

Part of the Monitoring the Moraine Project Resource Series

Citizens' Guide to the Oak Ridges Moraine



The Monitoring the Moraine Project is a collaboration between EcoSpark (formerly Citizens' Environment Watch) and Save The Oak Ridges Moraine (STORM) Coalition.

Citizens' Guide to the Oak Ridges Moraine

Acknowledgements

The Monitoring the Moraine Project Partners would like to acknowledge the following people and organizations for their contribution to this Guide:

James Wright for his help with the initial draft of this Guide.

Kim Gavine and Lisa Turnbull from the Oak Ridges Moraine Foundation for permission to reproduce materials from the Foundation's website.

Diane Tolstoy and Dorothy Izzard for their valuable comments to this Guide.

Unless stated otherwise, photos courtesy of the 2007 and 2008 Moraine in Focus Photo Contest.

Photo Credits: Front Cover (clockwise from top left) - Larry Keeley, Jonathan van Bilsen, Jodi DeJong and Jason Kalmbach. Back Cover - Dianne Soehner.

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This Guide would not be possible without support of the Oak Ridges Moraine Foundation, the George Cedric Metcalf Charitable Foundation, the Ontario Trillium Foundation and the YMCA Eco Internship Program.



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List of Acronyms

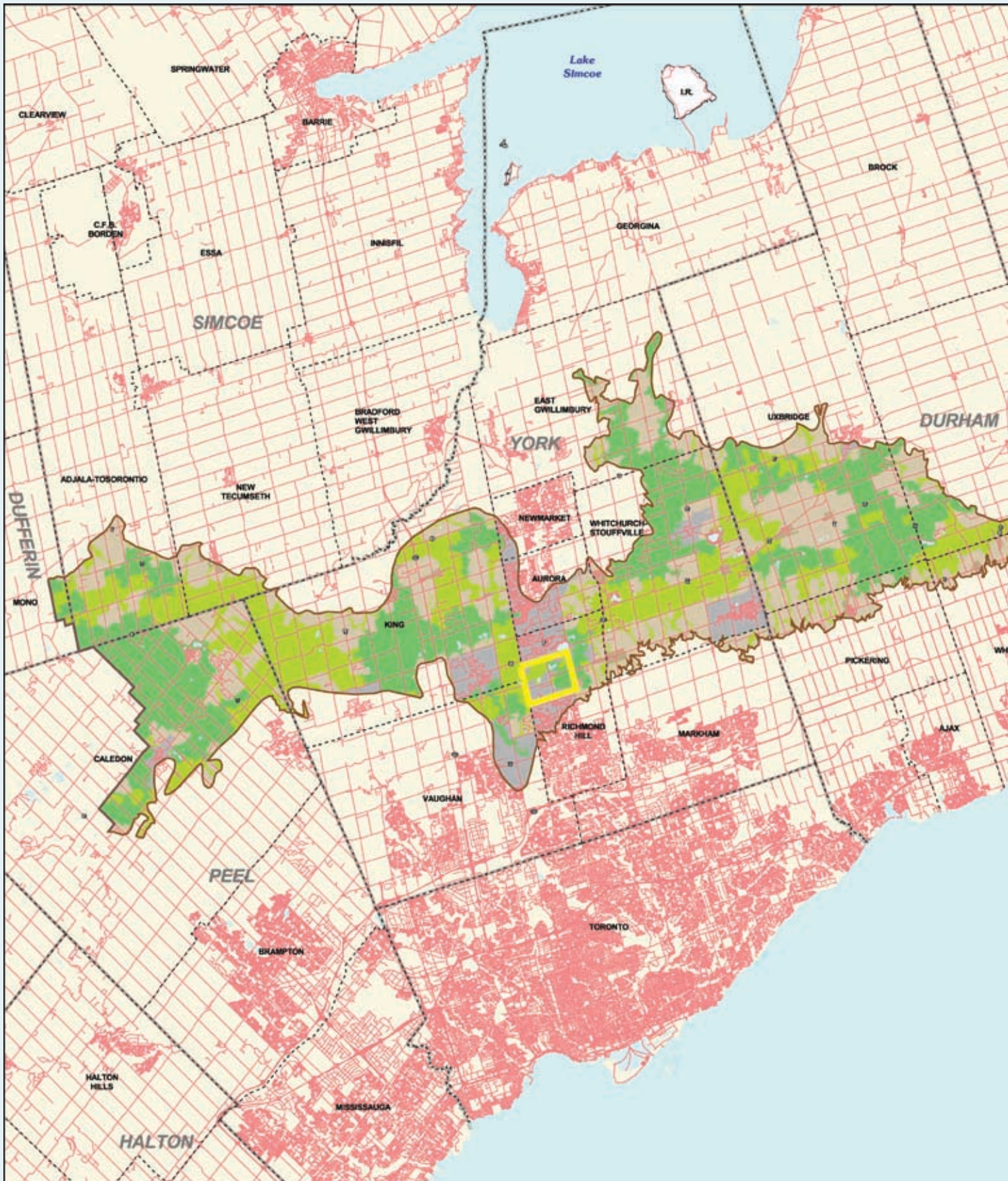
ANSI	Area of Natural and Scientific Interest	GTA	Greater Toronto Area	OMB	Ontario Municipal Board
CA	Countryside Areas	HSF	Hydrologically Sensitive Features	OP	Official Plan
CAMC	Conservation Authorities Moraine Coalition	KNHF	Key Natural Heritage Features	ORMCA	Oak Ridges Moraine Conservation Act
CEW	Citizens' Environment Watch	MMAH	Ministry of Municipal Affairs and Housing	ORMCP	Oak Ridges Moraine Conservation Plan
ENGO	Environmental Non-Governmental Organization	MOE	Ministry of the Environment	ORMF	Oak Ridges Moraine Foundation
ESA	Environmentally Significant Area	MNR	Ministry of Natural Resources	OWRA	Ontario Water Resources Act
GBP	Greenbelt Plan	MTM	Monitoring the Moraine	SARA	Species At Risk Act
		NEP	Niagara Escarpment Plan	STORM	Save The Oak Ridges Moraine Coalition



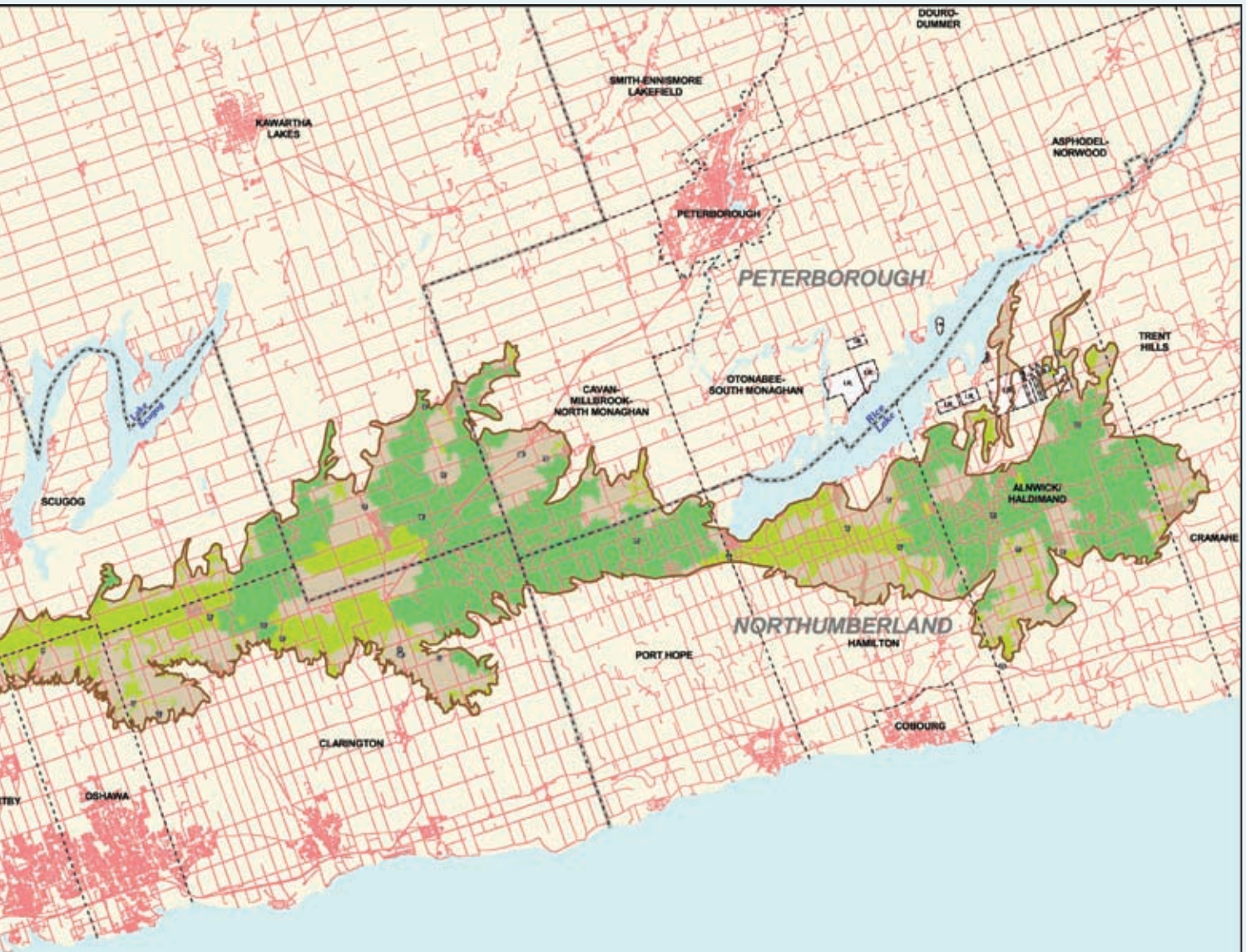
Photo taken by Kim Lowes on the Oak Ridges Moraine

Key Features of the Oak Ridges Moraine

- Formed approximately 12,000 years ago through glaciation
- Stretches 160 km from the Niagara Escarpment to the Trent River System and its average width is about 13 km
- “Rain Barrel” of southern Ontario: sustains 65 river and stream systems and provides drinking water to over 250,000 people
- Contains many unique ecological features, for example, streams, kettle lakes, wetlands, woodlands, grasslands - many of which are part of Environmentally Significant Areas (ESAs) and Areas of Natural and Scientific Interest (ANSIs)
- Provides habitat for a high diversity of plants and animals: 1,033 plant species, 118 breeding bird species, 26 reptile and amphibian species, 38 mammal species, and 55 fish species
- Home to many species that are endangered, threatened and of special concern
- Oak Ridges Moraine Conservation Plan Area covers 190,000 ha
- About 90% of the Oak Ridges Moraine is privately owned
- Oak Ridges Moraine Conservation Plan will be reviewed in 2015, along with the Greenbelt and Niagara Escarpment Plans



THE OAK RIDGES MORaine



Lake Ontario

 RICHMOND HILL LANDS

Legend

-  Oak Ridges Moraine Conservation Plan Area
 - Boundary of Oak Ridges Moraine Conservation Plan Area Ontario Regulation 140/02
 - Boundary of Oak Ridges Moraine Area Ontario Regulation 01/02
-  Natural Core Area
-  Natural Linkage Area
-  Countryside Area
-  Rural Settlement (a component of Countryside Area)
-  Palgrave Estates Residential Community (a component of Countryside Area)
-  Settlement Area
-  Upper-Tier Municipal Boundary
-  Lower-Tier Municipal Boundary
-  Indian Reserve
-  Niagara Escarpment Plan Boundary
-  Road or Highway
-  Lake



Note

The information displayed on this map has been compiled from various sources. While every effort has been made to accurately depict the information, this map should not be relied on as being a precise indicator of locations of features or roads nor as a guide to navigation.

Settlement boundaries reflect information provided by the relevant municipality. For more information on the precise boundaries of Settlement Areas and Rural Settlements, the appropriate municipality should be consulted.

This reduction of the map is for illustrative purposes only.

Source of Information

Information provided by the Ministry of Natural Resources district offices in Aurora, Peterborough, and Midhurst, the Ministry of Municipal Affairs and Housing, and ©2002 DMFI Spatial, Inc.

Base information derived from the Ontario Base Map 1983, scale 1:10,000, Peterborough, Ontario.

Approximate Scale 1:100,000

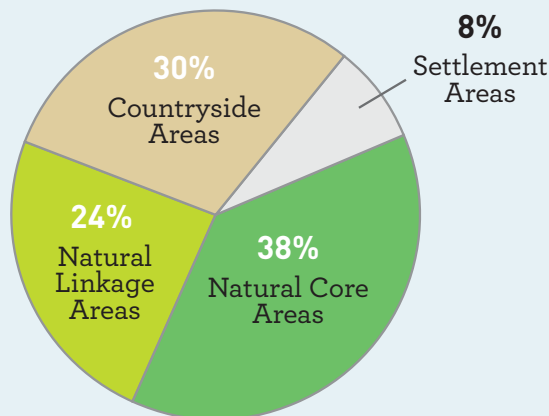
North American Datum 1983
 Universal Transverse Mercator
 (6 degree) projection, Zone 17

Publication
 © Queen's Printer for Ontario
 Printed in Ontario, Canada
 April 17, 2002



Key Features of the Oak Ridges Moraine Conservation Plan

- Regulated under the Oak Ridges Moraine Conservation Act
- Ecologically based provincial land use plan
- Applies only to new planning applications for changes in land and resource use
 - The ORMCP does not apply to 'grandfathered' applications
 - Only some sections of the ORMCP apply to 'transition' applications
- Implemented by the 32 municipalities through official plan policies and zoning by-laws amended to conform to the ORMCP
- Moraine divided into four land use designations with permitted uses



- 92% of Moraine off-limits to new urban development
- New urban development directed to 8% of Settlement Areas
- Settlement Area boundaries fixed up to 2015
- Does not regulate water-taking

PART 1:

Introduction



Photo taken by Kim Lowes on the Oak Ridges Moraine

It is difficult to sum up the Oak Ridges Moraine with just a single image or description. The Moraine means different things to different people. To some it is a place of peace and relaxation while for others it represents opportunities for growth and development. Some value the Moraine for what lies below the ground and others for what grows on its surface. The Moraine provides land to farm, a place to play, and space to make a home and successful business. It is a place to appreciate, restore and protect.

Often news about the Oak Ridges Moraine is charged with polarizing issues and opinions. But what is the Oak Ridges Moraine plainly and simply? What is this landform and why are people either so passionate about it, arguing about it, fighting for it or indifferent to it, all at the same time?

THE PURPOSE OF THIS GUIDE

The purpose of this Citizens' Guide is to provide a starting point for people to more fully engage with the Oak Ridges Moraine. This resource covers the basic ins and outs: the Moraine's geology, land, water, plants, animals, people, policies and stewardship activities. It provides background information about why the Moraine needs to be protected and the efforts to achieve long-term ecological and hydrological integrity.



The Monitoring the Moraine (MTM) Project Partners strongly believe in a model of shared responsibility for the Moraine. We recognize the value of local knowledge and the role that citizens must play in preserving our shared environment. In anticipation of the Oak Ridges Moraine Conservation Plan (ORMCP) Review in 2015, we are working to ensure that communities on and downstream of the Moraine are engaged, knowledgeable and mobilized to participate fully in defending and protecting the Oak Ridges Moraine.

We have the benefit of drawing upon 20 years of active community volunteerism in the protection of the Oak Ridges Moraine. Although the range of activities run the gamut from land use activism to trail building, policy monitoring to land securement and tree planting, there is one common thread – once you start to understand and learn more about the Moraine, you begin to appreciate it in a whole new way. We hope this guide starts you on that path.

THE MONITORING THE MORaine RESOURCE SERIES

This Guide is part of a series of resources created by the Monitoring the Moraine Project Partners. Other resources in this series include:

- *Community Guide to Monitoring on the Moraine:* A resource for groups who want to self-organize and strategically plan their Moraine monitoring activities to achieve local impact
- *Moraine Watch:* A guide to monitoring municipal land use planning on the Oak Ridges Moraine
- These resources are available on the Monitoring the Moraine website. Please visit: www.ecospark.ca/monitoringtheMoraine.

ABOUT THE MONITORING THE MORaine PROJECT



The Monitoring the Moraine (MTM) Project is building and sustaining a movement of engaged communities who can contribute to the long-term protection of the Oak Ridges Moraine. We work with volunteers in ecological and

policy monitoring to measure changes to the Moraine landscape and to determine the effectiveness of the Oak Ridges Moraine Conservation Plan.

Our project objectives are:

- To increase awareness and understanding of the Oak Ridges Moraine
- To work with stakeholders to gather relevant information about the Oak Ridges Moraine
- To work towards a process where all Moraine stakeholders take responsibility in its safekeeping

The MTM Project is a collaborative between EcoSpark and Save the Oak Ridges Moraine (STORM) Coalition. In 2010, we celebrate our five year anniversary.

For more information on the Monitoring the Moraine Project:

VISIT www.ecospark.ca/monitoringthemoraine

EMAIL info@monitoringthemoraine.ca

CALL 647-258-3280

MONITORING THE MORaine PROJECT PARTNERS



EcoSpark (formerly Citizens' Environment Watch)

empowers people to take an active role in protecting and sustaining nature. We give people the tools for education, monitoring, and influencing positive change. Together we create a healthy environment for all.

www.ecospark.ca



Save The Oak Ridges Moraine

Save The Oak Ridges Moraine

(STORM) Coalition works to ensure that land use planning respects the ecological and

hydrological significance of the Moraine. Since 1989, STORM has accumulated policy and planning experience, and developed a network of local and regional contacts that were critical to the campaign that legislatively saved the Oak Ridges Moraine.

www.stormcoalition.org

PART 2:

The Oak Ridges Moraine



Photo taken by Isabel Veldhuis on the Oak Ridges Moraine

WHAT IS THE MORaine AND HOW WAS IT CREATED?

A moraine is a geological term that refers to “a mound or ridge of unstratified glacial drift, chiefly till, deposited by direct action of glacier ice”.¹ The Oak Ridges Moraine is a unique type called an interlobate moraine.

There are many moraines in Ontario; however, the largest is the Oak Ridges Moraine. Its size, significance and proximity to Canada’s largest city-region were all factors in the decision by the provincial government to enact special legislation for the Oak Ridges Moraine. Some of the larger moraines in southern Ontario are shown in Figure 1.

How the Moraine Was Created

There are different types of moraines, depending on how they were formed. The Oak Ridges Moraine is an interlobate moraine because it was created between two lobes of receding ice (Figure 2a). These ice lobes were once part of the same ice sheet that split into the Simcoe ice lobe to the north and the Ontario ice lobe to the south. This split eventually widened and became a large glacial lake into which huge quantities of sand, gravel, clay, silt, rocks and boulders were deposited. When the glaciers and meltwater receded, this long ridge of debris was left which formed the core of the Moraine (Figure 2b).

¹ Dictionary of Geological Terms. Prepared by the American Geological Institute.

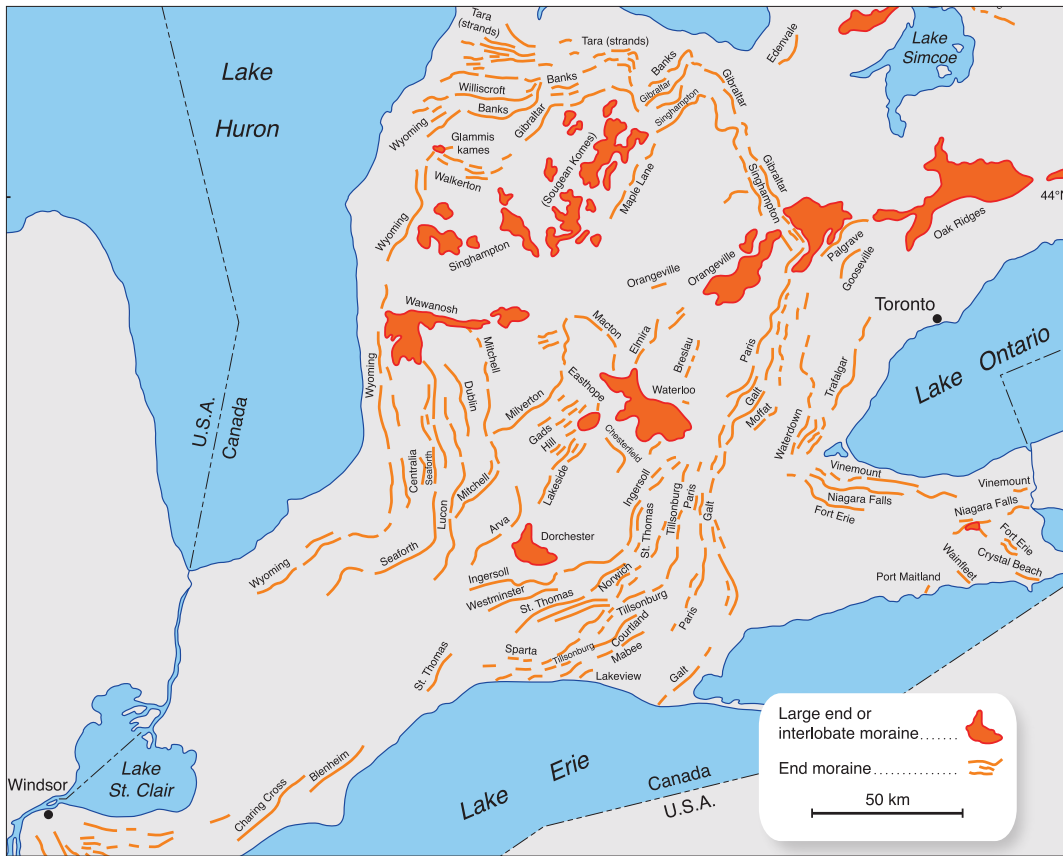


Figure 1. Moraines in southern Ontario. (Source: Barnett, P.J. 1992. Quaternary geology of Ontario. In: Geology of Ontario (Eds P.C. Thurston, H.R. Williams, R.H. Sutcliffe and G.M. Stott), pp. 1011-1088. Ontario Geological Survey, Special Volume 4, Part 2, Toronto.)

Figure 2. A depiction of how the Oak Ridges Moraine was formed. The Moraine was formed from a basin between two lobes of ice (2a). This basin eventually filled with glacial debris to form the ridge of the Moraine (2b).

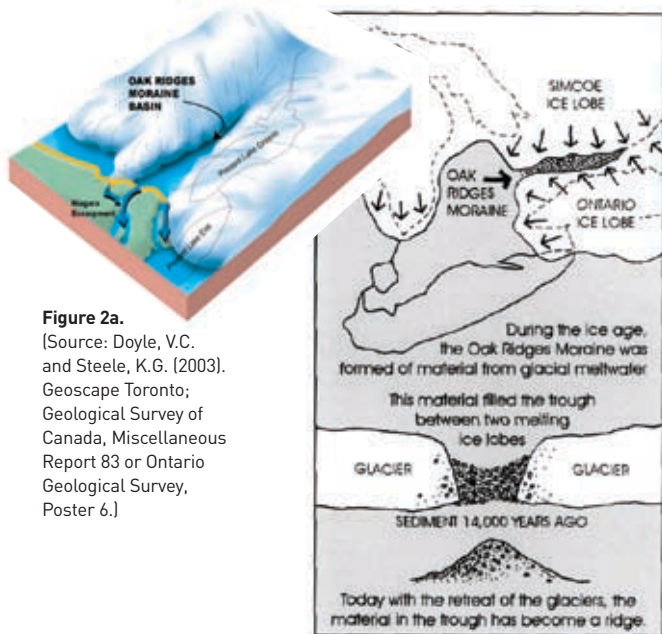


Figure 2a. (Source: Doyle, V.C. and Steele, K.G. (2003). Geoscape Toronto; Geological Survey of Canada, Miscellaneous Report 83 or Ontario Geological Survey, Poster 6.)

Figure 2b. (Source: Save the Oak Ridges Moraine Coalition. (1997). Oak Ridges Moraine. Erin, Ontario: The Boston Mills Press)

The Oak Ridges Moraine contains deposits of sand and gravel that can be over 200 metres thick. In some parts, it rises above 300 metres in elevation (Figure 3). High points on the Moraine include Mount Wolfe (369 metres) and Happy Valley Sandhills and Glenville Hills (364 metres) in the western end of the Moraine.

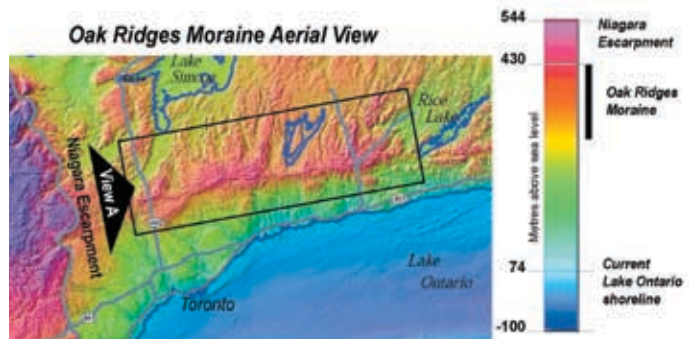


Figure 3. An aerial view of the Oak Ridges Moraine. (Source: Natural Resources Canada http://geoscape.nrcan.gc.ca/toronto/moraine_e.php)

WHERE IS THE MORAININE?

The Oak Ridges Moraine is a prominent ridge just north of Lake Ontario in southern Ontario. It stretches 160 kilometres from the Niagara Escarpment in the west to the Trent River system in the east. On average, its width is about 13 kilometers, ranging from two to 30 kilometers at different parts along its length.

Even when you zoom out to the scale of the Great Lakes Basin, the Moraine is still a prominent and distinct landform above Lake Ontario (Figure 4).

The Oak Ridges Moraine, part of Ontario's Greenbelt

In 2005 the provincial government approved the *Greenbelt Act* and Plan to protect 1.8 million acres of land in the Greater Golden Horseshoe. The *Greenbelt Act* is unique, knitting together three distinct regions under one piece

of legislation: the Oak Ridges Moraine, the Niagara Escarpment and Protected Countryside Areas (Figure 5). The Oak Ridges Moraine and the Niagara Escarpment form the ecological backbone to this diverse social-ecological system called Ontario's Greenbelt.

The Oak Ridges Moraine and Niagara Escarpment Plan Areas combined total to 384,340 hectares, which is 40,680 hectares larger than the Protected Countryside Area (Table 1).

Table 1. The size of the distinct regions within the Greenbelt.

Area	Size
Oak Ridges Moraine Area	190,000 hectares
Niagara Escarpment Plan Area	194,340 hectares
Protected Countryside	343,660 hectares
Total (Greenbelt Area)	728,000 hectares

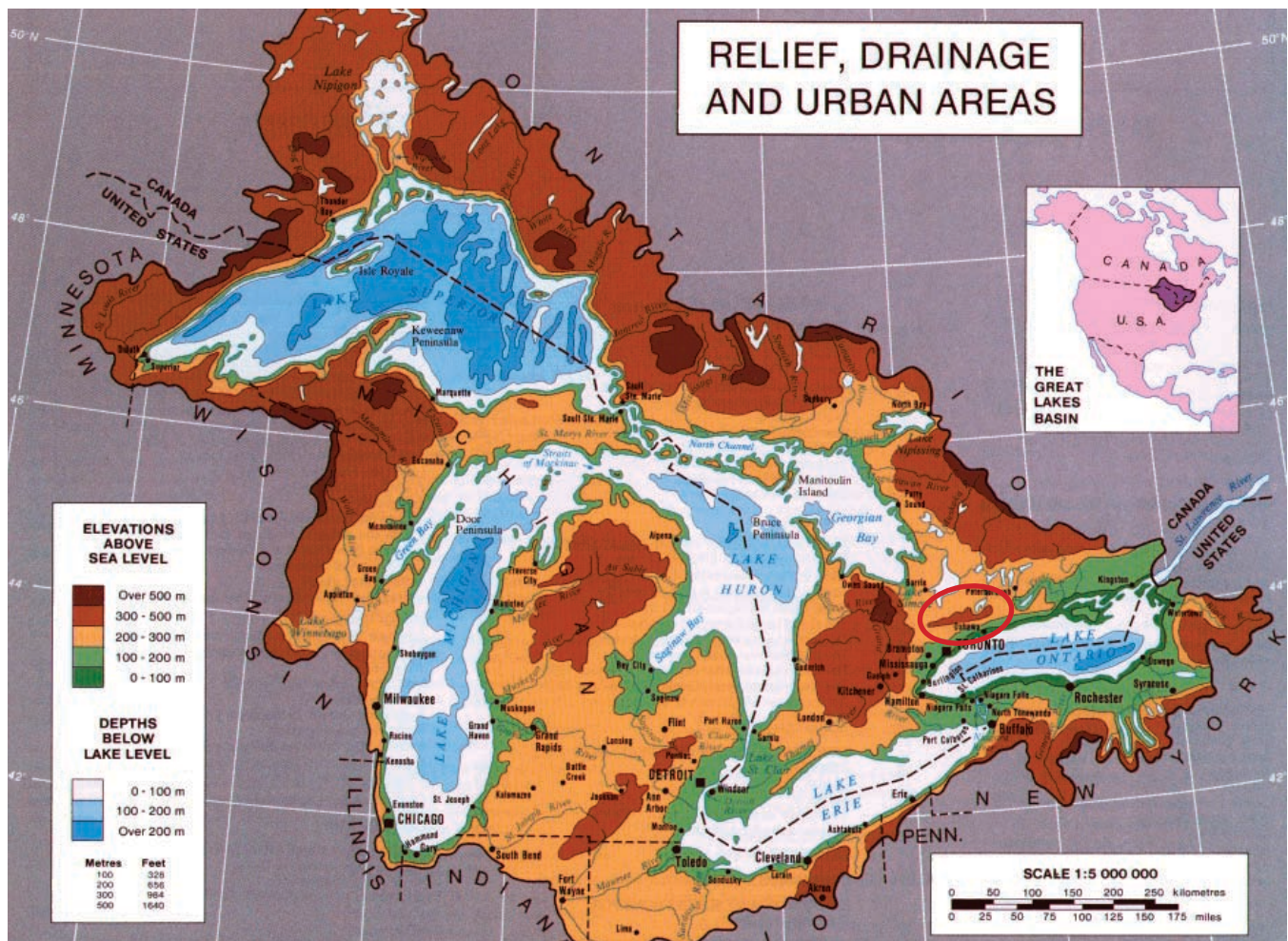


Figure 4. A elevation map of the Great Lakes Basin with the Oak Ridges Moraine (circled in red) as a distinct area of elevation just north of Lake Ontario (Source: United States Environmental Protection Agency and Government of Canada <http://www.epa.gov/glnpo/atlas/intro.html>)

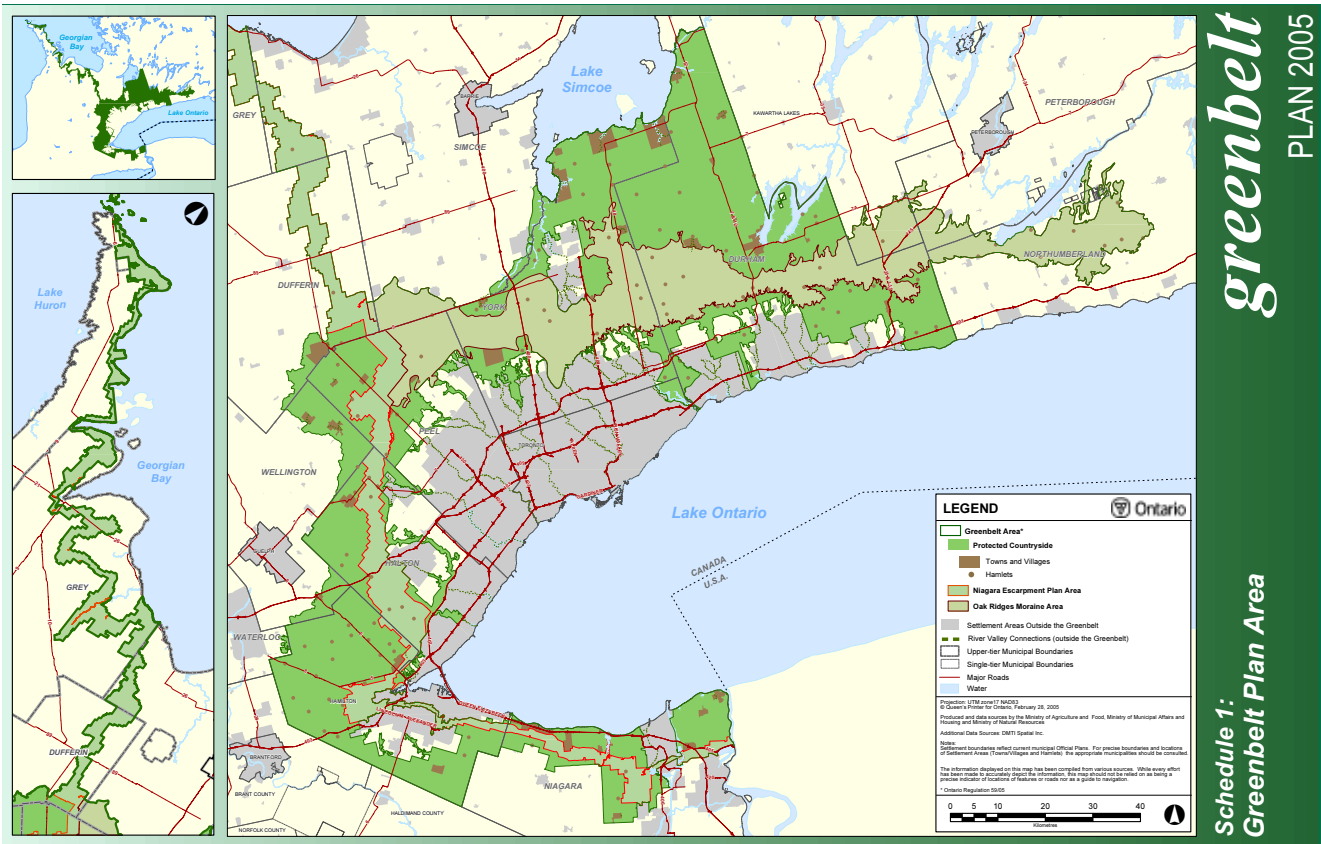


Figure 5. A map of the Greenbelt Plan Area that includes the Oak Ridges Moraine, the Niagara Escarpment, and the Protected Countryside Areas.
(Source: Friends of the Greenbelt Foundation http://www.greenbelt.ca/sites/ourgreenbelt.ca/files/pdf/Schedule1_Tabloid_Greenbelt%20Plan%20Area.pdf)

WATER

The Rain Barrel of Southern Ontario

Described as southern Ontario’s “rain barrel”, water from the Moraine helps to sustain over 65 river and stream systems that flow south into Lake Ontario and north into Georgian Bay, and Lakes Simcoe, Scugog and Rice.

The Oak Ridges Moraine acts as a recharge/discharge area for groundwater. As surface water (rain and snow) falls on the surface of the Moraine, its porous composition of sand and gravel enables it to act like a giant sponge or recharge area, replenishing the large reservoirs of groundwater (called aquifers)

deep within the Moraine (Figure 6). Because the Moraine is largely made up of sand and gravel, up to 80% of the surface water is able to sink down or infiltrate into these underground aquifer systems.

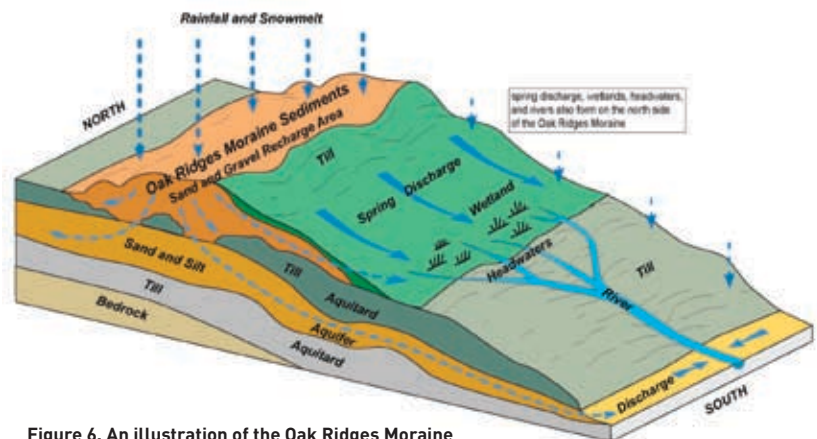


Figure 6. An illustration of the Oak Ridges Moraine as a recharge/discharge area for groundwater.
(Source: Doyle, V.C. and Steele, K.G. (2003). Geoscape Toronto; Geological Survey of Canada, Miscellaneous Report 83 or Ontario Geological Survey, Poster 6.)

The groundwater then moves down through these aquifer systems and is released or discharged through springs, wetlands, small headwater streams and larger tributaries along the Moraine. These are the headwaters to the 65 rivers and streams that comprise 60% of the watersheds in the Greater Toronto Area and to the aquifers that deliver drinking water to over 250,000 people.

Streams

Because the porous sand and gravel allow much of the surface water to sink into the ground, there are not as many headwater streams on the Oak Ridges Moraine as one would think. While relatively few in number, the streams on the Moraine are important aquatic habitats for many plants and animals.

Stream water can come from two sources, either from the ground (called baseflow), or precipitation (rain or snow). Baseflow is an important source of water in stream and river systems; in periods of drought, it is the only source of water. The largest rivers and creeks that have their headwaters on the Moraine include the Credit, Humber, Nottawasaga, Holland, Don, Rouge, Duffins, Nonquon, Pigeon, Black, Otonabee and Ganaraska some of which are illustrated in Figure 7.

The coldwater streams and rivers of the Oak Ridges Moraine support numerous significant and sensitive fish populations such as Brook Trout, Redside Dace, Salmon and Steelhead. Many fish such as those in the salmonid family require coldwater streams.



Figure 7. The major streams flowing north and south from the Oak Ridges Moraine.

[Source: Save the Oak Ridges Moraine Coalition <http://www.stormcoalition.org/pages/moraine.html>]

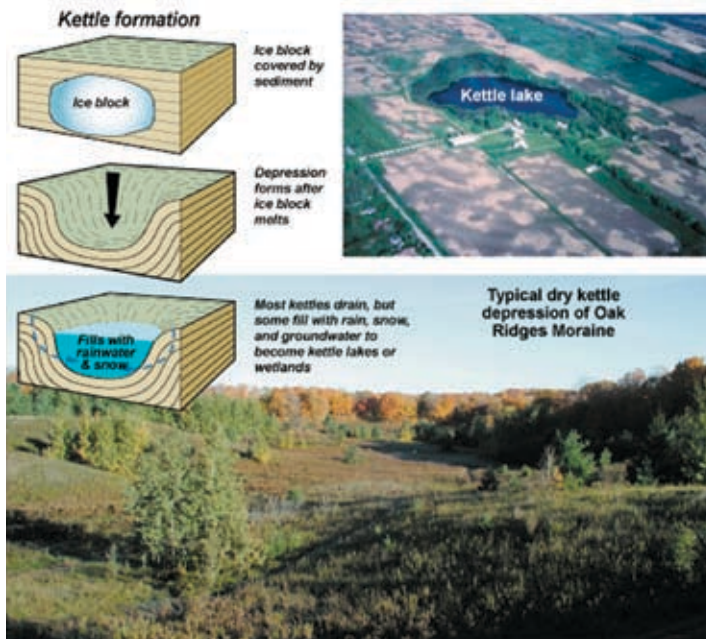


Figure 8. The formation of a kettle lake or wetland. (Source: Doyle, V.C. and Steele, K.G. (2003). Geoscape Toronto; Geological Survey of Canada, Miscellaneous Report 83 or Ontario Geological Survey, Poster 6.)

Kettle Lakes

Kettles are glacial depressions that are created when massive ice blocks, once buried under glacial sediment, melt away leaving behind a depression. This depression may then be filled with water to become a kettle lake or kettle wetland (Figure 8). Their small size and small drainage basins makes kettle depressions particularly sensitive to development, site alteration and water-taking.

The Oak Ridges Moraine has over 25 kettle lakes mostly located in the western half of the Moraine along the ridge line and south slopes. The largest is Lake Wilcox and the deepest, at 30 metres, is Bond Lake, both of which are in the community of Oak Ridges in Richmond Hill. Other kettle lakes include Bond, Mary, Mussleman, Preston, Swan, Phillips, St. George and Gibson.



Photo taken by Gary Nurse on Bond Lake on the Oak Ridges Moraine

While streams support coldwater fish, kettle lakes provide habitat for warmwater fish such as Large-mouth Bass and Northern Pike. They are also important resting and feeding areas for waterfowl during fall migration.

Wetlands

Similar to kettle lakes, kettle wetlands are small depressions created when the glacier ice melted and receded (Figure 8). Many wetlands develop along the edge of kettle lakes, and can form a wetland complex. Because of the geologic composition of the Moraine, many of the wetlands are situated in downstream portions of the watersheds outside of the Moraine. Only about 5% of the Moraine surface is occupied by wetlands. A majority of these are headwater wetlands, occurring at headwaters of the Moraine where groundwater springs up to the surface.

Wetlands on the Moraine include cedar swamps, deciduous swamps, thicket/shrub swamps, marshes, kettle bogs and kettle wetlands. Cedar swamps are the most common headwater wetland on the Moraine.²

² Oak Ridges Moraine Wetland Conservation & Enhancement Program. *Headwater Wetlands of the Oak Ridges Moraine: Information and conservation tips for landowners* [Brochure]. Retrieved from <http://www.oakridgestrail.org/Documents/HeadwaterWetlands.pdf>



Photo taken by Virginia May near Bolton on the Oak Ridges Moraine

Swamp areas are wooded wetlands that contain both deciduous and coniferous trees such as White Elm, Red and Silver Maple, Black Ash, Hemlock, Tamarack, White Cedar as well as a variety of shrubs. Marshes, the most productive type of wetland, can be identified by the absence of trees and the presence of cattails, grasses and sedges.³

There are hundreds of wetlands on the Oak Ridges Moraine. They provide significant habitat for hundreds of plants and animals and as a result, many of the Moraine's wetlands are classified as provincially significant. An example of a Provincially Significant Wetland is the Goodwood-Glasgow complex in the Township of Uxbridge.



Photo taken by Derry McDonnell on the Oak Ridges Moraine

³ Oak Ridges Moraine Foundation. Explore the ORM. Retrieved from <http://moraineforallife.org/explore/wetlands.php>



Photo taken by Barb Campbell in Caledon on the Oak Ridges Moraine

LAND

Woodlands

The Oak Ridges Moraine's woodlands form the backbone of the GTA's natural heritage system providing structure to this continuous band of green rolling hills. The Moraine has a 32% forest cover and contains centuries-old wood lots. In fact, the Oak Ridges Moraine takes its name from the many red oaks that once grew along the ridge.

The woodlands of the Moraine are critical habitat for migratory birds and mammals. The increasing urbanization of southern Ontario's countryside renders the Moraine's large mixed forests, such as the Long Sault Conservation Area in Durham Region, even more valuable as one of the last remaining blocks of woodland habitat. If you take a trip to one of the Moraine's many large forests, you may encounter Red-shouldered Hawks, Ruffed Grouse, Pileated Woodpeckers, Ovenbirds, Scarlet Tanagers, and Purple Finches.⁴

The Moraine's woodlands contain a variety of tree species such as the Red and Eastern White Pines; the White, Red and Black Oaks; and a wide diversity of native maples that include Sugar, Silver, and Red. The Moraine also contains many plantation forests, relics of past



Photo taken by Carol Lunney of a mutated trillium on the Oak Ridges Moraine

⁴ Save the Oak Ridges Moraine Coalition. [1997]. Oak Ridges Moraine. Erin, Ontario: The Boston Mills Press

efforts to stabilize the blowing sands and dunes created by early European pioneers. A good example of this is the 4,500 hectare Ganaraska Forest, half of which remains as a pine plantation that was planted by early 20th century conservation efforts. There are many plant and animal species that can be found throughout the Moraine's plantations including the notable Hermit Thrush, the rare Green Trillium, and Wild Turkeys.⁵

Meadows, Prairies, Savannas and Old Fields

Open meadow habitats exist on the Oak Ridges Moraine because they have either been established on old fields once used for farming, or because they are part of an original prairie or savanna habitat.⁶

A prime example of a Moraine prairie is the Black Oak Savanna and Tallgrass Prairie of the Alderville First Nation, part of the Rice Lake Plains. It is at the eastern limit of prairies in Canada and the largest single

remaining tract of tallgrass prairie and savanna in east central Ontario.⁷ While rare today, covering less than 1% of the Moraine surface, prairies once covered a large portion of southern Ontario.

The Rice Lake Plains have sandy soils that are well suited to prairie plants that can withstand hot and dry conditions. Black Oaks and Butterfly Milkweeds are characteristic plants of this habitat. Other vegetation in this area include Fireweed, Little Bluestem, Perennial Blue Lupines, Prairie Lilies, Indian Grass, Prairie Buttercup, Prairie Brome Grass and Thimbleweed.

Many birds and butterflies are found on these plains:

- Butterflies – Monarch, Viceroy, Painted Lady, Easter Tiger Swallowtail and the Clouded Sulphur
- Birds – Eastern Bluebird, Indigo Bunting, Field Sparrow, Eastern Kingbird



Photo taken by EcoSpark of the Black Oak Savanna on the Oak Ridges Moraine

⁵ Ibid.

⁶ Oak Ridges Moraine Foundation. *Explore the ORM*. Retrieved from <http://moraineforallife.org/explore/meadows.php>

⁷ Clarke, Ruth. (2005). *To Know This Place: The Black Oak Savanna/Tallgrass Prairie of Alderville First Nation* (2nd Edition). Roseneath, Ontario: A Sweetgrass Studios Publication.

SPECIAL PLACES

Environmentally Significant Areas (ESAs):

Environmentally Significant Areas (ESAs) are natural areas that have been identified by conservation authorities as environmentally valuable and worthy of protection. On the Moraine, some examples of ESAs include Centreville Creek Wetland Complex in Caledon, Chalk Lake Woods and Dagmar Forest in Whitby and Uxbridge Forest Kames in the Township of Uxbridge.

Areas of Natural and Scientific Interest (ANSIs):

There are two types of ANSIs: earth science and life science. Both types of ANSIs are areas that have significant geological (earth science) or biological (life science) features and have been identified by the Ministry of Natural Resources (MNR) as important for natural heritage protection, scientific study or education. ANSIs can be significant provincially, regionally or locally. Provincially Significant ANSIs are those that represent the best examples of the natural features and landscapes in Ontario.⁸

On the Oak Ridges Moraine, there are 33 Life Science ANSIs - 16 are of Provincial Interest, and 23 Earth Science ANSIs - 11 of Provincial Interest. Examples of Provincially Significant ANSIs on the Oak Ridges Moraine are Happy Valley Forest in King Township and Fleetwood Creek Natural Area in Bethany. Happy Valley Forest is the largest upland forest on the Moraine.



Photo taken by Dawn Knudsen of monarchs on the Oak Ridges Moraine

Biodiversity

While the Moraine is a distinct landform created over 12,000 years, it contains a diversity of soil types, landform features, topography and microclimates along its 160 kilometre length. This variability contributes to a rich diversity of habitat from one end to the other and along its north and south slopes. As a result, the Moraine supports an abundance of different species of plants and animals.

The Moraine contains the highest biodiversity in the Greater Toronto Area including 1,033 plant species, 118 breeding bird species, 26 reptile and amphibian species, 38 mammal species, and 55 fish species. The Moraine also includes 100 regionally rare, five provincially rare as well as a few endangered species.

The *Species at Risk Act* (SARA) is an important expression of the Canadian government's commitment to wildlife species. Specifically, its purpose is to prevent species extinction and to promote species recovery and management.

On the Oak Ridges Moraine, some of the key species at risk include:

- American Ginseng (Endangered)
- Dense Blazing Star (Threatened)
- Eastern Hog-nosed Snake (Endangered)
- Jefferson Salamander (Threatened)
- Monarch Butterfly (Special concern)
- Peregrine Falcon (Special concern)
- Red-shouldered Hawk (Special concern)
- Redside Dace (Special concern)

⁸ Ontario Parks. [2008]. Retrieved from http://www.ontarioparks.com/english/planning_pdf/ansi/ansi_procedure.pdf



Photo taken by Kim Lowes on the Oak Ridges Moraine

PEOPLE

History of Humans and the Oak Ridges Moraine⁹

When the glaciers first retreated approximately 12,000 years ago, leaving the giant ridge of sediment that is the Oak Ridges Moraine, southern Ontario was a bleak and chilly place. Woolly Mammoths roamed the perimeter of giant lakes, many times larger than our current Great Lakes. People, whose lives were dominated by the struggle to survive, visited the Moraine only briefly to hunt caribou and to draw upon its many sources of water.

A few hundred years later, it was a very different place, as trees began to take hold, providing shelter for new wildlife. Over thousands of years, the forests of the Moraine grew and changed, ultimately evolving into a complex ecosystem that sustained a diversity of wildlife

under a towering canopy of oaks, sugar maples, beech, and many other tree species. In only two hundred years, European settlers, anxious to clear land for farming and timber, destroyed much of the Moraine's forest cover.

By the mid-19th century, large swaths of the Moraine's sandy soils could no longer sustain productive agriculture and local economies began to falter. In turn, the loose sands now exposed to wind and rain, were washed downstream, clogging streams and rivers and creating havoc where rivers emptied into Lake Ontario. By the end of the century, once vibrant mill towns and villages were empty as people fled the countryside to look for opportunity elsewhere.

Half-a century later, when cars could cover distances with ease, and roads had made the Moraine accessible,

⁹ Oak Ridges Moraine Foundation. Explore the ORM. Retrieved from <http://moraineforallife.org/explore/history.php>



Photo taken by Harry McWilliam on the Oak Ridges Moraine

the growth industry focused on the lands north of Toronto to accommodate the exploding population of the Greater Toronto Area. By the 1980s, it was clear that the Moraine's remaining forests, wetlands and farm fields were in danger once again.

Since then, there have been competing interests to accommodate growth and resource exploitation, and protecting the natural environment.

On the Moraine, community activists were integral to the decades-long campaign that 'saved' the Oak Ridges Moraine. While not experts in the usual sense of the word, their expertise lies in their connection to and understanding of where they live – their 'sense of place.'

People on the Moraine Today

Thousands of people live on the Moraine within its urban areas and small villages, or out in the country on its back roads. Only about 9 to 10% of the Moraine's land is held in public ownership, which means that something in the order of 170,000 hectares is privately owned.

Some of this land is still owned by corporate interests who hold out hope to capitalize on their initial investment. However, the majority of land is owned by people who choose to live where they do for a number of reasons that do not necessarily include a change of use or zoning.

Given that much of the Moraine's lands lie outside of the purview of the Oak Ridges Moraine Conservation Plan (ORMCP) protection policies, what people choose to do on their individual properties has the potential to either hurt or help the entire Moraine ecosystem (see the next section to learn all about the ORMCP).

PART 3:

Protection Through Regulation



Photo taken by Tosh Shikata on the Oak Ridges Moraine

WHAT IS THE OAK RIDGES MORAINÉ CONSERVATION PLAN?

In 2001, the Ontario Government enacted the Oak Ridges Moraine Conservation Act (ORMCA) followed by the Oak Ridges Moraine Conservation Plan (ORMCP) in 2002. The Plan is a result of the decades-long efforts of concerned citizens, environmental organizations, conservation authorities and municipalities.

The ORMCP is an ecologically based plan that was established to direct land use and resource management for the 190,000 hectares of land and water in the Oak Ridges Moraine Plan Area. It is one of the most progressive conservation-based policy frameworks in the Ontario. The boundary of the Plan Area was established based on a number of topographical, geomorphological and geological attributes (Figure 9).

The Ontario Government's vision for the Oak Ridges Moraine is: "a continuous band of green rolling hills that provides form and structure to south-central Ontario, while protecting the ecological and hydrological features and functions that support the health and well-being of the region's residents and ecosystems".¹⁰

The Plan is regulated under the ORMCA and is

¹⁰ Oak Ridges Moraine Conservation Plan, O. Reg. 140/02

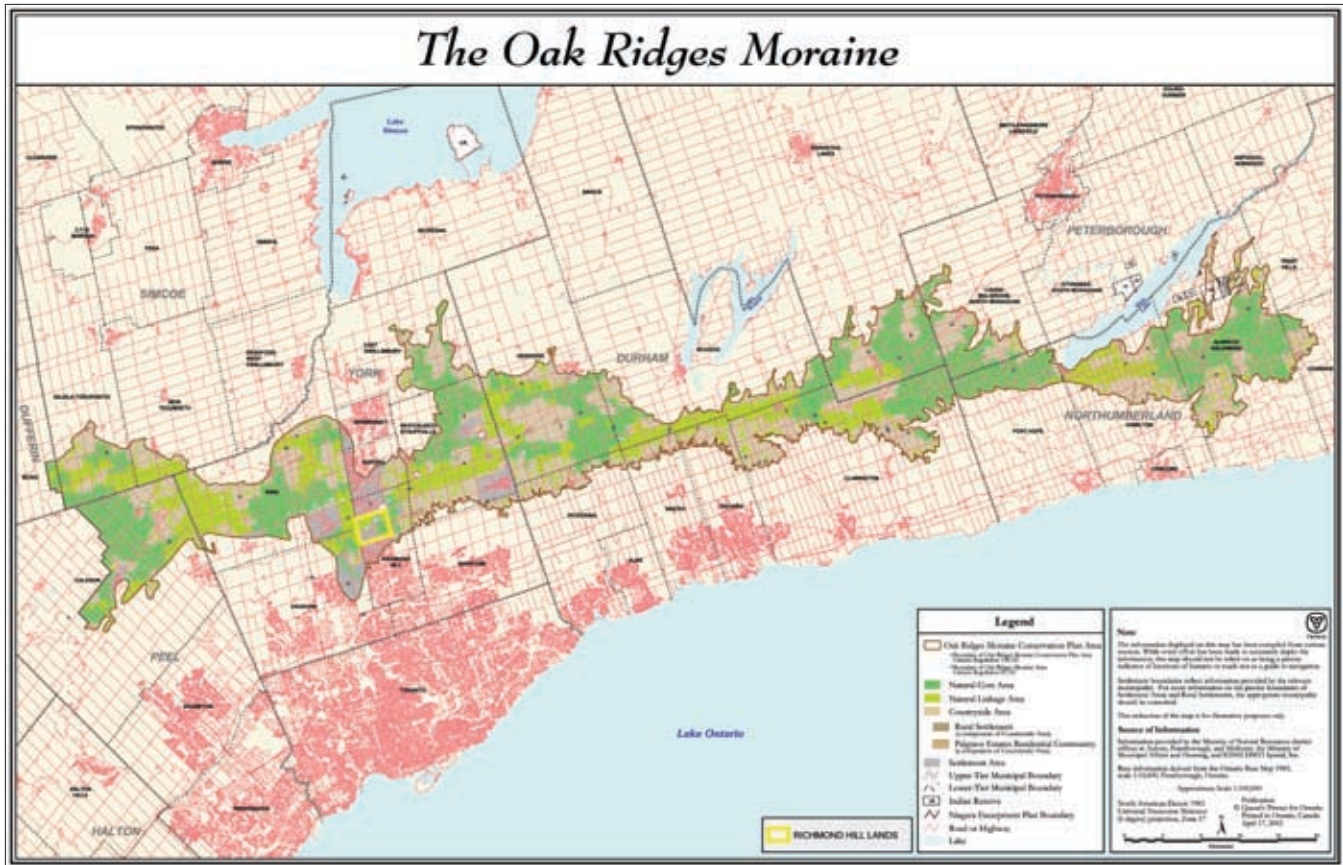
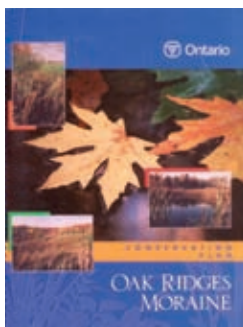


Figure 9. Oak Ridges Moraine Conservation Plan Land Use Designation Map. (Source: Ministry of Municipal Affairs and Housing)



implemented by the municipalities on the Oak Ridges Moraine. However, the ORMCP, like any policy or regulation, is only as strong as the will of people to implement it. The future of the Moraine rests not solely with provincial or municipal governments but

also with residents, community groups, environmental movement organizations and the private sector.

Having a basic understanding of the Plan will prepare you to participate in protecting the Moraine. The next few sections of this Guide will explain some of the fundamental aspects of the Plan.

HOW TO READ THE PLAN¹¹

The Oak Ridges Moraine Conservation Plan has 5 parts.

PART I – GENERAL

The first part of the Plan defines the areas that the Plan applies to and lays out the rules for existing uses, previously authorized uses, and exceptions. This is also the section where you will find definitions for planning or technical terms used in the Plan.

PART II—LAND USE DESIGNATIONS

In Part II, you'll find a description of the purpose, objectives, and permitted uses for the 4 Moraine land use designations. It also describes lot-creation policies for Countryside Areas.

¹¹ Oak Ridges Moraine Conservation Plan, O. Reg. 140/02

The Plan divides the Moraine into 4 land use designations:

1 Natural Core Areas (38% of the Moraine) protect the greatest concentrations of key natural heritage features, which are critical to maintaining the integrity of the Moraine as a whole. Natural Core Areas contain a significant portion of the Moraine’s ANSIs. Only existing uses and very restricted new resource management, agricultural, low intensity recreational, home businesses, transportation, and utility uses are allowed in these areas.



Photo taken by Laura Gardner on the Oak Ridges Moraine

2 Natural Linkage Areas (24% of the Moraine) protect critical natural and open-space linkages between Natural Core Areas and along rivers and streams. The only uses allowed are those in the Natural Core Areas plus new aggregate resource operations.



Photo taken by Hayley Peterson on the Oak Ridges Moraine

3 Countryside Areas (30% of the Moraine) provide agricultural and rural-transition buffers between Natural Core Areas or Natural Linkage Areas and urbanized Settlement Areas. Prime agricultural areas and natural features are protected. Most uses typically allowed in agricultural and other rural areas are allowed here.

Within Countryside Areas, the Oak Ridges Moraine Land Use Designation Map also identifies and defines Rural Settlements. These are existing hamlets or similar small, generally long-established communities identified in official plans (OPs).



Photo taken by Connie R. Smith on the Oak Ridges Moraine

4 Settlement Areas (8% of the Moraine) reflect a range of existing communities planned by municipalities to reflect a community’s needs and values. Urban uses and development that have been set out in municipal official plans are permitted in settlement areas.



Photo taken by Luke Reinstra on the Oak Ridges Moraine

PART III - PROTECTING ECOLOGICAL AND HYDROLOGICAL INTEGRITY

Part III identifies the Moraine's key natural, hydrological, and landform features, and specifies requirements to protect the ecological and hydrological integrity of the Plan Area.

The Plan identifies key natural heritage features (KNHFs) such as wetlands and woodlands, and hydrologically sensitive features (HSFs) such as kettle lakes and springs. They are protected from development and site alteration in all 4 designations with the exception of some uses such as forest, fish and wildlife management, and trails and transportation.

PART IV—SPECIFIC LAND USE POLICIES

Part IV specifies any additional requirements or restrictions for particular uses and activities.

For example, new aggregate resource (sand and gravel) extraction is not permitted in Natural Core Areas, and licensed (existing) operations must meet stringent

review-and-approval standards. New major recreation developments such as golf courses are permitted only in Countryside Areas and must meet stringent review-and-approval standards.

New transportation and utility corridors or facilities are not permitted in Natural Core and Linkage Areas without demonstrable need and lack of reasonable alternatives. They also must meet stringent review-and-approval standards.

Part IV also prescribes the establishment of a trail system through the Oak Ridges Moraine that will provide non-motorized recreational access.

PART V—PRESCRIBED PROVISIONS

Part V identifies the sections of the *Oak Ridges Moraine Conservation Act*, 2001 that apply to Natural Core Areas, Natural Linkage Areas, and Countryside Areas for applications that were commenced, but not approved prior to November 17, 2001 (transition applications).

Summary: Key Features of the ORMCP

- Regulated under the Oak Ridges Moraine Conservation Act
- Ecologically based provincial land use plan
- Applies only to new planning applications for changes in land and resource use
 - The ORMCP does not apply to 'grandfathered' applications
 - Only some sections of the ORMCP apply to 'transition' applications
- Implemented by the 32 municipalities through official plan policies and zoning by-laws amended to conform to the ORMCP
- Moraine divided into four land use designations with permitted uses
 - Natural Core Areas – 38%
 - Natural Linkage Areas – 24%
 - Countryside Areas – 30%
 - Settlement Areas – 8%
- 92% of Moraine off-limits to new urban development
- New urban development directed to 8% of Settlement Areas
- Settlement Area boundaries fixed up to 2015
- Does not regulate water-taking

FREQUENTLY ASKED QUESTIONS

The following questions are listed on The Ministry of Municipal Affairs and Housing website (<http://www.mah.gov.on.ca/>) in response to some municipalities' most frequently asked questions on permitted uses on the Oak Ridges Moraine.

Q: Are single dwellings permitted in the ORM Plan in the Natural Core, Natural Linkage and Countryside Areas?

A: Existing single dwellings and lands which were zoned to permit single dwellings on November 15, 2001 are permitted in the ORM Plan and can continue to be zoned in municipal by-laws. New development of, and additions to these single dwellings (such as sunrooms and decks) must, to the extent possible, avoid negative impacts on environmental features and functions. To obtain more information, please refer to contact information below.

Q: Are separate accessory buildings and structures to single dwellings, such as detached garages and swimming pools, permitted in the ORM Plan?

A: Accessory buildings and structures for a residential use are considered a component of the permitted single dwelling use. Therefore, such buildings and structures directly related to a single dwelling are also permitted. New development and additions must, to the extent possible, avoid negative impacts on environmental features and functions. To obtain more information, please refer to contact information below.

Q: What is meant by “to the extent possible” for the development of single dwellings?

A: It means that best efforts are to be exercised to avoid negative impacts on environmental features and functions, while recognizing that the use, erection and location of single dwellings and accessory structures are permitted by the ORM Plan. Municipalities still have the discretion in determining the form of development with the least impact.

Q: Are barns and other associated farm buildings and structures permitted in the ORM Plan?

A: Barns and other associated farm buildings and structures are considered a component of the permitted agricultural use. Therefore, such buildings

and structures directly related to agriculture are permitted.

Q: In the wellhead protection area policies of the ORM Plan certain uses are prohibited except by an individual for personal or family use. What does this exception encompass?

A: The exception to permit personal or family uses applies only to household uses that, for instance, are not for profit or commercial use. For example, the storage of small quantities of inorganic fertilizers for a household garden would be permitted, but not for a commercial greenhouse. Existing uses within the wellhead protection areas that are now prohibited in the ORM Plan can continue to operate. Further development of these prohibited uses must conform to the ORM Plan and may not be permitted.

Q: Does the ORM Plan regulate ‘Permit to Take Water’ applications, such as bottled water?

A: The taking of water is not specifically regulated in the ORM Plan, as this matter is already regulated in the Permit to Take Water process of the Ministry of the Environment (MOE). The watershed plans, including water budgets, that municipalities are required to complete under the ORM Plan will assist MOE in the review of these applications. The buildings or structures for water taking facilities are required to conform with the ORM Plan. Currently, MOE is reviewing the Permit to Take Water process and has prohibited the issuance of new Permits to Take Water for beverage manufacturing purposes, such as bottled water, on the ORM until March 1, 2004. Finally, the ongoing source water protection initiative may result in a future amendment to the ORM Plan to incorporate its results and recommendations into the ORM Plan's framework.

MUNICIPALITIES ON THE MORaine

Municipal Governments—32 in total across the Moraine

While the ORMCP is a provincial planning framework, the 32 municipalities on the Moraine implement its policies through official plans and zoning by-laws amended to conform to the ORMCP.

Municipalities received deadlines to amend their planning instruments (official plans and zoning by-laws) to conform to the Plan. However, nothing in the Plan is intended to prevent municipalities from adopting more restrictive official policies than those of the Plan, except in matters dealing with agriculture and aggregates (sand and gravel).

The following municipalities are located within the Oak Ridges Moraine Plan Area:

Lower-tier Municipalities—24

- **Towns of:** Mono, Caledon, Newmarket, Aurora, Richmond Hill, Whitchurch-Stouffville, Markham, East Gwillimbury, Whitby
- **Townships of:** Adjala-Tosorontio, New Tecumseth, King, Uxbridge, Scugog, Cavan-Monaghan, Hamilton, Alnwick-Haldimand, Cramahe
- **Municipalities of:** Clarington, Port Hope, Trent Hills
- **Cities of:** Vaughan, Pickering, Oshawa

Single-tier Municipalities—1

- The City of Kawartha Lakes is the only single-tier municipality on the Moraine.

Upper-tier (Regions and Counties) Municipalities – 7

- **Regions of:** Peel, York and Durham
- **Counties of:** Dufferin, Simcoe, Peterborough, Northumberland

First Nations – 1

- The Alderville First Nations in the eastern part of the ORM lies outside the purview of ORMCP policies.

A helpful tool for determining your location within the Moraine boundaries is the Oak Ridges Moraine Atlas. You can also use this map to link your location to the relevant ORMCP policies. The interactive mapping tool can be found on the Ministry of Municipal Affairs and Housing website: <http://www.mah.gov.on.ca/Page1741.aspx>.

If you have questions about a land use change or site specific matter relating to a planning approval, you can consult the appropriate municipality from the list above.

LIMITATIONS OF THE PLAN

At the time of its implementation, the ORMCP was heralded as being advanced and leading edge legislation. For the most part, the Plan can be considered good public policy. Since it was implemented, urban sprawl and developer-led settlement area expansions have been stopped, municipal decisions are now determined by broader ecosystem principles, and watershed planning is being incorporated into municipal official plans. However, over the past eight years, limitations of the Plan have become more evident:

- **Watershed Plans:** Through the ORMCP, municipalities are required to complete watershed plans as a prerequisite to any major development. These watershed plans, if completed properly, should include a water budget, a conservation plan, management strategies and monitoring plans, and should also address some water quality and quality issues.

However, watershed plans are not uniformly completed across the Oak Ridges Moraine since some municipalities do not foresee major development in their area, nor are there any penalties for non-compliance. Whether or not major development takes place, watershed plans are still important for guiding the management of Moraine watersheds and helping maintain the hydrological integrity of the Moraine.

- **Water-taking:** The ORMCP does not include policies for water-taking. Permits to take water are issued provincially through the Ontario Water Resources Act (OWRA) and do not take into account areas of special interest or concern such as the Oak Ridges Moraine. The screening of water quantity considerations for areas of aquifer vulnerability and well-head protection areas is minimal and insufficient.

Despite the lack of completed watershed plans, a number of municipalities are looking to pipe water from the Moraine to service new communities outside the Plan Area. While legally permitted, these actions go against the ORMCP objectives of protecting the hydrological functioning of the Moraine.

- **Pre-plan Applications:** When the ORMCA and ORMCP were passed, a number of development applications were already approved or in the process of approval. The ORMCP does not apply to development applications that received approval

prior to November 17, 2001 (these are considered 'grandfathered' applications). Applications that were started prior to November 17, 2001, but where no approval was granted are only required to conform to certain sections of the Plan (these are considered 'transitional' applications).

This loophole suggests that transitional and grandfathered developments are not adequately being tracked across the Moraine nor their impact on the ecological and hydrological integrity of the Moraine landscape.

- **Implementation Model:** As indicated in the section 'Municipalities on the Moraine', municipalities are the primary implementers of the Plan. However, with so many municipalities on the Moraine implementation across the board has been inconsistent. Municipalities vary greatly in terms of size, availability of resources, expertise and amount of development interest.



Photo taken by Mark Carroll on the Oak Ridges Moraine

PART 4:

Protection Through Stewardship



Photo taken by EcoSpark on the Oak Ridges Moraine in King Township

CONSERVATION AUTHORITIES

Many municipalities in the Moraine area have entered into formal agreements with conservation authorities for technical expertise including comments on whether or not certain development proposals comply with the ORMCP. Conservation authorities also have the right to request status in front of the Ontario Municipal Board (OMB) where they can present concerns about impacts of development proposals on the natural environment, including the Oak Ridges Moraine.

Conservation Authorities Moraine Coalition

In response to the need for a comprehensive and collaborative policy, planning, and management approach for protecting the Oak Ridges Moraine, the Conservation

Authorities Moraine Coalition (CAMC) was formed in 2000. The Coalition consists of the following nine independent conservation authorities whose watershed boundaries collectively cover the entire 160-kilometre Moraine (Figure 10):

- Central Lake Ontario
- Credit Valley
- Ganaraska
- Lake Simcoe Region
- Kawartha
- Lower Trent
- Nottawasaga Valley
- Otonabee
- Toronto and Region



Figure 10. A map depicting the geographic areas of the nine Conservation Authorities that cover the Oak Ridges Moraine. (Source: Conservation Authorities Moraine Coalition)

The CAMC is a partnership organization whose mission is to advance the science and understanding of the Oak Ridges Moraine and to work toward government, agency and community support for the conservation and protection of the form, function and linkages of the Oak Ridges Moraine.

As stated in their 2009 Accomplishments report, the goals of the Coalition are:

- To define and protect natural heritage and water resource systems of the Oak Ridges Moraine through watershed science and monitoring;
- To support an accessible trail system across the Oak Ridges Moraine;
- To ensure effective stewardship services on the Oak Ridges Moraine; and
- To build partnerships to provide education, information, and land securement opportunities on the Oak Ridges Moraine.

As of 2009, CAMC conservation authorities own and manage more than 14,000 hectares (approximately 7%) of land on the Moraine.

For more information on the Conservation Authorities Moraine Coalition, visit <http://trca.on.ca/protect/conservation-authorities-moraine-coalition.dot>

CARING FOR THE MORaine PROJECT

The Caring for the Moraine Project is a collaborative project that has delivered the support of 30 conservation and environmental organizations to more than 80,000 landowners on the Oak Ridges Moraine. The project aims to protect the sensitive environmental features of the Moraine by providing landowners with free property visits, technical advice, workshops, resource material and financial assistance. Engaging with landowners is particularly relevant and important to the protection of the Oak Ridges Moraine because more than 90% of the Moraine is privately owned.

To date, in partnership with Moraine landowners and the partner organizations involved in the Caring project, the project over four years has accomplished:

- **11,114** landowner letters mailed resulting in **627** Moraine properties visited;
- **2,354** landowners participating in **65** workshops;
- Over **430,000** trees planted over an area of **289** hectares;
- **310** hectares of prairie restoration;
- Almost **17,890** meters of streams restored; and
- **22** hectares of wetland created with an additional **2** hectares of wetland enhanced.¹²

A valuable aspect of a network of conservation organizations working together is the ability to deliver a common message and provide one source of support materials to landowners. One good example of this is *Caring for Your Land: A Stewardship Handbook for*



Oak Ridges Moraine Landowners. Developed by the Centre for Land and Water Stewardship at the University of Guelph, this handbook is intended to enhance appreciation of the special nature of the Moraine and provide information on land stewardship practices

that will help to attain the Ontario Government's vision for the Oak Ridges Moraine.

The Caring for the Moraine project is an excellent example of a successful, wide-ranging collaborative effort to protect the Moraine. The next section will discuss some opportunities for volunteer oriented projects on the Oak Ridges Moraine.



Photo of the Caring for the Moraine Project Partners on the Oak Ridges Moraine, courtesy of the Oak Ridges Moraine Foundation

¹² Oak Ridges Moraine Foundation. *Living on the ORM*. Retrieved from http://www.MoraineForLife.org/living/living_caring.php

THE MONITORING THE MORAINE PROJECT



MONITORING the MORAINE

In the introduction to this Guide, we mentioned the value of local knowledge and the role that communities play in protecting the environment; part of valuing local knowledge involves recording and tracking it in a consistent manner. This way, it can contribute to a larger picture of the health of the Oak Ridges Moraine.

The Monitoring the Moraine Project Partners have developed and adapted programs and protocols that support volunteers in collecting local information about the Moraine: Moraine Watch and Check Your Watershed Day.

Moraine Watch: Tracking Land Use Planning on the Oak Ridges Moraine is a how-to guide for community members to monitor land use planning activity and the performance of their municipal government on Moraine-

related planning. There are two levels to MTM's policy monitoring program.

- **Introduction to Moraine Watch:** A series of questions community members can answer about a particular development they've seen or heard about, after which they pass the information along to the MTM project partners.
- **Moraine Watch Level One:** For those who want to take this information farther, level one includes the Moraine Watch Checklist, a step-by-step worksheet for evaluating planning applications. It also includes detailed background information on land use planning and legislation relevant to the moraine.

Moraine Watch is the first of its kind: it emphasizes the importance of local knowledge and participation in social and environmental issues across the Oak Ridges Moraine, as well as standardized collection and documentation of this information.



Photo taken by Jessica Nakanishi during Check Your Watershed Day in Duffins Creek

Moraine Watch is available on the Monitoring the Moraine webpage: www.ecospark.ca/monitoringthemoraine.

Check Your Watershed Day is an annual stream survey on the third Saturday of July. Since 2006, volunteers and have worked along side conservation authorities and other agencies to determine where the water is flowing throughout an entire watershed on a single day. In Stream Teams, volunteers determine the status of stream flow (e.g. dry, wet, flowing), as well as documenting barriers to fish movement (e.g. perched culverts).

With a focus on watersheds that originate on the Oak Ridges Moraine, Check Your Watershed Day is

an important activity for many reasons. It is an opportunity to put on hipwaders, spend a Saturday outside and experience your local area from the stream perspective. It is also an activity to collect important information about the stream itself – where is water flowing and where is the stream dry? This one day snapshot can help build a better understanding of the watershed, and consequently, how to better manage it.

Check Your Watershed Day is coordinated by EcoSpark in collaboration with multiple agencies and volunteers including the Ministry of Natural Resources, conservation authorities, other ENGOs, and community groups. Since 2006, we have worked with 390 volunteers to check 1529 sites, covering 11 watersheds (2539 square kilometers).



A Check Your Watershed Day Stream Team from Duffins Creek, taken by Jessica Nakanishi

PART 5:

Looking Towards 2015



Photo taken by Karen Somes on the Oak Ridges Moraine

THE 2015 REVIEW PLAN REVIEW AND AMENDMENT

The ORMCP is to be reviewed every 10 years to determine whether changes to its policies are needed. This review was originally intended for 2012, but was extended to 2015 to be in line with a legislated review of the Greenbelt and Niagara Escarpment Plans. The process of combining reviews for all three plans is called harmonization. Part of the rationale behind a harmonized review process is that the Greenbelt Plan Area includes the Niagara Escarpment and

the Oak Ridges Moraine Plan Areas as well as Protected Countryside Areas.

What will be part of the 2015 Review?

For the ORMCP, there are parts of the Plan that shall remain fixed, and other parts that may be considered and amended. Some of the items under consideration have requirements to meet in order to be considered.

The following information can be found in the *Oak Ridges Moraine Conservation Act* and/or the Oak Ridges Moraine Conservation Plan (visit Municipal Affairs and Housing website at <http://www.mah.gov.on.ca/Page322.aspx>).

Policy areas that will not change:

- Lands cannot be removed from Natural Core and Natural Linkage Areas (62% of the Oak Ridges Moraine)

Policy areas that shall be considered:

- The need to change or refine the boundaries of the Countryside Areas and Settlement Areas
- Whether to change Plan policies to permit new or expanded mineral aggregate operations and wayside pits in Natural Core Areas
- The continued effectiveness of the Plan's policies in meeting the Plan's vision, purpose and objectives
- New, updated, or corrected information
- New science, technologies, or practices that shall improve the Plan's effectiveness
- Any other matter that the Ontario Government deems appropriate

Requirements for some considerations:

- In order for changes or refinements in Settlement Areas to be considered, a justification study is required by the upper-tier or single-tier municipality that demonstrates a number of key criteria
- To consider policy changes to permit new mineral aggregate operation and wayside pits, studies are required that demonstrate how these activities can take place with minimal negative impacts, and with the potential for maintenance, improvement, restoration or rehabilitation

Major policy reviews are complex undertakings. It is fair to say that the upcoming harmonized review where three separate provincial plans will be reviewed simultaneously has no precedence upon which we can collectively draw. What we do know is that guiding principles must be put in place to ensure that any changes to the ORMCP must continue to protect the ecological and hydrological integrity of the Oak Ridges Moraine.

PREPARING FOR THE REVIEW

Provincial Government

The Ontario Ministry of Municipal Affairs and Housing (MMAH) is the lead ministry charged with preparing for this harmonized review process. During a review, the Minister has the discretion to consult with relevant provincial ministries, public bodies, and municipalities while ensuring opportunities for citizen participation. The provincial government is responsible for developing performance measurements and a monitoring network to assess the effectiveness of the Plan, in consultation with other stakeholders.

Part of this preparation is outlined in the "Performance Indicators and Monitoring" section within the Implementation part of the ORMCP. It states that the Ontario Government shall:

- In consultation with municipalities, identify performance indicators to monitor the Plan's effectiveness
- In partnership with appropriate stakeholders, establish a monitoring network to collect, summarize and evaluate performance indicator data

A Greenbelt Plan Performance Measures Inter-ministry Working Group has been formed with representation from nine ministries:

- Ministry of Municipal Affairs and Housing (MMAH)
- Ministry of Natural Resources (MNR) (including staff from the Niagara Escarpment Commission)
- Ministry of the Environment (MOE)
- Ministry of Transportation (MTO)
- Ministry of Tourism and Recreation (MTR)
- Ministry of Health Promotion (MHP)
- Ministry of Energy and Infrastructure (MEI)
- Ministry of Culture (MCL)
- Ministry of Agriculture, Food and Rural Affairs (OMAFRA)

The MMAH has prepared a Draft Performance Monitoring Framework Discussion Paper.¹³ Staff have solicited feedback on this framework through workshops and an electronic questionnaire. Solicitation started in November 2009 from key stakeholders, and then from the general public until June 2010.

Obtaining comments on the monitoring framework is part of a nine-step process developed by the Inter-ministry Working Group for the Greenbelt Plan (GBP) Performance Monitoring Program. The steps are:

1. Assess how to measure effectiveness of GBP
2. Design Framework on how to measure GPB policies
3. Consult experts & public to refine framework & present sample indicator profiles
4. Develop Foundations report to identify full set of indicators

5. Consult experts & public on potential indicators
6. Collect data on baseline conditions
7. Interpret & analyze data over time
8. Report to public on results to support 10 year review
9. Adjust Monitoring Framework or Greenbelt Plan Policies (if necessary)

The next steps in the framework consultation process are steps four to nine. The public can anticipate a solicitation for feedback two more times before the 2015 Review. However, there may be changes made during this program leading up to 2015 as it will be an adaptive monitoring program. Change may include new or improved indicators.



Photo taken by Jason Kalmbach on the Oak Ridges Moraine

¹³ <http://www.mah.gov.on.ca/Page7104.aspx>

Monitoring the Moraine Project

Since the Monitoring the Moraine Project was established in 2005, we have been a key player in stimulating dialogue, gathering data and sharing information about the Oak Ridges Moraine.

We are uniquely positioned to work with Moraine stakeholders towards a meaningful ORMCP Review. The MTM Project Partners have a specialized ability to easily engage with multiple Moraine stakeholders (community groups, the general public, technical scientific audiences, municipalities, conservation authorities, and other Moraine-based ENGOs). We have developed our project in collaboration with many of these stakeholders.

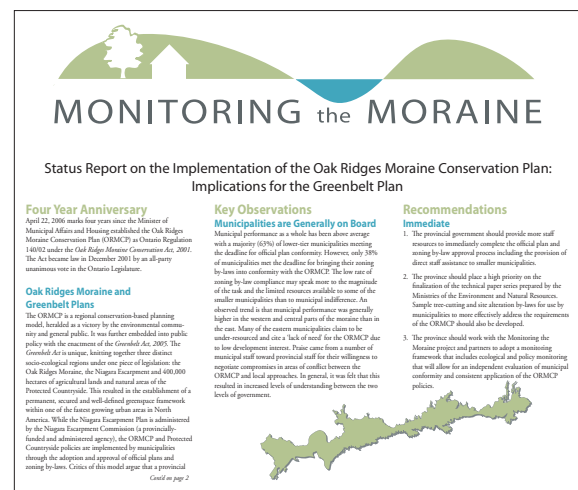
As Moraine stakeholders, the MTM Project Partners hold ourselves responsible to contribute relevant information in preparation for the ORMCP Review. We also consider it our responsibility to ensure that information about the Moraine is available and accessible. In addition to our work with community volunteers (e.g. Check Your Watershed Day and Moraine Watch), we are also involved in projects that collect information about the Moraine across the entire landscape.

Status Reports

In 2006 and in 2007, we produced the Monitoring the Moraine Status Reports on the Implementation of the Oak Ridges Moraine Conservation Plan. The MTM Partners recognized that while municipalities were required to bring their official plans and zoning by-laws into conformity with the ORMCP, there was no formal tracking and reporting process.

The theme for the 2006 Status Report focused on conformity of municipal planning instruments. The focus of the 2007 Status Report was on infrastructure projects undertaken since 2002 with a 2006 recap and progress made on recommendations. These reports are available on the Monitoring the Moraine Project website (www.ecospark.com/monitoringthemoraine.ca).

The Status Reports have become valuable reference materials for keeping track of municipal conformity. These reports have been well received by a broad spectrum of stakeholders. For example, it has provided context and clarity to other ENGOs around areas for policy improvement and the extent to which projects are taking place on the moraine. In addition to providing timely information to the broader community about how the ORMCP is being implemented, it also serves to hold policy and decision makers accountable.



Measuring Success on the Oak Ridges Moraine

Since 2009, the MTM Project Partners have participated in the Oak Ridges Moraine Measuring Success Steering Committee. This Committee was formed by the Oak Ridges Moraine Foundation to evaluate the success of the Foundation, as well as the success of the ORMCP Implementation.

As part of this process of monitoring and evaluation, the Committee has identified a number of important projects that will have significant contributions to defending the Oak Ridges Moraine in 2015. While all of the identified projects are important, it is not feasible for the Foundation to undertake them all. The MTM Project Partners have committed, where possible, to fill these gaps and undertake some of these legacy projects.

Oak Ridges Moraine Foundation



In 2002, the Oak Ridges Moraine Foundation (ORMF) was created to provide support and encouragement for activities that

preserve, protect, and restore the environmental integrity of the Oak Ridges Moraine as well as to support a trail along it.

With a \$15 million investment from the province, the ORMF has, through its granting program, leveraged an additional \$38 million dollars into on-the-ground moraine activities. The ORMF is a charitable not-for-profit with its own charter independent from the provincial government.

Despite an announcement in May 2009, the ORMF will keep its doors open beyond the proposed September 2010 closure date in response to the outpouring of support from the many moraine stakeholders. The ORMF has a new and recently approved strategic plan that involves the coordination of data collection for the 2015 Oak Ridges Moraine Conservation Plan Review; exploration and implementation of legacy projects to celebrate the moraine; and continuation of its moraine-wide coordination and facilitation role.

A sample of some of the main programs identified by the Measuring Success project include:

- Evaluation of the health of subwatersheds and kettle lake basins on the Oak Ridges Moraine
- An assessment of land stewardship and securement in the protection and enhancement of the Oak Ridges Moraine
- An assessment of the enhancement of an Oak Ridges Moraine Trail
- An assessment of the education and public awareness initiatives in the protection and enhancement of the Oak Ridges Moraine

The Oak Ridges Moraine Foundation continues to be an essential partner to all groups working on the Moraine and is making significant contributions to the Oak Ridges Moraine that will have lasting effects well beyond 2015.

WHAT YOU CAN DO

Now that we've covered the general ins and outs of the Moraine and provided an overview on how groups are preparing for the Oak Ridges Moraine Conservation Plan Review in 2015, it's your turn to get involved if you haven't already. As we approach 2015, there is a growing momentum around the Oak Ridges Moraine. Be a part of this Moraine movement!

"In the end, we conserve only what we love. We will love only what we understand. We will understand only what we are taught."

Baba Dioum, Senegalese poet

There are many ways to get involved on the Oak Ridges Moraine. You have already started by reading this Guide! Here are some suggestions:

Stay Informed

Keep up to date about Moraine issues in your area. Who are the people involved, and what are the outcomes? What groups are working in your area? Are you a member? Do you attend council meetings? Staying informed is important so that you can be ready and prepared to get involved proactively and reactively in Moraine issues. Are there any upcoming workshops on the Moraine? The Monitoring the Moraine Project Partners host a variety of workshops and events across the Moraine. Check the Monitoring the Moraine webpage regularly to find out about upcoming opportunities.

Self-Organization

If you are a part of an existing group, or you are interested in forming a group, the MTM Project Partners highly recommend the *Community Guide to Monitoring on the Moraine*. This resource will help your group become more organized and strategic in your actions, so that you can have a real impact on keeping your part of the moraine healthy. The Community Guide is available on the EcoSpark website: www.ecospark.ca/monitoringthemoraine.

Collect and Contribute Information

The MTM Project offers volunteer programs so you can contribute data in preparation for 2015. As an individual or as part of a group, you can:

- Devote a Saturday in July and participate in Check Your Watershed Day. Join a stream team and help build a better understanding of how the Moraine's groundwater is flowing through your watershed.
- Be the eyes on the ground. Help track any new applications on the moraine and make sure that they conform to the ORMCP through Moraine Watch.

The harmonized review process in 2015 includes stages where public feedback is requested. Make your voice heard and offer your feedback to all levels of government. Check the Ministry of Municipal Affairs and Housing website regularly for these opportunities.

The Moraine and You

What does the Moraine mean to you? It is important to identify what it is that makes you passionate about the Moraine, and what you think is worth protecting. Once you've pinpointed this, you can start to work towards protecting it.

You can also start to collect your personal experiences about the Moraine. What is your story of the Moraine?



Photo taken during a Monitoring the Moraine workshop in Centreton on the Oak Ridges Moraine



Photo taken by Mark Carroll on the Oak Ridges Moraine

Large policy reviews can easily miss the human element, but the vision of the ORMCP includes supporting the “*health and well-being of the region’s residents and ecosystems.*” A personal narrative of the Moraine can have just as much impact as scientific data during the review process.

CONCLUSION

We hope you’ve found this Guide informative and interesting. We also hope that this resource will pique your curiosity to find out more about the Moraine. To learn more about the Oak Ridges Moraine, please refer to Appendix A for a list of other groups and websites.

Whether it is through the MTM Project or other Moraine-groups, we encourage you to get involved in the Moraine movement to help protect the Oak Ridges Moraine for present and future generations to enjoy and cherish. Be a part of the Moraine legacy – the Moraine For Life.

For more information on the Monitoring the Moraine Project:

VISIT www.ecospark.ca/monitoringthemoraine

EMAIL info@monitoringthemoraine.ca

CALL 647-258-3280



APPENDIX A: SOURCES OF ADDITIONAL INFORMATION

ABOUT THE OAK RIDGES MORaine

- Citizens' Environment Watch. (2008). *Trees of the Oak Ridges Moraine*. Toronto.
- Clarke, Ruth. (2005). *To Know This Place: The Black Oak Savanna/Tallgrass Prairie of Alderville First Nation* (2nd Edition). Roseneath, Ontario: A Sweetgrass Studios Publication.
- Geological Survey of Canada, Oak Ridges Moraine Project. http://gsc.nrcan.gc.ca/hydrogeo/orm/index_e.php
- Geological Survey of Canada, Oak Ridges Moraine Animations. http://gsc.nrcan.gc.ca/hydrogeo/orm/animations_e.php
- Geoscape Toronto (Natural Resources Canada) http://geoscape.nrcan.gc.ca/toronto/moraine_e.php
- The Oak Ridges Moraine Foundation <http://www.moraineforlife.org/>
- Hiltz, S. & Mitchell, P. (n.d.). *Caring for Your Land: A Stewardship Handbook for Oak Ridges Moraine Landowners*. University of Guelph: Centre for Land and Water Stewardship.
- Jacob, Katherine, Conservation Ontario. (2003). *Oak Ridges Moraine Trails*. Ontario: Queen's Printer.
- Oak Ridges Trail Association. (2005). *Oak Ridges Trail Guidebook*. Aurora, Ontario.
- Oak Ridges Friends of the Environment. (2007). *Oak Ridges on the Moraine: A Guide to the Natural Environment and the Community*.
- Save the Oak Ridges Moraine Coalition. (1997). *Oak Ridges Moraine*. Erin, Ontario: The Boston Mills Press.

OAK RIDGES MORaine CONSERVATION ACT

- http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_01o31_e.htm

OAK RIDGES MORaine CONSERVATION PLAN AND ASSOCIATED MAPS

- <http://www.mah.gov.on.ca/Page1707.aspx>

OAK RIDGES MORaine TECHNICAL PAPER SERIES

- <http://www.mah.gov.on.ca/Page4807.aspx>

PLANNING

- Citizens Guide to Land-Use Planning. Ministry of Municipal Affairs and Housing: <http://www.mah.gov.on.ca/Page338.aspx>
- A Smart Future for Ontario: How to Create Greenways and Curb Urban Sprawl in Your Community. Ontario Nature, 2005.
- Keeping It Green: A Citizen's Guide to Urban Land Protection in Canada. Evergreen, 2005. Available on-line at <http://www.evergreen.ca/docs/res/Keeping-It-Green.pdf>

CONSERVATION AUTHORITIES

- Conservation Authorities/ Conservation Authorities Moraine Coalition. <http://www.trca.on.ca/protect/conservation-authorities-moraine-coalition.dot>
- York Peel Durham Toronto Groundwater Study: <http://www.ypdt-camc.ca/>

OTHER ORGANIZATIONS

- Oak Ridges Moraine Foundation: www.ormf.com
- Oak Ridges Moraine Land Trust: www.oakridgesmoraine.org
- Oak Ridges Moraine Trail Association: www.oakridgestrail.org
- Ontario Nature: www.ontarionature.org
- Friends of the Greenbelt Foundation: www.ourgreenbelt.ca

PROJECT PARTNERS

- EcoSpark: www.ecospark.ca
- STORM Coalition: www.stormcoalition.org
- Monitoring the Moraine Project: www.ecospark.ca/monitoringthemoraine



MONITORING the MORAINE

The Monitoring the Moraine Project is building and sustaining a movement of engaged communities who can contribute to the long-term protection of the Oak Ridges Moraine. We work with volunteers in ecological and policy monitoring to measure changes to the Moraine landscape and to determine the effectiveness of the Oak Ridges Moraine Conservation Plan. The project is a collaboration between EcoSpark and STORM Coalition.



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Save The Oak Ridges Moraine

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