

Technical Definitions and Criteria for Identifying Key Natural Heritage Features and Key Hydrologic Features for the Lake Simcoe Protection Plan

Ministry of Natural Resources and Forestry

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Note: Some of the information in this document is unconvertible, such as certain charts and diagrams, and may not be compatible with screen reader software. If you need the specific information in an alternate format, please contact: Elizabeth Stanley, Ontario Ministry of Natural Resources and Forestry, Aurora District Office, 905.713.7405 or elizabeth.stanley@ontario.ca.

Introduction

The Lake Simcoe Protection Act was enacted in December, 2008 for the purpose of protecting and restoring the ecological health of the Lake Simcoe watershed ecosystem. Among that Act's objectives was the protection, improvement or restoration of the elements that contribute to the ecological health of the Lake Simcoe watershed. These include water quality, hydrology, and key natural heritage and hydrological features and their functions. To support this and other objectives, the Act mandated the development and implementation of a Lake Simcoe Protection Plan (LSPP) which came into effect on June 2, 2009. For more information on the plan, a copy can be downloaded from the Ministry of the Environment and Climate Change (MOECC) website at: <http://www.ontario.ca/environment-and-energy/lake-simcoe-protection-plan>

In addition to the LSPP, the 2,850 km² Lake Simcoe watershed is subject to three other plans and the Provincial Policy Statement (2005). The Greenbelt Plan (GBP) covers 44% of watershed and 34% of Lake Simcoe Shoreline (Figure 1). The Oak Ridges Moraine Conservation Plan (ORMCP) covers 14% of watershed. The Growth Plan for the Greater Golden Horseshoe (GPGGH) and the Provincial Policy Statement (PPS) apply to the entire watershed.

The Ministry of Natural Resources and Forestry (MNRF) in collaboration with the Lake Simcoe Region Conservation Authority (LSRCA) and the MOECC, OMAFR, MTO, MMAH, MOI has developed this technical paper to assist municipalities and others with the consistent implementation of the LSPP policies for identifying Key Natural Heritage Features (KNHF) and Key Hydrologic Features (KHF) in areas of the watershed where they apply as defined in the LSPP.

This technical paper, entitled Technical Definitions and Criteria for Key Natural Heritage Features and Key Hydrologic Features for the Lake Simcoe Protection Plan, applies only to those areas in the watershed that are outside of existing settlement areas as of the date of the LSPP and outside of the Greenbelt area and Oak Ridges Moraine plan area. In addition, the Lake Simcoe Shoreline policies rely on the KNHF and KHF policies for their implementation outside of settlement areas, within the shoreline built up areas and in some instances within the Greenbelt area.

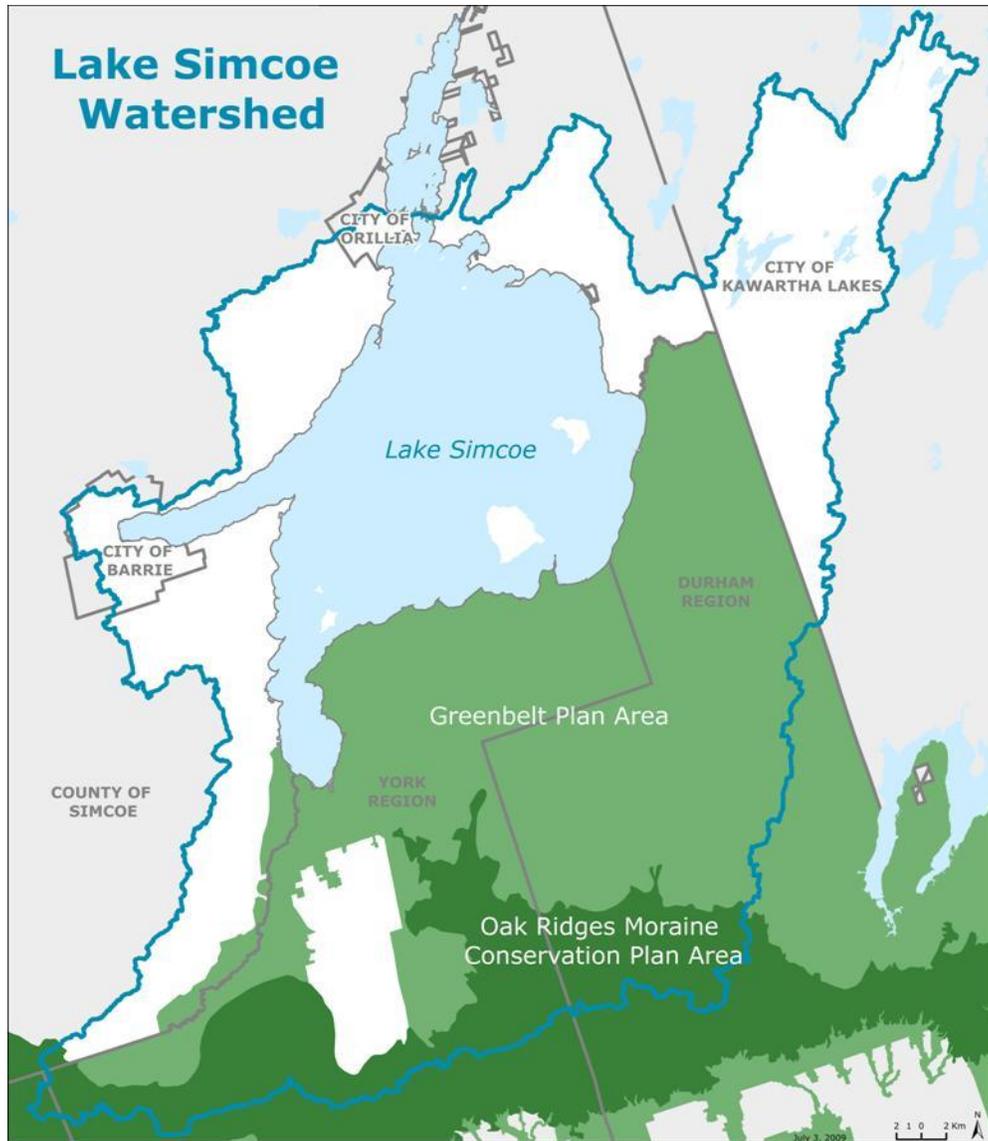


Figure 1. The Lake Simcoe watershed showing areas covered by the Greenbelt Plan (light green) and the Oak Ridges Moraine Conservation Plan (dark green). Delineated by the blue line, the Lake Simcoe Protection Plan applies to all areas within the Lake Simcoe watershed with some policy exceptions.

1 Purpose

The purpose of this technical paper is to provide direction for the identification, delineation and protection of KNHF and KHF in the Lake Simcoe watershed. As defined in policies 6.21–DP and 6.22–DP of the LSPP, the following natural heritage features and hydrologic features constitute KNHFs and KHFs, respectively:

Key Natural Heritage Features

- *Wetlands*
- *Significant woodlands*
- *Significant valleylands*
- Natural areas abutting Lake Simcoe

Key Hydrologic Features

- *Wetlands*
- *Permanent and intermittent streams*
- *Lakes other than Lake Simcoe*

It should be noted that natural heritage and hydrologic features other than those listed may be subject to the policies of the Provincial Policy Statement (PPS). Those looking for guidance regarding the natural heritage policies of the PPS should consult MNR's Natural Heritage Reference Manual (2010) as updated from time to time.

The approach described in this technical paper uses the best knowledge currently available. As new knowledge becomes available, improvements to this approach may be developed.

2 Policy Context

The LSPP recognizes the important contribution of KNHFs and KHF to the ecological health of the Lake Simcoe watershed. Policies directed at identifying types of KNHFs and KHF and providing for their protection are contained in Chapter 6: Shorelines and Natural Heritage: Key natural Heritage and He Hydrologic Features. Additionally, Policy 6.5-DP requires the protection and restoration of wildlife movement corridors between KNHF and KHF for development or site alteration applications within 240m of the Lake Simcoe shoreline.

Development and Site Alteration

Policy 6.23–DP of the Lake Simcoe Protection Plan states that:

“Development and site alteration is not permitted within a key natural heritage feature, a key hydrologic feature and within a related vegetation protection zone referred to in policy 6.24, except in relation to the following:

- a. Forest, fish, and wildlife management;
- b. Stewardship, conservation, restoration and remediation undertakings;
- c. *Existing uses* as specified in policy 6.45;
- d. Flood or erosion control projects but only if the projects have been demonstrated to be necessary in the public interest after all alternatives have been considered;
- e. Retrofits of existing *stormwater management works* (i.e. improving the provision of stormwater services to existing *development* in the watershed where no feasible alternative exists) but not new *stormwater management works*;
- f. New *mineral aggregate operations* and wayside pits and quarries pursuant to policies 6.41 – 6.44;
- g. *Infrastructure*, but only if the need for the project has been demonstrated through an Environmental Assessment of other similar environmental approval and there is no reasonable alternative; and
- h. Low-intensity recreational uses that require very little terrain or vegetation modification and few, if any, buildings or structures, including but not limited to the following:
 - i. non-motorized trail use,
 - ii. natural heritage appreciation;
 - iii. unserviced camping on public and institutional land, and
 - iv. accessory uses to existing buildings or structures.”

Vegetation Protection Zone

Policy 6.24–DP defines the minimum vegetation protection zone for all key natural heritage and hydrologic features as the area within 30 m of the feature, or

larger if determined appropriate by a natural heritage evaluation required by policy 6.25.

Natural Heritage Evaluation

Policy 6.25 states that an application for development or site alteration that is proposed on any land that is located within 120m of a key natural heritage or key hydrologic feature, but beyond the minimum vegetation protection zone, must be accompanied by a natural heritage evaluation unless it is for one of the purposes identified in policy 6.23. This evaluation, prepared in accordance with policy 6.26–DP of the LSPP, may require a larger vegetation protection zone or design restrictions. In addition, within shoreline built up areas a NHE is required in 6.2-DP and 6.3-DP which meets the requirements of policy 6.26-DP for applications for development or site alteration within 120 metres of the Lake Simcoe shoreline, unless the development or site alterations is for a purpose specified by policy 6.1-DP.

The natural heritage evaluation (see policy 6.26-DP) shall be carried out in accordance with guidelines developed by the MNRF and shall:

- a. demonstrate that the *development* or *site alteration* applied for will have no *adverse effects* on the key natural heritage feature, key hydrologic feature, Lake Simcoe and its associated vegetation protection zone, or on the related *ecological functions*;
- b. identify planning, design and construction practices that will maintain and, where feasible, improve or restore the health, diversity and size of the key natural heritage feature or key hydrologic feature and its *connectivity* with other key natural heritage features or key hydrologic features as well as *connectivity* and linkages to natural heritage systems identified in Provincial Plans or by municipalities, the LSRCA or MNRF;
- c. demonstrate how *connectivity* within and between key natural heritage features and key hydrologic features will be maintained and, where possible, improved or restored before, during and after construction to allow for the effective dispersal and movement of plants and animals;
- d. determine if the minimum vegetation protection zone is sufficient to protect the *ecological functions* of the feature and the area being evaluated, in particular where this feature or area is adjacent to a coldwater stream, headwaters, freshwater estuaries, steep slope or is acting as or has been identified as a wildlife corridor to ensure that the area will continue to effectively act and function as a wildlife corridor;
- e. determine if the minimum vegetation protection zone is sufficient to protect areas adjacent to existing features that would be appropriate for restoration or renaturalization to enhance the ecological functioning of that feature, such as lands that provide for rounding out or filling of gaps in *significant woodlands*; and

- f. if the minimum vegetation protection zone is not sufficient to protect the function of the feature or protect opportunities for feature enhancement, specify the dimensions of the required vegetation protection zone.

Guidance for completing a natural heritage evaluation is contained in the technical paper entitled Natural Heritage Evaluation Guideline: Preparation of Natural Heritage Evaluation for Key Natural Heritage Features and Key Hydrologic Features for the Lake Simcoe Protection Plan prepared by MNRF.

Mineral Aggregate Operations and Wayside Pits and Quarries

Policy 6.42–DP of the Lake Simcoe Protection Plan does not allow for **new** mineral aggregate operations and wayside pits and quarries, or any ancillary or accessory use in the following key natural heritage features and key hydrologic features:

- a. *significant wetlands*;
- b. *significant habitat of endangered species and threatened species*; and
- c. *significant woodlands* unless the *woodland* is occupied by young plantation or early successional habitat (as defined by MNRF).

It should be noted that the LSPP is to be read in its entirety as there are other policies in the plan that also apply to KNHFs and KHF.

3 Wetlands

3.1 Definition of Feature

In accordance with policies 6.21–DP and 6.22–DP of the LSPP, *wetlands* are identified as both KNHFs and KHF and defined as:

Wetlands: land such as a swamp, marsh, bog or fen (not including land that is being used for agricultural purposes and no longer exhibits *wetland* characteristics) that,

- a. is seasonally or permanently covered by shallow water or has the water table close to or at the surface;
- b. has hydric soils and vegetation dominated by hydrophytic or water-tolerant plants; and
- c. has been further identified, by the MNRF or by any other person, according to evaluation procedures established by the MNRF, as amended from time to time (ORMCP).”

3.2 Feature Identification

In meeting the final requirement of the LSPP definition of *wetlands* in Section 3.1 of this paper, the following criteria shall be used to identify *wetlands* that are KNHFs for the purpose of applying the shorelines and natural heritage policies of the Plan:

- all *wetlands*, regardless of size, evaluated as provincially significant in accordance with the Ontario Wetland Evaluation System (OWES) and accepted by MNRF;
- all other identified *wetlands* 0.5 ha or greater in size;
- all other identified *wetlands* <0.5 ha in size except where it can be demonstrated to the satisfaction of the planning authority by a qualified professional (such as a hydrogeologist, ecologist or a person with equivalent qualifications) that the *wetland* does not constitute or provide one or more of the following features or functions:
 - an important groundwater hydrologic linkage to an adjacent key hydrologic feature.
 - an important component of, or ecological linkage to, an adjacent key natural heritage feature.
 - a *wetland* feature with one (or more) of the following characteristics:

- permanent or intermittent surface water connection between the *wetland* and an adjacent key hydrologic feature.
- significant recharge to the underlying aquifer (generally considered to be any small *wetland* underlain by at least 3 m of mineral soil having a hydraulic conductivity of 10^{-4} cm/s or more).
- direct hydraulic connections between the *wetland* and an underlying aquifer (e.g. along fracture zones or granular soil conduits).

In order to meet the requirements of policy 6.22–DP of the LSPP, the above criteria can also be used for the purpose of identifying and delineating *wetlands* that are KHFs. Other KHFs include permanent and intermittent streams, and lakes other than Lake Simcoe. In many cases, these other KHFs may coincide with KNHFs, including *wetlands*.

3.3 Mapping

Wetlands can be identified and mapped through the following processes:

- *wetlands* evaluated or confirmed by the MNRF in accordance with the OWES, Southern Manual (MNRF 2002); and/or
- *wetlands* identified in mapping provided by MNRF and the LSRCA; and/or
- *wetlands* identified in a natural heritage evaluation under policy 6.26–DP of the LSPP.

Note: Either the OWES or Ecological Land Classification can be used to identify *wetland* communities.

Where the exact outer limit or extent of a *wetland* is contested, an OWES-trained evaluator shall use OWES procedures in the field to confirm the outside boundary of the *wetland*. The revised boundary is to be surveyed and provided in GIS format to the MNRF District Office.

Note: policy 6.42–DP in the LSPP prohibits new mineral aggregate operations and wayside pits and quarries or any ancillary or accessory use in Provincially Significant Wetlands (PSW).

4 Significant Valleylands

4.1 Definition of Feature

In accordance with policies 6.21–DP and 6.22–DP of the LSPP, significant valleylands are identified as KNHFs and defined as:

Valleyland: 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 (ORMCP).

Significant valleylands: ecological important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system. The Province (Ministry of Natural Resources and Forestry) identifies criteria relating to the forgoing (Greenbelt Plan).

4.2 Feature Identification

Valleylands in the Lake Simcoe watershed can range in size from tiny headwater features to wide valleys containing substantial rivers and extensive *wetlands* (LSEMS, 2008). They have been referred to as the “backbone” of a watershed because they perform many unique ecological functions (NHRM, 2010). These functions include:

- transporting and cycling sediments and nutrients;
- performing as natural drainage areas for storm and melt waters;
- *seepage areas and springs* which are critical in maintaining water quantity;
- riverine *wetlands* and stream bank vegetation associated with *valleylands* maintain or improve water quality;
- providing important fish and wildlife habitat such as vernal pools and other wet habitats serving as essential breeding habitat for certain amphibians, fish and invertebrates; and
- forming important natural linkages between different habitat features, providing important migration corridors.

Significant valleylands include any of the features identified in any of the following three categories:

- all streams with well defined valley morphology (i.e. floodplains, riparian zones, meander belts and/or valley slopes) of an average width of 25 m or more; the physical boundary is defined by the stable top of bank (as defined by the conservation authority); or
- all spillways and ravines with the presence of flowing or standing water for a period of no less than two months in an average year. Such features must be > 50 m long; 25 m in average width with a well defined

morphology (i.e. two valley walls of 15% slope or greater with a minimum height of 5 m, and valley floor), and having an overall area of 0.5 ha or greater; or

- additional features beyond the ones described above that have been identified by the planning authority as providing one or more of the features or functions described in the table contained in Appendix A.

5 Permanent and Intermittent Streams and Lakes (other than Lake Simcoe)

5.1 Definition of Feature

In accordance with policy 6.22-DP of the LSPP, *permanent and intermittent streams* and *lakes* other than Lake Simcoe, hereafter referred to as *lakes*, are identified as KHF's and defined as:

Intermittent streams: 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. (Greenbelt Plan)

Lakes: any inland body of standing water, usually fresh water, larger than a pool or pond or a body of water filling a depression in the earth's surface. (Greenbelt Plan)

Permanent stream: a stream that continually flows in an average year. (Greenbelt Plan)

The above features are hereafter referred to in this technical report as feature(s) or KHF.

5.2 Feature Identification

Features may be identified through the following:

- Where available, mapping and/or information provided by MNRF, Trent Severn Waterway (TSW) and the LSRCA;
- Identified in a natural heritage evaluation under policy 6.26-DP of the LSPP; and
- Where no detailed mapping has been completed all permanent and intermittent streams other than *ephemeral streams*, associated *seepage areas and springs*, *lakes*, canals, and all *ponds* other than isolated man-made ponds (not connected to the stream) shall be deemed to be a KHF unless it can be demonstrated to the satisfaction of the approval authority that the feature does not constitute a KHF.

Defining the Vegetation Protection Zone

In the case of watercourses with no defined beds and banks, the minimum 30 m vegetation protection zone established under policy 6.24–DP is to be established on each side of the feature and measured from the centre line of the watercourse.

In the case of *lakes* and non-meandering watercourses with defined beds and banks, the minimum 30 m vegetation protection zone is to be measured from the normal high water mark.

In the case of meandering watercourses, the minimum 30 m vegetation protection zone is to be measured from the edge of the meander belt, the line that connects each outside curve/concave bank at bankfull stage.

6 Natural Areas Abutting Lake Simcoe

6.1 Definition of Feature

In accordance with policies 6.21-DP and 6.22-DP of the LSPP, natural areas abutting Lake Simcoe are identified as KNHFs.

Natural areas abutting Lake Simcoe means land that extends from the Lake Simcoe shoreline with natural self sustaining vegetation of any plant form or potential natural community.

Notwithstanding the above, natural areas abutting Lake Simcoe do not include vegetation communities maintained by anthropogenic-based disturbances (e.g. land for *agricultural uses*, manicured lawns or ornamental plantings).

6.2 Feature Identification

Natural areas abutting Lake Simcoe are areas of a continuous vegetation community class that have a minimum size of 1 ha and are wholly or partially within the 30 m buffer zone of the *Lake Simcoe shoreline*. These areas may be a narrow band of vegetation along the shoreline or larger areas, which extend a greater distance from the shoreline. As described in policy 6.31-SA, the MNRF and the MOECC will map the location of natural areas abutting Lake Simcoe.

For purposes of identifying natural areas abutting Lake Simcoe, vegetation communities separated by an opening of >10 m would be considered separate features. A bisecting opening <10 m wide would not be considered to separate a natural area abutting Lake Simcoe into two features. However, the developed portion (e.g., public road or active rail line) of any bisecting opening will not be included in the calculation of area for natural areas abutting Lake Simcoe.

7 Significant Woodlands

7.1 Definition of Feature

In accordance with policy 6.22-DP of the LSPP, *significant woodlands* are identified as KNHFs and defined as:

Woodland: a treed area, woodlot or forested area, other than a cultivated fruit or nut orchard or a plantation established for the purpose of producing Christmas trees (ORMCP 2002).

For the purposes of applying the policies of the Lake Simcoe Protection Plan, *woodlands* are further defined as having either:

- a. a *tree* crown cover of over 60% of the ground, determinable from aerial photography; or
- b. a *tree* crown cover of over 10% of the ground, determinable from aerial photography, together with on-ground stem estimates of:
 - 1,000 *trees* of any size per hectare, or breast height if in a regeneration area, or
 - 750 *trees* measuring over five centimetres in *diameter*, per hectare, or
 - 500 *trees* measuring over 12 centimetres in *diameter*, per hectare, or
 - 250 *trees* measuring over 20 centimetres in *diameter*, per hectare (based on Forestry Act of Ontario 1998)

For the purposes of a and b, the tree amount is based on the average per hectare across the entire treed area. *Woodlands* experiencing changes such as harvesting, blowdown or other *tree* mortality are still considered *woodlands*. Such changes are considered temporary whereby the forest still retains its long-term ecological value.

Significant: 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 (Greenbelt Plan).” (MOECC 2009)

7.2 Feature Identification

For identification of *significant woodlands*, the applicable areas of the Lake Simcoe watershed have been divided into two geographic areas to account for differences in forest cover.

The “South Area” includes the applicable portions within the County of Simcoe and the Region of York that are south of Highway 89 or its eastern extension (Shore Acres Drive). The “North Area” includes the remainder of the applicable areas of the Lake Simcoe watershed (see Figure 1).

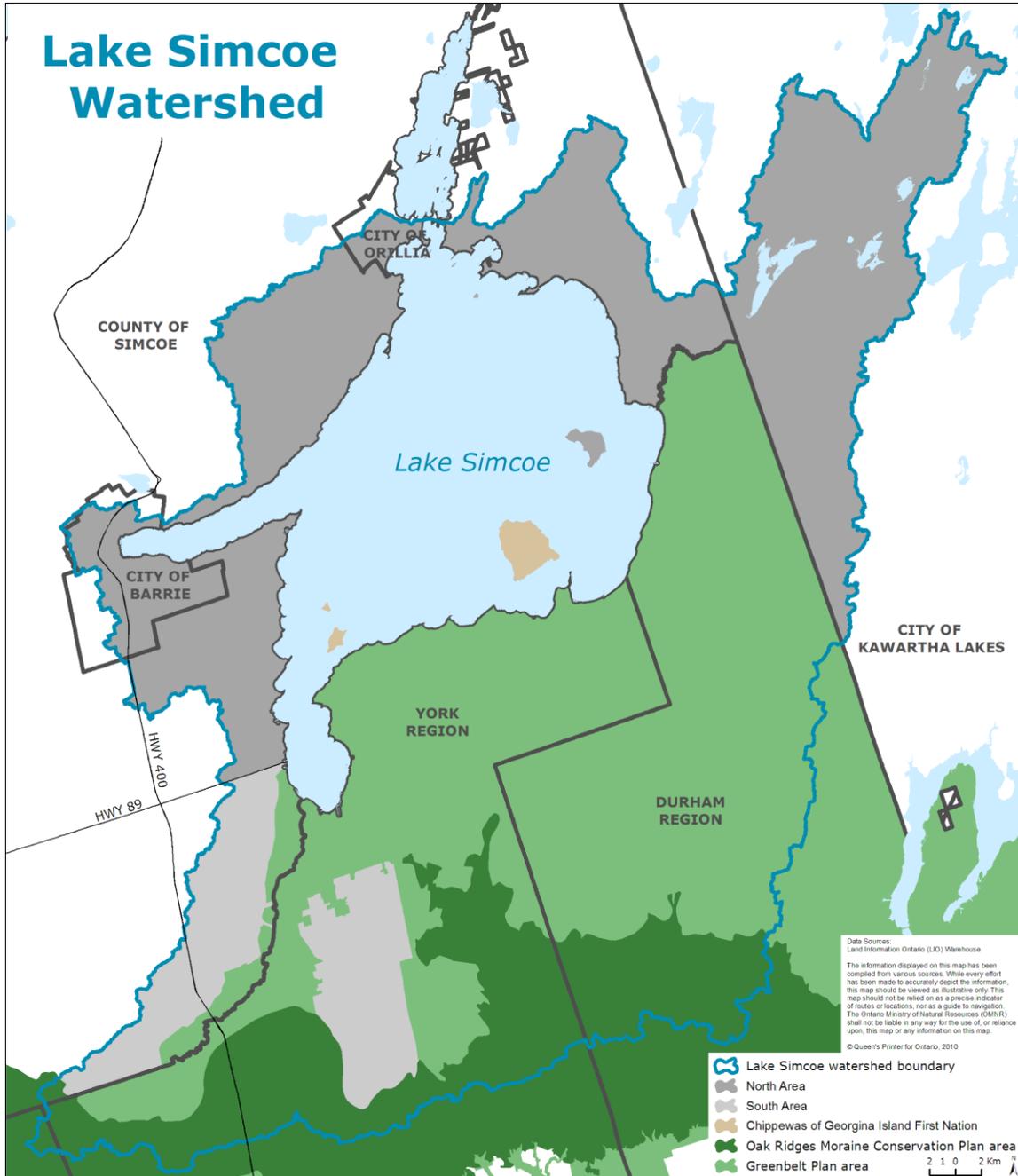


Figure 1. Outline of the Lake Simcoe watershed. Policies for Lake Simcoe significant woodlands apply to the white areas outside of existing settlement areas, the Greenbelt Plan area, or the Oak Ridges Moraine Conservation Plan area.

A *woodland* that meets any one of the criteria below is considered significant.

Criteria	Description	North Area	South Area
Size	Any <i>woodlands</i> of this size or greater are <i>significant</i> ; or	10 hectares or more	4 hectares or more
Natural Composition	Any <i>woodlands</i> containing this area of naturally occurring (not planted) <i>trees</i> listed in Appendix B that meet the definition of " <i>woodland</i> "; or	4 hectares or more	1 hectare or more
Age or Tree Size	Any <i>woodlands</i> of this size with either: a) 10 or more trees per hectare that are either greater than 100 years old or 50 cm or more in diameter; or b) containing a basal area of at least 8 square metres per hectare in native trees that are 40 cm or more in diameter; or	4 hectares or more	1 hectare or more
Proximity	Any <i>woodlands</i> of this size wholly or partially within 30 m of: a significant <i>woodland</i> ; a naturalized lake; a permanent stream; a significant valleyland, a provincially significant wetland; or significant habitat of an endangered or threatened species; or	4 hectares or more	1 hectare or more
Rarity	Any <i>woodlands</i> of this size containing: a provincially rare treed vegetation community with an S1, S2 or S3 in its ranking by the Ministry of Natural Resources and Forestry Natural Heritage Information Centre (NHIC); or habitat of a <i>woodland</i> plant species with an S1, S2 or S3 in its ranking or an 8, 9, or 10 in its southern Ontario Coefficient of Conservatism by the NHIC, consisting of 10 or more individual stems or 100 or more square metres of leaf coverage.	0.5 hectare or more	0.5 hectare or more

Further to the foregoing chart, a *significant woodland* must have an average minimum width of 40 metres measured to crown edges where the criterion size threshold is 0.5 to 4 hectares, and 60 metres where the criterion size threshold is 10 hectares.

The details of the criteria listed above mean that the significance of some *woodlands* can only be confirmed with site specific assessments.

Exceptions to *significant woodlands*

Notwithstanding the above, *significant woodlands* do not include:

- a *plantation* managed for production of fruits, nuts, maple syrup or other tree syrups, Christmas *trees* or nursery stock;
- a *plantation* managed for tree products with an average rotation of less than 20 years (e.g., hybrid poplar or willow);
- a *plantation* established and continuously managed for the sole purpose of complete removal at rotation, as demonstrated with documentation acceptable to the planning authority or the Ministry of Natural Resources and Forestry, without a forest restoration objective.

Additional exclusions may be considered for communities which are dominated by the invasive non-native *tree* species buckthorn (*Rhamnus* species) or Norway maple (*Acer platanoides*) that threaten good forestry practices and environmental management. Such exceptions may be considered where native *tree* species cover less than 10% of the ground and are represented by less than 100 stems of any size per hectare. Exclusions occur where it can be demonstrated to the satisfaction of the planning authority by a qualified professional (such as a forester, ecologist or a person with equivalent qualifications) that the *woodland* meets the above criteria.

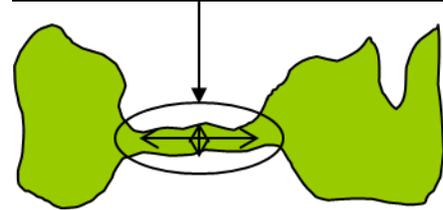
7.3 Details to Assist in Delineating Woodlands

Once appropriately delineated, *woodlands* can then be evaluated for significance.

When can treed areas be connected to be considered one woodland?

Where two larger treed areas (wider than the required minimum width) are physically connected by a narrow linear treed area (less than the required minimum width) with any open breaks being 20 metres or less across, all treed areas will be considered to be one woodland as long as the narrow linear treed area is no more than 3 times longer than its average width. As one woodland, its area would be the total of the two larger treed blocks as well as the connecting treed area.

e.g. This is one woodland if the length of the connecting narrow linear treed area is no more than 3 times its average width.



e.g. If the average width of the connecting linear treed area is 10 metres, then the maximum length of the connecting treed area must be no more than 30 metres (10x3) for all these treed areas to be considered as one woodland. If this connecting treed area is longer than 30 metres, the treed areas will be considered to be separate features and most of the connecting link could not be part of a significant woodland.

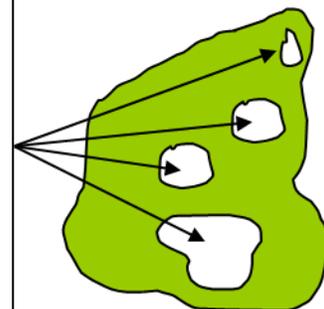
Are openings within woodlands considered part of the woodland?

Openings are treeless areas within a *woodland*. Developed openings with buildings or paved surfaces are not included in the calculated *woodland* area.

Internal undeveloped openings 20 metres or less in width are included in the calculation of *woodland* area. Internal openings more than 20 metres wide but less than 0.5 hectare in area would be included in the calculated *woodland* area provided that such openings collectively make up less than 25% of the total *woodland* area.

e.g. In the woodland, openings that are 20 metres or less in width (and not developed) are all included in the measured woodland area.

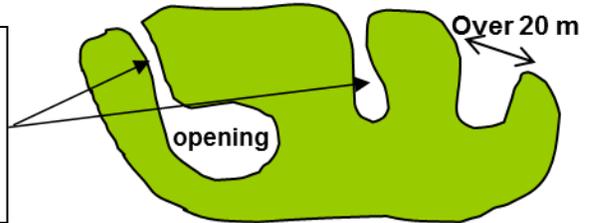
Other openings that are more than 20 metres in width but still less than 0.5 ha in size are also included in the total woodland area if their sum is less than 25% of the total area. In cases where such openings would total more than 25% of the total woodland area, the largest openings are excluded from the woodland area until the sum of such openings is less than 25% of the total woodland area.



When are indentations into woodlands considered part of the woodland?

Indents that are 20 metres or less wide will be considered part of the *woodland*.

e.g. Two of these indents are less than 20m wide and are considered part of the woodland. The third is too wide. One indent becomes wider than 20m inside the woodland and therefore becomes an opening.



When does a separation divide a woodland into two?

An opening more than 20 metres wide that bisects a *woodland* would be considered to create two separate *woodlands*. A bisecting opening 20 metres or less in width would not be considered to separate a *woodland* into two *woodlands*. However, the developed portion (e.g., public road or active rail line) of any bisecting opening will not be included in the woodland area calculation.



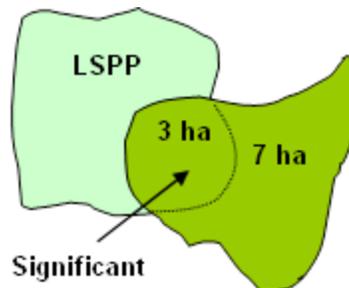
e.g. A road opening 20 metres or less in width means this is still one woodland, but total woodland area excludes the road.

e.g. Where branches of woodland trees stretch over a road to within 20 metres of each other, the woodland portions on both sides combine into one woodland for area measurement purposes.



Woodlands on the border of the LSPP area

Where a portion of a *woodland* lies outside the LSPP area, the delineation rules will be used to determine the *woodland* boundary and then the whole *woodland* shall be included in the area calculations for determining significance. Note: Other natural features outside the LSPP area in proximity to the *woodland* do not affect its evaluation for significance.



e.g. Area of woodland within LSPP area is 3 ha while area outside is 7 ha. Since the total woodland area meets the minimum size threshold, the portion inside the LSPP (3 ha) is considered significant. The portion outside may or may not be considered significant depending on the policies in that area.

Glossary

Agricultural uses means the growing of crops, including nursery, biomass and horticultural crops; raising livestock; raising of other animals for food, fur or fibre, including poultry and fish; aquaculture; apiaries; agro-forestry; maple syrup production; and associated on-farm buildings and structures, including but not limited to livestock facilities, manure storages, value-retaining facilities, and accommodation for full-time farm labour when the size and nature of the operation requires additional employment. (Provincial Policy Statement)

Basal area means the cross-sectional area of *tree* stems at breast height measured 1.37 metres above the ground. For *woodlands*, it is commonly expressed in square metres per hectare. **Basal area** can be determined in a *woodland* by sampling with a wedge prism or representative fixed-area plots. (For example, one square metre of basal area would be found in 127 *trees* that are 10 cm in *diameter*, or 20 *trees* 25 cm in *diameter*, or 8 *trees* 40 cm in *diameter*, or 5 *trees* 50 cm in *diameter*, or 3 *trees* 65 cm in *diameter*.) (OMNRF 2008)

Development means the creation of a new lot, a change in land use, or the construction of buildings and structures, any of which require approval under the Planning Act, the Public Lands Act, the Conservation Authorities Act, or that are subject to the Environmental Assessment Act, but does not include,

- a) the construction of facilities for transportation, *infrastructure* and utilities used by a public body;
- b) activities or works under the Drainage Act; or
- c) The carrying out of agricultural practices on land that was being used for *agricultural uses* on the date the Plan came into effect. (adapted from Greenbelt Plan)

Diameter (of *trees*) means the diameter of tree stems outside bark at nominal breast height, normally measured as close to 1.37 metres from the ground as reasonable. (OMNRF 2008)

Early successional habitat, for the purposes of Section 6.42-DP of the Lake Simcoe Protection Plan, is a previously non-wooded, currently regenerating area in which:

- (a) there is less than 2 square metres of *basal area* per hectare in *trees* that are 10 centimetres or more in *diameter* from any species listed in Table A (at the end of this section); and
- (b) there is less than 2 square metres of *basal area* per hectare in *trees* that are 25 centimetres or more in *diameter* from any combination of species listed in Table A plus white ash (*Fraxinus americana*), black cherry (*Prunus serotina*), white-cedar (*Thuja occidentalis*), white elm (*Ulmus americana*) or red elm (*Ulmus rubra*).

(OMNRF 2008)

Ephemeral Streams means stream – related watercourses that generally flow only during and for short periods following precipitation or snow melt and flow in low areas that may or may not have well-defined channels. Their stream bottoms are usually above the water table. Intermittent streams which are more or less predictable are distinguished from ephemeral streams, which contain water on a more or less unpredictable basis. (ORMCP Technical Paper 12)

Existing uses means uses legally established prior to the date that the Lake Simcoe Protection Plan came into force. Existing agricultural accessory building and structures including farm dwellings can expand on the same lot subject to the provisions of the municipal zoning by-law. (Greenbelt Plan)

Infrastructure means physical structures (facilities or corridors) that form the foundation for *development* or resources use. *Infrastructure* includes: *sewage* and water systems, sewage treatment systems, waste management systems, electrical power generation and transmission including *renewable energy systems*, communications/telecommunications, transit and transportation corridors and facilities, oil and gas pipelines and associated facilities, but does not include “community infrastructure” as defined by the Growth Plan for the Greater Golden Horseshoe, 2006. (Greenbelt Plan)

Lake Simcoe shoreline means the mark made by the action of water under natural conditions on the shore or bank of Lake Simcoe which action is so common and usual and so long continued that it has created a difference between the character of the vegetation or soil on one side of the mark and the character of the vegetation or soil on the other side of the mark. (LSPP 2009)

Mineral aggregate operations means:

- a) An operation, other than wayside pits and quarries, conducted under a license or permit under the Aggregate Resources Act, or successors thereto; and
- b) Associated facilities used in extraction, transport, beneficiation, processing or recycling of mineral aggregate resources and derived products such as asphalt and concrete, or the production of secondary related products. (Greenbelt Plan)

Plantation means a treed community in which the majority of *trees* have been planted or the majority of the *basal area* is in *trees* that have been planted, often characterized by regularly spaced rows. With time and forest management, natural regeneration can become established and eventually convert the community to natural forest. (OMNRF 2008).

Note: A plantation may also be managed for specific agricultural or fibre tree products on either a permanent or short-rotation basis without allowing conversion to more natural forest.

Ponds means bodies of water of shallow (generally < 2m deep), open water (< 25% of surface area covered by emergent vegetation) between > 0.5 ha and < 8 ha in size. For operational simplicity, polygons identified as open water on operations maps and unmapped bodies of open water (\leq 25% of surface area covered by emergent vegetation) encountered during natural heritage evaluations that are \geq 0.5 and < 8 ha in size are classified as ponds. –out of draft Stand and Site Guide for Forestry

Site alteration means activities such as filling, grading and excavation that would change the landform and natural vegetative characteristics of land, but does not include:

- a) the construction of facilities for transportation, *infrastructure* and utilities used by a public body;
- b) activities or works under the Drainage Act; or
- c) The carrying out of agricultural practices on land that was being used for *agricultural uses* on the date the Plan came into effect. (Greenbelt Plan)

Seepage Areas and Springs means sites of emergence of groundwater where the water table is present at the ground surface. **Seepage areas** are defined as areas where groundwater emerges from the ground over a diffuse area. **Springs** are defined as points of natural, concentrated discharge of groundwater. (ORMCP Technical Paper 12)

Stormwater management works means *sewage works* for which an approval is required under section 53 of the Ontario Water Resources Act and which is designed to manage stormwater.

Sewage works means any works for the collection, transmission, treatment, and disposal of *sewage* or any part of such works, but does not include plumbing to which the Building Code Act, 1992 applies. (OWRA)

Sewage includes drainage, stormwater, commercial wastes, and industrial wastes and other such matter or substance as is specified by regulations under the Ontario Water Resources Act. (OWRA)

Significant means:

- a) 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;

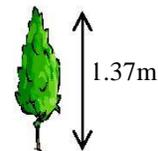
- b) In regard to the habitat of endangered species and, threatened species, means the habitat, as approved by the Ontario Ministry of Natural Resources and Forestry, that is necessary for the maintenance, survival, and/or the recovery of naturally occurring or reintroduced population of endangered species or, threatened species, and where those areas of occurrence are occupied or habitually occupied by the species during all or any part(s) of its life cycle;
- c) In regard to *woodlands*, an area which is ecologically important in term of features such as species composition, age of tress 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 (Greenbelt Plan); and
- d) In regard to *valleylands*, ecological important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system. The Province (Ministry of Natural Resources and Forestry) identifies criteria relating to the forgoing (Greenbelt Plan).

Spillways are defined as well defined channels created by the concentrated flow of large volumes of water associated with glacial action.

Top height means the average height of the 100 largest *trees* per hectare (Haddon 1988).

Trees are woody plants (stems) of species able to reach unassisted a height of at least 4.5 metres (Farrar 1995).

Trees regenerating in formerly non-treed fields should reach breast height (normally measured as close to 1.37 metres from the ground as reasonable) to be counted in order to show successful emergence from the field herbaceous layer and the new woodland community should have a *top height* of at least 2 metres.



Young plantation, for the purposes of Section 6.42-DP of the Lake Simcoe Protection Plan, means a *plantation* in which:

- a. there is less than 4 square metres of *basal area* per hectare in *trees* that are 25 centimetres or more in *diameter*, and
- b. if naturally occurring (not planted) *trees* in the *plantation* have become sufficiently established to constitute a *woodland* on their own, their coverage is not adequate by itself to raise the community out of the definition of “*early successional habitat*”.

(OMNRF 2008)

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Appendix A

Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2010 Significant Valleylands Features and Functions

Criteria	Comments	Standards
Landform-Related Functions and Attributes		
Surfacewater functions	<ul style="list-style-type: none"> • Valleylands are areas of water conveyance, attenuation, storage and release. • They are characterized by shifting patterns of erosion and deposition that result in short- and long-term cycles of change. • The intent of this criterion is to recognize the significance of the “water/sediment conveyance function¹” of watercourses. 	<ul style="list-style-type: none"> • areas of water conveyance from catchment areas of 50 ha or greater, as defined by a stream channel conveying or holding water for at least two months of the year, or as defined by floodlines or by the meander belt width • areas of active or historic erosion as characterized by exposed soils on shorelines, river banks, valley walls and instream islands • areas of active or historic deposition characterized by alluvial soils forming bottomlands, terraces, levees and instream or river-mouth deltas or islands • associated <i>wetlands</i> important to water attenuation, storage and release
Groundwater functions	<ul style="list-style-type: none"> • Valleylands may be characterized by areas of groundwater infiltration and areas where groundwater is released as springs, seepage slopes or as part of the maintenance of <i>wetlands</i> and the baseflow of streams or rivers. 	<ul style="list-style-type: none"> • Areas contributing to groundwater infiltration; areas that make an important contribution to infiltration in the region • Areas of groundwater release (i.e., springs, seepage slopes, <i>wetlands</i>)

¹ The measure and threshold may be associated with the volume of water/sediment transported and the ecological significance of the water/sediment contribution to the *valleyland*. The scientific literature does not provide a simple measure due to complex factors of terrain/slope, soil type, precipitation regime, groundwater level, vegetation cover, etc. that influence water/sediment conveyance for any one watercourse. The recommended standards are a starting point for the consideration of significance.

Criteria	Comments	Standards
Landform prominence	<ul style="list-style-type: none"> Large, well-defined valleylands are often significant landscape features essential to the character of an area. 	<ul style="list-style-type: none"> areas with well-defined valley morphology (e.g., floodplains, meander belts, valley slopes) having an average width of 25 m or more valleylands with boundaries defined on the basis of standard procedures such as those in the natural hazards technical guides
Distinctive geomorphic landforms	<ul style="list-style-type: none"> Action of water within valleylands can lead to the development of distinctive landforms within the landscape. 	<ul style="list-style-type: none"> distinctive landforms based on their representation of geomorphological processes and features, quality and rarity features such as oxbows, bottomlands, terraces, deltas, exposed soil strata or eroding slopes along riverbanks or valley walls
Ecological Features		
Degree of naturalness	<ul style="list-style-type: none"> Valleylands that are relatively undisturbed have greater natural heritage value than disturbed valleylands. Valleylands that have a high proportion of natural vegetation cover also help buffer waterbodies from the effects of agricultural land use and urban development. 	<ul style="list-style-type: none"> areas of contiguous <i>woodland</i>, <i>wetland</i> and/or meadow considered cumulatively the proportion of valleyland that has natural vegetation cover vs. a cultural use (e.g., golf course, landscaped parkland, agricultural field, urban area) <ul style="list-style-type: none"> - greater than 25% natural vegetation cover should be considered significant. proportion of valleyland that has natural riparian vegetation riparian vegetation greater than 30 m in width on each side of surfacewater features should be considered significant assessment of Floristic Quality Index (FQI) score (Oldham et al., 1995) <ul style="list-style-type: none"> - high FQI in the context of the local watershed should be considered significant
Community and species diversity	<ul style="list-style-type: none"> Valleylands are characterized by diverse topography, soils, exposure, and moisture regimes, etc., which result in landscapes of high community and species diversity. 	<ul style="list-style-type: none"> areas of high community and/or species diversity

Criteria	Comments	Standards
Unique communities and species	<ul style="list-style-type: none"> Valleylands are characterized by micro-environments that may provide conditions for unusual communities and species. Valleylands tend to have a greater proportion of natural areas than the surrounding landscape and as such protect rare communities and/or the habitat of rare species. 	<ul style="list-style-type: none"> seasonally important habitats such as deer yards, migration stopovers, etc high proportion of regionally and locally significant species rare communities or the habitat of rare species, based on federal or provincial guidelines
Habitat value	<ul style="list-style-type: none"> Natural areas within valleylands and healthy aquatic systems are more valuable to wildlife than disturbed valleylands. 	<ul style="list-style-type: none"> areas determined to provide important habitat required to sustain native aquatic and terrestrial species diversity within the region
Linkage function	<ul style="list-style-type: none"> Valleylands provide terrestrial and aquatic linkages within the watershed. Valleylands provide important corridors, allowing for the natural movement and dispersal of aquatic and terrestrial plants and animals. Maintaining linkages for plant and animal movement will help mitigate climate change impacts. 	<ul style="list-style-type: none"> the proportion of the valleyland with continuous natural vegetation corridors with a minimum width of 100 m areas with functional ecological connections to other natural areas within the watershed both inside and outside the valleylands areas that are determined to provide important wildlife corridors
Restored Ecological Functions		
Restoration potential and value	<ul style="list-style-type: none"> Valleylands that have been altered extensively and cannot be restored are less valuable than those that can be restored. Restoration of riparian vegetation should be considered, wherever possible, to provide a buffer for surrounding land, to provide natural linkage along valleylands and to enhance existing natural areas. 	<ul style="list-style-type: none"> where restoration will provide important ecological benefits such as linkage function, improvement of habitat for rare species, reduced fragmentation effects, and/or increased core natural areas should be considered significant. areas where restoration will provide a minimum 30 m corridor of riparian vegetation on each side of surfacewater features areas where the public is interested in assisting in the implementation of ecological restoration areas that are in public ownership and that would benefit from restoration areas where restoration would buffer existing natural areas from the effects of adjacent development

Appendix B

Mid to Late Successional or Site-restricted Tree Species

<p><i>Abies balsamea</i> - Balsam Fir <i>Acer nigrum</i> - Black Maple <i>Acer pensylvanicum</i> - Striped Maple <i>Acer rubrum</i> - Red Maple <i>Acer saccharinum</i> - Silver Maple <i>Acer saccharum</i> - Sugar Maple <i>Betula alleghaniensis</i> - Yellow Birch <i>Carpinus caroliniana</i> - Blue-beech <i>Carya cordiformis</i> - Bitternut Hickory <i>Carya ovata</i> - Shagbark Hickory <i>Celtis occidentalis</i> - Hackberry <i>Cephalanthus occidentalis</i> - Buttonbush <i>Fagus grandifolia</i> - Beech <i>Fraxinus nigra</i> - Black Ash <i>Juglans cinerea</i> - Butternut <i>Juglans nigra</i> - Black Walnut</p>	<p><i>Larix laricina</i> - Tamarack <i>Ostrya virginiana</i> - Hop-hornbeam <i>Picea glauca</i> - White Spruce <i>Picea mariana</i> - Black Spruce <i>Pinus resinosa</i> - Red Pine <i>Pinus strobus</i> - White Pine <i>Quercus alba</i> - White Oak <i>Quercus macrocarpa</i> - Bur Oak <i>Quercus rubra</i> - Red Oak <i>Sorbus americana</i> - American Mountain-ash <i>Sorbus decora</i> - Showy Mountain-ash <i>Staphylea trifolia</i> - Bladdernut <i>Tilia americana</i> - Basswood <i>Tsuga canadensis</i> - Hemlock <i>Ulmus thomasii</i> - Rock Elm</p>
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Notes:

This list was compiled by considering the characteristics of each species and excluding any species with a coefficient of conservatism of less than 3, according to Oldham et al. (1995). Species on this list have limited natural regeneration in old fields and natural cover abundance of many has declined due to incompatible land uses. This list does not include some species that are difficult to identify in the field (hawthorns, willows, serviceberries, plums) although it is acknowledged that some of these species may be rare. The list also does not include species that regenerate readily after a period of non-forest use (poplars, white birch, white ash, red ash, white-cedar, red-cedar, white elm, cherries, staghorn sumac) or certain small species (mountain maple, witch-hazel, alternate-leaved dogwood, nannyberry, speckled alder), or non-native species. Natural hybrids should be considered to be in the same category as their parent species. This list is subject to revision.