

Durham Watershed Planning Project – Key Natural Heritage Features

Kawartha Conservation
2020



**KAWARTHA
CONSERVATION**

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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.



**KAWARTHA
CONSERVATION**

Discover • Protect • Restore

Kawartha Conservation

277 Kenrei Road, Lindsay ON K9V 4R1

T: 705.328.2271 F: 705.328.2286

GenInfo@KawarthaConservation.com

KawarthaConservation.com

Executive Summary

This report represents a centralized location that describes information related to defining and mapping Key Natural Heritage Features including Wetlands, Fish Habitat, Significant Woodlands, Significant Valleylands, Habitat of Endangered Species and Threatened Species, Significant Wildlife Habitat, Life Science Areas of Natural and Scientific Interest, and Sand Barrens, Savannahs and Tallgrass Prairies for the overlapping jurisdictions of Durham Region and Kawartha Conservation.

Key Natural Heritage Features are important components of natural heritage related land use policies as guided by various provincial policy directives including the Provincial Policy Statement, Growth Plan for the Greater Golden Horseshoe, Greenbelt Plan, and Oak Ridges Moraine Conservation Plan.

This information provides planning staff with base information necessary to advance land use planning approvals and projects within scope of the management of natural heritage features.

The following recommendations were noted, to ensure this information is readily available and most applicable for land use planning purposes:

- present these findings to relevant technical staff and planning staff within local planning authorities;
- centralize this information in a digital manner and make available to all local planning authorities through an easy-to-use mapping tool;
- undertake with the support of the municipality various works to fill gaps in current information with respect to certain Key Natural Heritage Features, particularly:
 - o Wetlands (field-verifying unevaluated Wetlands);
 - o Fish Habitat (confirming location of coldwater streams);
 - o Significant Valleylands and Significant Woodlands (developing a method for mapping); and,
 - o Sand barrens, Savannahs, and Tallgrass prairies (map using available Ecological Land Classification data)

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1.0 Introduction

The purpose of this report is to provide a summary of the most up-to-date technical information related to mapping Key Natural Heritage Features to assist the Regional Municipality of Durham (Durham Region) in implementing provincial policy and municipal land use planning projects.

Implementing provincial policy and municipal land use planning is a shared responsibility amongst planning authorities, which includes conservation authorities. Durham Region and Kawartha Conservation have an existing agreement whereby Kawartha Conservation provides advice and recommendations on matters related to the protection and management of natural heritage features. This includes reviewing *Planning Act* related development applications (e.g., minor variances, plans of subdivisions, severances, etc.) for conformity to provincial policy directives.

Key provincial policies within scope of these responsibilities include those contained within the Provincial Policy Statement (2020), Growth Plan for the Greater Golden Horseshoe (2020), Greenbelt Plan (2017), and Oak Ridges Moraine Conservation Plan (2017). These plans outline the requirement for planning authorities to manage natural heritage features and systems, as exemplified by the following policy directive from the Provincial Policy Statement:

Natural features and areas shall be protected for the long term.

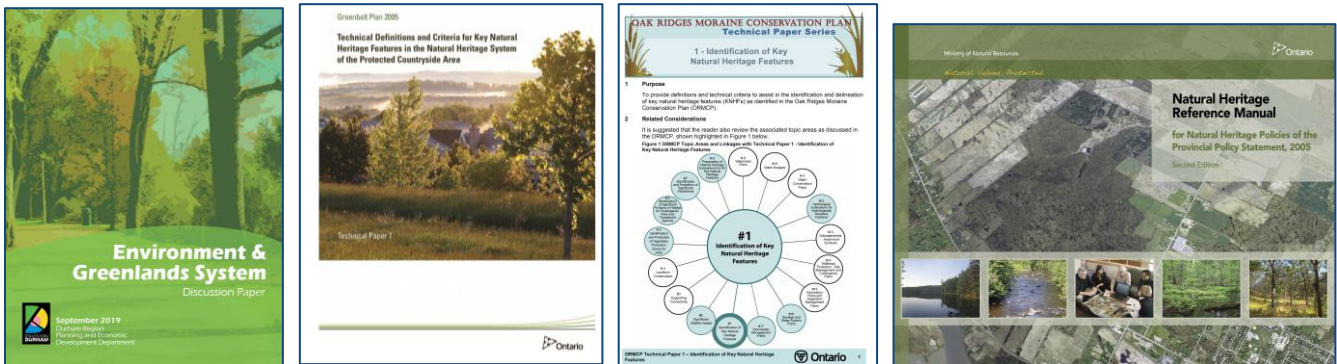
The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features.

To provide local planning authorities with detailed guidance in defining, identifying, and interpreting natural heritage and related policies, the province has published several guidance documents. Durham Region has also published background documentation on the topic to support their current Municipal Conformity Review exercise (branded as 'Envision Durham' Official Plan update). The core guidance documents that assist in delineating Key Natural Heritage Features include the following:

- Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005, Second Edition (Ministry of Natural Resources, 2010);
- Greenbelt Plan Technical Paper 1: Technical Definitions and Criteria for Key Natural Heritage Features in the Natural Heritage System of the Protected Countryside Area (Ministry of Natural Resources, 2012);
- Oak Ridges Moraine Conservation Plan Technical Paper 1: Identification of Key Natural Heritage Features (Province of Ontario, 2007); and,
- Environment and Greenlands System Discussion Paper (Durham Region, 2019).

To assist local planning authorities in meeting these provincial planning requirements, Kawartha Conservation and Durham Region initiated this project in 2020 to verify and centralize existing information (and in certain instances obtain new information), pertaining to the identification and mapping of Key Natural Heritage Features within the shared jurisdictions of both agencies. This jurisdictional overlap comprises 496 km², or one-fifth of the total jurisdictional area of each agency (Figure 1).

This information will help make the review of *Planning Act* applications faster and more consistent, while also contributing information that supports more broad land use planning initiatives such as Envision Durham Municipal Comprehensive Review, development siting, and natural heritage management planning.



Core provincial and municipal guidance publications on the topic of Key Natural Heritage Features.

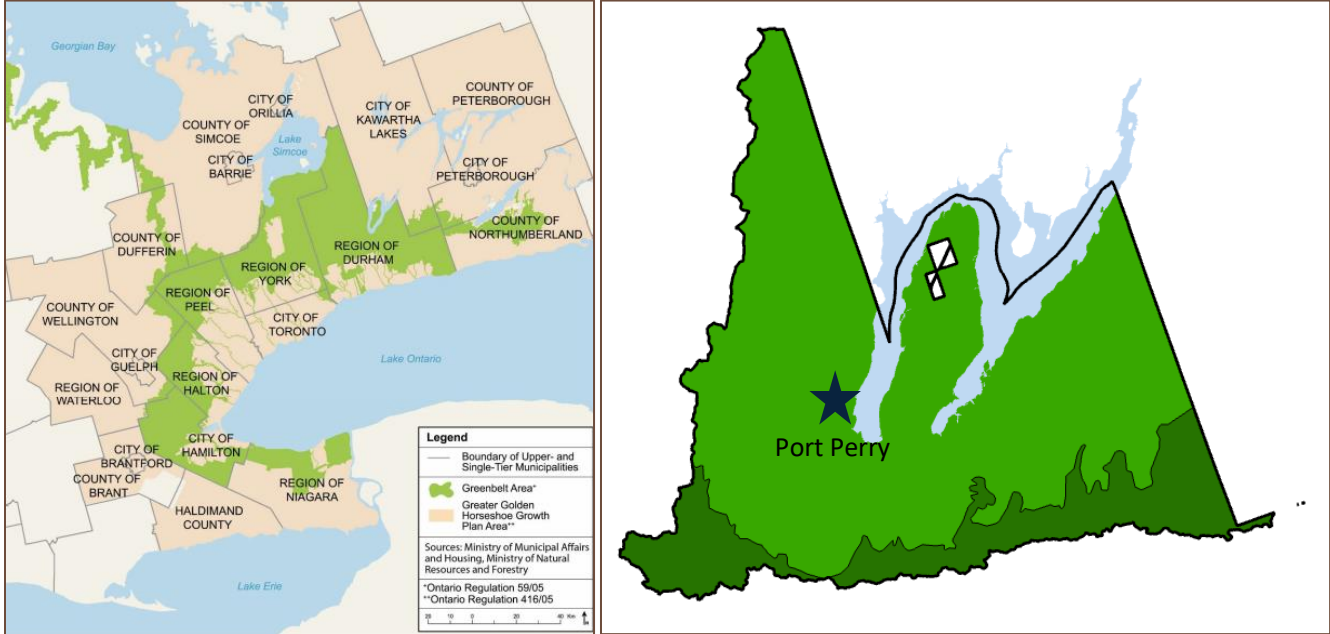


Figure 1: [Left] The geographic coverage of the Growth Plan for the Greater Golden Horseshoe (tan) and Greenbelt Plan (green) in Southern Ontario. [Right] The geographic coverage of the Greenbelt Plan (light green) and Oak Ridges Moraine Conservation Plan (dark green) in the overlapping jurisdictions of Durham Region and Kawartha Conservation.

2.0 Key Natural Heritage Features

Given that the Greenbelt Plan and Oak Ridges Moraine Conservation Plan are the most applicable provincial policy directives within the shared jurisdictional overlap of Durham Region and Kawartha Conservation, the definitions contained within these two Plans are most appropriate for use.

The following section provides detailed information with respect to the definition, methodology for identification, and mapping results for Key Natural Heritage Features.

Key Natural Heritage Features are defined as:

- Wetlands;
- Fish Habitat;
- Significant Woodlands;
- Significant Valleylands;
- Habitat of Endangered Species and Threatened Species;
- Significant Wildlife Habitat;
- Life Science Areas of Natural and Scientific Interest;
- Sand Barrens, Savannahs and Tallgrass Prairies; and,
- Alvars¹ (there are no known Alvars in the jurisdictional overlap.)

The subsequent chapters provide detailed information for each of these Key Natural Heritage Features, within the following headings:

- Definitions: provided verbatim where available from the Greenbelt Plan and the Oak Ridges Moraine Conservation Plan.
- Mapping Methodology: a description of the approach used to collect and map the information.
- Key Findings: certain attributes of the information that are particularly noteworthy.
- References and Additional Resources: a list of references cited within the information, as well as additional information regarding Key Natural Heritage Feature of interest.

¹ *Alvars means naturally open areas of thin or no soil over essentially flat limestone, dolostone or marble rock, supporting a sparse vegetation cover of mostly shrubs and herbs.*

2.1 Wetlands

Definitions

Wetlands:

means lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. In either case the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic plants or water tolerant plants. The four major types of wetlands are swamps, marshes, bogs and fens.

Periodically soaked or wet lands being used for agricultural purposes which no longer exhibit wetland characteristics are not considered to be wetlands for the purposes of this definition.

Wetlands are 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.

Significant Wetlands:

in regard to wetlands... an area identified as provincially significant by the Ontario Ministry of Natural Resources and Forestry using evaluation procedures established by the Province, as amended from time to time.

Mapping Methodology

Information on Wetlands was obtained from existing mapping, which included three primary methods through two information sources:

- Ministry of Natural Resources and Forestry: information was generated through two primary sources, including:
 - o Southern Ontario Land Resources Information System (SOLRIS): a compilation of data from numerous sources including provincial base data (woodland/ wetland perimeters, hydrology, built up areas, Ontario road network), satellite imagery and digital elevation models. Computer modelling, visual interpretation with high resolution aerial photos and field validation were used to create a seamless inventory for Southern Ontario (MNRF, 2015).
 - o Wetland Evaluation System: through the Ontario Wetland Evaluation System process, aerial imagery was utilized in combination with ground truthing to evaluate the status of Wetlands according to a defined protocol (MNR, 2002). Large or high priority Wetlands were inventoried through this system and classified as either 'provincially significant' or 'evaluated non-provincially significant' (these are often referred to as locally significant).
- Kawartha Conservation: Ecological Land Classification (ELC) methodology was used to interpret land cover as shown in 2018 aerial imagery, according to a community-series level of detail (Lee et al., 1998).

A verification process was undertaken in the summer of 2019 to confirm the presence (not boundaries) of existing Wetlands that were not evaluated through the Ontario Wetland Evaluation System process. These included those identified through ELC and SOLRIS methodology that exist outside of evaluated Wetlands. This

was undertaken through roadside surveys and visually confirming presence or absence of Wetlands on the landscape. Adjustments to existing boundaries from this exercise are being contemplated and are not yet reflected in the wetland mapping presented in Figure 2.

Key Findings

The following are key findings from the undertakings:

- There are 141 km² of potential Wetlands, which comprises 28% of the total land area within the jurisdictional overlap (Figure 2).
- Just over half of potential Wetlands (59%) have been confirmed as Wetlands (i.e., evaluated Wetlands), most of which are provincially significant Wetlands (Table 1; Figure 3).
- Lake Scugog Marsh (also known as Osler Marsh) and Nonquon River Wetland #7 are the largest Wetlands, which together represent almost two-thirds of all evaluated Wetlands (Table 2; Figure 3).
- In 2019, 103 unevaluated Wetlands were field verified; 81% were confirmed existing, 14% were confirmed as not existing, and the remaining 5% could not be confirmed. Changes to existing mapping (e.g., removal, boundary change, etc.) based on these data are currently being contemplated.

References and Additional Resources

Lee, H. T., Bakowsky, W. D., Riley, J., Valleyes, J., Puddister, M., Uhlig, P. and McMurray, S. 1998. Ecological land classification system for southern Ontario: first approximation and its application. Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02.

MNR (Ministry of Natural Resources). 2002. Ontario Wetland Evaluation System, Southern Manual. Third Edition NEST Technical Manual TM-002.

MNR (Ministry of Natural Resources). 2015. Southern Ontario Land Resource Information System (SOLRIS) Version 2.0: Frequently Asked Questions. Available at: <https://www.sse.gov.on.ca/sites/MNR-PublicDocs/EN/CMID/SOLRIS%20v2.0%20-%20FAQ.pdf>

MNRF (Ministry of Natural Resources and Forestry). 2019. MNR Wetlands data layer. Available at: Ontario GeoHub (www.geohub.lio.gov.on.ca).

Province of Ontario. 2007. ORMCP Technical Paper 12 - Hydrologic Evaluations for Hydrologically Sensitive Features. Available at: <https://www.oakridgesmoraine.org/wp-content/uploads/2017/09/ORMCP-TP-12-Hydrological-Evaluations-for-Hydrologically-Sensitive-Features.pdf>.

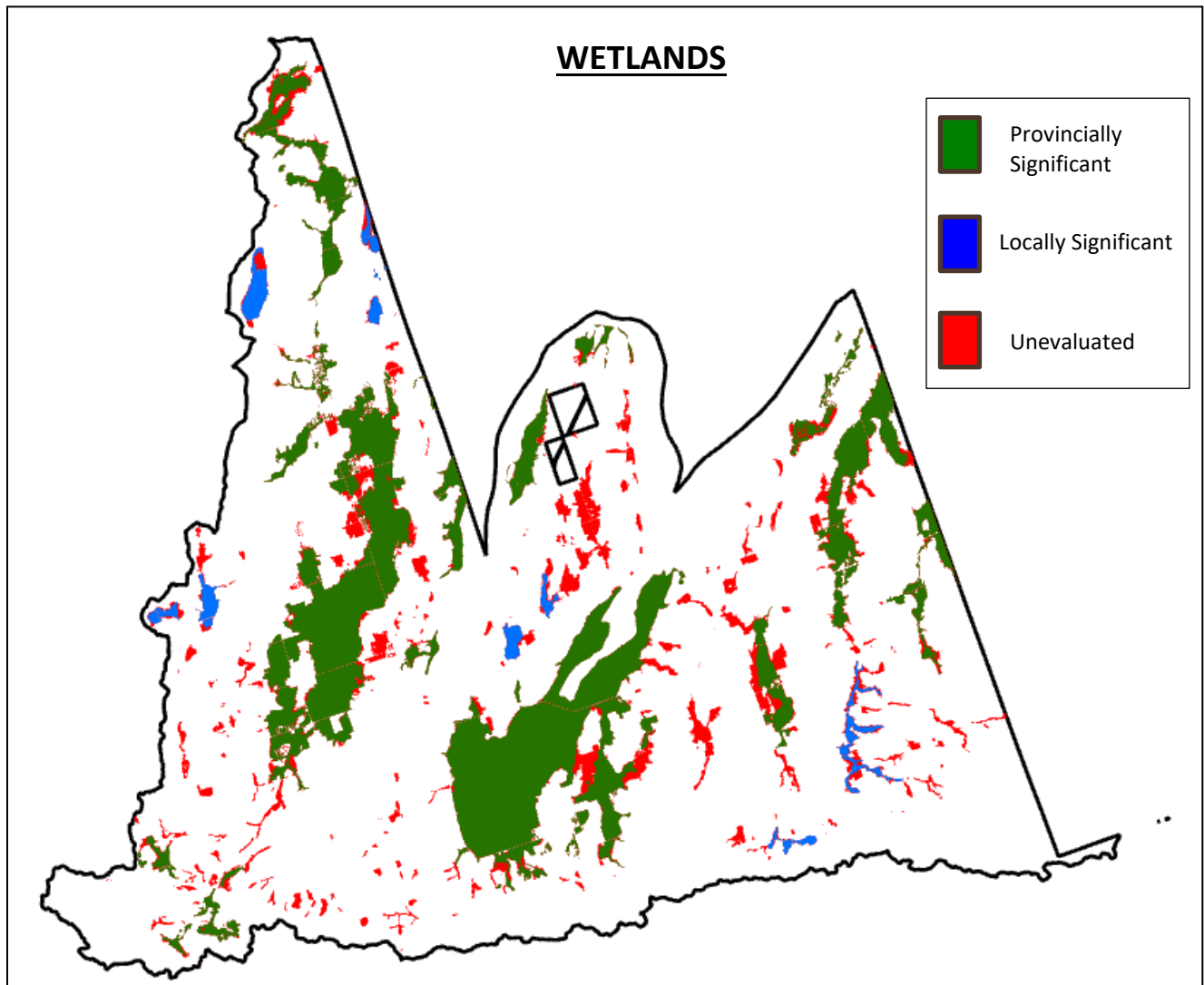


Figure 2: Wetlands.

Table 1: The amount of wetland within each category.

Category	Surface Area	Data Source
Provincially Significant	76 km ² (55%)	MNRF
Locally Significant	5 km ² (4%)	MNRF
Unevaluated	59 km ² (42%)	MNRF and Kawartha Conservation
TOTAL	141 km² (100%)	MNRF and Kawartha Conservation

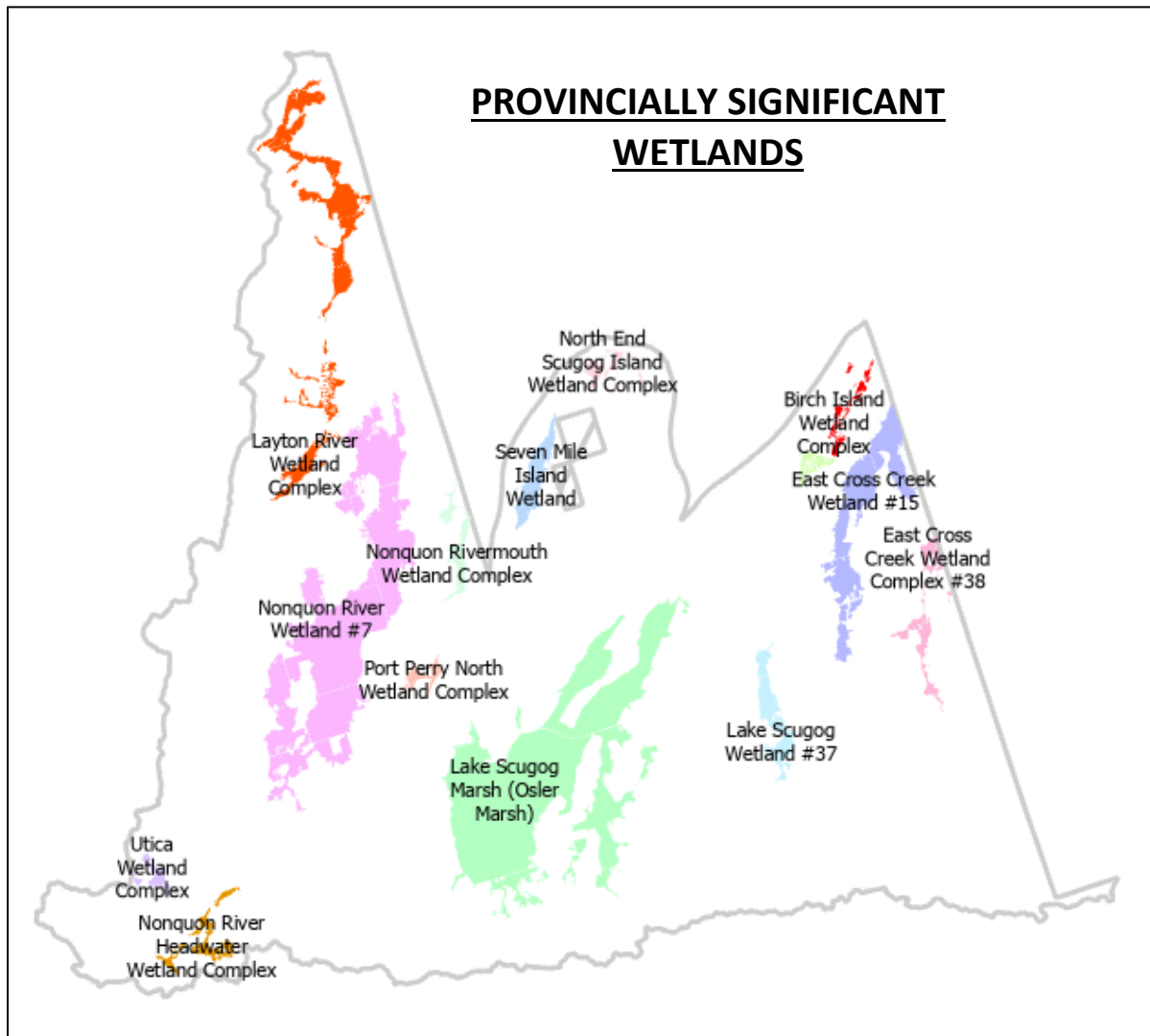


Figure 3: Provincially Significant Wetlands.

Table 2: The amount of wetland within each category.

Wetland Name	Total (km ²)	Total (%)	Fen (%)	Marsh (%)	Open Water (%)	Swamp (%)
Lake Scugog Marsh (Osler Marsh)	28.7	38	0	99	0	1
Nonquon River Wetland #7	23.5	31	0	0	0	100
Layton River Wetland Complex	6.5	9	0	14	1	85
East Cross Creek Wetland #15	6.3	8	0	0	0	100
Lake Scugog Wetland #37	2.0	3	0	0	0	100
Seven Mile Island Wetland	1.8	2	1	23	7	69
East Cross Creek Wetland Complex #38	1.5	2	0	5	0	95
Nonquon River Headwater Wetland Complex	1.2	2	0	0	0	100
Nonquon Rivermouth Wetland Complex	1.1	1	3	5	0	92
North End Scugog Island Wetland Complex	0.7	1	0	16	20	63
Birch Island Wetland Complex	0.6	1	0	2	7	91
Utica Wetland Complex	0.6	1	0	0	0	100
Port Perry North Wetland Complex	0.5	1	0	23	52	25
Scugog Point Wetland Complex	0.5	1	0	8	7	85
Total (14)	75.5	100	<1 (avg)	40 (avg)	1 (avg)	59 (avg)

2.2 Fish Habitat

Definitions

Fish Habitat:

Means, as defined in the Fisheries Act, 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.

Mapping Methodology

Detailed Fish Habitat mapping for planning purposes currently does not exist. Species at Risk mapping from Fisheries and Oceans Canada (DFO, 2019) is available across Durham Region, but presently there are no known fish Species at Risk in the jurisdictional overlap.

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...

For the purposes of this project, a working approximation of Fish Habitat was mapped through the combination of the following data layers:

- Permanent and intermittent streams, the centre-line location of which have mostly (89% of all streams) been desktop verified using 2018 aerial imagery.
- Lake Scugog, including its shorelines.
- Ponds directly connected to streams (also called on-line ponds), the outer boundaries of which have been desktop verified using 2018 aerial imagery.
- Aquatic Resource Area mapping from the Ministry of Natural Resources and Forestry (MNRF, 2020) indicating which streams are designated coldwater Fish Habitat.

Key Findings:

The following are key findings from the undertakings:

- There is approximately 769 km of Fish Habitat within permanent and intermittent streams (Figure 4).

- There is approximately 147 km of Fish Habitat along the shorelines of Lake Scugog, and 66 km² of Fish Habitat in Lake Scugog.
- Coldwater Fish Habitat, considered a sensitive Fish Habitat type, comprise approximately 37% (287 km) of all Fish Habitat on streams.

References and Additional Resources

DFO (Fisheries and Oceans Canada). 2019. Aquatic species at risk mapping tool. Available online at: <https://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html>.

MNRF (Ministry of Natural Resources and Forestry). 2020. Aquatic Resource Areas data layer. Available at: Ontario GeoHub (www.geohub.lio.gov.on.ca).

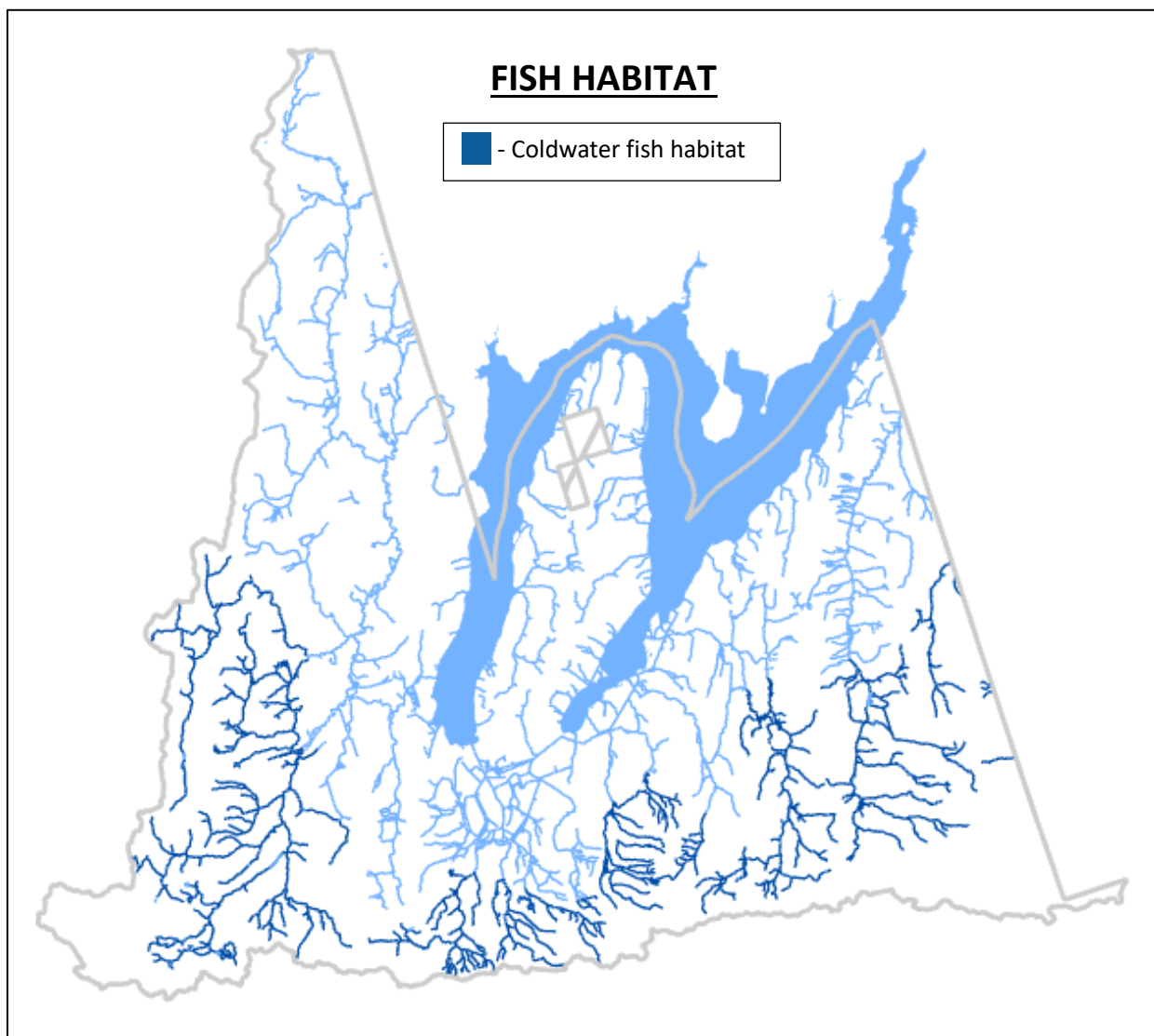


Figure 4. Fish habitat mapping.

2.3 Significant Woodlands

Definitions

Woodlands:

means treed areas that provide environmental and economic benefits to both the private landowner and the general public, such as erosion prevention, hydrological and nutrient cycling, provision of clean air and the long-term storage of carbon, provision of wildlife habitat, outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products. Woodlands include treed areas, woodlots or forested areas and vary in their level of significance at the local, regional and provincial levels. Woodlands may be delineated according to the Forestry Act definition or the Province's Ecological Land Classification system definition for "forest".

Significant Woodlands:

in regard to woodlands, an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history. The Province (Ministry of Natural Resources and Forestry) identifies criteria relating to the forgoing.

Mapping Methodology

Significant Woodlands mapping is currently unavailable for the study area. As noted in the Environment and Greenlands Discussion Paper, through Envision Durham the Region will be working with the conservation authorities to determine an appropriate methodology and map Significant Woodlands across the Region.

Detailed guidance for identifying Significant Woodlands is available within the core guidance documents, and in the Oak Ridges Moraine Conservation Plan Technical Paper 7: Identification and Protection of Significant Woodlands (Province of Ontario, 2004). Factors in determining Significant Woodlands include size, shape, linkages, threatened species, and economic and social values. This is typically undertaken on a landscape scale, and further confirmed during site-specific assessments.

Key Findings

The following are key findings from the undertakings:

- Data for Significant Woodlands is not available but will be mapped through the Envision Durham process.

References and Additional Information

Lee, H.T., Bakowsky, W.D., Riley, J., Valleyes, J., Puddister, M., Uhlig, P., and McMurray, S. 1998. Ecological land classification system for southern Ontario: first approximation and its application. Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02.

Province of Ontario. 2007. Oak Ridges Moraine Conservation Plan Technical Paper 7: Identification and Protection of Significant Woodlands.

2.4 Significant Valleylands

Definitions

Valleylands:

means a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year.

Significant Valleylands:

in regard [valleylands]..., ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of the Natural Heritage System.

Mapping Methodology

Significant Valleylands mapping is currently unavailable for the study area. As noted in the Environment and Greenlands Discussion Paper, through Envision Durham the Region will be working with the conservation authorities to determine an appropriate methodology and map Significant Valleylands across the Region.

Detailed guidance for identifying Significant Valleylands is available within the core guidance documents. Factors in determining Significant Valleylands include valley morphology, size, surface water functions, groundwater functions, landform prominence, degree of naturalness, among others. This is typically undertaken on a landscape scale, and further confirmed during site-specific assessments.

Key Findings

The following are key findings from the undertakings:

- Data for Significant Valleylands is not available but will be mapped through the Envision Durham process.

References and Additional Resources

Conservation Ontario and Ministry of Natural Resources. 2005. Guidelines for Developing Schedules of Regulated Areas. Prepared by: Conservation Ontario – Generic Regulation Technical Standards Committee, in co-operation with the Ontario Ministry of Natural Resources.

Ministry of Natural Resources. 2002. Technical Guide - River and Stream Systems: Flooding Hazard Limit.

Ministry of Natural Resources. 2002. Technical Guide - River and Stream Systems: Erosion Hazard Limit.

2.5 Habitat of Endangered Species and Threatened Species

Definition

Habitat of Endangered Species and Threatened Species:

means a) with respect to a species listed on the Species at Risk in Ontario List as an endangered or threatened species for which a regulation made under clause 55(1)(a) of the Endangered Species Act, 2007 is in force, the area prescribed by that regulation as the habitat of the species; or

b) with respect to any other species listed on the Species at Risk in Ontario List as an endangered or threatened species, an area on which the species depends, directly or indirectly, to carry on its life processes, including life processes such as reproduction, rearing, hibernation, migration or feeding, as approved by the Ontario Ministry of Natural Resources and Forestry; and places in the areas described in clause (a) or (b), whichever is applicable, that are used by members of the species as dens, nests, hibernacula or other residences.

Mapping Methodology

Due to the sensitive nature of information related to rare or at-risk organisms, detailed locations of Habitat of Endangered Species and Threatened Species is considered confidential and is therefore kept with the province and mapped by the Natural Heritage Information Centre.

For mapping purposes, the Natural Heritage Information Centre has generalized the locations of occurrences of these species to a 1 km grid available through their Make-A-Map: Natural Heritage Areas application (Province of Ontario, 2020). Habitat for Endangered Species and Threatened Species are typically identified during a site-specific natural heritage assessment. The process involves first using the Make-A-Map application to screen for known occurrences and then if the feature is probable on-site contacting the province for project-specific guidance. General guidance for identifying this feature is available within the core guidance documents, and within the Oak Ridges Moraine Conservation Plan Technical Paper 6: Identification of Significant Portions for Habitats of Endangered, Rare, and Threatened Species (Province of Ontario, 2007).

Key Findings

The following are key findings from the undertakings:

- Generalized mapping of Habitat of Endangered Species and Threatened Species for screening purposes is available through Natural Heritage Information Centre.

References and Additional Resources

Province of Ontario. 2020. Make-A-Map: Natural Heritage Areas application. Available online at: <https://www.ontario.ca/page/make-natural-heritage-area-map>.

Province of Ontario. 2018. Endangered Species Act 2007: Ontario Regulation 230/08 Species at Risk in Ontario List. Available online at: <https://www.ontario.ca/laws/regulation/080230>.

Province of Ontario. 2007. Oak Ridges Moraine Conservation Plan Technical Paper 6: Identification of Significant Portions for Habitats of Endangered, Rare, and Threatened Species.

2.6 Significant Wildlife Habitat

Definition

Wildlife Habitat:

means areas where plants, animals and other organisms live, and find adequate amounts of food, water, shelter and space needed to sustain their populations. Specific wildlife habitats of concern may include areas where species concentrate at a vulnerable point in their annual or life cycle; and areas which are important to migratory or non-migratory species.

Significant Wildlife Habitat:

in regard to [wildlife habitat] ... ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of the Natural Heritage System.

Mapping Methodology

Significant Wildlife Habitat mapping is currently unavailable for the study area. As noted in the Environment and Greenlands Discussion Paper, Significant Wildlife Habitat will be identified through the preparation of watershed plans and may be added to the Natural Heritage System mapping as appropriate. In the absence of this information, Significant Wildlife Habitat will be identified on a site-by-site basis through development applications.

General guidance for identifying Significant Wildlife Habitat is available within the core guidance documents, and within the Oak Ridges Moraine Conservation Plan Technical Paper 2: Significant Wildlife Habitat (Province of Ontario, 2007). More specific guidance is available within the following publications:

- Significant Wildlife Habitat Technical Guide (MNR, 2000): provides detailed information on identifying, describing and prioritizing Significant Wildlife Habitat.
- Significant Wildlife Habitat Ecoregional Criteria Schedules (MNR, 2015): provides detailed information for identifying and confirming Significant Wildlife Habitat in ecoregion 6E (the specific ecoregion in which this study area is located).

Key Findings

The following are key findings from the undertakings:

- Data for Significant Wildlife Habitat is not available and is currently mapped on a site-by-site basis.

References and Additional Resources

MNR (Ministry of Natural Resources). 2000. Significant Wildlife Habitat Technical Guide. Available online at: <https://docs.ontario.ca/documents/3620/significant-wildlife-habitat-technical-guide.pdf>.

MNRF (Ministry of Natural Resources and Forestry). 2015. Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E. Available online at: <https://dr6j45jk9xcmk.cloudfront.net/documents/4775/schedule-6e-jan-2015-access-ver-final-s.pdf>.

MNRF (Ministry of Natural Resources and Forestry). 2014. Significant Wildlife Habitat Mitigation Support Tool. Available online at: <https://docs.ontario.ca/documents/4773/mnr-swhmist-accessible-2015-03-10.pdf>.

Province of Ontario. 2007. Oak Ridges Moraine Conservation Plan Technical Paper 2: Significant Wildlife Habitat.

2.7 Life Science Areas of Natural and Scientific Interest

Definition

Life Science Areas of Natural and Scientific Interest:

Means an area(s) that has been a) identified as having life science values related to protection, scientific study or education; and b) further identified by the Ministry of Natural Resources and Forestry using evaluation procedures established by that Ministry, as amended from time to time.

Mapping Methodology

Life Science Areas of Natural and Scientific Interest have been mapped by the province (MNRF, 2020) and include significant representative examples of Ontario's biodiversity and natural landscapes including specific types of forests, valleys, prairies and wetlands, their native plants and animals, and their supporting environments (Figure 5, Table 3).

They contain relatively undisturbed vegetation and/or landforms and their associated species and communities. Further, they include the most significant and best examples of the natural heritage features in the province and many will correspond with other Key Natural Heritage Features such as Wetlands, Significant Valleylands and Significant Woodlands.

There are certain Life Science Areas of Natural and Scientific Interest that MNRF has identified and recommended for protection but that have not been formally confirmed called “candidate Life Science Areas of Natural and Scientific Interest”. These are currently not considered a Key Natural Heritage Feature but may in the near future pending outcomes of the confirmation process.

General guidance for identifying Life Science Areas of Natural and Scientific Interest is available within the core guidance documents.

Key Findings

The following are key findings from the undertaking:

- There is one confirmed Life Science Area of Natural and Scientific Interest: Scugog Marsh, which occupies 29.8 km² or 6% of the jurisdictional overlap.
- There are three candidate Life Science Area of Natural and Scientific Interest.

References and Additional Information

MNRF (Ministry of Natural Resources and Forestry). 2020. Areas of Natural and Scientific Interest data layer. Available online from Ontario GeoHub at: <https://geohub.lio.gov.on.ca/>.

Province of Ontario. 2007. Oak Ridges Moraine Conservation Plan Technical Report 5: Identification and Protection of Vegetation Protection Zones for Areas of Natural and Scientific Interest.

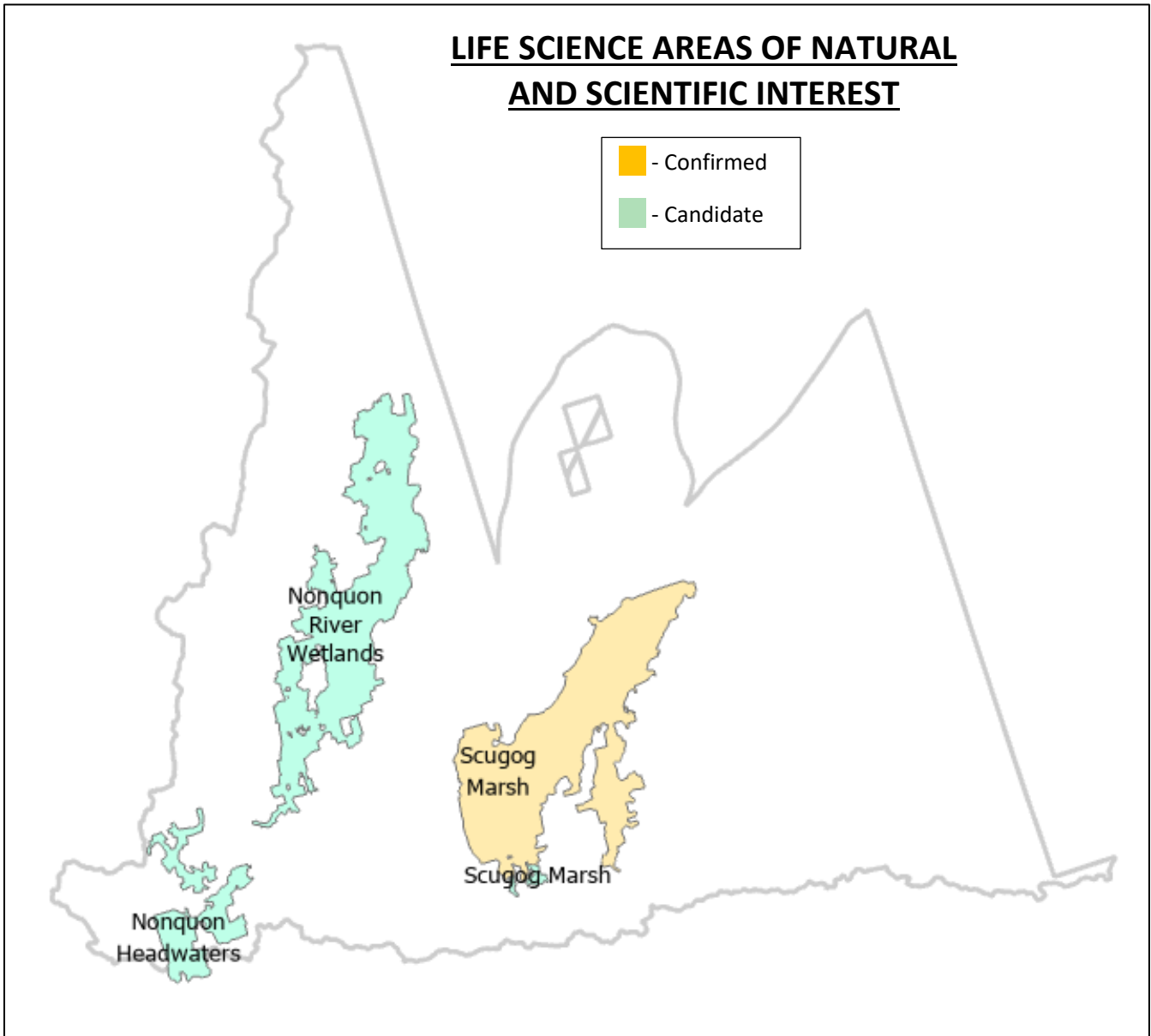


Figure 5. Confirmed and candidate Life Science Areas of Natural and Scientific Interest.

Table 3: The amount of Life Science Areas of Natural and Scientific Interest. * denotes candidate.

Life Science Areas of Natural and Scientific Interest	Surface Area
Scugog Marsh	29.8 km ²
Scugog Marsh*	0.4 km ²
Nonquon River Wetlands*	26.4 km ²
Nonquon Headwaters*	6.6 km ²

2.8 Sand Barrens, Savannahs, and Tallgrass Prairies

Definitions

Sand Barrens:

means land (not including land that is being used for agricultural purposes or no longer exhibits sand barrens characteristics) that:

- a) has sparse or patchy vegetation that is dominated by plants that are:
 - i. adapted to severe drought and low nutrient levels; and
 - ii. maintained by severe environmental limitations such as drought, low nutrient levels and periodic disturbances such as fire;
- b) has less than 25 per cent tree cover;
- c) has sandy soils (other than shorelines) exposed by natural erosion, depositional process or both; and
- d) 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

Savannah:

means land (not including land that is being used for agricultural purposes or no longer exhibits savannah characteristics) that:

- a) 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;
- b) has from 25 per cent to 60 per cent tree cover;
- c) has mineral soils; and
- d) 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.

Tallgrass Prairies:

means land (not including land that is being used for agricultural purposes or no longer exhibits tallgrass prairie characteristics) that:

- a) has vegetation dominated by non-woody plants, including tallgrass prairie species that are maintained by seasonal drought, periodic disturbances such as fire or both;
- b) has less than 25 per cent tree cover;
- c) has mineral soils; and
- d) 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

Mapping Methodology

Across most of Durham Region, Sand Barrens, Savannahs, and Tallgrass Prairies have been identified. However, no data exists for the jurisdictional overlap.

General guidance for identifying Sand Barrens, Savannahs, and Tallgrass Prairies is available within the core guidance documents.

The identification of Sand Barrens, Savannahs, and Tallgrass Prairies can be determined by using the Ecological Land Classification for Southern Ontario (Lee et al., 1998). They are comprised of the Sand Barren and Tallgrass (Prairies, Thicket, Savannahs and Woodland) units of the Ecological Land Classification system.

Kawartha Conservation is currently in the process of interpreting 2018 aerial imagery through the Ecological Land Classification System, the data from which can be used to delineate (if existing) Sand Barrens, Savannahs, and Tallgrass Prairies.

Key Findings

The following are key findings from the undertaking:

- No mapping is currently available in the jurisdictional overlap for Sand Barrens, Savannahs, and Tallgrass Prairies, but 2018 Ecological Land Classification could be used to identify these features.

References and Additional Information

Lee, H. T., Bakowsky, W. D., Riley, J., Valleyes, J., Puddister, M., Uhlig, P. and McMurray, S. 1998. Ecological land classification system for southern Ontario: first approximation and its application. Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02.

3.0 Conclusion and Recommendations

This report represents a centralized location that describes information related to defining and mapping Key Natural Heritage Features, as guided by various provincial policy directives (in particular the Greenbelt Plan and Oak Ridges Moraine Conservation Plan) for the overlapping jurisdictions of Durham Region and Kawartha Conservation.

Key Natural Heritage Features were delineated using a blend of existing mapping (e.g., provincially available datasets) and new mapping (e.g., data collected in 2019). In many cases, mapping is not available but will be forthcoming through the Envision Durham process. This information provides planning staff with base information necessary to advance land use planning approvals and projects within scope of the management of natural heritage features.

The following is a list of recommendations to make this information readily available and most applicable:

1. Present these findings to relevant technical and planning staff within local planning authorities (e.g., Durham Region, Scugog Township, Brock Township, Kawartha Conservation).
2. Centralize this information in a digital manner (e.g., using geographic information systems), and make available to all local planning authorities through an easy-to-use mapping tool.
3. Undertake the following to fill gaps in current information with respect to Wetlands:
 - i. Update existing Wetland mapping using 2019 ground-truthing information.
 - ii. Undertake an evaluation of the 'unevaluated' Wetlands to determine their significance (e.g., provincially or locally significant, etc.).
4. Undertake the following to fill gaps in current information with respect to Fish Habitat:
 - i. With the assistance of Fisheries and Oceans Canada and Ministry of Natural Resources and Forestry, confirm detailed Fish Habitat mapping particularly with respect to the location of coldwater Fish Habitat.
5. Undertake the following to fill gaps in current information with respect to Significant Woodlands and Significant Valleylands.
 - i. Collaboration between Durham Region, Kawartha Conservation, and Ministry of Natural Resources and Forestry to develop an approach for mapping Significant Woodlands and Significant Valleylands.
6. Undertake the following to fill gaps in current information with respect to Sand Barrens, Savannahs, and Tallgrass Prairies.
 - i. Use data from 2018 Ecological Land Classification to map Sand Barrens, Savannahs, and Tallgrass Prairies.