Species at Risk Screening
&
Environmental Constraint Review

390 Back Street,

Lyndhurst, ON

Part of Lot 14, Concession 9,

Township of Leeds and the Thousand Island,

United Counties of Leeds and Grenville

March 30, 2024

Prepared By:

BCH Environmental Consulting Inc.

[redacted]

Table of Contents

1.0. Introduction

As requested by Chantal Valkenborg a Species at Risk Screening and Environmental Constraint Review was completed at 390 Back Street, Lyndhurst, ON. The purpose of this study was to identify any potential environmental constraint associated with the creation of an intimate event venue.

1.1. Site Context

The entire property parcel is approximately 20.5 ha in size and the legal land description is Part of Lot 14, Concession 9, Township of Leeds and the Thousand Island, United Counties of Leeds and Grenville. The proponent wishes to develop 5.14ha of the property (Subject Lands, Figure 1, and Figure 3).

Within the townships Zoning By-law No. 07-079 and Official Plan, the subject lands are designated as Rural and contain; Woodlands; Wildland Fire Hazard (Low); Watercourse and associated Setbacks; Significant Groundwater Recharge Area; and Highly Vulnerable Aquifer. Portions are designated on The Lanark County Official Plan as Rural, Natural Heritage System, Significant Groundwater Recharge Area, Highly Vulnerable Aquifer and Wildland Fire Hazard (Low). Additionally, the proposed development is located in Ecoregion 6E.

Through a background review, potential environmental constraints have been identified as; Natural Heritage System (Potential Significant Woodland, Potential Watercourses and Potential Fish Habitat), Wildland Fire Hazard, Significant Groundwater Recharge Area, and Highly Vulnerable Aquifer.

The subject lands are located within the Cataraqui Region Conservation Authority jurisdiction and additional permits may be required from the conservation authorities.

The Provincial Policy Statement (PPS) states that natural heritage systems should be maintained, restored, or improved for the purpose of linkages between natural heritage features and areas. The PPS also states that site development and alteration shall not be permitted in provincially significant wetlands in Ecoregion 6E and site development and alteration shall not be permitted in provincially significant woodlands in Ecoregion 6E unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions. Additionally, development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.

2.0. Methodology

This report includes an assessment of the potential environmental constraints and the potential for Species at Risk.

Potential Species at Risk in the general area were identified from the Ministry of Natural Resources and Forestry databases, the Department of Fisheries and Ocean databases, the Ontario Breeding Bird Atlas, Ontario Reptile and Amphibian Atlas, iNaturalist and the Global Biodiversity Information Facility.

Colour aerial photography was used to assess the natural environment features in the general vicinity of the proposed building.

A field survey of the subject and adjacent lands was completed by BCH Environmental (S.St.Pierre/C.Fontaine) on March 25, 2024 from 0900h to 1200h. Staff qualifications are available in Appendix A.

3.0. Field Surveys

The area was extensively walked and surveyed for significant natural heritage features, potential species at risk and their associated habitat. Specific surveys were completed for Butternut, Black Ash and Bats. The property was also searched for significant wildlife habitat, wetlands and watercourses. All wetlands and watercourses were delineated.

3.1. Existing Conditions

The subject lands consisted primary of agricultural fields (soy), meadow, coniferous forest, and deciduous windrow. Within the adjacent lands there was agricultural fields (soy), thicket, deciduous forest, coniferous forest and robust emergent marsh. A watercourse was noted within the adjacent lands, this small watercourse was a tributary to Grippen Lake.

Photo 1: Windrow (March 25, 2024)

Photo 2: Meadow (March 25, 2024)

Photo 3: Thicket (March 25, 2024)

Photo 4: Coniferous Forest (March 25, 2024)

Photo 5: Deciduous Forest (March 25, 2024)

Photo 6: Robust Emergent Marsh (March 25, 2024)

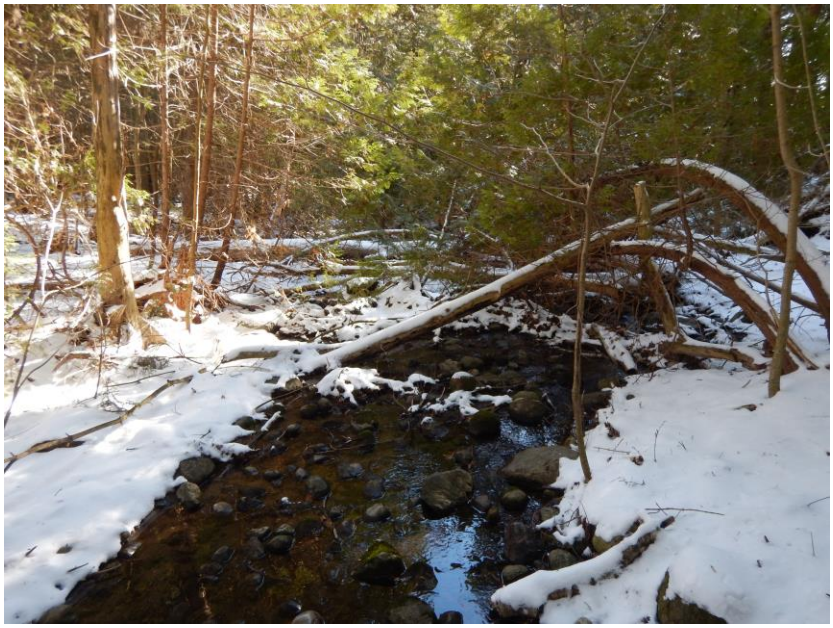


Photo 7: Southern Tributary (March 25, 2024)

Photo 8: Northern Tributary (March 25, 2024)

4.0. Potential Species at Risk

The Make a Map: Natural Heritage online database (OMNRF) was reviewed on March 15, 2024. This database provides sightings of provincially tracked species including Threatened and Endangered species covered by the 2008 Endangered Species Act in 1 km squares across most of Ontario. A search was conducted on the site and adjacent lands (18VQ0528 and 18VQ0628). The following species were identified for these squares:

- Eastern Wood-Pewee (Special Concern)
- Wood Thrush (Special Concern)

The Ontario Breeding Bird Atlas provides a searchable database in the form of a 10km square grid. A query revealed the following Species at Risk and species of special concern identified within the 10km square that encompasses the site and adjacent lands (18VQ02):

- Black Tern (Special Concern)
- Common Nighthawk (Special Concern)
- Whip-poor-will (Threatened)
- Eastern Wood-Pewee (Special Concern)
- Barn Swallow (Special Concern)
- Bank Swallow (Threatened)
- Wood Thrush (Special Concern)
- Golden-winged Warbler (Special Concern)
- Bobolink (Threatened)
- Eastern Meadowlark (Threatened)

Similar to the Ontario Breeding Bird Atlas, the Ontario Reptile and Amphibian Atlas provides a searchable database in the form of a 10km square grid. A query revealed the following species of special concern was identified within the 10km square that encompasses the subject lands and adjacent lands (18VQ02):

- Blanding's Turtle (Threatened)
- Eastern Musk Turtle (Special Concern)
- Northern Map Turtle (Special Concern)
- Snapping Turtle (Special Concern)
- Gray Ratsnake (Threatened)

iNaturalist and the Global Biodiversity Information Facility provides a searchable database. A query revealed the following specie at Species at Risk in the vicinity of the Subject Lands.

- Blanding's Turtle (Threatened)
- Northern Map Turtle (Special Concern)
- Gray Ratsnake (Threatened)

The Department of Fisheries and Oceans provide species at risk sightings via their online map tool. A query found no results in the vicinity of the site.

In addition to the above potential Species at Risk, other endangered and threatened species may potentially occur in the general area:

- Eastern Small-footed Myotis (Endangered)
- Little Brown Myotis (Endangered)
- Northern Myotis (Endangered)
- Tri-coloured Bat (Endangered)
- Butternut (Endangered)
- Black Ash (Endangered)

4.1. Turtles

Snapping Turtles and Northern Map Turtles are designated special concern under the Ontario Endangered Species Act (ESA). The habitat of species of special concern is not regulated under the Ontario ESA. Although not protected Turtle habitat may represent significant wildlife habitat (which is protected unless demonstrated no negative impact on the habitat). Blanding's Turtle are endangered under the Ontario Endangered Species Act (ESA), and the species and habitat is protected. No suitable turtle habitat was present within the subject lands and adjacent lands. The watercourse and marsh lacked suitable water depth (avg 10cm) and it's most likely these systems dry up during the late summer. There is also very little likelihood that turtles are utilising this area as movement corridors as the upstream ends of the watercourse ends in meadows and agricultural fields. No turtles are anticipated to be negatively affected from any development within the subject lands.

4.2. Birds

Black tern, common nighthawk, eastern wood-pewee, barn swallow, wood thrush and golden-winged warbler are designated special concern under the Ontario Endangered Species Act (ESA). The habitat of species of special concern is not regulated under the Ontario ESA. Black tern nest in large freshwater

marshes of at least 20 hectares with emergent vegetation interspersed with open water but will use smaller wetlands with the same features (Burke 2012). This habitat was not observed. Common Nighthawk breeds in a range of open and partially open habitats, including forest openings and post-fire habitats, prairies, bogs, and rocky or sandy natural habitats, as well as disturbed areas. It is also found in settled areas that meet its habitat needs, those with open areas for foraging and bare or short-cropped surfaces for nesting (COSEWIC 2018b). This habitat was not present within the subject lands. The eastern wood-pewee is mostly associated with the mid-canopy layer of forest clearings and edges of deciduous and mixed forests (COSEWIC 2012a). The on-site forests did not support this type of habitat. Barn swallow nest sites are commonly found along the interior or exterior of building structures, under bridges and wharves, and in road culverts (Heagy et al. 2014.). No barn swallow or barn swallow nests were observed. No potential nesting structures were present within the subject lands. The wood thrush nests mainly in second-growth and mature deciduous and mixed forests, with saplings and well-developed understory layers (COSEWIC 2012b). This type of habitat was not present. Golden-winged warbler breeding grounds are found in areas of early successional scrub surrounded by mature forests. They are found in dry uplands, swamp forests and marshes (COSEWIC 2006). A tiny chunk of scrub is present but not large enough to meet any habitat requirements, this species is not anticipated to be present.

Whip-poor-will, bank swallow, bobolink, and eastern meadowlark are designated as threatened under the Ontario Endangered Species Act (ESA) and the species and habitat is protected. Eastern whip-poor-will avoids both wide-open spaces and closed canopy forests. Semi-open forests or patchy forests with clearings, such as barrens or forests that are regenerating following major disturbances, are preferred. Areas with little ground cover are also preferred (COSEWIC 2009b). This habitat wasn't present. Bank swallow is generally associated with sand-silt vertical banks (COSWIC 2013a). This habitat was not present. Bobolink and eastern meadowlark are associated with native and non-native larger grassland habitats such as hayfields (COSEWIC 2010, and COSEWIC 2011). The meadow within the subject lands is approximately 1.0ha, less than the minimum five hectares of suitable meadow habitat identified for successful bobolink or eastern meadowlark nesting in the general habitat descriptions.

No direct impacts on birds are anticipated, indirect impacts on these species as a result of the proposed development can be mitigated.

Further to this, nesting migratory birds are protected under the Migratory Birds Convention Act (MBCA). No work is permitted that would result in the destruction of active nests (nests with eggs or young birds) or the wounding or killing of bird species protected under the MBCA and/or associated regulations

4.3. Mammals

Little brown Myotis, northern Myotis, Eastern Small-footed Myotis, and tri-coloured bat are designated endangered under the Ontario Endangered Species Act (ESA). All four bats may forage in open areas on-site and may roost in trees or buildings on or adjacent to the Site. The Atlas of Mammals of Ontario (Dobbyn, 1994) suggests that the tri-colored bat is not present within this part of Ontario however, the NatureServe mapping in the COSSARO (2015) includes all of southeastern Ontario. Based on this information, this species is considered to have a very low potential of occurring. To prevent impacts to bats, no clearing of trees greater than 10cm on-site should take place between March 15 and November 30 (inclusive) without a qualified biologist first confirming the absence of bats (i.e., open work timing

window from December 1 to March 14). If tree clearing is conducted between December 1 and March 15, no interactions with bats are anticipated, and therefore, significant negative impacts to SAR bats would be avoided.

Maternity colonies are established by females in the summer, often in buildings, or large-diameter trees with suitable cavities (COSEWIC 2013b). No caves, bedrock fissures, mining shafts, abandoned buildings, or other features which may function as bat hibernacula habitat were noted within the subject lands.

A snag survey for bat habitat was completed during the leaf-off season on March 25, 2024. This survey followed the methods present in the 'Maternity Roost Surveys (Forests/Woodlands)' protocol submitted to BCH by MECP on September 19, 2023. The protocol suggest walking transects and identifying suitable snags. As per the protocol if the snag density is calculated to be ≥10 snags/hectare then this the ELC polygon should be considered high quality potential maternity roost habitat. If maternity roost habitat is identified using ELC, acoustic monitoring is recommended to determine if little brown myotis, eastern small-footed myotis, tri-colored and/or northern myotis are recorded in the area.

Throughout the entire subject lands there is approximately 4ha of treed areas, within these treed areas 7 suitable snags that could be utilised by bats for Maternity Roost where identified. As per MECP directives this site is not considered a maternal roost habitat, therefore no further action/surveys are required.

4.4. Vegetation

Butternut (designated as endangered by the ESA; species and habitat protected) are locally abundant within this area of Ontario. Butternut were not observed within the subject lands.

Black ash (designated as endangered by the ESA) occurs most frequently in floodplain forests, basin, seepage and lacustrine swamp forests, shoreline forest margins, and fens (COSEWIC 2017). Black ash was present within the subject lands and adjacent lands. As per Ontario Regulation 6/24 only healthy trees 8cm in diameter at breast height (DBH) are protected. 18 Black ash with a DBH of 8cm or over have been identified as occurring within the subject lands and adjacent lands. Tree health can only be determined during the growing season (May 15 – August 31). Until the trees can be assessed during the growing season a 30m setback must be put into place. If the trees are determined to be healthy removal and/or encroachment into the 30m setback is possible through permitting (MECP) and compensation. It should be noted that the MECP permitting process is lengthy and may require a year to achieve permits.

4.5. Species at Risk Summary

As determined in section 4.0. the most likely specie at risk to occur are birds, bats, and black ash (occurring). Direction on how these potential occurrence should be handled are present in each respective section.

5.0. Significant Woodland

The significance of woodlands has been evaluated using the criteria in the Natural Heritage Reference Manual (OMNR, 2010) by The Ministry of Natural Resources and Forestry (MNRF).

The woodland within the subject lands is part of a larger woodland that totals approximately 5.56ha in size. Clearing for this project would result in the removal of 0.20ha. The PPS does not permit development

in significant woodlands south and east of the Canadian Shield unless it has been demonstrated that there will be no negative impacts on the natural features or the ecological functions. Woodlands are significant if they meet the criteria presented in the NHRM: size, ecological function, uncommon characteristics, and economical and social functional values.

If the woodland meets any one of these criteria then it could be deemed to be significant. Table 1 demonstrates the factors determining significance pre and post construction as per the NHRM.

Within the portion proposed to be removed there is no significant wildlife habitat.

TABLE 1: WOODLAND ANALYSIS

CRITERIA		PRE CONSTRUCTION	POST CONSTRUCTION	DISCUSSION
WOODLAND SIZE		DOES NOT MEET THE CRITERIA		The Cataraqui region has an estimated 37% forest cover. The NHRM stat that woodlands 50 ha in size or larger should be considered significant. The woodland size is 5.56ha before clearing therefore does not meets this criteria.
ECOLOGICAL FUNCTION CRITERIA	Woodland Interior	DOES NOT MEET THE CRITERIA		This woodland does not contain interior habitat.
	Proximity to other woodlands or other habitats	MEETS THE CRITERIA		This woodland contains and connects with watercourses and wetlands and they are likely receiving ecological benefit from the woodland.
	Linkages	MEETS THE CRITERIA		Woodland is located within a defined natural heritage system.
	Water protection	MEETS THE CRITERIA		Woodland is located within a sensitive groundwater recharge area.
	Woodland diversity	DOES NOT MEET THE CRITERIA		Within the subject lands this forest did not contain any declining natural communities or a high variety of native diversity through composition or terrain.
UNCOMMON CHARACTERISTICS CRITERIA		DOES NOT MEET THE CRITERIA		Within the subject lands there are no uncommon species composition,

CRITERIA	PRE CONSTRUCTION	POST CONSTRUCTION	DISCUSSION
			cover type, age or structure.
ECONOMIC AND SOCIAL FUNCTIONAL VALUES CRITERIA	DOES NOT MEET THE CRITERIA		Within the subject lands the woodlands did not have high economic or social values through particular site characteristics or deliberate management.

As per the criteria set out in the NHRM this woodland should be considered significant, furthermore the woodland retains this designation of significant even after potential clearing activities. This woodlands significance was established from the following criteria: proximity to other habitats, linkages and water protection. After removal (0.2ha), the woodland (5.36ha after removal) still meets the criteria for significance (Table 1).

Although this woodland has been classified as significant, it is important to note that this was attributed to the proximity to other habitats, linkages and water protection. Removal of 0.2 ha of the forest at the identified location will not negatively impact, as defined in the Provincial Policy Statement, this feature or it ecological functions. Woodland significance is retained**.**

Indirect impacts on this woodland as a result of the proposed clearing can be mitigated.

6.0. Unevaluated Wetlands

As visible in figure 1, unevaluated wetlands are present within the subject lands. It is recommended that a 30m setback be put in place. If encroachment or disturbance is proposed, a wetland evaluation may be required and the municipality/MNRF authority should be consulted.

7.0. Fish Habitat/ Watercourses

Preliminary mapping and available online information indicated that there was potential for the southern watercourse to extend to the western boundary of the property parcel, it does not. There are no defined channels and soil sampling indicates that the soil moisture regime in this area is moderately moist (4), which does not indicate wetland. This is a low point within the property.

Watercourse and potential fish habitat were present within the subject lands (Figure 1). A 30m setback is recommended. If the watercourse is to be encroached or disturbed a Headwater Assessment Study would be required and consultation/authorization with DFO may be required.

8.0. Significant Wildlife Habitat

The potential for significant wildlife habitat was assessed using the guidance in OMNR (2010) and MNRF (2015). Potential components which may lead to a designation of significant wildlife habitat include seasonal concentration areas of animals, rare vegetation communities or specialized habitat for wildlife, habitat for species of conservation concern, and animal movement corridors. No rare vegetative

communities, raptor overwintering sites, old growth forest, valley, or caves were located within the subject or adjacent lands.

The wetland and black ash habitat may meet the requirements for significant wildlife habitat. Black ash is discussed within section 4.0. Significant Wildlife Habitat associated with the wetland will be protected by a 30m setback, if encroachment or disturbance is proposed, a wetland evaluation may be required and the municipality/MNRF authority should be consulted. No regulatory setbacks are associated with significant wildlife habitat tied to wetlands.

9.0. Wildland Fire Risk Assessment

The wildland fire policy was introduced in the 2014 Provincial Policy Statement to ensure communities consider and plan for avoiding and mitigating losses to their communities due to wildland fire. As outlined in the Provincial Policy Statement, "Development shall generally be directed to areas outside of lands that are unsafe for development due to the presence of hazardous forest types for wildland fire. Development may however be permitted in lands with hazardous forest types for wildland fire where the risk is mitigated in accordance with wildland fire assessment and mitigation standards".

To assist planning, the county has identified potential hazardous forest types for wildland fire. The subject lands have been identified as being a Low risk for wildland fire.

9.1. Level 1 Site Assessment

Following review of the available information provided by the county and the field visit, the subject lands have been identified has having a low risk of wildland fires. Following the guidelines as outlined in the MNRF Wildland Fire Risk Assessment and Mitigation Guidebook no further mitigation measures are required for the proposed development.

10.0. Significant Groundwater Recharge Area and Highly Vulnerable Aquifer

The municipality and counties have designated the subject lands and surrounding adjacent lands as a Significant Groundwater Recharge Area and Highly Vulnerable Aquifer. The proposed development is located within these areas. The Cataraqui Conservation Authority has a Source Water Protection Plan in place, different policies apply to different parts of the Significant Groundwater Recharge Area and Highly Vulnerable Aquifer because certain areas are more vulnerable to contamination. The Cataraqui Conservation Authority should be consulted to ensure policies and recommendations for this specific source water protection area are followed.

It is our opinion that the proposed development poses no risk to the Significant Groundwater Recharge Area and Highly Vulnerable Aquifer. All rules governing septic systems and wells must be followed and be kept in good operational order

11.0. Development Constraints / Recommendations

A visualization of potential constraints determined through a desktop background review and field visit is present in figure 1. Constraint are summarized below:

Significant Woodland: As per the criteria set out in the NHRM this woodland should be considered significant, furthermore the woodland retains this designation of significant even after potential clearing activities.

Wetland: A 30m setback is recommended. If encroachment or disturbance is proposed, a wetland evaluation (OWES) may be required and the municipality/MRNF should be consulted.

Significant Wildlife Habitat: The wetland and black ash habitat may meet the requirements for significant wildlife habitat. Black ash is discussed within section 4.0. Significant Wildlife Habitat associated with the wetland will be protected by a 30m setback, if encroachment or disturbance is proposed, a wetland evaluation may be required and the municipality/MNRF authority should be consulted. No regulatory setbacks are associated with significant wildlife habitat.

Fish Habitat/Watercourse: A 30m setback is recommended. If encroachment or disturbance is proposed, a Headwater Assessment Study may be required to determine the level of protection the watercourse should receive.

Species at Risk: As determined in section 4.0. the most likely species at risk to occur are birds, bats, and black ash (occurring). Direction on how these potential occurrence should be handled are present in each respective section and below.

- **Birds -** To protect breeding birds, no tree or shrub removal should occur between April 1th and August 15th, unless a breeding bird survey is completed by a qualified biologist within five days of the woody vegetation removal and identifies no nesting activity.
- **Bat**s - To prevent impacts to bats, no clearing of trees greater than 10cm on-site should take place between March 15 and November 30 (inclusive) without a qualified biologist first confirming the absence of bats (i.e., open work timing window from December 1 to March 14). If tree clearing is conducted between December 1 and March 15, no interactions with bats are anticipated, and therefore, significant negative impacts to SAR bats would be avoided.
- **Black Ash** - 18 Black ash with a DBH of 8cm or over have been identified as occurring within the subject lands and adjacent lands. Tree health can only be determined during the growing season (May 15 – August 31). Until the trees can be assessed during the growing season a 30m setback must be put in place. If the trees are determined to be healthy removal and/or encroachment into the 30m setback is possible through permitting (MECP) and compensation.

12.0. Conclusion

This preliminary report is intended to guide development within this parcel of land, and results may be subject to change pending the completion of other potential studies. If development is to occur within these lands, a completed EIS may will be required (the municipality should be consulted).

Constraints have been identified through a review of available background information and a field visit. As demonstrated in Figure 3 some slight modifications to the plans may be needed.

If the proponent wishes to avoid MECP permitting and compensation for Black Ash the 30m setback should be respected, if works are required within this area then MECP should be contacted and permits/compensation will be required.

If the proponent wishes to encroach upon the southern watercourse for the installation of a waterfall, we recommend completing a headwater study to determine the level of protection and feasibility of installing a waterfall within this location. It should be noted that already at this location there is a rock weir. The completion of the headwater study does not guarantee that the proposed waterfall can be installed at this location. DFO may need to be contacted and authorization from DFO and the conservation authority may be needed. We recommend contacting the municipality and conservation authority to determine the feasibility of this structure before continuing with any other study. Encroachment within the 30m watercourse setback for the planting on the wildflower field has no impact on the watercourse and is supported, this current location is soy field.

Thank you for the opportunity to work with you. If you have any questions or comments please do not hesitate to contact our office.

Shaun St.Pierre, B.Sc. Biology

Cody Fontaine, Wildlife Technologist

FIGURE 1: CONSTRAINTS AND SAR HABITAT

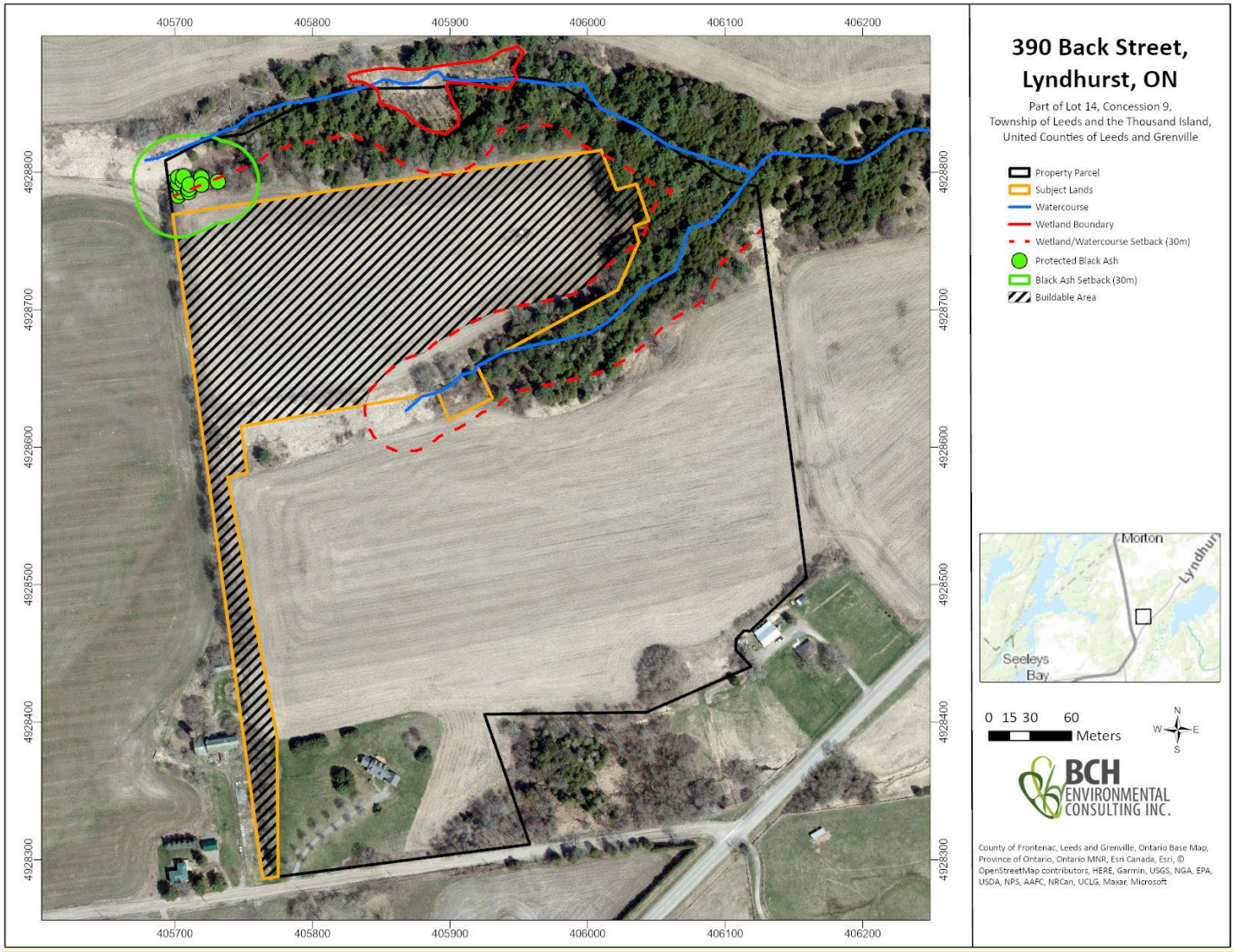
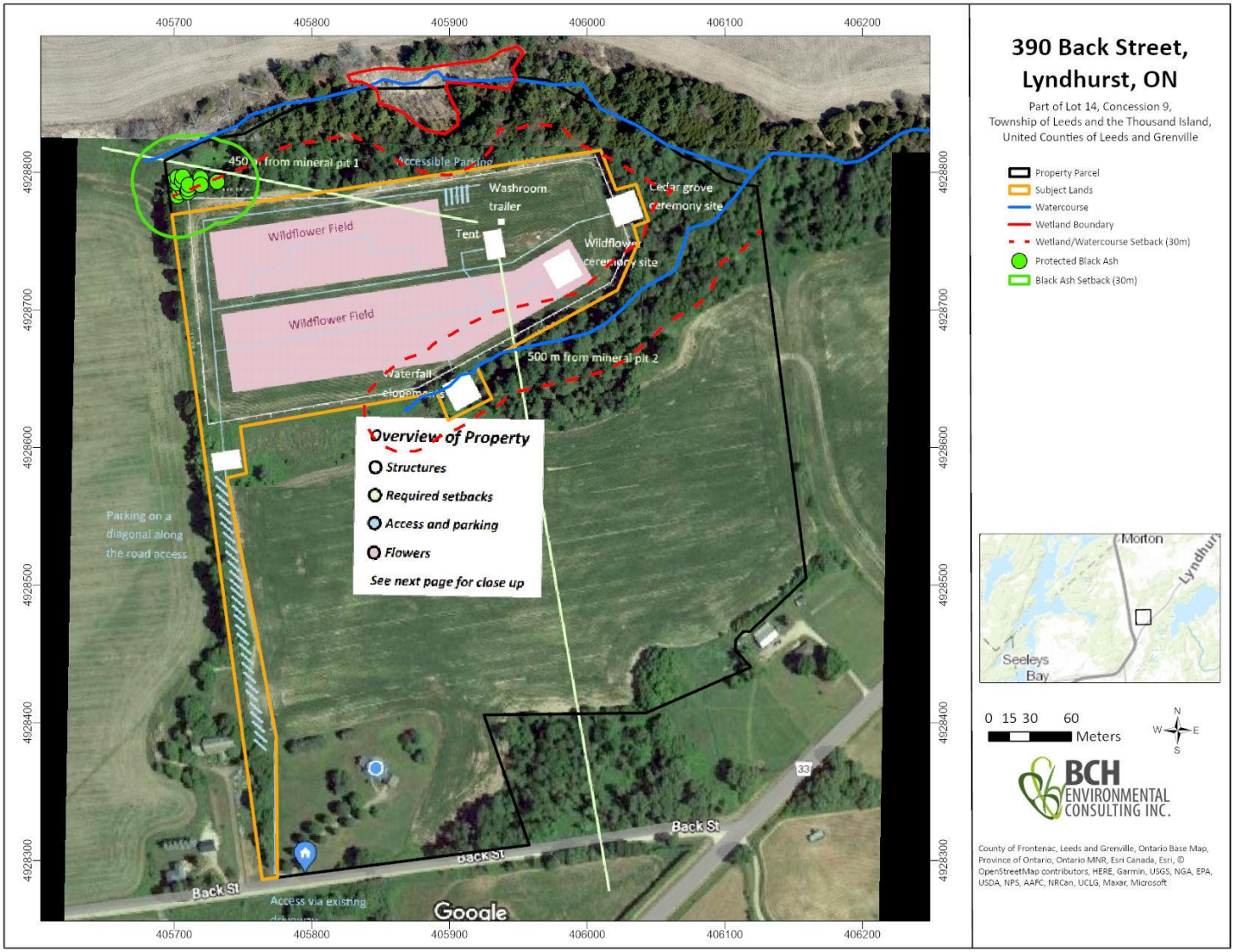


FIGURE 2: SIGNIFICANT WOODLAND

FIGURE 3: PLANS



REFERENCES

Burke, P.S. 2012. Management Plan for the Black Tern (Chlidonias niger) in Ontario. Ontario Management Plan Series. Prepared for the Ontario Ministry of Natural Resources (OMNR), Peterborough, Ontario. vi + 47 pp.

COSEWIC. 2006. COSEWIC assessment and status report on the Golden-winged Warbler Vermivora chrysoptera in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 30 pp

COSEWIC. 2009b. COSEWIC assessment and status report on the Whip-poor-will Caprimulgus vociferus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 28 pp.

COSEWIC. 2010. COSEWIC assessment and status report on the Bobolink Dolichonyx oryzivorus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 42 pp. (www.sararegistry.gc.ca/status/status_e.cfm).

COSEWIC. 2011. COSEWIC assessment and status report on the Eastern Meadowlark Sturnella magna in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 40 pp. (www.sararegistry.gc.ca/status/status_e.cfm).

COSEWIC. 2012a. COSEWIC assessment and status report on the Eastern Wood-pewee Contopus virens in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 39 pp.

COSEWIC. 2012b. COSEWIC Assessment and Status Report on the Wood Thrush Hylocichla mustelina in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 46 pp.

COSEWIC. 2013a. COSEWIC assessment and status report on the Bank Swallow Riparia riparia in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 48 pp.

COSEWIC. 2013b. COSEWIC assessment and status report on the Little Brown Myotis lucifugus, Northern Myotis septentrionalis and Tri-colored Bat Perimyotis subflavus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxiv + 93 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).

COSEWIC. 2017. COSEWIC assessment and status report on the Butternut Juglans cinerea in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiii + 74 pp. (http://www.registrelep-sararegistry.gc.ca/default.asp?lang=en&n=24F7211B-1).

COSEWIC. 2018a. COSEWIC Assessment and Status Report on the Black Ash (Fraxinus nigra) in Canada 2018

COSEWIC 2018b. Assessment and Status Report on the Common Nighthawk (Chordeiles minor) in Canada 2018

Department of Fisheries and Oceans (DFO). 2024. Aquatic Species at Risk Map Available https://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html (Accessed March 15, 2024).

Heagy, A., D. Badzinski, D. Bradley, M. Falconer, J. McCracken, R.A. Reid and K. Richardson. 2014. Recovery Strategy for the Barn Swallow (Hirundo rustica) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. vii + 64 pp.

Ontario Ministry of Natural Resources (OMNR). 2000. Significant wildlife habitat technical guide. 151p.

Ontario Ministry of Natural Resources (OMNR). March 2010. Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. Second Edition. Toronto: Queen's Printer for Ontario. 248 pp

Ontario Ministry of Natural Resources (OMNR). 2024. Land Information Ontario. Available https://www.ontario.ca/page/land-information-ontario (Accessed March 15, 2024)

Ontario Ministry of Natural Resources and Forestry (MNRF). 2015. Significant Wildlife Habitat Criteria Schedules For Ecoregion 6E. 38p.

Ontario Nature. 2024. Ontario Breeding Bird Atlas. Available http://www.birdsontario.org/atlas/index.jsp (Accessed March 15, 2024)

Ontario Nature. 2024. Ontario Reptile and Amphibian Atlas. Available https://ontarionature.org/oraa/maps/ (Accessed March 15, 2024)

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: https://www.ontarioinsects.org/herp; (Accessed March 15, 2024)

Species at Risk Ontario (SARO). 2024. Species at Risk Ontario. Retrieved March 15, 2024at http://www.ontario.ca/environment-and-energy/species-risk-ontario-list

APPENDIX A: QUALIFICATIONS

SHAUN M. ST.PIERRE, B.Sc. Biology

EDUCATION

B.Sc. Biology, Trent University 2007
Fisheries and Wildlife Technology, Frost Campus, Sir Sandford Fleming College, 2005
Fisheries and Wildlife Technician, Frost Campus, Sir Sandford Fleming College, 2004

LANGUAGES

Fluent in French and English

POSITIONS HELD

2018 - :	BCH Environmental Consulting Inc., Biologist / Owner
2006-2017:	Bowfin Environmental Consulting Inc., Biologist / GIS Specialist / Environmental Site Inspector
2005:	St. Lawrence River Institute of Environmental Sciences, Field Research Assistant
2004:	MNR Kawartha Lakes, Field Research Assistant
2003:	DFO- Experimental Lake Area, Field Research Assistant
2001:	Resource Stewardship S, D &G, Stewardship Ranger

CERTIFICATIONS / PROFESSIONAL AFFILIATIONS

MTO/DFO/OMNR Fisheries Protocol, Ecological Land Classification, Certified in Inventory and Identification Methods for Ontario's Reptiles and Amphibians, North American Benthological Society (NABS) Certified Family Level Taxonomist, Ontario Benthos Biomonitoring Network (OBBN), Ontario Stream Assessment Protocol (OSAP), Certified Ontario Wetland Evaluator (OWES), Butternut Health Assessor (BHA), first aid, CPR, Pleasure Craft Operator Card, Marine Radio Operator, WHMIS, WHSA, Hazard Identification, Assessment and Control, All Terrain Vehicle Riders Course (issued by the Manitoba Safety Council), Water Safety Training (Bronze Cross), Possession / Acquisition Firearms Licence, Ontario Hunter Education Course Certificate, Ontario Trapper Education Course Certificate, Wildlife Chemical Immobilization, Vaccination, and Euthanasia- Certificate of Knowledge, South Lancaster Fish and Game Club (SLFGC; president 2012 and 2013; executive member 2014-2018), Ontario class G driver's license, and Snowmobile License.

EXPERIENCE

Experience in environmental impact assessments, environmental monitoring, environmental assessments, terrestrial habitat assessment, species at risk surveys, amphibian surveys, avian surveys, freshwater habitat assessment, collection and identification of plants, collection and identification of aquatic invertebrate, collection and identification of fish, fish salvage, fish behavioral studies, winter bat hibernaculum inventories and fisheries inventories including habitat mapping, electroshocking, FWIN and RIN. Other experience include GIS mapping.

Environmental and Fisheries Inspections

- Provided environmental and fisheries inspections for the construction of the Cataraqui Crossing HWY 401-MTO (Kingston, ON).
- Provided environmental and fisheries inspections for the construction of the Three Nations Bridge including surveys for nesting species at risk (Cornwall, ON).
- Provided environmental and fisheries inspections for construction (Ottawa, ON).
- Conducted nest surveys (Kemptville, ON.; Stittsville, ON.; Cornwall, ON.)
- Conducted environmental inspections for the construction of the Clarkson WWTP outfall, Lake Ontario.
- Conducted environmental inspections for the construction of a new bridge crossing Bearbrook Creek along the 417.

- Provided environmental and fisheries inspections for the blasting and drilling operation for the Burloak Water Purification Tunnel project (Burlington, ON).
- Provided environmental and fisheries inspections for the construction of the Poole Creek Re-alignment/Huntmar Drive Crossing.

Species at Risk Inventories / Monitoring

- Butternut survey and assessment for proposed developments (Brockville, Carleton Place, Carp, Clarence-Rockland, Cornwall, Munster, Hawkesbury, Kemptville, Ottawa, South Lancaster, Smith Falls, Stittsville, Prospect, Vars, Moose Creek, Prescott, Westminster, Renfrew, Battersea, Jones Falls, and Millbrook).
- American Eel surveys using the boat electrofisher on the Mississippi River (Almonte, ON), South Nation River (Casselman, ON) and Ottawa River (Renfrew, ON; Ottawa, ON: Shawville, QC)
- American Eel collection on the St. Lawrence River for the St. Lawrence River Institute (Cornwall, ON)
- American Ginseng survey for proposed development (Kanata, South Lancaster and Renfrew).
- Whip-poor-will survey for proposed development (Navan, ON; Kemptville, ON; Stittsville, ON; Prescott, ON; Alexandria, ON) and quarries (Avonmore, Moosecreek, Prospect, Stittsville, Kanata, Ottawa)
- Assisted in a Least Bittern survey (Avonmore, ON)
- Conducted turtle surveys: Blanding's turtle, Eastern musk turtle (Carleton Place, ON; Ottawa, ON; Stittsville, ON; Kanata, ON, Prospect, ON)
- Conducted rapid clubtail surveys (Almonte, ON)
- Bat maternal nesting site surveys (Prescott, ON; Battersea, ON; Prescott, ON; Hawkesbury, ON; Russell, ON)

Aquatic Inventories

- Boat electrofishing along the shoreline of the Ottawa River (Chat Falls, ON) along the shoreline of the Cataraqui River (Kingston, ON), downstream of the Carillion Dam (Pointe-Fortune, QC), Lake St. Francis (South Lancaster, ON), South Nation River (Casselman, ON), Raisin River (Lancaster, ON), and the St. Lawrence River (Cornwall, ON)
- Collecting and data entry for benthic macroinvetebrate community surveys on several watercourses within Ontario including: Bonnechere River (Renfrew, ON), Montreal River (Latchford, ON), Jock River (Ottawa, ON), tributaries of the Bonnechere River (Renfrew, ON), tributaries to Feedmill Creek (Ottawa, ON), tributary to Chippewa Creek (North Bay, On) and tributary to the Beaudette River (Alexandria, ON).
- Collecting and data entry for several fish community surveys including: Black Creek (Westminster, ON), Bonnechere River (Renfrew and Douglas, ON), Butler's Creek (Brockville, ON), East Branch of Little Cataraqui Creek (Kingston, ON), Kehoe Ditch (Greely, ON), Lac Opemisca (Ouje-Bougoumou, QC), Marshall Seguin Municipal Drain (Vars, ON), Montreal River (Latchford, ON), tributaries of Lavalle Creek (Carleton Place), tributaries to Feedmill Creek (Ottawa, ON), tributaries to Lafontaine Creek (Clarence-Rockland), tributaries to Shirley's Brook (Kanata, ON), tributaries to the Beaudette River (Alexandria, ON), tributaries to the Bonnechere River (Renfrew, ON), tributaries to the Ottawa River (Carp, ON; Ottawa, ON; Wendover, ON; Clarence-Rockland, ON), tributaries to the South Nation River (Casselman, ON), tributaries to the South Nation River (Jessup Falls, ON), tributary to Hawkesbury Creek (Hawkesbury, ON), Hawkesbury Creek (Hawkesbury , ON), tributary to the St.Lawrence River (Prescott, ON) and tributary to the North Castor River (Greely, ON).
- Mapped fish habitat in many watercourses including: Black Creek (Westminster, ON), Bonnechere River (Renfrew and Douglas, ON), Butler's Creek (Brockville, ON), Kehoe Ditch (Greely, ON), Lac Opemisca/Lac Barlow Bypass channel (Ouje-Bougoumou, QC), Marshall Seguin Municipal Drain (Vars, ON), McKinnons Creek (Navan, ON), Montreal River (Latchford, ON), tributaries of Lavalle Creek (Carleton Place), tributaries of the Bonnechere River (Renfrew, ON), tributaries to Lafontaine Creek (Clarence-Rockland), tributaries to McKinnons Creek (Navan, ON), tributaries to Shirley's Brook (Kanata, ON), tributaries to the North Castor River (Greely, ON), tributaries to the Ottawa River (Ottawa, ON; Wendover, ON), tributaries to the South Nation River (Casselman, ON), tributaries to the South Nation River (Jessup Falls, ON), tributary to the St.Lawrence River (Prescott, ON) and tributary to Hawkesbury Creek (Hawkesbury, ON).
- Assisted in YOY sampling on the Raisin River (Lancaster, ON).
- Conducted riverine index netting on the Bonnechere River (Renfrew, ON).

- Assisted in gill netting on Bonnechere River (Renfrew, ON), Lac Barlow (Ouje-Bougoumou, QC), Lac Opemisca (Ouje-Bougoumou, QC), Montreal River (Latchford, ON), and Raisin River (Lancaster, ON).
- Assisted in conducting larvae surveys on Bonnechere River, Hoople Creek, Montreal River and Raisin River,
- Collected walleye eggs from the spawning grounds on the Bonnechere River, Montreal River, Raisin River and Hoople Creek.
- Assisted in the monitoring of a new wetland channel created in the Little Cataraqui River.
- Marsh monitoring program breeding amphibian survey at Stittsville, ON; Cornwall, ON; Kanata, ON; Hoople Creek and the Bonnechere River.
- Assisted in conducting fall walleye index netting for the MNR in Kawartha Lakes
- Conducted turtle surveys (Carleton Place, ON; Ottawa, ON)
- Conducted headwater waters assessment (Kanata, ON; Navan, ON, Ottawa, ON)

Terrestrial Inventories

- Multiple Environmental Impact Assessments across Ontario
- Tree Inventory for construction of the light rail (LRT; Ottawa, ON)
- Winter white-tailed deer survey (Edwardsburgh, ON)
- Plant community inventories for proposed developments, quarries, sand pits and road extensions (Brockville, Carleton Place, Carp, Casselman, Elgin, Griffith, Hamilton, Jessup Falls, Navan, Ottawa, Stittsville, Rockland, Simcoe, Cornwall, Kemptville, Hawkesbury, Smith Falls, Wendover, Moosecreek, Westminster, Prescott, Renfrew, Jones Falls, Michipicoten Island and in Ouje-Bougoumou in QC)

Aquatic Habitat Mapping for Municipal, City Roads and Provincial Highways

- Conducted MTO habitat assessments at Galetta Side Road, Torbolton Road, Kinburn Side Road (Ottawa, ON)
- Conducted MTO habitat assessments at Prince of Wales, Fernbank Road, Fallowfield Road, HWY 115, Arbuckle drain, the Carp river, tributaries to the Carp river and tributaries to Mud creek (Ottawa, ON)
- Conducted MTO habitat assessments at Innes Road, Ottawa, ON.
- Conducted MTO habitat assessments at MacLaren Side Road, Ottawa, ON.

Other

- Fish salvage: Mississippi River (Almonte, ON), Monaghan Drain (Ottawa, ON), tributary to the Rideau Canal (Kemptville, ON), and tributary to Feedmill Creek (Ottawa ON), Bonnechere River (Renfrew, ON)
- Assisted in conducting a winter bat hibernaculum inventory (Plantagenet, ON)
- Field research assistant for the Metalicuus study and EDC study (Experimental Lakes Area, ON)
- Captured, pit tagged, telemetry tagged and tracked Northern Pike (Experimental Lakes Area, ON)
- Construction and maintenance of nature trail (the Cornwall Outdoor Recreational Area, ON)
- Conducted frog deformities surveys (Glengarry, ON)
- Organized youth fishing derbies through SLFGC (2011-2013; South Lancaster)
- Organized the St.Francis Walleye Tournament through SLFGC (2012-2013; South Lancaster)

CODY J.C FONTAINE, Fisheries and Wildlife Technologist

EDUCATION
Fisheries and Wildlife Technology, Frost Campus, Sir Sandford Fleming College, 2012
Fisheries and Wildlife Technician, Frost Campus, Sir Sandford Fleming College, 2011

LANGUAGES
Fluent in English

POSITIONS HELD
2022: BCH Environmental Consulting Inc., Fisheries and Wildlife Technologist
2014: Bowfin Environmental Consulting Inc., Fisheries and Wildlife Technologist
2009: Raisin Region Conservation Authority, Field Research Assistant

CERTIFICATIONS / PROFESSIONAL AFFILIATIONS
MTO/DFO/OMNR Fisheries Protocol, Environmental Monitoring For Construction Projects Practitioner (EMCPP), Ontario Stream Assessment Protocol (OSAP), Class 2 Electroshocking, first aid, CPR, Pleasure Craft Operator Card, WHMIS, WHSA, Hazard Identification, Assessment and Control, Ice Safety Training, Possession / Acquisition Firearms License, Fish Identification Certificate, Radio Telemetry Certificate, Fish Hatchery Operations Certificate, Ontario Hunter Education Course Certificate, Ontario trapper Education Course Certificate, Ontario class G driver's license.

EXPERIENCE
Experience in environmental monitoring, environmental assessments, terrestrial habitat assessment, species at risk surveys, amphibian surveys, freshwater habitat assessment, collection and identification of plants, collection and identification of fish, fish salvage, bat hibernaculum inventories and fisheries inventories including netting and electroshocking. Other experiences include GIS mapping.

Aquatic Inventories
- Assisted with boat electrofishing along the shoreline of the Ottawa River (Chat Falls and Ottawa, ON), Lake St. Francis (South Lancaster, ON), Bonnechere (Renfrew, ON), Raisin River (Lancaster, ON), Buckhorn Lake (Peterborough, ON) and the St. Lawrence River (Cornwall, ON)
- Assisted in collecting and data entry for several fish community surveys including: Bonnechere River (Renfrew, ON), tributaries to Feedmill Creek (Ottawa, ON), tributaries to Shirley's Brook (Kanata, ON), tributaries to the Ottawa River (Ottawa, ON), tributaries to the Rideau River (Manotick, ON), tributaries to the Castor River (Vars, ON), tributaries to the Otonabee River (Lakefield, ON), tributary to the Madawaska River (Arnprior, ON), tributaries to Kemptville Creek (Kemptville, ON), tributary to Blairs Creek (Clarence Creek, ON), tributaries to South Indian Creek River (Russell, ON) tributaries to the South Nation River (Casselman, ON), tributaries to Fraser Clarke Drain (Nepean, ON), tributaries to the Raisin River (Long Sault, ON), Oliver-Magee drain (South Glengarry, ON) and tributary to Hawkesbury Creek (Hawkesbury, ON).
- Assisted in collecting walleye eggs from the spawning grounds on the Raisin River.
- Marsh monitoring program breeding amphibian surveys (Stittsville, Lakefield, Cornwall, Long Sault, South Glengarry, Bourget, Manotick and Kanata, ON).
- Conducted turtle surveys (Carleton Place, Ottawa, Cornwall and Lancaster, ON)
- Conducted Headwater Assessments (Ottawa, Stittsville and Manotick, ON)
- Invasive Species Survey (Ottawa, ON)

Species at Risk Inventories / Monitoring

- Assisted in butternut surveys, inventories and assessments for proposed developments (Carleton Place, Casselman, Cornwall, South Glengarry, Long Sault, Kemptville, Smiths Falls, Ottawa, Stittsville, Peterborough, Lakefield, Brockville, Alfred, Orleans, Kanata and Prescott, ON).
- American Eel surveys using the boat electrofisher on the Ottawa River (Ottawa, ON)
- American Eel collection on the St. Lawrence River for the St. Lawrence River Institute (Cornwall, ON)
- Conducted tailrace surveys for hydro facilities regarding American eel and lake sturgeon fatalities (Almonte, Renfrew, Ottawa and Fitzroy Harbour, ON)
- Whip-poor-will survey for proposed development (Ottawa, Kemptville, Bourget, Stittsville, Alfred, South Glengarry and Alexandria, ON) and quarries (Ottawa and Cornwall, ON)
- Surveyor for Little Brown bat, Eastern Small Footed Bat and Northern Long Eared Bat surveys at Ernestown Windpark (Ernestown, ON)
- Gray Ratsnake Survey (Smiths Falls and Lakefield, ON)
- Bat Cavity Survey (Lakefield, Smiths Falls, Bourget, Clarence Creek, Casselman, Orleans, Kanata, South Glengarry and Embrun, ON)
- Conducted Least Bittern surveys (Prospect, Alexandria, and Lancaster, ON)
- Conducted Black Tern nest surveys (Alexandria, and Cornwall, ON)
- Conducted turtle surveys: Blanding's turtle, Musk turtle and Northern Map turtle, Painted turtle and Snapping turtle (Carleton Place, Ottawa, Stittsville, Kanata, Rockland, Cornwall, Lakefield, Alfred, Clarence Creek and Lancaster, ON)
- Conducted American Ginseng Survey (Alfred, ON)
- Conducted rapid clubtail surveys (Almonte, ON)
- Conducted Osprey nest surveys (Cornwall, ON)

Terrestrial Inventories

- Assisted plant community inventories for proposed developments (Ottawa, Cornwall and Prescott, ON)
- Assisted in ELC inventories (Ottawa, Lakefield, Alfred, Kanata, Long Sault, South Glengarry and Peterborough ON)
- Nesting Bird Survey (Stittsville and Brockville ON)
- Large Tree Survey (Carp, Kanata and Orleans, ON)
- Deer and Moose Overwintering Survey (Alfred, ON)

Environmental and Fisheries Inspections

- Assisted in providing environmental and fisheries inspections for construction (Ottawa, ON)
- Assisted in turtle salvage during construction at the Cavanagh Snow Dump (Kanata, ON)

Fish Salvage

- Highway 401 Fish Salvage – Brockville, ON and Prescott, ON (Cruikshank, MTO Contract)
- Other fish salvages: Cardinal Creek (Ottawa, ON), Monaghan Drain (Ottawa, ON), tributary to the Rideau Canal (Kemptville, ON), tributary to Feedmill Creek (Ottawa ON), Bonnechere River (Renfrew, ON), Mississippi River (Almonte, ON), Ottawa River (Ottawa, ON), Tributary to Fraser Clarke Drain (Nepean, ON), tributary to St.Lawrence River (Newington, ON), Davidson Pond (Ottawa, ON),. Hazeldean tributary (Ottawa, ON), tributary to Jock River (Richmond, ON), culvert on Thunder Road (Gloucester, ON), culvert on Dunning Road (Cumberland, ON)

Other

- Organized fishing derby through RRCA (2008-2012; Cornwall, ON)
- Conducted environmental education presentations to many school groups (Cornwall, and Lancaster, ON)
- Tree Planting (2008-2012; Cornwall, ON)