

OAK RIDGES MORaine CONSERVATION PLAN

Technical Paper Series

1 - Identification of Key Natural Heritage Features

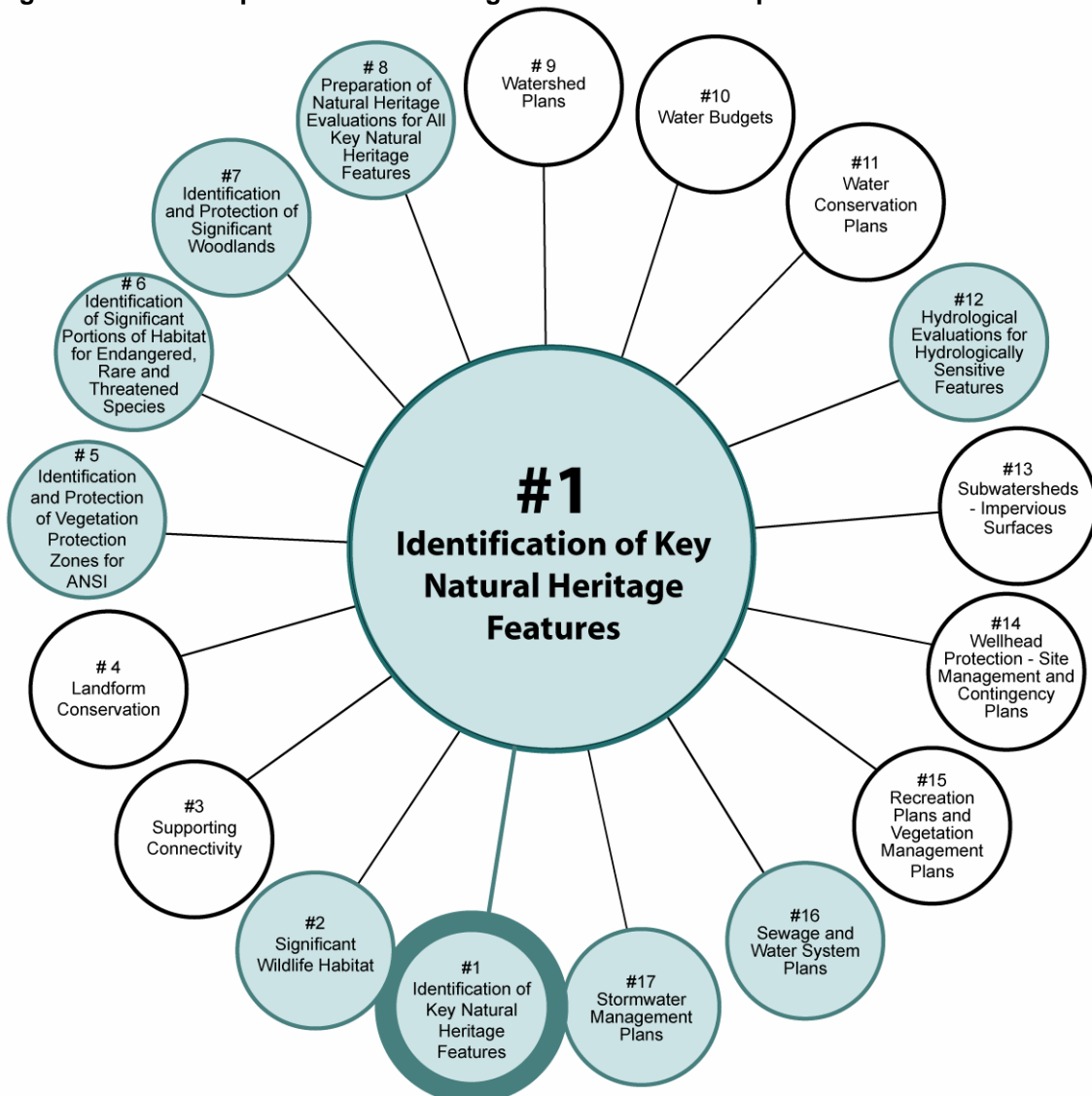
1 Purpose

To provide definitions and technical criteria to assist in the identification and delineation of key natural heritage features (KNHFs) as identified in the Oak Ridges Moraine Conservation Plan (ORMCP).

2 Related Considerations

It is suggested that the reader also review the associated topic areas as discussed in the ORMCP, shown highlighted in Figure 1 below.

Figure 1 ORMCP Topic Areas and Linkages with Technical Paper 1 - Identification of



3 Background

Section 22 of the ORMCP prohibits development and site alteration within KNHFs.

KNHFs consist of the following:

1. *Wetlands;*
2. *Significant portions of the habitat of endangered, rare and threatened species;*
3. *Fish habitat;*
4. *Areas of natural and scientific interest (life science);*
5. *Significant valleylands;*
6. *Significant woodlands;*
7. *Significant wildlife habitat; and*
8. *Sand barrens, savannahs and tallgrass prairies.*

In order to meet the requirements of Section 22 as well as other requirements of the Plan, the user must be able to identify and delineate the outer limits of these features.

Technical Paper 8 provides guidance for the preparation of a natural heritage evaluation.

4 Criteria for Identifying and Delineating Key Natural Heritage Features

4.1 Wetlands

In accordance with sections 22 and 26 of the ORMCP, wetlands are identified as both KNHFs and hydrologically sensitive features.

The ORMCP defines “wetland” as:

“... 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 Ministry of Natural Resources or by any other person, according to evaluation procedures established by the Ministry of Natural Resources, as amended from time to time.”*

Identified wetlands can include any wetlands identified through the following evaluation procedures:

- wetlands identified or confirmed by MNR in accordance with the Ontario Wetland Evaluation System (OWES) (MNR 2002);
- wetlands identified in mapping provided by the province; and

- wetlands identified in a natural heritage evaluation or a hydrological evaluation under sections 23(1) and 26(4) of the ORMCP. (Note: Either the OWES or Ecological Land Classification can be used to identify wetland communities).

Where the exact outer limit of a wetland is contested, the approval authority should require the procedures in the OWES be used to determine the outside boundary of the wetland.

For the purposes of applying the policies of the ORMCP, wetlands shall be considered to be:

- all wetlands regardless of size, evaluated as provincially significant in accordance with the OWES and accepted by MNR;
- all other identified wetlands 0.5 hectares or greater in size; and
- all other identified wetlands less than 0.5 hectares in size except where it can be demonstrated by a qualified person to the satisfaction of the approval authority that the wetland does not constitute or provide one or more of the following features or functions:
 - a wetland feature having 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 metres of mineral soil having a hydraulic conductivity of 10-4cm/s or more); or
 - direct hydraulic connections between the wetland and an underlying aquifer (e.g. along fracture zones or granular soil conduits);
 - a KNHF other than a wetland (e.g. significant wildlife habitat);
 - important ecological linkages to adjacent KNHFs or between two or more adjacent KNHFs; or
 - habitat for a diverse range of native plant and animal species with emphasis on moraine rare species.

In order to meet the requirements of Section 26 of the ORMCP, the above criteria can also be used for the purpose of identifying and delineating wetlands that are hydrologically sensitive features. Other hydrologically sensitive features include permanent and intermittent streams, lakes, seepage areas and springs. In many cases, these other hydrologically sensitive features may coincide with KNHFs, including wetlands.

A minimum 30 metre vegetation protection zone must be established next to all wetlands that meet the above criteria. An application for development or site alteration that is proposed on any land that is located within 120 metres of such wetlands, but beyond the minimum vegetation protection zone, must be accompanied by a natural heritage evaluation. This study, prepared in

accordance with Section 23 of the ORMCP, may require a larger vegetation protection zone or design restrictions.

4.2 Significant Portions of Habitat of Endangered, Rare and Threatened Species

According to the ORMCP, “habitat of endangered, rare and threatened species”:

- (a) *is an area where individuals of an endangered species, a rare species or a threatened species live or have the potential to live and find adequate amounts of food, water, shelter, and space needed to sustain their population, including an area where a species concentrates at a vulnerable point in its annual or life cycle and an area that is important to a migratory or non-migratory species; and*
- (b) *has been further identified, by the Ministry of Natural Resources or by any other person, according to evaluation procedures established by the Ministry of Natural Resources, as amended from time to time.”*

“Significant”, as defined in the ORMCP, *”means identified as significant by the Ministry of Natural Resources, using evaluation procedures established by that Ministry, as amended from time to time.”*

The significant portions of the habitat of endangered, rare and threatened species can be identified, mapped and determined by:

- identifying whether there are occurrences of endangered, rare and threatened species within or adjacent to the study area;
- if an occurrence of an endangered, rare and threatened species is found, contacting MNR to confirm the location of the occurrence, and to confirm whether detailed habitat mapping exists;
- if no detailed habitat mapping exists, contacting MNR for direction on how to determine and map significant portions of the habitat.

ORMCP Technical Paper 6 provides more detailed information on the plant and animal species that have been designated as endangered, rare and threatened on the Oak Ridges Moraine and the process for identifying “significant portions” of habitat.

A minimum vegetation protection zone must be established next to all significant portions of the habitat of endangered, rare and threatened species. The minimum vegetation protection zone is determined on a case-by-case basis through the completion of a natural heritage evaluation prepared in accordance with Section 23 of the ORMCP.

4.3 Fish Habitat

The ORMCP defines “fish habitat” as:

“... the spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out the life processes, as further identified by the Department of Fisheries and Oceans (Canada).”

The location of fish habitat can be determined by:

- mapping and/or information provided by MNR, or provided/approved by the Federal Department of Fisheries and Oceans (DFO) or a delegated authority of DFO (including Conservation Authorities); or
- where no detailed fish habitat mapping has been completed, all permanent or intermittent streams, kettle lakes, and all ponds other than off stream constructed ponds shall be deemed to be fish habitat unless it can be demonstrated to the satisfaction of the approval authority under the *Planning Act* that the feature does not constitute fish habitat as defined by the DFO.

Permanent or intermittent streams, wetlands, kettle lakes and seepage areas and springs may also be identified through the completion of hydrological evaluations for hydrologically sensitive features as required by the ORMCP.

Minimum vegetation protection zones must be established next to all Fish Habitat as follows:

- in the case of streams without well defined valley features, a minimum of 30 metres from the waterbody; or
- in the case of streams with well defined valley features, a minimum of 30 metres from the stable top of the valley wall, as defined by the conservation authority.

In addition, an application for development or site alteration that is proposed on any land that is located within 120 metres of fish habitat, but beyond the minimum vegetation protection zone, must be accompanied by a natural heritage evaluation. This study, prepared in accordance with Section 23 of the ORMCP, may require a larger vegetation protection zone or design restrictions.

4.4 Areas of Natural and Scientific Interest (ANSIs) - Life Science

The ORMCP defines “area of natural and scientific interest” (life science) as an area 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 using evaluation procedures established by that Ministry, as amended from time to time.”

MNR is responsible for identifying life science Areas of Natural and Scientific Interest (ANSIs) and the Ministry provides available mapping of these features to municipalities.

The best representative sites which do not occur within provincial parks or other protected areas are considered to be provincially significant ANSIs. Other sites that also provide good representation may be identified as regionally significant ANSIs.

The following five factors are used to evaluate potential ANSIs:

1. representation of landform-vegetation features of an ecodistrict;

2. condition, which considers existing and past land uses as a means of assessing the degree of human-induced disturbance;
3. diversity, which assesses the number of high quality, representative features that exist within a site;
4. other ecological considerations, particularly those related to hydrological function and connectivity (linkages with other natural areas), size, shape, proximity to other important areas, etc.; and
5. special features, which includes populations of provincially rare species, rare or localized habitat features, unusual geological features, and educational or scientific value.

Life science ANSIs are 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. They contain relatively undisturbed vegetation and landforms, and their associated species and communities. Life science ANSIs include the most significant and best examples of the natural heritage features in the province and they may correspond with other KNHFs such as wetlands, significant valleylands and significant woodlands.

The selection and evaluation of life science ANSIs has taken its direction from A Framework for the Conservation of Ontario's Biological Heritage (Beechey, 1980) (also known as the Life Science Framework) and updates (e.g. Crins and Kor, 2000). The framework adopts a hierarchical approach for organizing ecological diversity that recognizes ecoregions and ecodistricts as the major ecological divisions in Ontario. Within a particular ecodistrict, finer-scale ecological units are used to determine the features and areas that should be represented (e.g., landforms, vegetation communities, etc.).

Minimum vegetation protection zones must be established next to life science ANSIs on a case-by-case basis through the preparation of a natural heritage evaluation in accordance with Section 23 of the ORMCP. ORMCP Technical Paper 5 provides additional guidance on establishing minimum vegetation protection zones and delineating the boundaries of life science ANSIs.

4.5 Significant Valleylands

The ORMCP defines “valleyland” as:

“...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”, as defined in the ORMCP, “means identified as significant by the Ministry of Natural Resources, using evaluation procedures established by that Ministry, as amended from time to time.”

Significant valleylands consist of streams, valleys and associated stream-derived features (i.e. floodplains, valley slopes, meander belts) of either glacial or post glacial origin. These features function as or have the potential to function as:

- passageways for water demonstrating the presence of flowing or standing water for a significant portion of time in an average year including intermittent flow (e.g. spring runoff) but not including presence of water associated with a single storm event;
- significant wildlife movement corridors within the ORM or between the ORM and adjacent natural features;
- significant riparian wildlife habitat; and
- natural buffers between adjacent land uses and hydrological features either within or downstream of the significant valleylands.

Significant valleylands include:

- all streams with well defined valley morphology (i.e. floodplains, meander belts and valley slopes) having an average width of 25 m or more;
- 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 greater than 50 metres in length; 25 metres in average width with a well defined morphology (i.e. two valley walls of 15% slope or greater with a minimum height of 5 metres, and valley floor), and having an overall area of 0.5 ha or greater; and
- additional features identified by the approval authority, that are consistent with one or more of the functions described above.

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

Minimum vegetation protection zones must be established next to all significant valleylands, and include all lands located within 30 metres of the stable top of bank.

An application for development or site alteration that is proposed on any land that is located within 120 metres of significant valleylands, but beyond the minimum vegetation protection zone, must be accompanied by a natural heritage evaluation. This study, prepared in accordance with Section 23 of the ORMCP, may require a larger vegetation protection zone or design restrictions.

Significant valleylands and associated minimum vegetation protection zones will not generally be mapped by MNR or municipalities, but must be identified by the applicant and confirmed by the approval authority during the review of major development applications and mineral aggregate applications.

4.6 Significant Woodlands

The ORMCP defines “woodlands” as:

“... 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.”

“Significant”, as defined in the ORMCP “*means identified as significant by the Ministry of Natural Resources, using evaluation procedures established by that Ministry, as amended from time to time.*”

Significant woodlands shall include:

For the purposes of applying the policies of the ORMCP, significant woodlands shall mean woodlands that have either:

- (a) a *tree* crown cover of over 60% of the ground, determinable from aerial photography (“forest” of Lee et al. 1998); or
- (b) a *tree* crown cover of over 10% of the ground, determinable from aerial photography (“treed community” of Lee et al. 1998), together with on-ground stem estimates of:
 - 1,000 *trees* of any size per hectare, 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 the *Forestry Act of Ontario, 1998*)

Treed portions with less than the required stocking level will be considered part of the woodland as long as the combination of all treed units in the overall connected treed area meets the required stocking level. 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.

And, which have a minimum average width of 40 metres or more measured to crown edges.

And, which are:

- (c) 4 hectares or larger in size located in the Countryside or Settlement Areas of the ORMCP; or
- (d) 0.5 hectare or larger in size located in the Natural Core or Natural Linkage Areas of the ORMCP; or
- (e) 0.5 hectare or larger located within or intersecting with a key natural heritage feature or hydrologically sensitive feature or their vegetation protection zones.

Notwithstanding the above, certain types of woodlands are excluded from “significant woodlands” regardless of size (see ORMCP Technical Paper 7 – for more details)

MNR has prepared mapping to assist in the identification of significant woodlands that can be identified on the basis of size or spatial criteria. Notwithstanding this, additional significant woodlands may be identified by the planning authority or proponent in a natural heritage evaluation.

A minimum vegetation protection zone, encompassing all land within 30 metres from the base of the outmost tree trunks, shall be established next to all significant woodlands.

An application for development or site alteration that is proposed on any land that is located within 120 metres of significant woodlands, but beyond the minimum vegetation protection zone, must be accompanied by a natural heritage evaluation. This study, prepared in accordance with Section 23 of the ORMCP, may require a larger vegetation protection zone or design restrictions.

ORMCP Technical Paper 7 provides more detailed information on the delineation of woodland polygons and the identification of “young plantations” and “early successional habitat” where mineral aggregate operations or wayside pits may potentially be approved in accordance with Section 35(4) of the ORMCP.

4.7 Significant Wildlife Habitat

The ORMCP defines “wildlife habitat” as:

- (a) is an area where plants, animals and other organisms live or have the potential to live and find adequate amounts of food, water, shelter and space to sustain their population, including an area where a species concentrates at a vulnerable point in its annual or life cycle and an area that is important to a migratory or non-migratory species, and*
- (b) has been further identified by the Ministry of Natural Resources or by any other person, according to evaluation procedures established by the Ministry of Natural Resources, as amended from time to time.”*

“Significant”, as defined in the ORMCP, “means identified as significant by the Ministry of Natural Resources, using evaluation procedures established by that Ministry, as amended from time to time.”

The location of significant wildlife habitat can be determined by:

- mapping and information provided by MNR, or
- where no MNR mapping or information has been prepared, significant wildlife habitats identified through the procedures outlined in “Significant Wildlife Habitat – ORMCP Technical Paper 2.

Vegetation Protection Zones must be established next to all significant wildlife habitat identified in accordance with the procedures outlined in ORMCP Technical Paper 2. The minimum vegetation protection zone is determined on a case-by-case basis through the completion of a natural heritage evaluation prepared in accordance with Section 23 of the ORMCP.

4.8 Sand Barrens, Savannahs and Tallgrass Prairies

The ORMCP defines “sand barrens” as:

“...land (not including land that is being used for agricultural purposes and 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 or by any other person, according to evaluation procedures established by the Ministry of Natural Resources, as amended from time to time.”*

The OMCP defines “savannahs” as:

“... land (not including land that is being used for agricultural purposes and 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 or by any other person, according to evaluation procedures established by the Ministry of Natural Resources, as amended from time to time.”*

The ORMCP defines “tallgrass prairie” as:

“... land (not including land that is being used for agricultural purposes and 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 Ministry of Natural Resources or by any other person, according to evaluation procedures established by the Ministry of Natural Resources, as amended from time to time.”*

The sand barrens, savannahs and tallgrass prairies, as defined in the ORMCP are comprised of the sand barrens and tallgrass prairies, savannahs and Woodland Community Class Units of the Ecological Land Classification System (Lee et al 1998).

The location of sand barrens, savannah and tallgrass prairies, can be determined by:

- mapping and information provided by MNR, or

- where no MNR mapping or information has been prepared, areas identified using the Ecological Land Classification for Southern Ontario (Lee et al, 1998).

A minimum 30 metre vegetation protection zone must be established next to all sand barrens, savannahs and tallgrass prairies. An application for development or site alteration that is proposed on any land that is located within 120 metres of such wetlands, but beyond the minimum vegetation protection zone, must be accompanied by a natural heritage evaluation. This study, prepared in accordance with Section 23 of the ORMCP, may require a larger vegetation protection zone or design restrictions.

5 Review of the Boundaries of Key Natural Heritage Features

The boundaries of KNHFs may be fine-tuned by an approval authority based on new or more detailed information provided:

- such reassessment is based on the criteria and definitions provided in this technical paper;
- in wetlands, (evaluated under the Ontario Wetland Evaluation System (MNR 2002), ANSIs - Life Science and significant portions of habitat of endangered, rare and threatened species, the findings of the new information are confirmed by the MNR District Manager.
- in the case of fish habitat the findings of the new information are provided by MNR, or provided/approved by DFO or a delegated authority of DFO, as appropriate.

A change in the status or location of a KNHF cannot be used as a basis or justification for changing boundaries of land use designations as defined in Section 10 of the ORMCP.

6 Roles and Responsibilities in the Implementation of Technical Papers

The approval authorities are responsible for the application and interpretation for the technical papers produced by the Province as they apply to planning and development applications. This includes the review and approval of any information submitted by the applicant.

Approval and confirmation by any other agency (i.e. MNR, DFO, Conservation Authorities) is only required where specifically identified as a requirement of the technical papers.

For the purposes of these technical papers, the 'approval authority' shall be the responsible municipal approval authority under the *Planning Act* unless otherwise stated in the documents.

7 References

- Beechey, T.J. 1980.
A Framework for the Conservation of Ontario's Biological Heritage, Parks and Recreational Branch, MNR, Peterborough, Ontario
- Crins, W.J. and P.S.G. Kor. 2000.
Natural Heritage Gap Analysis Methodologies Used by the Ontario Ministry of Natural Resources. Version 2.0. Ontario Parks Open File Natural Heritage Technical Report 2000-1. MNR, Peterborough.
- Lee, H. et al. 1998.
Ecological Land Classification and its Application in Southern Ontario, SCSS Field Centre FG-02, Ontario Ministry of Natural Resources
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Ontario Wetland Evaluation System, Southern Manual, Third Edition, MNR, Peterborough, Ontario
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