

OAK RIDGES MORaine CONSERVATION PLAN

Technical Paper Series

7 - Identification and Protection of Significant Woodlands

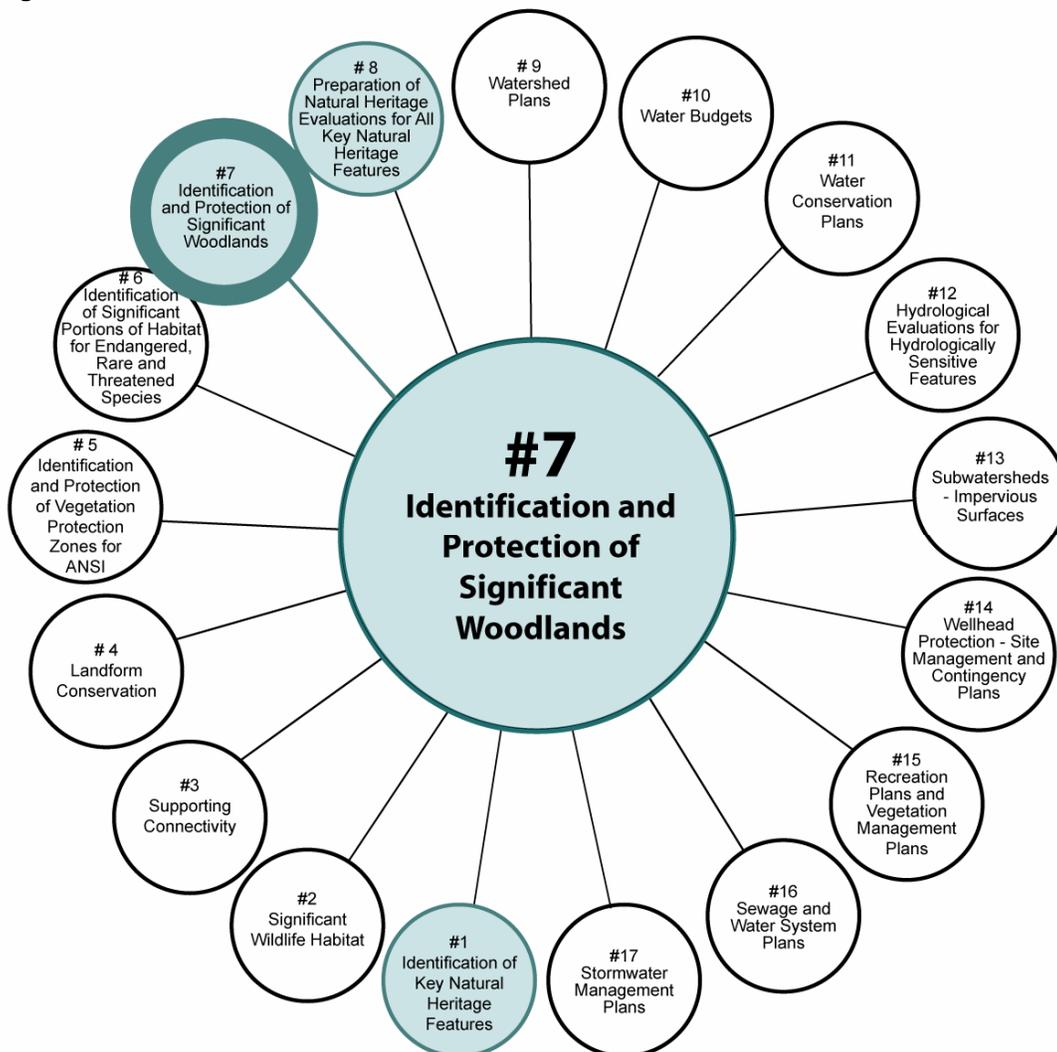
1 Purpose

The purpose of this paper is to provide technical assistance in the identification, delineation and protection of significant woodlands as described 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 7 - Identification and Protection of Significant Woodlands



3 Background

The following sections of the ORMCP provide direction:

Section 22 of the ORMCP describes significant woodlands as one of eight categories of key natural heritage features that must be protected from development or site alteration.

More specifically, Section 22(2) of the ORMCP requires that:

"All development and site alteration with respect to land within a key natural heritage feature" (i.e. significant woodlands) "or the related minimum vegetation protection zone is prohibited, except for the following:

1. *Forest, fish and wildlife management.*
2. *Conservation and flood or erosion control projects, but only if they have been demonstrated to be necessary in the public interest after all alternatives have been considered.*
3. *Transportation, infrastructure, and utilities as described in section 41, but only if the need for the project has been demonstrated and there is no reasonable alternative.*
4. *Low-intensity recreational uses as described in section 37."*

The Table on page 58 of the ORMCP specifies the minimum vegetation protection zone for significant woodlands to be *"all land within 30 metres of the base of outermost tree trunks within the woodland subject to clause 23(1)(d) if a natural heritage evaluation is required."* Lands within this zone are generally subject to the same development and site alteration prohibitions as the feature itself.

An application for development or site alteration on lands within 120 metres from the significant woodlands must be accompanied by a natural heritage evaluation as described under sections 22 and 23 of the ORMCP. This evaluation may identify the need for additional limitations beyond those specified in the ORMCP.

The ORMCP defines additional terms that are pertinent to a proper understanding of the ORMCP as it relates to significant woodlands including:

"woodland" means 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;" and

"significant" means identified as significant by the Ministry of Natural Resources, using evaluation procedures established by that Ministry, as amended from time to time."

Section 35 (4) of the ORMCP provides that *"an application for a mineral aggregate operation or wayside pit with respect to land in a key natural heritage feature may be approved if,*

- (a) *the key natural heritage feature is occupied by young plantations or early successional habitat; and*
- (b) *the applicant demonstrates that,*
 - i. *the long-term ecological integrity of the Plan Area will be maintained, or where possible improved or restored,*

- ii. *the extraction of mineral aggregates from the area within the key natural heritage feature will be completed, and the area will be rehabilitated, as early as possible in the life of the operation, and*
- iii. *the area from which mineral aggregates are extracted will be rehabilitated by establishing or restoring natural self-sustaining vegetation of equal or greater ecological value.”*

4 Definitions

“*Basal area*” means the cross-sectional area of tree stems at breast height and can be determined in a woodland by sampling with a wedge prism or representative fixed-area plots. (For visualization, one square metre of *basal area* represents 127 *trees* 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*).

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

“*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.

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

“*Trees*” are defined as woody plants (stems) of species able to reach unassisted a height of 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.

5 Significant Woodlands

Identification of Significant Woodlands

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 zone.

Exceptions

Notwithstanding the above, significant woodlands do not include:

- a plantation managed for production of fruits, nuts, Christmas *trees* or nursery stock; or
- a plantation managed for *tree* products with an average rotation of less than 20 years (e.g. hybrid poplar or willow); or
- 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, 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.

Significant Woodlands with Non-Renewable Resources

As noted in Section 3 of this paper, the ORMCP allows that aggregate extraction within a key natural heritage feature may be approved if the key natural heritage feature is occupied by "young plantations or early successional habitat", subject to conditions and approvals. For the purposes of the ORMCP area, this section provides criteria for determining whether woodlands qualify as "young plantations" or "early successional habitat".

"Young plantations" shall mean plantations 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) naturally occurring (not planted) trees in the plantation have become sufficiently established to constitute a woodland on their own, but their stocking is not adequate by itself to raise the community out of the definition of “early successional habitat”.

“Early successional habitat” means a previously non-wooded, currently regenerating area in which if naturally occurring trees constitute a woodland and:

- (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 1; 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 1 of this technical paper plus white ash (*Fraxinus americana*), black cherry (*Prunus serotina*), white-cedar (*Thuja occidentalis*), white elm (*Ulmus americana*) or red elm (*Ulmus rubra*).

Effect of Tree Removal on the Status of Significant Woodlands

Except where permanent removal is permitted in accordance with the ORMCP, a woodland considered significant on or after November 17, 2001 should continue to be identified and managed as a key natural heritage feature in accordance with the policies of the ORMCP even if *trees* are removed or destroyed due to human or natural causes. Such removal, including accommodation of mineral aggregate extraction in accordance with Section 35(4) of the ORMCP, shall not constitute a reduction in size or outer boundaries of the significant woodland for land use planning purposes. Areas of tree removal will be returned to a natural vegetated state in accordance to the policies of the ORMCP.

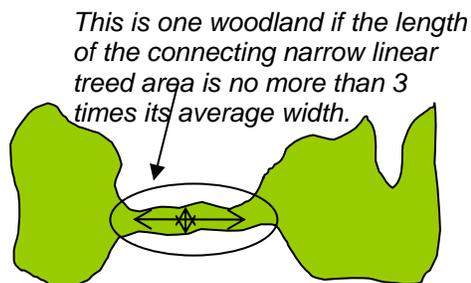
Table 1 Mid to Late Successional or Site-Restricted Tree Species

<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>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>Quercus velutina</i> - Black Oak <i>Sorbus americana</i> - American Mountain-ash <i>Tilia americana</i> - Basswood <i>Tsuga canadensis</i> - Hemlock <i>Ulmus thomasi</i> - Rock Elm</p>
<p>Notes:</p> <p>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 many (not all) have 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.</p>	

6 Details to Assist in Applying the Criteria

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

Where two larger treed areas (40 metres or more wide) are physically connected by a narrow linear treed area (less than 40 metres wide) with any open breaks being 20 metres or less wide, 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.



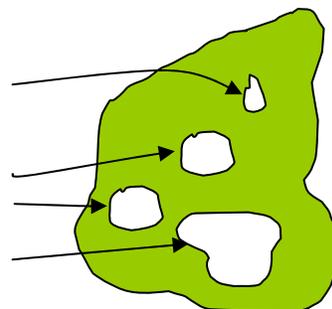
For Example: If the average width of the connecting linear treed area is 10 metres, then the maximum length of the connecting treed area must be no more than 30 metres (10X3) for all these treed areas to be considered as one woodland. If the connecting treed area is longer than 30 metres, the treed areas will be considered to be separate features.

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 undeveloped 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.

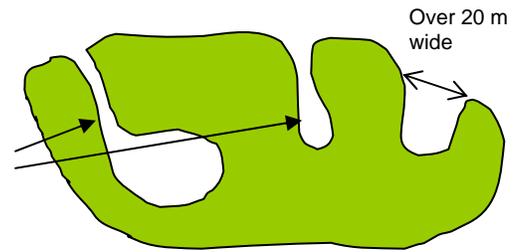
For Example: Inside the woodland boundary there may be many openings. Those that are 20 metres or less in width (and not developed) are all included in the measured woodland area. Other openings that are more than 20 metres in width but still less than 0.5 ha in size are also included in the total woodland 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.



Are indents into Woodlands considered part of the woodland?

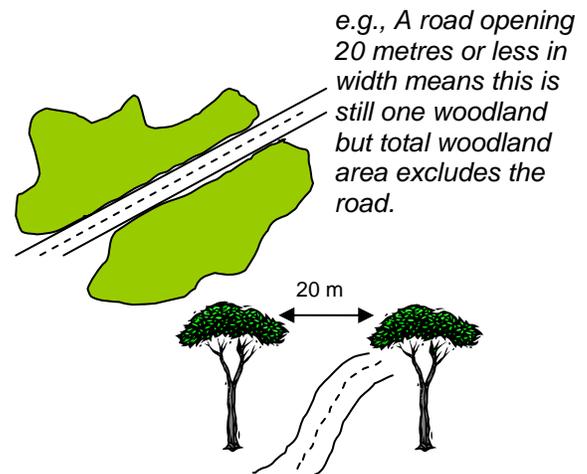
Indents that are more than 20 metres wide will remain as indents. Indents that are 20 metres or less wide will be considered part of the woodland.

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?

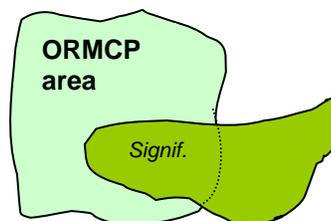
An opening more than 20 metres wide that bisects a woodland would be considered to create two separate woodlands. A bisecting opening 20 metres or less in width would not be considered to separate a woodland into two woodlands. However, the developed portion (e.g., public road or active rail line) of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



e.g., 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.

Woodlands on the border of the ORMCP area

Where a portion of a woodland lies outside the ORMCP area, the whole woodland shall be measured in the area calculations for determining significance of the portion within the ORMCP. Note: Other natural features outside the ORMCP area in proximity to the woodland do not affect its evaluation for significance.



e.g., Area of woodland within ORMCP area is 2 ha while area outside is 3 ha. Since the total woodland area meets the minimum 4 ha criterion, the portion inside the ORMCP area (2 ha) is considered significant. The portion outside may or may not be considered significant depending on the policies in that area.

7 References

- Farrar, J.L. 1995.
Trees in Canada. Fitzhenry & Whiteside Limited and the Canadian Forest Service, Natural Resources Canada. 502 pp.
- Haddon, B.D. (ed.) 1988.
Forest Inventory Terms in Canada. Petawawa National Forestry Institute, Canadian Forest Service.
- Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray. 1998.
Ecological Land Classification for Southern Ontario: First Approximation and Its Application. Ontario Ministry of Natural Resources, Southcentral Science Section Field Guide FG-02. 225 pp.
- Oldham, M.J., W.D. Bakowsky and D.A. Sutherland. 1995.
Floristic Quality Assessment System for Southern Ontario. Ontario Ministry of Natural Resources, Natural Heritage Information Centre. 69 pp.
- Ontario. 1998.
Forestry Act. R.S.O. 1990, c. F.26, as amended.
- Ontario. 2002.
Oak Ridges Moraine Conservation Act, 2001, Ontario Regulation 140/02, Oak Ridges Moraine Conservation Plan.