				CP		

SOURCE	COMMON NAME	SCIENTIFIC NAME	COSSARO ¹	SCA ²	COSEWIC ³	SARA ⁴	S-RANK ⁵	G-RANK ⁶	N-RANK ⁷	AREA SENSITIVE ⁸	AREA REQUIRED ⁸	PIF SPECIES ⁹	GRCA (date unk.) ¹⁰	WATERLOO REGION (BUTTERFLIES & MOTHS) (LINTON, 2012) ¹¹	REGION OF WATERLOO (1986-2007) ¹²
eBird (2021)	Mute Swan	<i>Cygnus olor</i>					SNA	G5	NNA						
OBBA, eBird (2023)	Wood Duck	<i>Aix sponsa</i>					S5B, S3N	G5	N5B,N4N5N,N5M						
OBBA	Blue-winged Teal	<i>Anas discors</i>					S3B,S4M	G5	N5B,N5M				CP		
OBBA, eBird (2023), iNat (2023)	Mallard	<i>Anas platyrhynchos</i>					S5	G5	N5B,N5N,N5M						
eBird (2023)	Bufflehead	<i>Bucephala albeola</i>					S5	G5	N5B,N5N,N5M						
iNat (2023)	Common Merganser	<i>Mergus merganser</i>					S5	G5	N5B,N5N,N5M	✓					R
OBBA, eBird (2023), iNat (2021)	Wild Turkey	<i>Meleagris gallopavo</i>					S5	G5	N5						
OBBA	Ruffed Grouse	<i>Bonasa umbellus</i>					S5	G5	N5				CP		
OBBA, eBird (2023), iNat (2023)	Rock Pigeon	<i>Columba livia</i>					SNA	G5	NNA						
OBBA, eBird (2023), iNat (2023)	Mourning Dove	<i>Zenaida macroura</i>					S5	G5	N5B,N5N,N5M						
OBBA, eBird (2021)	Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>					S4S5B	G5	N5B,N5M			✓	CP		R
OBBA	Yellow-billed Cuckoo	<i>Coccyzus americanus</i>					S4B	G5	N4B,NUM						R
OBBA	Common Nighthawk	<i>Chordeiles minor</i>	SC	NL	SC	THR	S4B	G5	N4B,N3M				CP		R
OBBA, eBird (2023)	Chimney Swift	<i>Chaetura pelagica</i>	THR	NL	THR	THR	S3B	G4G5	N4BN3M			✓			
OBBA, eBird (2023)	Ruby-throated Hummingbird	<i>Archilochus colubris</i>					S5B	G5	N5B,N5M				CP		R
OBBA, eBird (2023)	Killdeer	<i>Charadrius vociferus</i>					S4B	G5	N5B,N4N5N,N5M						
eBird (2023)	Least Sandpiper	<i>Calidris minutilla</i>					S4B,S5M	G5	N5B,N1N2N,N5M						
OBBA, eBird (2023)	American Woodcock	<i>Scolopax minor</i>					S4B	G5	N5B,N5M				CP		
OBBA, eBird (2023)	Spotted Sandpiper	<i>Actitis macularius</i>					S5B	G5	N5B,N3N,N5M				CP		
eBird (2022)	Solitary Sandpiper	<i>Tringa solitaria</i>					S4B,S5M	G5	N5B,N5M						
eBird (2023)	Ring-billed Gull	<i>Larus delawarensis</i>					S5	G5	N5B,N5N,N5M						
eBird (2023)	Herring Gull	<i>Larus argentatus</i>					S4B,S5N	G5	N5B,N5N,N5M						
eBird (2023)	Caspian Tern	<i>Hydroprogne caspia</i>		NAR	NAR		S3B,S5M	G5	N4B,N4M						
eBird (2020)	Double-crested Cormorant	<i>Phalacrocorax auritus</i>		NAR	NAR		S5B,S4N	G5	N5M,N3N4N,N5M						
OBBA, eBird (2023), iNat (2023)	Great Blue Heron	<i>Ardea herodias</i>					S4	G5	N5B,N3N,N5M						R
eBird (2019)	Green Heron	<i>Butorides virescens</i>					S4B	G5	N4N5B,N3N4N,N4N5M				CP		R
OBBA, eBird (2023), iNat (2023)	Turkey Vulture	<i>Cathartes aura</i>					S5B, S3N	G5	N5B,N5M				CP		R
OBBA, eBird (2021), iNat (2019)	Osprey	<i>Pandion haliaetus</i>					S5B	G5	N5B,N5N,N5M				CP		R
OBBA	Northern Harrier	<i>Circus cyaneus</i>		NAR	NAR		S5B,S4N	G5	N5B,N4N	✓	>30ha	✓	CP		R
eBird (2023), iNat (2023)	Sharp-shinned Hawk	<i>Accipiter striatus</i>		NAR			S5	G5	N5B,N5N,N5M	✓	>30ha		CP		R
OBBA, eBird (2023), iNat (2022)	Cooper's Hawk	<i>Accipiter cooperii</i>		NAR	NAR		S4	G5	N5B,N5N,N4N5M	✓	>10ha		CP		R

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OBBA, eBird (2023)	Bald Eagle	<i>Haliaeetus leucocephalus</i>		NAR	NAR		S4	G5	N5B,N5N,N5M	✓		✓			
eBird (2023)	Red-shouldered Hawk	<i>Buteo lineatus</i>		NAR	NAR		S4B,S2N	G5	N4N5B,N4N5M	✓	>100ha	✓	CP		R
eBird (2023)	Broad-winged Hawk	<i>Buteo platypterus</i>					S5B	G5	N5B,N5M	✓	>100ha		CP		R
OBBA, eBird (2023), iNat (2023)	Red-tailed Hawk	<i>Buteo jamaicensis</i>		NAR	NAR		S5	G5	N5B,N5N,N5M						
OBBA, iNat (2022)	Eastern Screech-Owl	<i>Megascops asio</i>		NAR	NAR		S4	G5	N4N5						
OBBA, eBird (2023)	Great Horned Owl	<i>Bubo virginianus</i>					S4	G5	N5						
OBBA, eBird (2023), iNat (2022)	Belted Kingfisher	<i>Megaceryle alcyon</i>					S5B,S4N	G5	N5B,N4N5N,N5M			✓			R
NHIC	Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	END	NL	END	END	S3	G5	N4B,N3M			✓			R
OBBA, eBird (2023), iNat (2022)	Red-bellied Woodpecker	<i>Melanerpes carolinus</i>					S5	G5	N4B,N4N,N3M				CP		R
eBird (2023)	Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>					S5B,S3N	G5	N5B,N5M	✓	2-5ha		CP		R
OBBA, eBird (2023), iNat (2023)	Downy Woodpecker	<i>Picoides pubescens</i>					S5	G5	N5						
OBBA, eBird (2023)	Hairy Woodpecker	<i>Picoides villosus</i>					S5	G5	N5B,N5N,NUM	✓	4-8ha				R
OBBA, eBird (2023)	Northern Flicker	<i>Colaptes auratus</i>					S5	G5	N5B,N5N,N5M			✓			
OBBA	Pileated Woodpecker	<i>Dryocopus pileatus</i>					S5	G5	N5	✓	>40ha		CP		R
OBBA, eBird (2022)	American Kestrel	<i>Falco sparverius</i>					S4	G5	N5B,N1N,N5M			✓	CP		
OBBA, eBird (2023)	Merlin	<i>Falco columbarius</i>		NAR	NAR		S5	G5	N5B,N5N,N5M						
iNat (2022)	Peregrine Falcon	<i>Falco peregrinus</i>	SC	NL	SC	SC	S4	G4	N3N4B,N2N,N3N4M			✓			
OBBA, eBird (2023)	Great Crested Flycatcher	<i>Myiarchus crinitus</i>					S5B	G5	N5B,N5M						
OBBA, eBird (2023), iNat (2023)	Eastern Kingbird	<i>Tyrannus tyrannus</i>					S4B	G5	N5B,N5M			✓	CP		
eBird (2023), iNat (2023)	Olive-sided Flycatcher	<i>Contopus cooperi</i>	SC	NL	SC	THR	S4B	G4	N4B,N3M				CP		
NHIC, OBBA, eBird (2023)	Eastern Wood-Pewee	<i>Contopus virens</i>	SC	NL	SC	SC	S4B	G5	N5B,N5M			✓			
eBird (2020)	Yellow-bellied Flycatcher	<i>Empidonax flaviventris</i>					S5B	G5	N5B,N5M						
OBBA, eBird (2020)	Alder Flycatcher	<i>Empidonax alnorum</i>					S5B	G5	N5B,N5M				CP		R
OBBA, eBird (2023)	Willow Flycatcher	<i>Empidonax traillii</i>					S4B	G5	N5B,N5M			✓			R
OBBA, eBird (2023)	Least Flycatcher	<i>Empidonax minimus</i>					S5B	G5	N5B,N5M	✓	>100ha		CP		R
OBBA, eBird (2023), iNat (2023)	Eastern Phoebe	<i>Sayornis phoebe</i>					S5B	G5	N5B,N5M				CP		
OBBA	Blue-headed Vireo	<i>Vireo solitarius</i>					S5B	G5	N5B,N5M	✓	>100ha		CP		
OBBA, eBird (2023)	Warbling Vireo	<i>Vireo gilvus</i>					S5B	G5	N5B,N5M						R
OBBA, eBird (2023)	Red-eyed Vireo	<i>Vireo olivaceus</i>					S5B	G5	N5B,N5N,N5M						
OBBA, eBird (2023), iNat (2022)	Blue Jay	<i>Cyanocitta cristata</i>					S5	G5	N5B,N5N,NNRM						
OBBA, eBird (2023), iNat (2022)	American Crow	<i>Corvus brachyrhynchos</i>					S5	G5	N5B,N5N,N5M						

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OBBA, eBird (2021)	Common Raven	<i>Corvus corax</i>					S5	G5	N5						
OBBA, eBird (2023), iNat (2022)	Black-capped Chickadee	<i>Poecile atricapillus</i>					S5	G5	N5				CP		
OBBA, eBird (2023)	Horned Lark	<i>Eremophila alpestris</i>					S4	G5	N5B,N5N,N5M				CP		
OBBA, eBird (2023)	Bank Swallow	<i>Riparia riparia</i>	THR	NL	THR	THR	S4B	G5	N5B,N5M			✓	CP		
OBBA, eBird (2023), iNat (2021)	Tree Swallow	<i>Tachycineta bicolor</i>					S4S5B	G5	N5B,N5M						
OBBA, eBird (2023)	Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>					S4B	G5	N5B,N5M				CP		
OBBA, eBird (2023)	Purple Martin	<i>Progne subis</i>					S3B	G5	N5B,N5M				CP		R
OBBA, eBird (2023)	Barn Swallow	<i>Hirundo rustica</i>	SC	NL	THR	THR	S4B	G5	N3N4B,N3N4M				CP		
OBBA, eBird (2020)	Cliff Swallow	<i>Petrochelidon pyrrhonota</i>					S4S5B	G5	N5B,N5M				CP		
eBird (2023)	Golden-crowned Kinglet	<i>Regulus satrapa</i>					S5	G5	N5B,N5N,N5M				CP		R
eBird (2023), iNat (2023)	Ruby-crowned Kinglet	<i>Corthylio calendula</i>					S5B,S3N	G5	N5B,N5N,N5M				CP		R
OBBA, eBird (2023)	Cedar Waxwing	<i>Bombycilla cedrorum</i>					S5	G5	N5B,N5N,N5M						
OBBA, eBird (2022)	Red-breasted Nuthatch	<i>Sitta canadensis</i>					S5	G5	N5B,N5N,N5M	✓	>10ha		CP		R
OBBA, eBird (2023), iNat (2023)	White-breasted Nuthatch	<i>Sitta carolinensis</i>					S5	G5	N5	✓	>10ha				
OBBA, eBird (2021)	Brown Creeper	<i>Certhia americana</i>					S5	G5	N5B,N5N,N5M	✓	>30ha		CP		R
OBBA, eBird (2023), iNat (2023)	Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>					S4B	G5	N4B,N4M	✓	>30ha		CP		R
OBBA, eBird (2023)	House Wren	<i>Troglodytes aedon</i>					S5B	G5	N5B,N5M						
eBird (2023)	Winter Wren	<i>Troglodytes troglodytes</i>					S5B,S4N	G5	N5B,N5M	✓	>30ha				R
OBBA, eBird (2023)	Gray Catbird	<i>Dumetella carolinensis</i>					S5B,S3N	G5	N5B,N5M				CP		
OBBA, eBird (2023)	Brown Thrasher	<i>Toxostoma rufum</i>					S4B	G5	N5B,NUN,N5M			✓	CP		R
OBBA, eBird (2023), iNat (2022)	European Starling	<i>Sturnus vulgaris</i>					SNA	G5	NNA						
OBBA, eBird (2023), iNat (2023)	Eastern Bluebird	<i>Sialia sialis</i>		NAR	NAR		S5B,S4N	G5	N5B,N5M				CP		R
OBBA, eBird (2023)	Veery	<i>Catharus fuscescens</i>					S5B	G5	N5B,N5M	✓	>10ha		CP		
eBird (2023)	Swainson's Thrush	<i>Catharus ustulatus</i>					S5B	G5	N5B,N5M						R
eBird (2022)	Hermit Thrush	<i>Catharus guttatus</i>					S5B,S4N	G5	N5B,NUN,N5M	✓	>100ha		CP		
NHIC, OBBA, eBird (2023)	Wood Thrush	<i>Hylocichla mustelina</i>	SC	NL	THR	THR	S4B	G4	N4B,NUM			✓			
OBBA, eBird (2023), iNat (2023)	American Robin	<i>Turdus migratorius</i>					S5	G5	N5B,N4N5N,N5M						
OBBA, eBird (2023), iNat (2023)	House Sparrow	<i>Passer domesticus</i>					SNA	G5	NNA						
OBBA, eBird (2023), iNat (2023)	House Finch	<i>Carpodacus mexicanus</i>					SNA	G5	N5						
eBird (2020)	Purple Finch	<i>Carpodacus purpureus</i>					S5	G5	N5B,N5N,N5M				CP		R
eBird (2021)	Common Redpoll	<i>Carduelis flammea</i>					S5	G5	N5B,N5N,N5M						

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OBBA, eBird (2021)	Pine Siskin	<i>Carduelis pinus</i>					S5	G5	N5B,N5N,N5M						R
OBBA, eBird (2023), iNat (2023)	American Goldfinch	<i>Carduelis tristis</i>					S5	G5	N5B,N5N,N5M				CP		
eBird (2022)	Snow Bunting	<i>Plectrophenax nivalis</i>					S4N	G5	N5B,N5N,N5M						
OBBA, eBird (2023)	Chipping Sparrow	<i>Spizella passerina</i>					S5B,S3N	G5	N5B,N5M						
OBBA, eBird (2023)	Field Sparrow	<i>Spizella pusilla</i>					S4B,S3N	G5	N4B,NUM			✓	CP		
eBird (2023), iNat (2023)	American Tree Sparrow	<i>Spizella arborea</i>					S5	G5	N5B,N5N,N5M						
eBird (2023), iNat (2023)	Dark-eyed Junco	<i>Junco hyemalis</i>					S5	G5	N5B,N5N,N5M				CP		
eBird (2023)	White-crowned Sparrow	<i>Zonotrichia leucophrys</i>					S5B,S3N	G5	N5B,N5N,N5M						
OBBA,eBird (2023), iNat (2022)	White-throated Sparrow	<i>Zonotrichia albicollis</i>					S5	G5	N5B,N5N,N5M				CP		R
OBBA	Vesper Sparrow	<i>Pooecetes gramineus</i>					S4B	G5	N5B,N5M			✓	CP		R
OBBA, eBird (2023)	Savannah Sparrow	<i>Passerculus sandwichensis</i>					S5B,S3N	G5	N5B,N4N,N5M	✓	>50ha	✓	CP		
OBBA, eBird (2023), iNat (2023)	Song Sparrow	<i>Melospiza melodia</i>					S5	G5	N5B,N5N,N5M						
eBird (2023)	Lincoln's Sparrow	<i>Melospiza lincolnii</i>					S5B	G5	N5B,N5N,N5M						
OBBA, eBird (2023), iNat (2023)	Swamp Sparrow	<i>Melospiza georgiana</i>					S5B,S4N	G5	N5B,NUN,N5M				CP		R
OBBA	Eastern Towhee	<i>Pipilo erythrophthalmus</i>					S4B,S3N	G5	N4N5B,N4M			✓	CP		
NHIC, OBBA	Bobolink	<i>Dolichonyx oryzivorus</i>	THR	NL	THR	THR	S4B	G5	N5B,N4N5M	✓	>10ha	✓	CP		
OBBA	Eastern Meadowlark	<i>Sturnella magna</i>	THR	NL	THR	THR	S4B,S3N	G5	N4B,NUM	✓	>10ha	✓	CP		
OBBA, eBird (2019)	Orchard Oriole	<i>Icterus spurius</i>					S4B	G5	N5B,N5M				CP		R
OBBA,eBird (2023)	Baltimore Oriole	<i>Icterus galbula</i>					S4B	G5	N5B,N5M			✓			
OBBA, eBird (2023), iNat (2023)	Red-winged Blackbird	<i>Agelaius phoeniceus</i>					S5	G5	N5B,N5N,N5M						
OBBA, eBird (2023), iNat (2022)	Brown-headed Cowbird	<i>Molothrus ater</i>					S5	G5	N5B,NUN,N5M						
eBird (2023), iNat (2023)	Rusty Blackbird	<i>Euphagus carolinus</i>	SC	NL	SC	SC	S4B,S3N	G4	N4B,NUN,N4M						
OBBA, eBird (2023), iNat (2022)	Common Grackle	<i>Quiscalus quiscula</i>					S5	G5	N5B,NUN,N5M						
OBBA	Ovenbird	<i>Seiurus aurocapilla</i>					S5B	G5	N5B,N5M	✓	>70ha		CP		R
OBBA	Northern Waterthrush	<i>Seiurus noveboracensis</i>					S5B	G5	N5B,N5M						R
OBBA, eBird (2023)	Black-and-white Warbler	<i>Mniotilta varia</i>					S5B	G5	N5B,N5M	✓	>100ha		CP		R
eBird (2023)	Tennessee Warbler	<i>Vermivora peregrina</i>					S5B	G5	N5B,N5M						
OBBA, eBird (2023)	Nashville Warbler	<i>Vermivora ruficapilla</i>					S5B	G5	N5B,N5M				CP		R
OBBA, eBird (2022)	Mourning Warbler	<i>Oporomis philadelphia</i>					S5B	G5	N5B,N5M				CP		R
OBBA, eBird (2023)	Common Yellowthroat	<i>Geothlypis trichas</i>					S5B,S3N	G5	N5B,N5M						
OBBA, eBird (2023)	American Redstart	<i>Setophaga ruticilla</i>					S5B	G5	N5B,N5M	✓	>100ha		CP		R

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eBird (2019)	Northern Parula	<i>Parula americana</i>					S5B	G5	N5B,N5M	✓	>100ha				
OBBA, eBird (2022)	Magnolia Warbler	<i>Dendroica magnolia</i>					S5B	G5	N5B,N5M	✓	>30ha		CP		R
eBird (2022)	Bay-breasted Warbler	<i>Dendroica castanea</i>					S5B	G5	N5B,N5M						
eBird (2023), iNat (2023)	Blackburnian Warbler	<i>Dendroica fusca</i>					S5B	G5	N5B,N5M	✓	>50ha		CP		R
OBBA, eBird (2023), iNat (2023)	Yellow Warbler	<i>Dendroica petechia</i>					S5B	G5	N5B,N5M						
OBBA	Chestnut-sided Warbler	<i>Dendroica petechia</i>					S5B	G5	N5B,N5M						
eBird (2021)	Blackpoll Warbler	<i>Dendroica striata</i>					S5B	G5	N5B,N5M						
eBird (2020)	Black-throated Blue Warbler	<i>Dendroica caerulescens</i>					S5B	G5	N5B,N5M	✓	>100ha		CP		
eBird (2020)	Western Palm Warbler	<i>Dendroica palmarum palmarum</i>					S5B	G5T5	N5B						
OBBA	Pine Warbler	<i>Dendroica pinus</i>					S5B,S3N	G5	N5B,N5M	✓	15-30ha		CP		R
OBBA, eBird (2023), iNat (2021)	Yellow-rumped Warbler	<i>Dendroica coronata</i>					S5B,S4N	G5	N5B,N4N,N5M				CP		R
OBBA, eBird (2023)	Black-throated Green Warbler	<i>Dendroica virens</i>					S5B	G5	N5B,N5M	✓	>30ha				R
eBird (2023)	Wilson's Warbler	<i>Wilsonia pusilla</i>					S5B	G5	N5B,N5M						
OBBA, eBird (2023), iNat (2023)	Scarlet Tanager	<i>Piranga olivacea</i>					S5B	G5	N5B,N4N5M	✓	>20ha		CP		R
OBBA, eBird (2023), iNat (2023)	Northern Cardinal	<i>Cardinalis cardinalis</i>					S5	G5	N5						
OBBA, eBird (2023), iNat (2023)	Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>					S5B	G5	N5B,N5M			✓			
OBBA, eBird (2023)	Indigo Bunting	<i>Passerina cyanea</i>					S5B	G5	N5B,N5M						
	MAMMALS														
OMA	White-tailed Deer	<i>Odocoileus virginianus</i>					S5	G5	N5						
iNat (2015)	Coyote	<i>Canis latrans</i>					S5	G5	N5						S
OMA	Red Fox	<i>Vulpes vulpes</i>					S5	G5	N5						
OMA	Striped Skunk	<i>Mephitis mephitis</i>					S5	G5	N5						
OMA	American Mink	<i>Neovison vison</i>					S4	G5	N5						S
OMA	Northern Raccoon	<i>Procyon lotor</i>					S5	G5	N5						
OMA	Big Brown Bat	<i>Eptesicus fuscus</i>					S4	G5	N5						
OMA	Virginia Opossum	<i>Didelphis virginiana</i>					S4	G5	N4N5						R
OMA, iNat (2023)	Eastern Cottontail	<i>Sylvilagus floridanus</i>					S5	G5	N5						
OMA	Beaver	<i>Castor canadensis</i>					S5	G5	N5						S
OMA, iNat (2023)	Muskrat	<i>Ondatra zibethicus</i>					S5	G5	N5						
iNat (2022)	House Mouse	<i>Mus musculus</i>					SNA	G5	NNA						
iNat (2023)	Norway Rat	<i>Rattus norvegicus</i>					SNA	G5	NNA						

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OMA, iNat (2023)	Woodchuck	<i>Marmota monax</i>					S5	G5	N5						
OMA, iNat (2023)	Eastern Gray Squirrel	<i>Sciurus carolinensis</i>					S5	G5	N5						
iNat (2022)	Eastern Chipmunk	<i>Tamias striatus</i>					S5	G5	N5						
OMA, iNat (2017)	Red Squirrel	<i>Tamiasciurus hudsonicus</i>					S5	G5	N5						
	FISH														
ARA (2020)	White Sucker	<i>Catostomus commersonii</i>					S5	G5	N5						
ARA (2020)	Northern Hog Sucker	<i>Hypentelium nigricans</i>					S4	G5	N4						
ARA (2012)	Central Stoneroller	<i>Campostoma anomalum</i>		NAR	NAR		S4	G5	N4						
ARA (2016)	Goldfish	<i>Carassius auratus</i>					SNA	G5	NNA						
ARA (2014)	Northern Redbelly Dace	<i>Chrosomus eos</i>					S5	G5	N5						
ARA 2020)	Common Carp	<i>Cyprinus carpio</i>					SNA	G5	NNA						
ARA (2014)	Brassy Minnow	<i>Hybognathus hankinsoni</i>					S5	G5	N5						
ARA (2020)	Common Shiner	<i>Luxilus cornutus</i>					S5	G5	N5						
ARA (2019)	Hornyhead Chub	<i>Nocomis biguttatus</i>		NAR	NAR		S4	G5	N4N5						
ARA (2016)	Golden Shiner	<i>Notemigonus crysoleucas</i>					S5	G5	N5						
ARA (2010)	Blacknose Shiner	<i>Notropis heterolepis</i>					S5	G5	N5						
ARA (2004)	Spottail Shiner	<i>Notropis hudsonius</i>					S5	G5	N5						
NHIC	Silver Shiner	<i>Notropis photogenis</i>	THR	NL	THR	THR	S2S3	G5	N2N3						
ARA (2016)	Bluntnose Minnow	<i>Pimephales notatus</i>		NAR	NAR		S5	G5	N5						
ARA (2016)	Fathead Minnow	<i>Pimephales promelas</i>					S5	G5	N5						
ARA (2019)	Longnose Dace	<i>Rhinichthys cataractae</i>					S5	G5	N5						
ARA (2019)	Western Blacknose Dace	<i>Rhinichthys obtusus</i>					S5	G5	N5						
ARA (2019)	Creek Chub	<i>Semotilus atromaculatus</i>					S5	G5	N5						
ARA (2014)	Northern Pike	<i>Esox lucius</i>					S5	G5	N5						
ARA (2012)	Central Mudminnow	<i>Umbra limi</i>					S5	G5	N5						
ARA (2016)	Brook Stickleback	<i>Culaea inconstans</i>					S5	G5	N5						
ARA (2020)	Rock Bass	<i>Ambloplites rupestris</i>					S5	G5	N5						
ARA (2016)	Green Sunfish	<i>Lepomis cyanellus</i>		NAR	NAR		S4	G5	N4						
ARA (2016)	Pumpkinseed	<i>Lepomis gibbosus</i>					S5	G5	N5						
ARA (2020)	Bluegill	<i>Lepomis macrochirus</i>					S5	G5	N5						
ARA (2016)	Smallmouth Bass	<i>Micropterus dolomieu</i>					S5	G5	N5						

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ARA (2010)	Largemouth Bass	<i>Micropterus salmoides</i>					S5	G5	N5						
ARA (2014)	White Crappie	<i>Pomoxis annularis</i>					S4	G5	N4						
ARA (2016)	Black Crappie	<i>Pomoxis nigromaculatus</i>					S4	G5	N5						
ARA (2019)	Greenside Darter	<i>Etheostoma blennioides</i>		NAR	NAR		S4	G5	N4						
ARA (2019)	Rainbow Darter	<i>Etheostoma caeruleum</i>					S4	G5	N4						
ARA (2019)	Iowa Darter	<i>Etheostoma exile</i>					S5	G5	N5						
ARA (2014)	Least Darter	<i>Etheostoma microperca</i>		NAR	NAR		S4	G5	N4						
ARA (2019)	Johnny Darter	<i>Etheostoma nigrum</i>					S5	G5	N5						
ARA (2016)	Brown Bullhead	<i>Ameiurus nebulosus</i>					S5	G5	N5						
ARA (2019)	Stonecat	<i>Noturus flavus</i>					S4	G5	N5						
	MUSSELS														
iNat (2022)	Wavy-rayed Lampmussel	<i>Lampsilis fasciola</i>	THR	THR	SC	SC	S2	G5	N2						
iNat (2020)	Elktoe	<i>Alasmidonta marginata</i>					S3	G4	N3N4						
	SLUGS AND SNAILS														
iNat (2022)	Brown-lipped Snail	<i>Cepaea nemoralis</i>					SNA		NNA						

Legend:

COSSARO: Committee on Species at Risk Ontario
COSEWIC: Committee on the Status of Endangered Wildlife in Canada
SARA: Species at Risk Act
SCA: Species Conservation Act NAR: Not At Risk
END: Endangered NL: Not listed
THR: Threatened DD: Data Deficient
SC: Special Concern

N- and S-Rank:

S1: Critically Imperiled—Critically imperiled in the jurisdiction (often 5 or fewer occurrences)
S2: Imperiled—Imperiled in the jurisdiction, very few populations (often 20 or fewer),
S3: Vulnerable—Vulnerable in the jurisdiction, relatively few populations (often 80 or fewer)
S4: Apparently Secure—Uncommon but not rare
S5: Secure—Common, widespread, and abundant in the jurisdiction
SX: Presumed Extirpated
SH: Possibly Extirpated (Historical)
SNR: Unranked
SU: Unrankable—Currently unrankable due to lack of information
SNA: Not Applicable—The species is not a suitable target for conservation activities
S#S#: Range Rank—Indicates a range of uncertainty about the status of the species
S#B- Breeding Status Rank
S#N- Non Breeding Status Rank
?: Indicates uncertainty in the assigned rank

References:

1.COSSARO Status Endangered Species Act, 2007 (Bill 184). Schedules 1- 5. January 25, 2023.
2.Species at Risk in Ontario List. Endangered Species Act, 2007 (Ontario Regulation 230/08). January 25, 2023.
3.COSEWIC Status COSEWIC. 2014. Canadian Species at Risk. Committee on the Status of Endangered Wildlife in Canada. January 25, 2023.
4.Endangered Species Act, 2007 (Bill 184). Schedules 1- 5. January 25, 2023.
5.Provincial Rarity Rank. NatureServe. 2023.
6.Global Rarity Rank. NatureServe. 2023.
7.National Rank. NatureServe. 2023.
8.Significant Wildlife Habitat Technical Guide. Ontario Ministry of Natural Resources. 2000. Appendix C: A list of area sensitive species and key references.
9.Ontario Partners in Flight (PIF). 2008. Ontario Landbird Conservation Plan: Lower Great Lakes/St. Lawrence Plain (North American Bird Conservation Region 13), Priorities, Objectives and Recommended Actions. Environment Canada
10.GRCA. date unk. A Checklist of Birds in the Grand River Watershed.
11.Linton, Jessica. 2012.The Butterflies of Waterloo Region - An Annotated Checklist, a Species Scarcity Ranking, and a Transect-Based Analysis of Urban vs. Rural Populations
12.Regional Municipality of Waterloo, 1996. *Revisions to Waterloo Region's Significant Species List: Breeding Birds Component* . Report to Planning and Culture Committee PC-96-021.

G-Rank:

G1: Extremely rare globally
G1G2: Extremely rare to very rare globally
G2: Very rare globally
G2G3: Very rare to uncommon globally
G3: Rare to uncommon globally
G3G4: Rare to common globally
G4: Common globally
G4G5: Common to very common globally
G5: Very common globally; demonstrably secure
T: Denotes that the rank applies to a subspecies or variety

Source Codes

OBA: Ontario Butterfly Atlas
ORAA: Ontario Reptile and Amphibian Atlas
OMA: Ontario Mammal Atlas
OBBA: Ontario Breeding Bird Atlas
eBird: eBird
ARA: Aquatic Resource Area Survey Points
DFO: Department of Fisheries and Oceans Species at Risk Mapping
iNat: iNaturalist
NHIC: Natural Heritage Information Centre

Grand River Conservation Authority:

CP: Conservation Priority

Region of Waterloo Butterflies & Moths

VC: Very Common
C: Common
UC: Uncommon
R: Rare
PE: Possibly Extirpated

APPENDIX 11
MECP & MNR Requests for Information





3-5 Edinburgh Road South
Guelph . Ontario
N1H 5N8

T: 519.822.6839

info@aboutdng.com

www.aboutdng.com

URBAN FORESTRY

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TREE APPRAISALS
MONITORING

ECOLOGICAL RESTORATION

NATURAL SYSTEMS DESIGN
HABITAT RESTORATION
EDGE MANAGEMENT PLANS
RAVINE STEWARDSHIP PLANS
NATURALIZATION PLANS
INTERPRETIVE DESIGN
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CONTRACT ADMINISTRATION

ENVIRONMENTAL STUDIES

SUBWATERSHED STUDIES
ENVIRONMENTAL IMPACT
STATEMENTS
ECOLOGICAL LAND
CLASSIFICATION
WETLAND EVALUATION
VEGETATION ASSESSMENT
BOTANICAL INVENTORIES
WILDLIFE SURVEYS
MONITORING

LANDSCAPE ARCHITECTURE

MASTER PLANNING
RESIDENTIAL COMMUNITIES
COMMERCIAL/INDUSTRIAL
HEALTHCARE AND EDUCATION
STREETSCAPES
PARKS AND OPEN SPACES
TRAIL SYSTEMS
GREEN ROOFS
CONTRACT ADMINISTRATION

EXPERT OPINION

OMB TESTIMONY
LEGAL PROCEEDINGS
PEER REVIEW
RESEARCH
EDUCATION

November 30, 2023

Our Project #: AA23-232A

Sent by email: SAROntario@ontario.ca

Ministry of the Environment, Conservation and Parks
Permissions and Compliance Section, Species at Risk Branch

**Re: 1655 Scotch Line Road, Elmira, Township of Woolwich
Request for Species at Risk and Local Site Information**

To whom it may concern:

Please accept this request for Information regarding Species at Risk.

Any other possible site constraints or information would also be greatly appreciated, as it applies to an Environmental Impact Study for a proposed industrial subdivision in the Township of Woolwich (*Figure 1*). The information provided will be used to inform the Environmental Impact Study, which will be prepared in consultation with the Grand River Conservation Authority (GRCA), Township of Woolwich, and Region of Waterloo.

Project Location

Town/City: Township of Woolwich

County/Region: Region of Waterloo

UTM Coordinates: 536531.77 E 4825190.05 N

Proposed Activity

The subject property is located at 1655 Scotch Line Road in the Township of Woolwich. The proponent requires an Environmental Impact Study prepared to the satisfaction of the Township, Region, and GRCA to develop a proposed industrial subdivision and associated Stormwater Management, streets, and an open space block.

Existing Site Conditions

The property and study area are partially within the GRCA Regulation Limit and contains wetlands and floodplain (*Figure 1*).

Background Information

A thorough background search has been completed; using available resources provided online related to the subject lands and adjacent lands and is listed below:

1. Review of the Ontario Reptile and Amphibian Atlas identified 14 species that are known to occur or have historically occurred within the 10 km x 10 km square that contains the study area (17NJ32). This list includes three species which are considered species of conservation concern: Midland Painted Turtle, Snapping Turtle, and Milksnake.
2. The Natural Heritage Information Center identified six SAR within the 1 km x 1 km squares that contains the study area and the surrounding squares (17NJ3726, 17NJ3725, 17NJ3724, 17NJ3723, 17NJ3626, 17NJ3526, 17NJ3623, 17NJ3523, 17NJ3624, 17NJ3524, 17NJ3625, 17NJ3525): Bobolink, Eastern Wood-pewee, Red-headed Woodpecker, Wood Thrush, Silver Shiner, and Gypsy Cuckoo Bumble Bee.
3. The Ontario Breeding Bird Atlas identified 82 species that are known to occur or have historically occurred in the 10 km x 10 km square that contains the study area (17NJ32). This list includes seven SAR: Bank Swallow, Barn Swallow, Bobolink, Chimney Swift, Eastern Meadowlark, Eastern Wood-pewee, and Wood Thrush.
4. The Ontario Mammal Atlas indicates 14 mammal species that are known to occur or have historically occurred in the 10 km x 10 km square that contains the study area (17NJ32). No SAR were identified, although it should be noted that SAR bats can be present anywhere in Ontario,
5. Review of the Atlas of the Butterflies of Ontario identified 31 species that are known to occur or have historically occurred in the 10 km x 10 km square that contains the study area (17NJ32), including one SAR: Monarch.
6. iNaturalist observations restricted to research grade within 1km of the subject property identified 302 species, eight of which are SAR: Olive-sided Flycatcher, Peregrin Falcon, Rusty Blackbird, Monarch, Wavy-rayed Lampmussel, Snapping Turtle, Dense Blazing Star,

and Butternut. It should be noted that some SAR locations are obscured in iNaturalist, and may not actually occur within the vicinity of the study area.

7. eBird records from the nearby Elmira-Lions Ring Trail Hotspot (750 m west from the centre of the site) indicate the recent presence of 123 species, including seven SAR: Bank Swallow, Barn Swallow, Chimney Swift, Eastern Wood-pewee, Olive-sided Flycatcher, Rusty Blackbird, and Wood Thrush.
8. The online Fisheries and Oceans Canada (DFO) mapping system was consulted in the background review. A review for SAR Critical Habitat and species presence was completed in a 1 km radius around the study area. No critical habitat for any species was identified in the search radius, and no SAR were identified as being present or potentially present.
9. The Aquatic Resources Area (ARA) Survey Point and Line Segment mapping indicated the presence of 36 species of fish within 1 km of the study area. None of these species were SAR.

Please contact the undersigned should you require additional information of the above.

Yours truly,

ABOUD & ASSOCIATES INC.



Heather Dixon, PhD
Aquatic Ecologist
heather@aboudtng.com

Attachment: Figure 1



LEGEND

- | | | |
|--|---|---|
|  SUBJECT LANDS |  WETLAND |  ESTIMATED FLOODPLAIN |
|  STUDY AREA |  SIGNIFICANT WOODLAND |  GRCA REGULATION LIMIT |
|  CANAGAGIGUE CREEK |  ENGINEERED FLOODPLAIN | |

Information Sources:
1. Waterloo Region Orthophotography,
Accessed October 2023.
2. Grand River Information Network,
Accessed October 2023.
3. Land Information Ontario,
Accessed October 2023.

Title:

STUDY AREA

Project:

1655 SCOTCH LINE
ELMIRA, ON



Date: OCTOBER 2023

Project: AA23-232A

Scale: 1 : 7000


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3-6 Edinburgh Road South (Geoph) - Ontario - N1M 0N8 - 519.822.6839 - www.aboodatg.com

Figure No:

1

Heather Dixon

From: Species at Risk (MECP) <SAROntario@ontario.ca>
Sent: Friday, December 1, 2023 9:43 AM
To: Heather Dixon; Species at Risk (MECP)
Cc: Cheryl-Anne Ross
Subject: RE: Request for SAR Information for 1655 Scotch Line Road, Elmira, ON (AA23-232A)
Attachments: Client Guide to Preliminary Screening.pdf

Caution. Outside Sender

Hello Heather,

Thank you for your submission to the Ministry of the Environment, Conservation and Parks (MECP) about species at risk (SAR).

MECP is responsible for the administration of the *Endangered Species Act, 2007* (ESA) ([Endangered Species Act, 2007, S.O. 2007, c. 6 \(ontario.ca\)](#)). The ESA provides for the protection and recovery of species on the Species at Risk in Ontario (SARO) List ([O. Reg. 230/08: SPECIES AT RISK IN ONTARIO LIST](#)). The ESA includes prohibitions against killing, harming, harassing, capturing or taking a living member of a species listed as extirpated, endangered, or threatened on the SARO List (section 9) and against damaging or destroying the habitat of a species listed as endangered or threatened on the SARO List (section 10), without an exemption or authorization.

Seeking an ESA authorization or exemption is a proponent-led process. **This means that the person carrying out an activity is responsible for determining whether SAR and their habitat are present on or around the site of the activity, and ultimately ensuring their actions do not contravene the ESA.**

For information about assessing which SAR may be present on or in the area of your site, please refer to the MECP's draft "Client's Guide to Screening for Species at Risk" (attached).

You may proceed with the screening on your own or you may wish to consider hiring a qualified professional to perform a screening on your behalf. MECP recommends that the services of a professional environmental consultant be retained to assist in the completion of a screening, field assessments and surveys. An environmental consultant will be able to provide advice and direction on the type of surveys that should be performed and will be able to interpret the results of any surveys carried out.

If after carrying out a thorough SAR screening, including any field assessments and surveys that might be necessary, there is **no evidence of SAR or SAR habitat located on or adjacent to the site of your activity** and your activity will therefore not cause any prohibited impacts, an exemption or authorization under the ESA would not be necessary to proceed. The ministry strongly recommends that you document your SAR screening and assessment and rationale for avoiding prohibited impacts for future reference if needed. Proponents are responsible for ensuring their actions do not contravene the ESA.

If there IS evidence of species at risk and/or habitat on or around the location of your activity, the ministry recommends that you carry out the work necessary to prepare

an Information Gathering Form (IGF). This includes consideration of all the elements in your SAR screening data collection and further levels of assessment of impacts and potential to minimize adverse effects.

After considering all the data and information in the IGF, if you have determined that the activity can be carried out in such a way that you WILL NOT have adverse impacts prohibited by sections 9 and/or 10 of the ESA, an exemption or authorization under the ESA would not be necessary to proceed if the activity is carried out in that way. Again, proponents are responsible for ensuring their actions do not contravene the ESA.

If after considering all the data and information in the IGF you have determined that the proposed activities COULD POTENTIALLY have adverse impacts prohibited by sections 9 and/or 10 of the ESA, an exemption or authorization may likely be required before you proceed. If there is no applicable exemption in regulations under the ESA, submit the IGF to the ministry at SAROntario@ontario.ca to seek a permit or agreement. Please visit [How to get an Endangered Species Act permit or authorization | ontario.ca](#) to obtain information on how to get an ESA permit or authorization.

Please consider in your project planning that it takes an average of 12-15 months from the submission of a complete IGF to a decision about a permit, if one is needed. This considers the time required to conduct the technical review of the application as well as to carry out public and Indigenous consultation, along with factors such as project complexity, seasonal nature of field survey and data collection required, volume of applications and quality of submissions. It is recommended that proponents submit a complete IGF well in advance of the activity's proposed start date. Failure to submit a complete and accurate IGF with supporting rationale and not allowing adequate time for review and the issuance of any required authorizations could result in delays to the activity's anticipated start date.

Thank you,

Species at Risk Branch

From: Heather Dixon <Heather@aboudtng.com>

Sent: Thursday, November 30, 2023 5:27 PM

To: Species at Risk (MECP) <SAROntario@ontario.ca>

Cc: Cheryl-Anne Ross <Cheryl@aboudtng.com>

Subject: Request for SAR Information for 1655 Scotch Line Road, Elmira, ON (AA23-232A)

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good afternoon,

Please accept the attached request for SAR information for the proposed industrial subdivision located at 1655 Scotch Line Road, Elmira, Township of Woolwich, ON. Please contact me if you have any questions. We appreciate your prompt response to our request.

Many thanks,

Heather Dixon, PhD (she/her) . Aquatic Ecologist
ABOUD & ASSOCIATES INC. 3-5 Edinburgh Road South . Guelph . Ontario . N1H 5N8
519.781.1581 www.aboudtng.com . heather@aboudtng.com

Aboud & Associates Inc. is located within the Between the Lakes Purchase (Treaty 3); the treaty lands and territory of the Mississaugas of the Credit.



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HEALTHCARE AND EDUCATION
STREETSCAPES
PARKS AND OPEN SPACES
TRAIL SYSTEMS
GREEN ROOFS
CONTRACT ADMINISTRATION

EXPERT OPINION

OMB TESTIMONY
LEGAL PROCEEDINGS
PEER REVIEW
RESEARCH
EDUCATION

November 30, 2023

Our Project #: AA23-232A

Sent by email: scp.guelph@ontario.ca

Ministry of Northern Development, Mines, Natural Resources and Forestry
Aylmer Guelph District
1 Stone Road West,
Guelph, ON N1G 4Y2

Re: 1655 Scotch Line Road, Elmira, Township of Woolwich Request for Local Site Information

To whom it may concern,

Please accept this request for Information regarding:

☒ Wetland Mapping and/or Evaluation and Data Records

☒ Fish Dot Information

☐ ANSI Mapping and/or check-sheet

☒ Other:

Any other possible site constraints or information would also be greatly appreciated, as it applies to an Environmental Impact Study for a proposed industrial subdivision in the Township of Woolwich (*Figure 1*), including timing windows and thermal regime. The information provided will be used to inform the Environmental Impact Study, which will be prepared in consultation with the Grand River Conservation Authority (GRCA), Township of Woolwich, and Region of Waterloo. MECP will be contacted regarding species at risk.

Project Description

The subject property is located at 1655 Scotch Line Road in the Township of Woolwich. The proponent requires an Environmental Impact Study prepared to the satisfaction of the Township, Region, and GRCA to develop a proposed industrial subdivision and associated Stormwater Management, streets, and an open space block.

Existing Site Conditions

The property and study area are partially within the GRCA Regulation Limit and contains wetlands and floodplain (*Figure 1*).

Town/City: Township of Woolwich

County/Region: Region of Waterloo

UTM Coordinates: 536531.77 E 4825190.05 N

Background Information

A thorough background search has been completed; using available resources provided online related to the subject lands and adjacent lands and is listed below:

1. A review of the Land Information Ontario mapping (2007) indicates presence of unevaluated wetlands in the study area.
2. The Aquatic Resources Area (ARA) Survey Point and Line Segment mapping identified 36 fish species within 1 km of the study area. Northern Pike spawning was also identified as occurring in the vicinity of the project location.
3. A review of the Grand River Conservation Authority mapping indicates the presence of regulated area, unevaluated wetlands, and floodplains within the study area.

Please contact the undersigned should you require additional information of the above.

Yours truly,

ABOUD & ASSOCIATES INC.



Heather Dixon, PhD
Aquatic Ecologist
heather@aboudtng.com

Attachment: Figure 1



LEGEND

- | | | |
|--|---|---|
|  SUBJECT LANDS |  WETLAND |  ESTIMATED FLOODPLAIN |
|  STUDY AREA |  SIGNIFICANT WOODLAND |  GRCA REGULATION LIMIT |
|  CANAGAGIGUE CREEK |  ENGINEERED FLOODPLAIN | |

Information Sources:
1. Waterloo Region Orthophotography,
Accessed October 2023.
2. Grand River Information Network,
Accessed October 2023.
3. Land Information Ontario,
Accessed October 2023.

Title:

STUDY AREA

Project:

1655 SCOTCH LINE
ELMIRA, ON



Date: OCTOBER 2023

Project: AA23-232A

Scale: 1 : 7000


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3-6 Edinburgh Road South (Geoph) - Ontario - N1M 0N8 - 519.822.6839 - www.aboodatg.com

Figure No:

1

Heather Dixon

From: Denyes, David (MNRF) <David.Denyes@ontario.ca>
Sent: Friday, December 1, 2023 2:47 PM
To: Heather Dixon
Cc: Scientific Collection Permits Guelph (MNRF)
Subject: RE: Request for Site Information for 1655 Scotch Line Road, Elmira, ON (AA23-232A)

Caution. Outside Sender

Hello Heather,

Thank you for your request for information on natural heritage features.

Absence or lack of information for a given geographic area does not necessarily mean the absence of natural heritage features. Many areas in Ontario have never been surveyed and new plant and animal species records are still being discovered for many localities. In addition, new species may be listed and new natural heritage features may be defined over time. For these reasons, the Ministry cannot provide a definitive statement on the presence, absence or condition of natural heritage features in all parts of Ontario.

At this time, the Ministry has the following information within the vicinity of your project location.

1. Canagagigue Creek tributary
 - a. *Warm water thermal regime*
 - b. Species (from ARA layer): *Blacknose Shiner, Common Shiner, Rock Bass, White Sucker*
 - c. *Northern Pike Spawning Area (observed in drain in spring)*
 - d. Restricted in-water work timing window: March 15th to June 30th (Note: Dates represent when in-water work should be avoided)
2. Several unevaluated wetlands
3. Species at Risk information is available through the Ministry of Environment, Conservation & Parks (MECP) – Please contact MECP at SAROntario@ontario.ca
4. Please reach out to Department of Fisheries and Oceans for any further aquatic SAR considerations. You can also view DFO's aquatic species at risk map at <https://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html>

Thanks,

David

David Denyes
Management Biologist
Ministry of Natural Resources and Forestry
Vineland Field Office
4890 Victoria Avenue North
Vineland Station ON, L0R 2E0
Tel: (289) 241-6872
david.denyes@ontario.ca

From: Heather Dixon <Heather@aboudtng.com>

Sent: November 30, 2023 5:30 PM

To: Scientific Collection Permits Guelph (MNRF) <scp.guelph@ontario.ca>

Cc: Cheryl-Anne Ross <Cheryl@aboudtng.com>

Subject: Request for Site Information for 1655 Scotch Line Road, Elmira, ON (AA23-232A)

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good afternoon,

Please see the attached request for information in regards to wetland and fish dot information for the proposed industrial subdivision located at 1655 Scotch Line Road, Elmira, Township of Woolwich, ON. Thank you for any additional information you can provide.

Many thanks,

Heather Dixon, PhD (she/her) . Aquatic Ecologist

ABOUD & ASSOCIATES INC. 3-5 Edinburgh Road South . Guelph . Ontario . N1H 5N8

519.781.1581 www.aboudtng.com . heather@aboudtng.com

Aboud & Associates Inc. is located within the Between the Lakes Purchase (Treaty 3); the treaty lands and territory of the Mississaugas of the Credit.

APPENDIX 12
Incidental Species List



APPENDIX 12. INCIDENTAL SPECIES LIST

PROJECT #: AA23-232A

COMMON NAME	SCIENTIFIC NAME	TAXA	DATE	SIGNIFICANCE
American Toad	<i>Anaxyrus americanus</i>	Amphibians	June 17- Observed during second Grassland Breeding Bird Survey	None
Green Frog	<i>Lithobates clamitans</i>	Amphibians	May 9- Observed during Aquatic Habitat Assessment June 25-Observed during Summer Botanical	None
American Crow	<i>Corvus brachyrhynchos</i>	Bird	March 19- Observed during Bat Habitat Assessment May 29-Observed during first Breeding Bird Survey outside point count radius June 25-Observed during Summer Botanical	None
American Goldfinch	<i>Carduelis tristis</i>	Bird	March 19- Observed during Bat Habitat Assessment May 9- Observed during Aquatic Habitat Assessment and ELC investigations May 29-Observed during first Breeding Bird Survey outside point count radius June 25-Observed during Summer Botanical	GRCA conservation priority
American Robin	<i>Turdus migratorius</i>	Bird	March 19- Observed during Bat Habitat Assessment May 9- Observed during Aquatic Habitat Assessment and ELC investigations May 29-Observed during first Breeding Bird Survey outside point count radius June 17- Observed during second Grassland Breeding Bird Survey outside point count June 25-Observed during Summer Botanical	None
Baltimore Oriole	<i>Icterus galbula</i>	Bird	May 9- Observed during Aquatic Habitat Assessment May 29-Observed during first Breeding Bird Survey outside point count radius July 5-Observed during third Breeding Bird Survey outside point count radius	PIF species
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Bird	May 29-Observed during first Breeding Bird Survey outside point count radius	Area sensitive. PIF species.
Barn Swallow	<i>Hirundo rustica</i>	Bird	May 9- Observed during Aquatic Habitat Assessment and ELC investigations June 17-Observed during second Breeding Bird Survey outside point count radius June 25-Observed during Summer Botanical	Special Concern under ESA and SARA. GRCA conservation priority.
Black-capped Chickadee	<i>Poecile atricapillus</i>	Bird	May 9- Observed during Aquatic Habitat Assessment	GRCA conservation priority

APPENDIX 12. INCIDENTAL SPECIES LIST

PROJECT #: AA23-232A

COMMON NAME	SCIENTIFIC NAME	TAXA	DATE	SIGNIFICANCE
Blue Jay	<i>Cyanocitta cristata</i>	Bird	May 29-Observed during first Breeding Bird Survey outside point count radius June 17- Observed during second Grassland Breeding Bird Survey outside point count	None
Bobolink	<i>Dolichonyx oryzivorus</i>	Bird	May 29-Observed during first Breeding Bird Survey outside point count radius	Threatened under ESA and SARA. Area sensitive. PIF species. GRCA conservation priority.
Canada Goose	<i>Branta canadensis</i>	Bird	March 19- Observed during Bat Habitat Assessment May 9- Heard during Aquatic Habitat Assessment	GRCA conservation priority
Chipping Sparrow	<i>Spizella passerina</i>	Bird	May 29-Observed during first Breeding Bird Survey outside point count radius	None
Common Grackle	<i>Quiscalus quiscula</i>	Bird	March 19- Observed during Bat Habitat Assessment	None
Common Raven	<i>Corvus corax</i>	Bird	May 29-Observed during first Breeding Bird Survey outside point count radius	None
Common Yellowthroat	<i>Geothlypis trichas</i>	Bird	May 9- Observed during Aquatic Habitat Assessment	None
Eastern Bluebird	<i>Sialia sialis</i>	Bird	March 19- Observed during Bat Habitat Assessment	GRCA conservation priority. Considered rare in Waterloo Region
Eastern Wood-pewee	<i>Contopus virens</i>	Bird	May 29-Observed during first Breeding Bird Survey outside point count radius July 5-Observed during third Breeding Bird Survey outside point count radius	Special Concern under ESA and SARA. PIF species
European Starling	<i>Sturnus vulgaris</i>	Bird	July 5-Observed during third Breeding Bird Survey outside point count radius	Invasive
Great Blue Heron	<i>Ardea herodias</i>	Bird	May 9- Observed during ELC investigations	Considered rare in Waterloo Region
Horned Lark	<i>Eremophila alpestris</i>	Bird	March 19- Observed during Bat Habitat Assessment May 9- Observed during Aquatic Habitat Assessment	GRCA conservation priority
House Sparrow	<i>Passer domesticus</i>	Bird	March 19- Observed during Bat Habitat Assessment	None
House Wren	<i>Troglodytes aedon</i>	Bird	May 9- Observed during Aquatic Habitat Assessment July 5-Observed during third Breeding Bird Survey outside point count radius	None

COMMON NAME	SCIENTIFIC NAME	TAXA	DATE	SIGNIFICANCE
Killdeer	<i>Charadrius vociferus</i>	Bird	March 19- Observed during Bat Habitat Assessment May 9- Observed during Aquatic Habitat Assessment and ELC investigations July 5-Observed during third Breeding Bird Survey outside point count radius	None
Least Flycatcher	<i>Empidonax minimus</i>	Bird	May 9- Observed during Aquatic Habitat Assessment June 25-Observed during Summer Botanical	GRCA conservation priority. Considered rare in Waterloo Region
Mourning Dove	<i>Zenaida macroura</i>	Bird	March 19- Observed during Bat Habitat Assessment May 29-Observed during first Breeding Bird Survey outside point count radius	None
Northern Cardinal	<i>Cardinalis cardinalis</i>	Bird	March 19- Observed during Bat Habitat Assessment May 29-Observed during first Breeding Bird Survey outside point count radius July 5-Observed during third Breeding Bird Survey outside point count radius	None
Northern Harrier	<i>Circus cyaneus</i>	Bird	March 19- Pair observed during Bat Habitat Assessment	GRCA conservation priority. Considered rare in Waterloo Region
Red-tailed Hawk	<i>Buteo jamaicensis</i>	Bird	May 29-Observed during first Breeding Bird Survey outside point count radius July 5-Observed during third Breeding Bird Survey outside point count radius	None
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	Bird	May 9- Observed during Aquatic Habitat Assessment and ELC investigations May 29-Observed during first Breeding Bird Survey outside point count radius June 17-Observed during second Breeding Bird Survey outside point count radius June 25-Observed during Summer Botanical July 5-Observed during third Breeding Bird Survey outside point count radius	None
Rock Pigeon	<i>Columba livia</i>	Bird	March 19- Observed during Bat Habitat Assessment	None
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	Bird	May 9- Observed during Aquatic Habitat Assessment May 29-Observed during first Breeding Bird Survey outside point count radius June 17-Observed during second Breeding Bird Survey outside point count radius	PIF species

COMMON NAME	SCIENTIFIC NAME	TAXA	DATE	SIGNIFICANCE
Savannah Sparrow	<i>Passerculus sandwichensis</i>	Bird	May 29-Observed during first Breeding Bird Survey outside point count radius	Area sensitive. PIF species. GRCA conservation priority.
Song Sparrow	<i>Melospiza melodia</i>	Bird	March 19- Observed during Bat Habitat Assessment May 9- Observed during Aquatic Habitat Assessment and ELC investigations May 29-Observed during first Breeding Bird Survey outside point count radius June 17-Observed during second Breeding Bird Survey outside point count radius	None
Swamp Sparrow	<i>Melospiza georgiana</i>	Bird	May 9- Observed during Aquatic Habitat Assessment	GRCA conservation priority. Considered rare in Waterloo Region
Tree Swallow	<i>Tachycineta bicolor</i>	Bird	May 9- Observed during Aquatic Habitat Assessment and ELC investigations June 25-Observed during Summer Botanical	None
Turkey Vulture	<i>Cathartes aura</i>	Bird	May 9- Observed during Aquatic Habitat Assessment	GRCA conservation priority. Considered rare in Waterloo Region
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	Bird	March 19- Cavities observed during Bat Habitat Assessment	GRCA conservation priority. Considered rare in Waterloo Region
Yellow Warber	<i>Dendroica petechia</i>	Bird	May 9- Observed during Aquatic Habitat Assessment June 17-Observed during second Breeding Bird Survey outside point count radius	None
Fish	Species unknown	Fish	May 9- Observed during Aquatic Habitat Assessment	None
Cabbage White	<i>Pieris rapae</i>	Insect	May 9- Observed during ELC investigations June 25-Observed during Summer Botanical	Very common in Waterloo Region
Eastern Tailed Blue	<i>Cupido comyntas</i>	Insect	May 9- Observed during ELC investigations	Uncommon in Waterloo Region
Monarch	<i>Danaus plexippus</i>	Insect	July 5- Observed during third Grassland Breeding Bird Survey	Special Concern under ESA and SARA.
Red Admiral	<i>Vanessa atalanta</i>	Insect	May 9- Observed during ELC investigations	Very common in Waterloo Region
Eastern Chipmunk	<i>Tamias striatus</i>	Mammal	June 25-Observed during Summer Botanical	None
Eastern Cottontail	<i>Sylvilagus floridanus</i>	Mammal	June 17- Observed during second Grassland Breeding Bird Survey	None
Eastern Gray Squirrel	<i>Sciurus carolinensis</i>	Mammal	May 9- Observed during ELC investigations	None

COMMON NAME	SCIENTIFIC NAME	TAXA	DATE	SIGNIFICANCE
			May 9- Observed during Aquatic Habitat Assessment and ELC investigations May 29- Observed during first Grassland Breeding Bird Survey June 17- Observed during second Grassland Breeding Bird Survey June 25-Observed during Summer Botanical	
Ground Hog	<i>Marmota monax</i>	Mammal	July 5- Observed during third Grassland Breeding Bird Survey	None
Muskrat	<i>Ondatra zibethicus</i>	Mammal	May 9- Dead individual observed during ELC investigations	None