

Durham Watershed Planning – 2023 Activities Summary Report

2024

Verification of Permanent and Intermittent Streams in Port Perry, Fish Habitat on Scugog Island, and Sand Barrens, Savannahs, and Tallgrass Prairies



**KAWARTHA
CONSERVATION**

Discover • Protect • Restore

About Kawartha Conservation

Who we are

We are a watershed-based organization that uses planning, stewardship, science, and conservation lands management to protect and sustain outstanding water quality and quantity supported by healthy landscapes.

Why is watershed management important?

Abundant, clean water is the lifeblood of the Kawarthas. It is essential for our quality of life, health, and continued prosperity. It supplies our drinking water, maintains property values, sustains an agricultural industry, and contributes to a tourism-based economy that relies on recreational boating, fishing, and swimming. Our programs and services promote an integrated watershed approach that balance human, environmental, and economic needs.

The community we support

We focus our programs and services within the natural boundaries of the Kawartha watershed, which extend from Lake Scugog in the southwest and Pigeon Lake in the east, to Balsam Lake in the northwest and Crystal Lake in the northeast – a total of 2,563 square kilometers.

Our history and governance

In 1979, we were established by our municipal partners under the *Ontario Conservation Authorities Act*. The natural boundaries of our watershed overlap the six municipalities that govern Kawartha Conservation through representation on our Board of Directors. Our municipal partners include the City of Kawartha Lakes, Region of Durham, Township of Scugog, Township of Brock, Municipality of Clarington, Municipality of Trent Lakes, and Township of Cavan Monaghan.

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Executive Summary

The Durham Watershed Planning project is a collaboration between Kawartha Conservation and the Region of Durham, to provide the newest mapping information to help the municipality conform to provincial planning guidance related to watershed resources management.

In 2023, activities included in this project focused on the field verification of the following key natural heritage and key hydrological features within the overlapping jurisdictions of both organizations: Permanent and Intermittent Streams (in Town of Port Perry only), Fish Habitat (on Scugog Island only), and Sand Barrens, Savannahs, and Tallgrass Prairies.

The following are key findings and recommendations from the activities.

Permanent and Intermittent Streams in Port Perry

Key Findings:

- Of the approximately 25.6 km of streams within the Port Perry urban area, staff were able to classify 80.7% (20.7km) of the total.
- Most segments were Permanent (59.6%, 15.3km), followed by Intermittent (10.1%, 2.6km), Ephemeral (9.0%, 2.3km), and Buried (1.9%, 0.4km).
- Unclassified segments accounted for 19.3% (5km) and were not evaluated because they were difficult to access or observe from public property.
- Following field verification, approximately 2.4km of streams were removed from mapping. Removed segments included all ephemeral streams, as well as buried streams that had no immediate upstream-downstream connection to a permanent or intermittent stream.
- This information has been updated by the province and is accessible to land use planners through provincial mapping layers.

Recommendations:

- Update the status of the 4.9km (19.4% of total within Port Perry) of streams that remain unclassified, through site-specific review of development applications as opportunities become available.

Fish Habitat on Scugog Island

Key Findings:

- Ten sites were assessed for fish habitat and sensitivity during low flow conditions on seven different groundwater-fed streams on Scugog Island.
- All ten sites are fish habitat. The flowing sites provide direct (year-round) fish habitat, whereas the dry sites provide indirect (seasonal) fish habitat. No sites were considered sensitive, three sites were considered high functioning, three sites were considered moderate functioning, and four sites were considered least functioning.

- The stream sites were relatively narrow, shallow, cool water, with substrates dominated by sand and sand/gravel mixture. The two ponds were considered online (i.e., directly connected to a stream), and were moderate sized, with silty/clay substrates, and abundant aquatic plants.
- Seven fish species were captured at three sites, in one stream site and in both ponds. These are the only known fish sampling records for streams on the Island, but all of them are considered common in the broader Lake Scugog Watershed. These fishes occupy warmwater or coolwater habitats; there were no coldwater-specific species (no sensitive species, for example Brook Trout).
- Water temperature data indicates that some sites are too warm to support sensitive fishes, which is due at least in part to the presence (warming) of online ponds.

Recommendations:

- Focus future fish habitat sampling efforts on streams on Scugog Island where no data exists, with an emphasis on using coldwater indicator fishes and assessing water temperature.

Sand Barrens, Savannahs, and Tallgrass Prairies

Key Findings:

- Out of the initial forty areas identified in the preliminary survey, fifteen were inaccessible and therefore not surveyed. This resulted in a total of twenty-six areas being surveyed for sand barrens, savannahs, and tallgrass prairies. Among these twenty-six areas, eighty-two percent (82%) were not identified as tallgrass prairies, savannahs, or sand barrens. Instead, they were classified as cultural thicket or cultural meadow.
- No savannahs were found during this survey.
- With respect to tall grass prairies, during the survey, two sites were identified. It is highly probable that these two prairies are remnants from pre-settlement times, given the presence of other known pre-settlement prairies within the vicinity.
- With respect to sand barrens, three potential sand barrens have been identified, exhibiting minimal vegetation, and primarily mineral soils.

Recommendations:

- Ensure the two confirmed tallgrass prairies areas identified are included in provincial mapping layers.
- Undertake on-the-ground vegetation surveys at the three potential sand barren areas to confirm if they meet provincial policy criteria.

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Introduction

The Durham Watershed Planning project is a collaboration between Kawartha Conservation and the Region of Durham, to provide the newest mapping information to help the municipality conform to provincial planning guidance related to watershed resources management (e.g., Provincial Policy Statement, Growth Plan, Greenbelt Plan, Oak Ridges Moraine Conservation Plan, etc.), and to contribute to more efficient processing of Planning Act applications.

Several recommendations to fill data gaps in features mapping within Durham Region were made in recent published reports such as Durham Watershed Planning Project, Provincial Conformity of Watershed Plans and Water Resources System (Kawartha Conservation, 2020).

Updating this information will assist with more efficient processing of Planning Act applications and land use planning activities for the Region. This includes routine updating of mapping tools to include the most up-to-date information related to water resources, natural heritage, and watershed planning data.

This technical report provides a summary of key findings of work undertaken in 2023 towards addressing data gaps in the following watershed-based land use planning information.

1. Permanent and Intermittent Streams verification in Port Perry.

- Activity: Confirm the location of 19.1 km of permanent and intermittent streams within the Port Perry urban boundary, through field verification of drainage pathways.
- Data gap addressed: Update the delineation of key hydrologic features and areas on a routine basis, particularly in areas with rapidly changing land use or areas that are scheduled for future development.

2. Fish habitat verification on Scugog Island.

- Activity: Confirm the location of fish habitat on Scugog Island, through field sampling areas that are 'likely supporting coldwater habitats' but are not currently mapped.
- Data gap addressed: Fill gaps in current information with respect to location of fish habitat, and sensitive (coldwater) fish habitats.

3. Sand Barrens, Savannahs, and Tallgrass Prairies verification.

- Activity: Identify the location of sand barrens, savannahs, and tallgrass prairies through aerial imagery interpretation.
- Data Gap Addressed: Fill gaps in current information with respect to sand barrens, savannahs, and tallgrass prairies.

This information is now centralized in a digital mapping platform (using geographic information systems) and has been made available to local planning authorities to assist in reviewing development applications.

1. Permanent and Intermittent Streams Verification in Port Perry

Background

The purpose of this project component is to field verify the location of permanent and intermittent streams in the Town of Port Perry.

Permanent and intermittent streams are key hydrologic features as per provincial policy. These features are also typically considered regulated ‘watercourses’ as per the Conservation Authorities Act.

The following provincial definitions are relevant:

- Permanent streams, are defined in the Greenbelt Plan as: *“a stream that continually flows in an average year.”*
- Intermittent streams, are defined in the Greenbelt Plan as: *“stream-related watercourses that contain water or are dry at times of the year that are more or less predictable, generally flowing during wet seasons of the year but not the entire year, and where the water table is above the stream bottom during parts of the year.”*
- Watercourses, are defined in the Conservation Authorities Act as: *“as an identifiable depression in the ground in which a flow of water regularly or continuously occurs.”*

The OHN (Ontario Hydro Network) mapping layer, managed by the Ministry of Natural Resources and Forestry, is the ‘go-to’ water layer used for planning purposes. The local accuracy of this layer was improved in 2022 through a desktop exercise that used aerial imagery to verify the flow path of 714 km worth of streams within the overlapping jurisdictions of Durham Region and Kawartha Conservation (Kawartha Conservation, 2023).

Prior to 2023 activities, the OHN layer provided a reasonable approximation of stream locations but did not provide an accurate representation of the flow permanency status of each blue line. Flow permanency matters because, as shown in the provincial definitions above, it is a key descriptor of whether provincial land use planning policies apply, or don’t, to any given blue line drainage pathway.

The Port Perry urban area is scheduled for increased development. Thus, in 2023 the focus was to field classify each segment of the approximately 25.6 km of blue line streams (as per the OHN layer), that exist within this boundary. The intent is to produce an updated mapping layer that only includes blue lines that meet the provincial definitions.

Methods

In June 2023, under low flow conditions, visual on-the-ground assessments were undertaken for all accessible OHN blue line segments in the Port Perry urban area. Each segment was classified according to procedures in the Stream Permanency Handbook (Irwin et al., 2013) as either Ephemeral, Intermittent, or Permanent. Segments that couldn’t be seen were classified as either Buried or

Unclassified. Definitions and photographic examples for each of these categories are provided in Table 1.1 and Figure 1.1, respectively.

For mapping update purposes, blue lines are considered meeting the provincial definitions of Permanent and Intermittent Streams, and watercourses. Ephemeral segments, and isolated buried segments (e.g., segments that are buried and have no immediate upstream or downstream segments that are permanent or intermittent) are not considered to meet provincial definition, and thus are removed from updated mapping.

Table 1.1. Classification of stream segments.

| Class | Definition | Key Characteristics |
|--------------|--|---|
| Ephemeral | Streams that flow only during and after large precipitation events for a period of a few days or weeks | <ul style="list-style-type: none"> • No defined stream bottom or prominent banks • Duff layer made of live root mat and/or leaf litter • Terrestrial vegetation and no aquatic invertebrates |
| Intermittent | Streams that flow during wet seasons and in the summer after major rain events | <ul style="list-style-type: none"> • Defined stream bottom with a gradual transition to surrounding environment • Prominent banks are absent and are not continuous • Sorted erodible material may be present • Some aquatic plants and invertebrates |
| Permanent | Streams that flow most of the year but can run dry during drought conditions | <ul style="list-style-type: none"> • Defined stream bottom and prominent banks that are continuous • Stream bottom is composed of sorted material • Aquatic vegetation and invertebrates present |
| Buried | Streams that are buried underground, but still convey flow | <ul style="list-style-type: none"> • Lack of clear channel • Cracks in road surface • Stormwater conveyance systems |
| Unclassified | Streams not classified | N/A |



Figure 1.1. Examples of Ephemeral (left), Intermittent (middle), and Permanent (right) streams.

Key Findings

- Of the approximately 25.6 km of potential blue line streams in the Port Perry urban area, staff were able to classify 80.7% (20.7km) of the total (Figure 1.1).
- Most segments were Permanent (59.6%, 15.3km), followed by Intermittent (10.1%, 2.6km), Ephemeral (9.0%, 2.3km), and Buried (1.9%, 0.4km).
- Unclassified segments accounted for 19.3% (5km) and were not evaluated because they were difficult to access or observe from public property. These segments should be classified later as opportunities (e.g., planning related site visits) become available.
- When comparing the updated OHN layer versus the previous version, approximately 2.4km of blue lines within the Port Perry urban area were removed. Removed segments included all ephemeral streams, as well as buried streams that had no immediate upstream-downstream connection to a permanent or intermittent stream.
- This information has been updated by the province and is accessible to land use planners through Ontario GeoHub (Ontario Ministry of Natural Resources and Forestry, 2023).

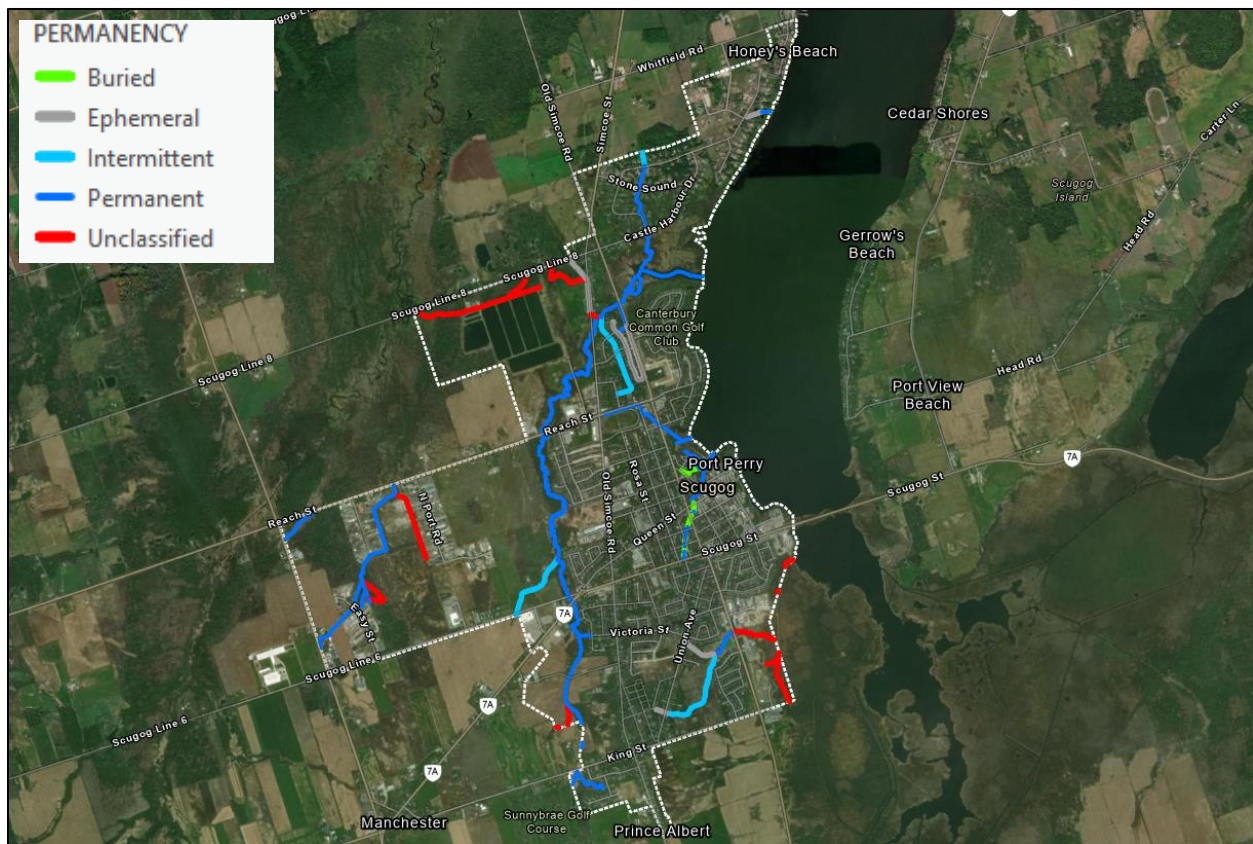


Figure 1.2. Map of Port Perry urban area showing updated classifications.

2. Fish Habitat Verification on Scugog Island

Background

The purpose of this project component is to identify the location of sensitive fish habitat in streams on Scugog Island.

Fish habitat is a key natural heritage feature as per provincial policy and is defined in the Provincial Policy Statement as: “*spawning grounds and any other areas, including nursery, rearing, food supply, and migration areas on which fish depend directly or indirectly in order to carry out their life processes.*”

General guidance for mapping Fish Habitat is given in the Greenbelt Technical Paper 1:

Where available, detailed fish habitat mapping and information may be provided by MNR, Department of Fisheries and Oceans Canada (DFO) and/or conservation authorities. This more detailed information should be used to determine the location of fish habitat and to help determine the appropriate level of fish habitat protection, or

Where no detailed fish habitat mapping has been completed, all waterbodies – including permanent or intermittent streams, headwaters, seasonally flooded areas, municipal or agricultural surface drains, lakes and ponds (except human-made off-stream ponds) – should initially be considered fish habitat.

Coldwater streams are considered sensitive fish habitat as per the Greenbelt Plan.

Scugog Island was chosen as the focus of fish habitat characterization efforts in 2023, because no detailed fish habitat mapping exists in this area. A partnership was struck with Mississauga’s of Scugog Island First Nation (MSIFN) to allow Kawartha Conservation staff access to streams that are a priority for them in terms of filling knowledge gaps related to ‘fish habitat’ and ‘sensitivity’ of streams flowing through their lands.

Methods

A ‘short-list’ of potentially sensitive stream segments was provided to Kawartha Conservation by MSFIN, for which fish habitat was assessed and characterized in terms of fish habitat and sensitivity. A total of 10 sites were sampled between July and September on these streams using the Ontario Stream Assessment Protocol (Stanfield et al., 2010).

Various netting gear were used to attempt to capture fishes including backpack electrofisher, hoop nets, minnow traps, and dip nets. Key habitat attributes were recorded at each site including wetted width, water depth, dominant substrate, and water temperature. Water temperatures are particularly important for helping to classify sensitivity and are often used as ‘surrogate’ if no fish capture data exists. Coldwater streams are typically considered capable of supporting coldwater species (i.e., Brook Trout) if maximum temperatures are less than 22C (Eakins, 2023).

Fish habitat at each site was classified as: 'sensitive', 'high functioning', 'moderate functioning', or 'least functioning' based primarily on the species of fishes present, and secondarily by flow permanency, as per the following characteristics:

- Sensitive: coldwater fishes present (such as Brook Trout and Sculpin), and permanent flow.
- High Functioning: fish present (but not coldwater fishes), and permanent flow conditions.
- Moderate Functioning: no fish present, and permanent flow conditions.
- Least Functioning: no fish present, and intermittent or ephemeral flow conditions.

Key Findings

- Ten sites were assessed for fish habitat and sensitivity during low flow conditions on seven different groundwater-fed streams on Scugog Island. Six of the ten sites sampled had water present, and thus were sampled for fishes. Of the six sampled sites, four were flowing streams and two were ponds. The other four sites were dry and not sampled.
- All ten sites are fish habitat. The flowing sites are considered to provide direct (year-round) fish habitat, whereas the dry sites provide indirect (seasonal) fish habitat. No sites were considered sensitive, three sites were considered high functioning, three sites were considered moderate functioning, and four sites were considered least functioning (Figure 2.1).
- The stream sites were relatively narrow (wetted widths ranging from 0.2 to 2.0m), shallow (water depths ranging from 10-300mm), and cool (water temperatures ranging 8.5 to 22.0C) with substrates dominated by sand and sand/gravel mixture (Table 2.1). The two ponds were considered online (i.e., directly connected to a stream), and were 70 to 80m wide, with silty/clay substrates, and had abundant aquatic plants (Table 2.1).
- A total of seven fish species were captured at three sites, in one stream site and in both ponds (Table 2.1). These are the only known fish sampling records for streams on the Island, but all of them are considered common in the broader Lake Scugog Watershed. These fishes occupy warmwater or coolwater habitats; there were no coldwater-specific species (i.e., no sensitive species) captured. Most fishes are considered 'baitfish', except for Brown Bullhead (*Ameiurus nebulosus*), a relatively large fish in the Catfish family, and Largemouth Bass (*Micropterus nigricans*), an important 'sportfish'.
- Water temperature data indicates that site LSC5a and site LSC7a (15.0 and 8.5C, respectively) were the only sites within the range (e.g., cold enough) to support sensitive fishes. Given that none were captured, there is another unknown factor that is limiting their presence in these streams. All other sites with data had surface water temperatures at the upper limit (22C) of acceptable range. The pond site LSC3b likely limits the potential for sensitive fishes at site LSC3a (directly downstream of pond) because the pond warms the stream by 4.5C. Water temperature upstream of this pond (at the stream-road crossing under Seven Mile Island Road), was 17.5C, whereas just downstream of the pond, including the pond itself, was 22.0C.

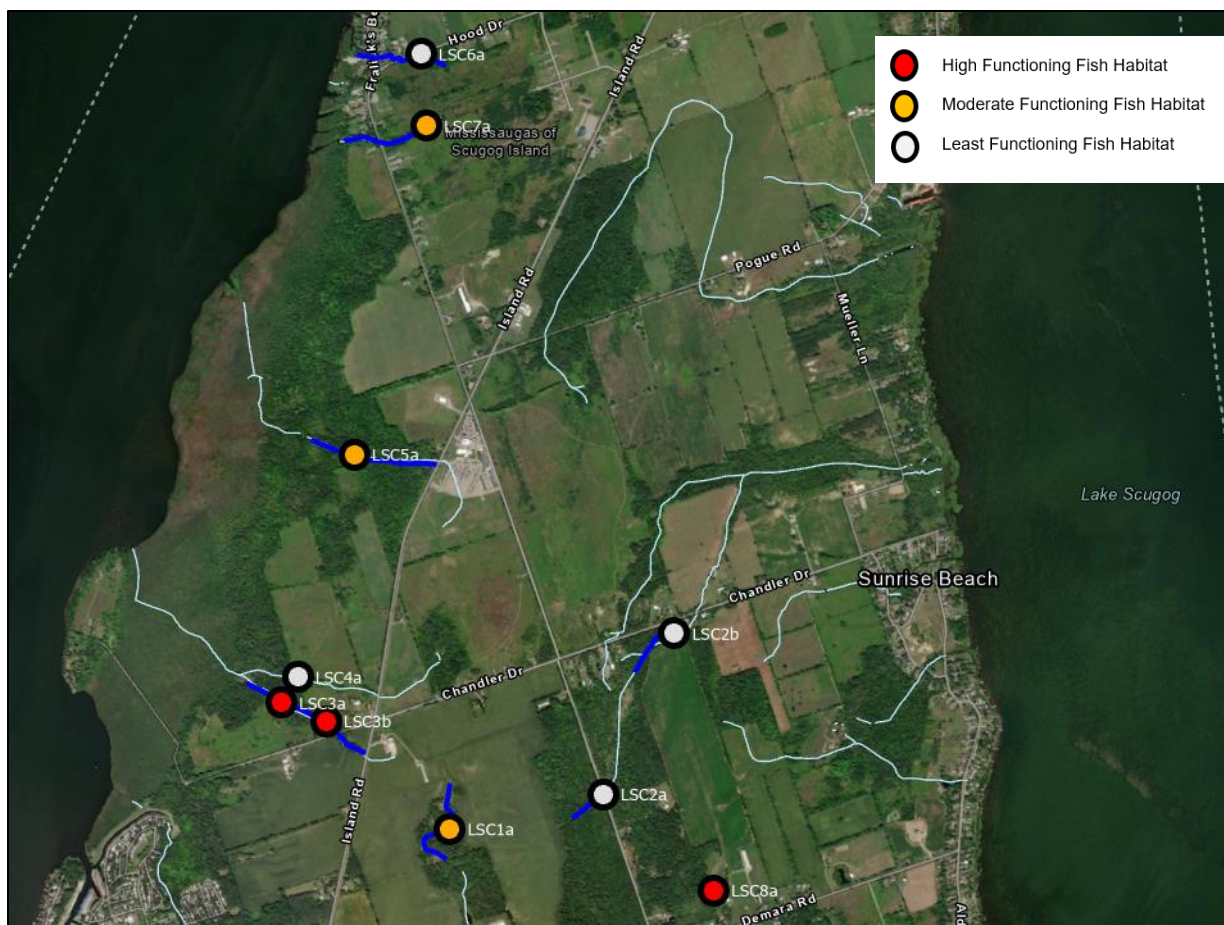


Figure 2.1. Location of sample sites on streams on Scugog Island. Light blue lines are all streams and dark blue lines are priority streams for Mississauga’s of Scugog Island First Nation.

Table 2.1. Summary of fish habitat attributes at each site.

| Site Name | Type | Wetted Width (m) | Water Depth (mm) | Dominant Substrate | Water Temp (C) | Fishes Captured |
|-----------|--------|------------------|------------------|--------------------|----------------|--|
| LSC1a | Stream | 1.0-2.0 | < 150 | Sand | Not available | None |
| LSC2a | Stream | Dry | | | | |
| LSC2b | Stream | Dry | | | | |
| LSC3a | Stream | 1.0-2.0 | 10-300 | Sand | 22.0 | Fathead Minnow (<i>Pimephales promelas</i>) Brook Stickleback (<i>Culaea inconstans</i>) Northern Redbelly Dace (<i>Chrosomus eos</i>) Central Mudminnow (<i>Umbra limi</i>) Iowa Darter (<i>Etheostoma exile</i>) |
| LSC3b | Pond | 80.0 | Not available | Silt | 22.0 | Fathead Minnow (<i>Pimephales promelas</i>) Brook Stickleback (<i>Culaea inconstans</i>) Brown Bullhead (<i>Ameiurus nebulosus</i>) |
| LSC4a | Stream | Dry | | | | |
| LSC5a | Stream | 0.5–1.0 | 50-150 | Sand/Gravel | 15.0 | None |
| LSC6a | Stream | Dry | | | | |
| LSC7a | Stream | 0.2-1.0 | 100 | Sand/Gravel | 8.5 | None |
| LSC8a | Pond | 70.0 | 5000 | Silt/Clay | 21.3 | Largemouth Bass (<i>Micropterus nigricans</i>) |

3. Sand Barrens, Savannahs, and Tallgrass Prairies Verification

Background

The purpose of this project component is to field verify the location of sand barrens, savannahs, and tallgrass prairies. They are key natural heritage features under provincial policy, and are defined in the Greenbelt Plan as per Table 3.1.

Table 3.1. Definitions of Tallgrass prairies, Savannahs, and Sand Barrens.

| | |
|--------------------|--|
| Tallgrass prairies | <p>Means land (not including land that is being used for agricultural purposes or no longer exhibits tallgrass prairie characteristics) that:</p> <ul style="list-style-type: none"> • has vegetation dominated by non-woody plants, including tallgrass prairie species that are maintained by seasonal drought, periodic disturbances such as fire or both; • has less than 25 per cent tree cover; • has mineral soils; and • has been further identified, by the Minister of Natural Resources and Forestry or by any other person, according to evaluation procedures established by the Ministry of Natural Resources and Forestry, as amended from time to time. |
| Savannah | <p>Means land (not including land that is being used for agricultural purposes or no longer exhibits savannah characteristics) that:</p> <ul style="list-style-type: none"> • has vegetation with a significant component of non-woody plants, including tallgrass prairie species that are maintained by seasonal drought, periodic disturbances such as fire, or both; • has from 25 per cent to 60 per cent tree cover; • has mineral soils; and • has been further identified, by the Ministry of Natural Resources and Forestry or by any other person, according to evaluation procedures established by the Ministry of Natural Resources and Forestry, as amended from time to time. |
| Sand barrens | <p>Means land (not including land that is being used for agricultural purposes or no longer exhibits sand barrens characteristics) that:</p> <ul style="list-style-type: none"> • has sparse or patchy vegetation that is dominated by plants that are: • adapted to severe drought and low nutrient levels; and |

| | |
|--|---|
| | <ul style="list-style-type: none"> • maintained by severe environmental limitations such as drought, low nutrient levels and periodic disturbances such as fire; • has less than 25 per cent tree cover; • has sandy soils (other than shorelines) exposed by natural erosion, depositional process or both; and • has been further identified, by the Ministry of Natural Resources and Forestry or by any other person, according to evaluation procedures established by the Ministry of Natural Resources and Forestry, as amended from time to time. |
|--|---|

Sand Barrens, savannahs, and tallgrass prairies are important for providing habitats for endangered and threatened species, hotspots of biodiversity and supporters of unique ecosystem services. These ecosystems support diverse species of plants, wildlife, and pollinators. Tallgrass species like Big Bluestem (*Andropogon gerardii*), Indian Grass (*Sorghastrum nutans*), and Switch Grass (*Panicum virgatum*) possess extensive root systems enabling their survival through periodic burns. This adaptive quality not only sustains these prairies and savannahs but also transforms them into carbon sinks by sequestering carbon beneath the ground through their roots.

Methods

A preliminary desktop survey was conducted using existing Ecological Land Classification (ELC) (Lee et al., 1998) mapping related to tallgrass prairies, savannahs, and sand barrens. These classifications were available on lands within neighboring conservation authorities such as Lake Simcoe Conservation and Central Lake Ontario Conservation. Additionally, satellite imagery from the year 2018 was utilized. A total of 37 sites were found for the Durham Region, this provided the foundation for the field survey.

Supplementary data was acquired via iNaturalist (iNaturalist, 2023), a non-profit social network utilized by naturalists, citizen scientists, and biologists worldwide. Research Grade observations of indicator species (referenced in Table 3.2) were queried from the network.

Table 3.2. Ecosystem, ELC code, definitions, dominate species, and soil conditions for sand barrens, savannahs, and tallgrass prairies, based on Rodger (1998), and MNR (2000, 2015).

| Feature | Dominant indicator species |
|--------------------|---|
| Tallgrass Prairies | <ul style="list-style-type: none"> • Big Bluestem, Indian Grass, Switch Grass, and Tall Cord Grass (<i>Spartina pectinate</i>). • Soils are usually over limestone bedrock with fine-textured: dry-mesic sands to wet-mesic sandy loam. |

| | |
|--------------|--|
| Savannahs | <ul style="list-style-type: none"> • Black Oak (<i>Quercus velutina</i>), Big Bluestem, Hair Grass (<i>Deschampsia spp.</i>), Rough-Leaved Dogwood (<i>Cornus drummondii</i>) Wild Bergamot (<i>Monarda fistulosa</i>), Gray-Headed Coneflower (<i>Ratibida pinnata</i>), Nodding Wild Onion (<i>Allium cernuum</i>), Fragrant Sumac (<i>Rhus aromatica</i>), and Common Juniper (<i>Juniperus communis</i>). • Soils are over limestone bedrock and are often silt loams. |
| Sand Barrens | <ul style="list-style-type: none"> • Bracken Fern (<i>Pteridium aquilinum</i>), Hay Sedge (<i>Carex argyrantha</i>), Deep-Green Sedge, and New Jersey Tea (<i>Ceanothus americanus</i>). |

Field Surveys were conducted throughout the month of October. During each survey, our team accessed areas both by vehicle and on foot to assess the presence of indicator species (refer to Table 3.2). We documented the dominant species and provided a general ecological land classification for each surveyed area. Comprehensive visual records of each site were also captured through photographs.

Key Findings

- Out of the initial forty areas identified in the preliminary survey, fifteen were inaccessible and therefore not surveyed. This resulted in a total of twenty-six areas being surveyed for sand barrens, savannahs, and tallgrass prairies. Among these twenty-six areas, eighty-two percent (82%) were not identified as tallgrass prairies, savannahs, or sand barrens. Instead, they were classified as cultural thicket or cultural meadow. A cultural thicket denotes a community predominantly composed of shrubs resulting from current or historical human disturbances. On the other hand, a cultural meadow shares similarities with a cultural thicket but lacks shrub domination, being primarily dominated by non-native grasses and forbs.
- No savannahs were found during this survey and therefore will not be further discussed.
- With respect to tall grass prairies, during the survey, two (2) sites, namely Area 37 and 41, were identified as tallgrass prairies situated in the southeastern section of Durham Region (see Figure 3.1; purple polygon), north of Hwy 20 (Boundary Road). Area 37, the larger of the two spanning approximately 16.1 hectares, is located within the hydro corridor to the north of Hwy 20 (Boundary Road), east of Murphy Road, and west of Darlington Manvers Townline. Meanwhile, Area 41, situated west of Murphy Road (refer to Figure 3.1; red polygon), covers a smaller area of 4.98 hectares.
 - These sites predominantly feature non-woody plants, showcasing tallgrass prairie species such as Big Bluestem (*Andropogon gerardi*) and Switchgrass (*Panicum virgatum*). Notable tallgrass prairie indicator species discovered include: Little bluestem (*Schizachyrium scoparium*), Savanna Grass (*Sorghastrum nutans*), Showy Tick Trefoil

(*Desmodium canadense*), Round-Headed Bush Clover (*Lespedeza capitata*), Prairie Cinquefoil (*Drymocallis arguta*), and Wild Bergamot (*Monarda fistulosa*).

- It is highly probable that these two prairies are remnants from pre-settlement times, given the presence of other known pre-settlement prairies within the local vicinity (Bakowsky, 2023).
- With respect to sand barrens, three (3) potential sand barrens have been identified, exhibiting minimal vegetation, primarily mineral soil, and surrounded predominantly by Scots Pine (*Pinus Sylvestris*). However, these areas lack the natural indicator vegetation species outlined in Table 3.2. The dominance of Scots Pine, a non-native invasive plant species, does not align with the definition provided in Table 2 for sand barrens. Conducting a more comprehensive vegetation survey at these three locations is essential to verify whether they meet the criteria defining a Sand Barran. Moreover, restoration efforts could focus on reintroducing native sand barren species, such as Sand Cherry, Bracken Fern, and New Jersey Tea, to these areas.

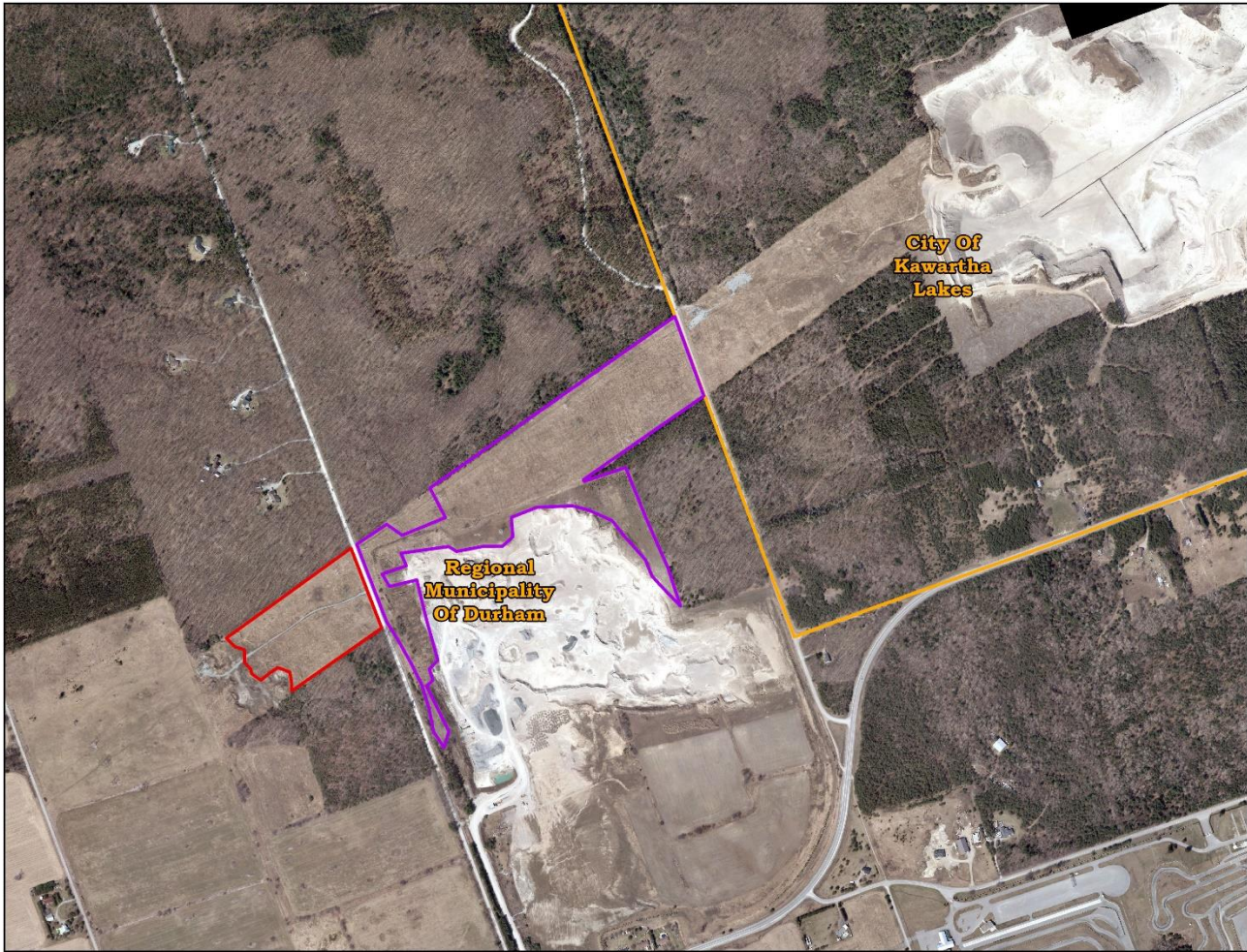


Figure 3.1. Location of the surveyed tallgrass prairie (red box) in reference to known pre-European settlement tallgrass prairie extents in orange boxes (Bakowsky, 2023).

Summary and Recommendations

In 2023, Kawartha Conservation undertook field verification activities to confirm the presence and location of the following key natural heritage and key hydrological features within the overlapping jurisdictions of Kawartha Conservation and Durham Region: Permanent and Intermittent Streams (Town of Port Perry), Fish Habitat (Scugog Island), and Sand Barrens, Savannahs, and Tallgrass Prairies.

This information is used to update existing mapping that helps planners conform to provincial policy when reviewing development applications.

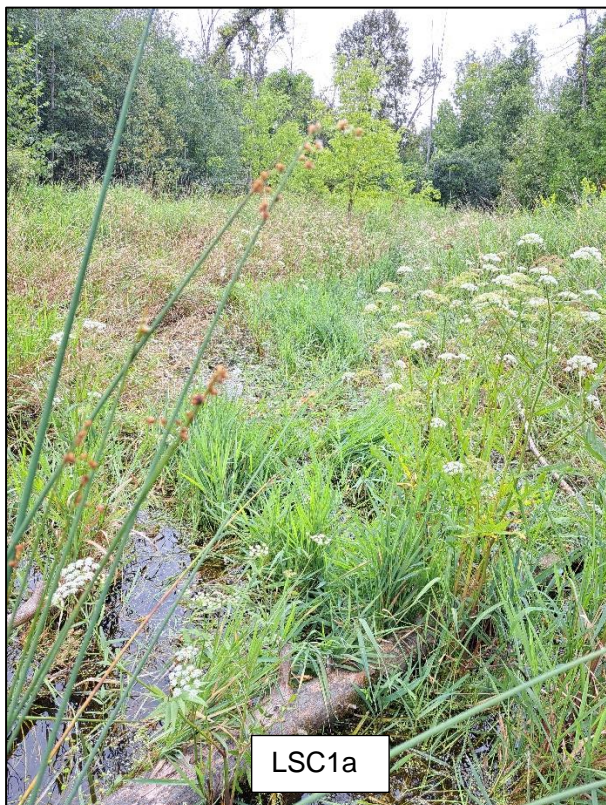
After completion of the activities, the following recommendations will help to further improve the accuracy of the information:

- Permanent and Intermittent Streams:
 - Update the status of the 4.9km (19.4% of total within Port Perry) blue-line streams that remain unclassified, through site-specific review of development applications as opportunities become available.
- Fish Habitat
 - Focus future fish habitat sampling efforts on streams on Scugog Island where no data exists, with an emphasis on using coldwater indicator fishes and assessing water temperature.
- Sand Barrens, Savannahs, and Tallgrass Prairies
 - Ensure the two confirmed tallgrass prairies areas identified are included in provincial mapping layers.
 - Undertake on-the-ground field surveys at the three potential sand barren areas to confirm if they meet provincial policy.

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Appendix: Fish Habitat Verification site photos





LSC4a



LSC5a



LSC7a



LSC8a