Species at Risk Act
Recovery Strategy Series
Adopted under Section 44 of SARA

Recovery Strategy for the Cherry Birch (*Betula lenta*) in Canada

Cherry Birch

2016

Government of Canada
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For copies of the recovery strategy, or for additional information on species at risk, including the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) Status Reports, residence descriptions, action plans, and other related recovery documents, please visit the Species at Risk (SAR) Public Registry[1].

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[1] http://sararegistry.gc.ca/default.asp?lang=En&n=24F7211B-1

RECOVERY STRATEGY FOR THE CHERRY BIRCH (*Betula lenta*) IN CANADA

2016

Under the Accord for the Protection of Species at Risk (1996), the federal, provincial, and territorial governments agreed to work together on legislation, programs, and policies to protect wildlife species at risk throughout Canada.

In the spirit of cooperation of the Accord, the Government of Ontario has given permission to the Government of Canada to adopt the *Recovery Strategy for the Cherry Birch (*Betula lenta*) in Ontario* (Part 2) and the *Cherry Birch – Ontario Government Response Statement* (Part 3) under Section 44 of the *Species at Risk Act* (SARA). Environment and Climate Change Canada has included a federal addition (Part 1) which completes the SARA requirements for this recovery strategy.

The federal recovery strategy for the Cherry Birch in Canada consists of three parts:

Part 1 – Federal Addition to the *Recovery Strategy for the Cherry Birch (*Betula lenta*) in Ontario*, prepared by Environment and Climate Change Canada

Part 2 – *Recovery Strategy for the Cherry Birch (*Betula lenta*) in Ontario*, prepared by C. Zoladeski and K. Hayes for the Ministry of Natural Resources[2]

Part 3 – *Cherry Birch – Ontario Government Response Statement*, prepared by the Ministry of Natural Resources

[2] On June 26, 2014 the Ontario Ministry of Natural Resources became the Ontario Ministry of Natural Resources and Forestry.

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Part 1 – Federal Addition to the *Recovery Strategy for the Cherry Birch (*Betula lenta*) in Ontario*, prepared by Environment and Climate Change Canada

Preface

The federal, provincial, and territorial government signatories under the Accord for the Protection of Species at Risk (1996)[3] agreed to establish complementary legislation and programs that provide for effective protection of species at risk throughout Canada. Under the *Species at Risk Act* (S.C. 2002, c.29) (SARA), the federal competent ministers are responsible for the preparation of recovery strategies for listed Extirpated, Endangered, and Threatened species and are required to report on progress within five years after the publication of the final document on the SAR Public Registry.

The Minister of Environment and Climate Change is the competent minister under SARA for the Cherry Birch and has prepared the federal component of this recovery strategy (Part 1), as per section 37 of SARA. To the extent possible, it has been prepared in cooperation with the Ontario Ministry of Natural Resources and Forestry as per section 39(1) of SARA. SARA section 44 allows the Minister to adopt all or part of an existing plan for the species if it meets the requirements under SARA for content (sub-sections 41(1) or (2)). The Province of Ontario led the development of the attached recovery strategy for the Cherry Birch (Part 2) in cooperation with Environment and Climate Change Canada. The province of Ontario also led the development of the attached Government Response Statement (Part 3), which is the Ontario Government's policy response to its provincial recovery strategy and summarizes the prioritized actions that the Ontario government intends to take and support.

Success in the recovery of this species depends on the commitment and cooperation of many different constituencies that will be involved in implementing the directions set out in this strategy and will not be achieved by Environment and Climate Change Canada, or any other jurisdiction alone. All Canadians are invited to join in supporting and implementing this strategy for the benefit of the Cherry Birch and Canadian society as a whole.

This recovery strategy will be followed by one or more action plans that will provide information on recovery measures to be taken by Environment and Climate Change Canada and other jurisdictions and/or organizations involved in the conservation of the species. Implementation of this strategy is subject to appropriations, priorities, and budgetary constraints of the participating jurisdictions and organizations.

The recovery strategy sets the strategic direction to arrest or reverse the decline of the species, including identification of critical habitat to the extent possible. It provides all Canadians with information to help take action on species conservation. When critical habitat is identified, either in a recovery strategy or an action plan, there may be future regulatory implications, depending on where the critical habitat is identified. SARA requires that critical habitat identified within a national park named and described in Schedule 1 to the *Canada National Parks Act*, the Rouge National Urban Park established by the *Rouge National Urban Park Act*, a marine protected area under the

[3] http://registrelep-sararegistry.gc.ca/default.asp?lang=en&n=6B319869-1#2

Oceans Act, a migratory bird sanctuary under the *Migratory Birds Convention Act, 1994* or a national wildlife area under the *Canada Wildlife Act* be described in the *Canada Gazette*, after which prohibitions against its destruction will apply. For critical habitat located on other federal lands, the competent minister must either make a statement on existing legal protection or make an order so that the prohibition against destruction of critical habitat applies. For any part of critical habitat located on non-federal lands, if the competent minister forms the opinion that any portion of critical habitat is not protected by provisions in or measures under SARA or other Acts of Parliament, or the laws of the province or territory, SARA requires that the Minister recommend that the Governor in Council make an order to prohibit destruction of critical habitat. The discretion to protect critical habitat on non-federal lands that is not otherwise protected rests with the Governor in Council.

Acknowledgements

The initial drafts of this recovery strategy addition were written by Judith Jones (Winter Spider Eco-consulting) and Holly Bickerton (Consulting Ecologist). Additional preparation and review of the document was completed by Angela McConnell, Angela Darwin, Lee Voisin (Environment and Climate Change Canada, Canadian Wildlife Service – Ontario) and Paul Johanson (Environment and Climate Change Canada, Canadian Wildlife Service – National Capital Region). Amelia Argue (Ontario Ministry of Natural Resources and Forestry) and Sean Fox (University of Guelph Arboretum) provided information that was helpful in the development of the strategy. Madeline Austen, Krista Holmes and Lesley Dunn (Environment and Climate Change Canada, Canadian Wildlife Service – Ontario) and Aileen Rapson, Amanda Fracz, Eric Snyder, Mike Oldham, Sam Brinker, David Bradley and Jim Mackenzie (Ontario Ministry of Natural Resources and Forestry) reviewed and provided comments and advice during the development of this document.

Acknowledgement and thanks is given to all other parties that provided advice and input used to help inform the development of this recovery strategy including various Aboriginal organizations and individuals, landowners, citizens and stakeholders who provided input and/or participated in consultation meetings.

Additions and Modifications to the Adopted Document

The following sections have been included to address specific requirements of the federal *Species at Risk Act* (SARA) that are not addressed in the Province of Ontario's *Recovery Strategy for the Cherry Birch (*Betula lenta*) in Ontario* (Part 2) and to provide updated and additional information.

Environment and Climate Change Canada is adopting the Ontario recovery strategy (Part 2) with the exception of section 2, Recovery. In place of section 2, Environment and Climate Change Canada has established a population and distribution objective based on the provincial recovery goal and is adopting the government-led and government-supported actions set out in the *Cherry Birch – Ontario Government Response Statement*[4] (Part 3) as the broad strategies and general approaches to meet the population and distribution objectives.

Under SARA, there are specific requirements and processes set out regarding the protection of critical habitat. Therefore, statements in the provincial recovery strategy referring to protection of the species' habitat may not directly correspond to federal requirements. Recovery measures dealing with the protection of habitat are adopted; however, whether these measures will result in protection of critical habitat under SARA will be assessed following publication of the final federal recovery strategy.

1. Species Status Information

The Cherry Birch is listed as Endangered[5] on Schedule 1 of SARA. In Ontario, it is listed as Endangered[6] under the *Endangered Species Act, 2007* (ESA).

The Cherry Birch's global conservation status is Secure[7] (G5). In Canada, the species' conservation status is Critically Imperilled (N1). It is also considered Critically Imperilled (S1) within Ontario. In the United States, the species' national conservation status is Secure (N5) and it is considered Critically Imperilled to Secure (S1-S5) in 20 American states within its range (NatureServe 2014; Appendix A).

It is estimated that less than 1% of the species' global range occurs in Canada (COSEWIC 2006).

[4] The Government Response Statement is the Ontario Government's policy response to the recovery strategy and summarizes the prioritized actions that the Ontario Government intends to take and support.
[5] Endangered: A wildlife species facing imminent extirpation or extinction in Canada.
[6] Endangered: A species that lives in the wild in Ontario but is facing imminent extinction or extirpation.
[7] A glossary of terms is provided in Appendix A.

2. Recovery Feasibility Summary

Based on the following four criteria that Environment and Climate Change Canada uses to establish recovery feasibility, there are unknowns regarding the feasibility of recovery of the Cherry Birch. In keeping with the precautionary principle, a full recovery strategy has been prepared as would be done when recovery is determined to be feasible.

1. **Individuals of the wildlife species that are capable of reproduction are available now or in the foreseeable future to sustain the population or improve its abundance.**

   Yes. Recent (2010) fieldwork confirmed the presence of nine naturally occurring young trees located in the Niagara Region (Ontario), with nine additional living trees, derived from seeds from the naturally occurring trees, located nearby. At least 44 other trees planted at the Guelph Arboretum in Ontario were grown from the seed of trees in the Niagara Region, and seeds from these trees could be made available for restoration (COSEWIC 2006, Zoladeski and Hayes 2013, S. Fox pers. comm. 2014). Both planted and natural individuals produce seeds (and thus are capable of reproduction). Cherry Birch is also present and not at risk in adjacent New York state, and it may be possible to introduce trees from nearby populations, if necessary, to achieve the population and distribution objective. If this is necessary, introduction would benefit from further study (e.g., genetic work). Genetic pressure from isolation may be affecting this small population, although it is not known what the long term effects may be.

2. **Sufficient suitable habitat is available to support the species or could be made available through habitat management or restoration.**

   Unknown. Very little natural woodland remains in the Niagara Region due to land conversion to agricultural and urban uses. Areas of apparently suitable habitat exist and have been surveyed for the species, yet for unknown reasons, they do not currently support Cherry Birch. The area where the trees currently occur naturally is surrounded by residential development, and is at risk of erosion caused by storms (COSEWIC 2006).

   Thus, suitable habitat appears to be a limiting factor, and exact micro-habitat requirements remain unknown. It has been suggested that suitable habitat may also be present between the Ottawa Valley and Montreal (COSEWIC 2006); however, Cherry Birch has not been documented from this region since the late 1950s (Gillet 1958).

3. **The primary threats to the species or its habitat (including threats outside Canada) can be avoided or mitigated.**

   Unknown. Of the primary threats to the species, habitat loss and degradation can be mitigated or avoided through stewardship and protection activities. However,

it may be impossible to mitigate natural events such as shoreline erosion. Additionally, the impact of genetic isolation on the survival of the species is unknown.

4. **Recovery techniques exist to achieve the population and distribution objectives or can be expected to be developed within a reasonable timeframe.**

   Yes. Cherry Birch is readily grown from seed (COSEWIC 2006; Kock 1998) and is a prolific seed producer (S. Fox pers. comm. 2014). Trees of this species have been successfully grown at the Guelph Arboretum and other areas of the Niagara Region, and are sometimes planted as landscape trees in the United States (University of Connecticut 2014). Cultivation is likely a feasible recovery technique for this species and seed from the Canadian population is available. If necessary, genetic material from outside populations (the closest populations are in New York) could be sought to reduce the risk of inbreeding of Canada's single, small population, while ensuring that new plants are suitably adapted to the climate.

3. Population and Distribution Objectives

The provincial *Recovery Strategy for the Cherry Birch* (Betula lenta) *in Ontario* contains the following recovery goal:

- The recovery goal is to ensure continued persistence of Cherry Birch at known sites in Ontario with no further decline in population size in the short-term and an increase in population size in the long-term.

The *Cherry Birch – Ontario Government Response Statement* contains the following goal for the recovery of the Cherry Birch in Ontario:

- The government's goal for the recovery of the Cherry Birch is to maintain the persistence of Cherry Birch at or above current population levels within its current distribution in Ontario.

Under SARA, population and distribution objectives for the species must be established. The population and distribution objective established by Environment and Climate Change Canada for Cherry Birch is:

- To maintain the abundance and distribution of the naturally occurring Cherry Birch population in Canada and, if biologically and technically feasible, increase the population abundance.

Currently, the Canadian population[8] occurs at one location (15 Mile Creek), represented by nine trees, which reside in a single tract of natural forest. Nearby this population, there are an additional nine Cherry Birch trees that have been planted. Planted Cherry Birch trees are not currently being considered as existing/extant populations (or portions thereof) in the above objective. Continued monitoring to determine planting success, viability and probability of persistence must precede their inclusion. These plants may be considered as part of the objective in the future following a better understanding of their ability to support and contribute to long-term recovery. Therefore, although the province of Ontario considers the population of Cherry Birch to include 18 individuals, nine of which have been planted, this federal recovery strategy sets a population and distribution objective for the nine naturally occurring individuals.

The population of Cherry Birch has steadily declined since the late 1960s (COSEWIC 2006). The most immediate threat to this population is shoreline erosion; one sub-population has recently been entirely lost due to erosion caused by storms in 2004 and 2005 (Zoladeski and Hayes 2013).

It is not known whether the current number of trees, compounded by the fact that they all occur in one location, will be sufficient to ensure the persistence of the Cherry Birch population in Canada. The broad strategies adopted from the *Cherry Birch – Ontario Government Response Statement* work towards the recovery of this species, including determining the feasibility of seedling propagation and planting in suitable habitat. Working with partners and private landowners to maintain natural forests and implement mitigation techniques to manage erosion and herbivory is also important to the recovery of Cherry Birch in Canada. The feasibility of recovery will be reviewed and updated within five years of the final posting of this document.

4. Broad Strategies and General Approaches to Meet Objectives

The government-led and government-supported actions tables from the *Cherry Birch – Ontario Government Response Statement* (Part 3) are adopted as the broad strategies and general approaches to meet the population and distribution objectives. Environment and Climate Change Canada is not adopting the approaches identified in section 2.3 of the *Recovery Strategy for the Cherry Birch* (Betula lenta) *in Ontario* (Part 2).

5. Critical Habitat

5.1 Identification of the Species' Critical Habitat

Section 41 (1)(c) of SARA requires that recovery strategies include an identification of the species' critical habitat, to the extent possible, as well as examples of activities that are

[8] This location originally supported two subpopulations but one of these subpopulations was lost to shoreline erosion. Now the nine remaining tress are located in the one remaining subpopulation.

likely to result in its destruction. Under SARA, critical habitat is “the habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species’ critical habitat in the recovery strategy or in an action plan for the species”.

Identification of critical habitat is not a component of provincial recovery strategies under the Province of Ontario's ESA. Under the ESA, when a species becomes listed as endangered or threatened on the Species at Risk in Ontario List, it automatically receives general habitat protection. Cherry Birch currently receives general habitat protection under the ESA; however, a description of the general habitat has not yet been developed. In some cases, a habitat regulation may be developed that replaces the general habitat protection. A habitat regulation is a legal instrument that prescribes an area that will be protected as the habitat of the species by the Province of Ontario. A habitat regulation has not been developed for Cherry Birch under the ESA.

This federal recovery strategy identifies critical habitat for Cherry Birch to the extent possible, based on the best available information as of August 2014. Critical habitat is identified for the one extant population of Cherry Birch in Ontario (Figure 1; see also Table 1) and is sufficient to meet the population and distribution objectives; therefore it is considered a full identification of critical habitat and a schedule of studies is not required. Additional critical habitat may be added in the future if new or additional information supports the inclusion of areas beyond those currently identified (e.g., new sites become colonized in adjacent areas).

Critical habitat is not identified for individual trees or groups of trees which have been planted in landscape settings for horticultural purposes, such as in urban gardens or arboretums. At this time, sites where Cherry Birch has been planted as part of a habitat restoration, rehabilitation, or creation program are not being considered for critical habitat identification until it can be determined that the plantings are successful. Determination of restoration success and viability, as measured through plant vigour and fitness, must precede identification of critical habitat at such sites. Critical habitat may be identified following long-term monitoring to determine success, extent of suitable habitat, and site occupancy. It should be noted, however, that these individuals may contain important genetic material for recovery and are protected under the prohibitions listed in the *Endangered Species Act, 2007* (ESA).

The identification of critical habitat for Cherry Birch is based on two criteria: habitat occupancy and habitat suitability.

5.1.1 Habitat Occupancy

This criterion refers to areas of suitable habitat where there is a reasonable degree of certainty of current use by the species.

- Habitat is considered occupied when one or more naturally-occurring Cherry Birch individuals have been observed in any single year since 1994 in suitable habitat. If field surveys by a qualified individual (e.g., forester or biologist with botanical

knowledge and preferably with experience undertaking surveys for *B. lenta*) determines that no living Cherry Birch individuals (e.g., ramets[9], saplings or trees) are extant at a site, the site is considered unoccupied.

Habitat occupancy is based on recent survey information (C. Zoladeski pers. comm. 2014; COSEWIC 2006) and allows for the inclusion of the one population known to be extant. Although trees were confirmed, detailed locations of the individual trees are not currently available. Supplementary surveys may be required to describe the specific locations of Cherry Birch trees in Canada, yet in the interim broader habitat information (of the occupied forest tract) is available and will guide recovery planning until more detailed information is available.

5.1.2 Habitat Suitability

Habitat suitability relates to areas possessing a specific set of biophysical attributes that can support individuals of the species in carrying out essential aspects of their lifecycle. The Canadian population of Cherry Birch occurs in a forest that includes Red Oak (*Quercus rubra*), Sugar Maple (*Acer saccharum*), Black Cherry (*Prunus serotina*) and Eastern Hop-hornbeam (*Ostrya virginiana*). The closest U.S. population, found in New York, is associated with Sugar and Red Maple (*Acer rubrum*), American Beech (*Fagus grandifolia*), Eastern Hemlock (*Tsuga canadensis*), Black Cherry, Tulip Tree (*Liriodendron tulipifera*), Yellow Birch (*Betula alleghaniensis*), Paper Birch (*Betula papyrifera*) and Chestnut Oak (*Quercus prinus*) (COSEWIC 2006; Zoladeski and Hayes 2013). Cherry Birch appears to be associated more with site conditions (e.g., open canopy) than with specific tree species compositions.

The biophysical attributes of suitable habitat for Cherry Birch in Canada include:

- Areas of clay loam, sandy, or rocky, coarse textured, soils;
- Full sun or open canopy, and;
- Deciduous or mixed woodland and woodland floodplain.

Based on the best available information, suitable habitat for the Cherry Birch is currently defined as the extent of the biophysical attributes where Cherry Birch exists in Ontario. In addition to the suitable habitat, a critical root zone of 20 m (radial distance) is applied when the biophysical attributes around a Cherry Birch individual extend for less than 20 m.

In Ontario, suitable habitat for the Cherry Birch is described using the Ecological Land Classification (ELC) framework for Southern Ontario (from Lee et al. 1998). The ELC framework provides a standardized approach to the interpretation and delineation of dynamic ecosystem boundaries. The ELC approach classifies habitats not only by vegetation community but also considers soil moisture conditions and topography, and as such provides a basis for describing the ecosystem requirements (e.g., local effects of

[9] Ramet: An individual produced through asexual means such as vegetatively. In the case of Cherry Birch, this would refer to suckers of a specific tree.

the associated hydrologic regime, canopy cover) and encompasses the biophysical attributes of suitable habitat for the Cherry Birch. In Ontario, ELC terminology and methods are familiar to many land managers and conservation practitioners who have adopted this tool as the standard approach for Ontario.

Within the ELC system in Ontario, the ecosite boundary best captures the extent of biophysical attributes required by the species. The ELC ecosite includes the areas occupied by Cherry Birch and the surrounding area that provides suitable habitat conditions (e.g., full sun or open canopy) to carry out essential life processes for the species and should allow for natural processes related to population dynamics and reproduction (e.g., dispersal and pollination) to occur. Currently, the ELC ecosite(s) that contain existing Cherry Birch individuals is not known. Additional habitat assessments are required to describe and map the specific ELC ecosites currently occupied by Cherry Birch in Canada.

A radial distance of 20 m is based on a critical root radius definition, calculated as 1.5 feet of radius for each inch of the diameter at breast height (dbh) of a tree (or 18 cm per one cm of the dbh) (Johnson 1999). Given that the maximum recorded dbh for Cherry Birch in Canada is 95 cm (COSEWIC 2006), the critical root radius is calculated to be 20 m (95 cm x 18 cm = 17.1 m rounded up to the nearest 5 metres).

The critical root radius is used as a precautionary measure to define a zone surrounding the tree to prevent damage or disturbance (such as soil compaction) to the roots, dripline[10] and soil.

The area within the critical root zone may include both suitable and unsuitable habitat as to protect individual Cherry Birch trees, which may be found near the transition area/zone between suitable and unsuitable habitat (e.g., along the woodland or forest edges). At present, it is not clear at what exact distances physical and/or biological processes begin to negatively affect Cherry Birch. Recent studies show that the magnitude and distance of edge effects will vary depending on the structure and composition of adjacent habitat types (Harper et al. 2005). As new information on species' habitat requirements, site-specific characteristics, and newly germinated trees becomes available, more critical habitat may be identified.

5.1.3 Application of the Criteria to Identify Critical Habitat for Cherry Birch

Critical habitat for Cherry Birch is identified as the extent of suitable habitat (section 5.1.2) where the occupancy criterion (section 5.1.1) is met. In cases where the suitable habitat extends for less than 20 m around a Cherry Birch individual, a critical root zone capturing an area within a radial distance of 20 m is also included as critical habitat.

In Ontario, as noted above, suitable habitat for Cherry Birch is most appropriately identified as the ELC ecosite. At the present time, the ecosite descriptions and

[10] The area beneath a tree defined by the outermost circumference of the tree's canopy where water drips from the tree's foliage onto the ground.

boundaries are not available to support the identification of critical habitat for populations in Ontario. In the interim, ELC community series level is identified as the area within which critical habitat is found. In Ontario, critical habitat is located within these boundaries where the biophysical attributes (section 5.1.2) are found and where the occupancy criterion (section 5.1.1) is met. When ecosite boundaries are determined, the identification of critical habitat will be updated.

Application of the critical habitat criteria to available information identifies one unit of critical habitat for the one extant population (15 Mile Creek) of Cherry Birch in Canada (Figure 1, See also Table 1), totaling up to 2 ha[11] .

Critical habitat for Cherry Birch is presented using 1 x 1 km UTM grid squares. The UTM grid squares presented in Figure 1 are part of a standardized grid system that indicates the general geographic areas containing critical habitat, for land use planning and/or environmental assessment purposes. In addition to providing these benefits, the 1 km x 1 km UTM grid respects data-sharing agreements with the Province of Ontario. Critical habitat within each grid square occurs where the description of habitat occupancy (section 5.1.1) and habitat suitability (section 5.1.2) are met. Features such as existing human-made features (e.g., existing infrastructure including homes, buildings, roads, swimming pools), or portions of water bodies (e.g. Lake Ontario) are not necessary for the survival or recovery of the species and are therefore not critical habitat. More detailed information to support protection of the species and its habitat may be requested on a need-to-know basis by contacting Environment and Climate Change Canada – Canadian Wildlife Service at ec.planificationduretablissement-recoveryplanning.ec@canada.ca.

[11] This is the maximum extent of critical habitat based on habitat boundaries that can be delineated from high resolution aerial photography (comparable to ELC, Community Series) and/or a 20m radial distance around a Cherry Birch individual. Actual critical habitat occurs only in those areas described in section 5.1 and therefore could be less than this and would require field verification.

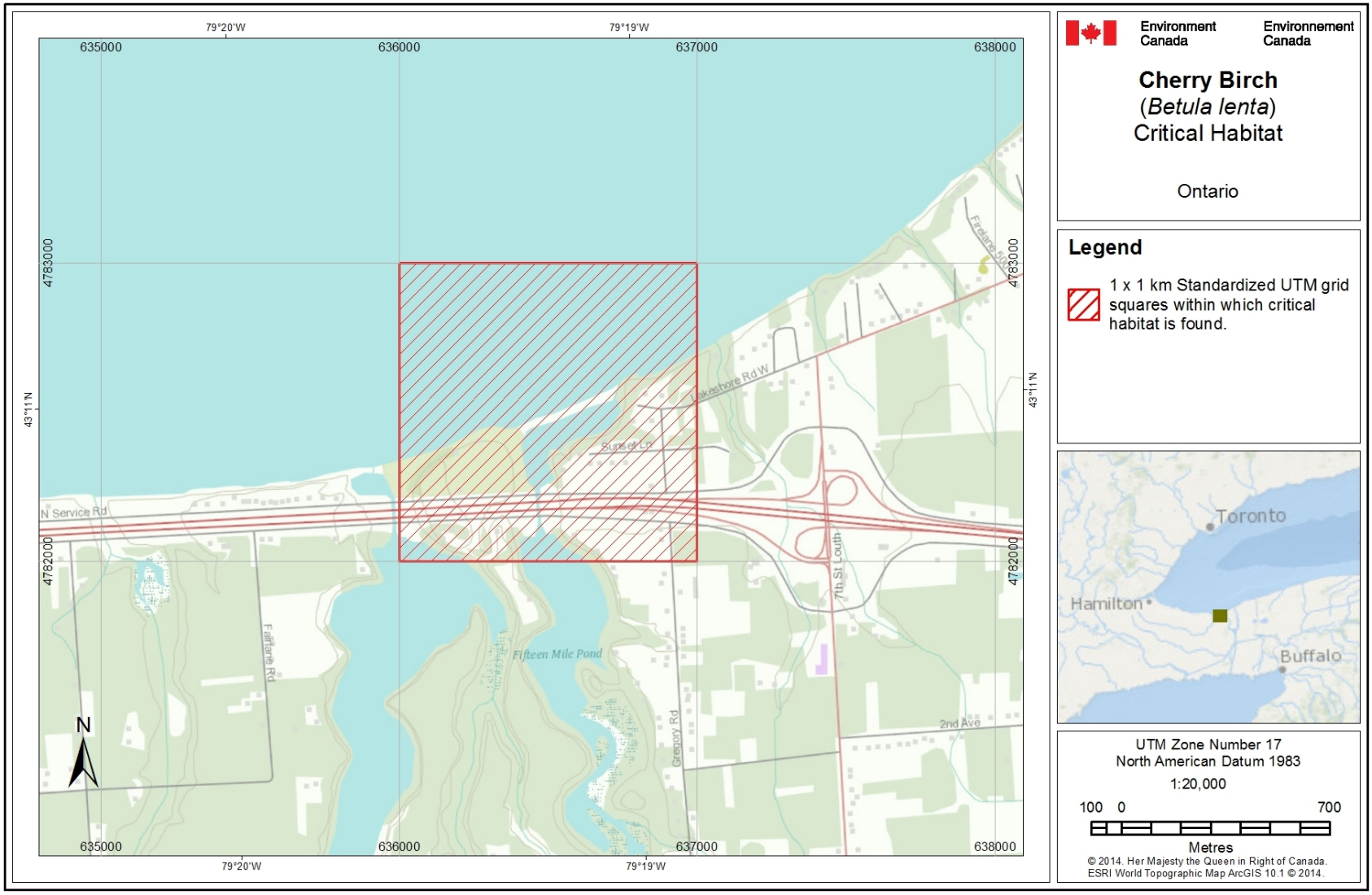

Figure 1. Grid square that contains critical habitat for Cherry Birch (*Betula lenta)* in Canada. Critical habitat for Cherry Birch occurs within this 1 x 1 km standardized UTM grid square (red hatched outline), where the criteria described in Section 5 are met.

Table 1. Grid square that contains critical habitat for Cherry Birch (*Betula lenta)* in Canada. Critical habitat for Cherry Birch occurs within this 1 x 1 km standardized UTM grid square where the criteria described in Section 5 are met.

Population	1 x 1 km Standardized UTM Grid Square ID[a]	UTM Grid Square Coordinates[b]		Critical habitat unit area (ha)[c]	Land tenure
		Easting	Northing		
15 Mile Creek	17PH3862	636000	4782000	2	Non-federal

[a] Based on the standard UTM Military Grid Reference System (see www.nrcan.gc.ca/earth-sciences/geography-boundary/mapping/topographic-mapping/10098), where the first two digits represent the UTM Zone, the following two letters indicate the 100 x 100 km standardized UTM grid followed by two digits to represent the 10 x 10 km standardized UTM grid containing all or a portion of the critical habitat unit. This unique alphanumeric code is based on the methodology produced from the Breeding Bird Atlases of Canada (See www.bsc-eoc.org/ for more information on breeding bird atlases).The last 2 digits represent the 1 x 1 km standardized UTM grid containing all or a portion of the critical habitat unit. This unique alphanumeric code is based on the methodology produced from the Breeding Bird Atlases of Canada (See www.bsc-eoc.org/ for more information on breeding bird atlases).

[b] The listed coordinates are a cartographic representation of where critical habitat can be found, presented as the southwest corner of the 1 x 1 km standardized UTM grid square containing all or a portion of the critical habitat unit. The coordinates may not fall within critical habitat and are provided as a general location only.

[c] The area presented is an approximation of the area of critical habitat (rounded up to the nearest 1 ha); the actual area of critical habitat would require field verification.

5.2 Activities Likely to Result in the Destruction of Critical Habitat

Understanding what constitutes destruction of critical habitat is necessary for the protection and management of critical habitat. Destruction is determined on a case by case basis. Destruction would result if part of the critical habitat was degraded, either permanently or temporarily, such that it would not serve its function when needed by the species. Destruction may result from a single activity or multiple activities at one point in time or from the cumulative effects of one or more activities over time. Activities described in Table 2 include those likely to cause destruction of critical habitat for the species; however, destructive activities are not limited to those listed.

Table 2. Activities Likely to Destroy Critical Habitat of Cherry Birch

Description of Activity	Description of effect in relation to function loss of critical habitat	Details of effect
Development and conversion of lands (e.g., to residential, commercial, roadways).	Development through land clearing or construction results in a direct loss of soil substrate which is required for successful germination of Cherry Birch. Construction also results in a dramatic change in habitat features such as canopy structure, associated species, and hydrology[d] of an area which the species relies upon for basic survival, successful seed germination and seedling establishment, and may ultimately lead to its extirpation[e] from the site.	If this activity were to occur within the bounds of critical habitat at any time of the year, effects would be direct, and would be highly likely to result in the destruction of critical habitat. Any removal or alteration of critical habitat could compromise the long-term sustainability of the population, because the population is so small and suitable habitat appears to be limiting.
Landscaping activities (e.g.,	Landscaping activities might prevent the establishment of Cherry Birch	If this activity were to occur within the bounds of critical habitat, at any time of the

removal of native vegetation, planting of non-native plant species).	seedlings by altering the associated plant community composition or soil structure, and could increase the likelihood of invasion by non-native plants by disturbing or removing native ground cover, and/or by introducing non-native plants and/or propagules through contaminated soil.	year, it is likely to cause the destruction of critical habitat.
Introduction of exotic or invasive species	Planting of exotic or invasive species might prevent the establishment of Cherry Birch seedlings by altering the associated plant community and lead to competition for resources.	If this activity was to occur within the bounds of critical habitat, at any time of the year, it is likely to cause the destruction of critical habitat.

[d] Hydrology of an area refers to the movement, distribution, quality, and quantity of water in that area.
[e] Extirpation: No longer existing at a particular site.

6. Measuring Progress

The performance indicators presented below provide a way to define and measure progress toward achieving the population and distribution objective. Every five years, success of recovery strategy implementation will be measured against the following performance indicator:

- Population abundance and distribution of the naturally occurring population have been maintained at 2014 levels or increased.

7. Statement on Action Plans

One or more action plans will be completed for the Cherry Birch and posted on the Species at Risk Public Registry by 2023.

8. Effects on the Environment and Other Species

A strategic environmental assessment (SEA) is conducted on all SARA recovery planning documents, in accordance with the *Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals*[12]. The purpose of a SEA is to incorporate environmental considerations into the development of public policies, plans, and program proposals to support environmentally sound decision-making and to evaluate whether the outcomes of a recovery planning document could affect any component of the environment or any of the Federal Sustainable Development Strategy's[13] (FSDS) goals and targets.

Recovery planning is intended to benefit species at risk and biodiversity in general. However, it is recognized that strategies may also inadvertently lead to environmental effects beyond the intended benefits. The planning process based on national guidelines directly incorporates consideration of all environmental effects, with a particular focus on possible impacts on non-target species or habitats. The results of the SEA are incorporated directly into the strategy itself, but are also summarized below in this statement.

The Cherry Birch remains at only one site in Ontario, which is very limited in size. Despite surveys of this site by several biologists over the past three decades (e.g. J. Ambrose 1984, R. Thompson 1992, J. Ambrose et al. (2004-5), Zoladeski and Hayes (surveys in 2010), no other species at risk have been identified and noted at this site or in the immediate area (COSEWIC 2006; Zoladeski and Hayes 2013). Forest cover is very limited within the Niagara Region, and conservation of this small area is likely to be of broad benefit to other species, and to regional biodiversity. Finally, broad approaches to recovery of this species, including all government-led and government supported actions adopted within this document, are currently limited to monitoring, habitat protection, stewardship, and possibly reintroduction, if necessary to meet the population and distribution objective. Recovery approaches do not include any habitat management activities (e.g. invasive species control, tree thinning or brush removal, or prescribed burning) that have the potential to impact non-target species.

Consequently, the SEA concluded that this strategy will clearly benefit the environment and will not entail significant adverse effects. For further details, the reader should refer to the following sections of the document, in particular: habitat needs (Part 2, section 1.4), knowledge gaps (Part 2, section 1.7) and the government-led and government-supported actions tables from Ontario's Government Response Statement for Cherry Birch (Part 3).

[12] www.ceaa.gc.ca/default.asp?lang=En&n=B3186435-1
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Appendix A: Subnational Conservation Ranks of Cherry Birch (*Betula lenta*) in Canada and the United States

Rank Definitions (NatureServe 2014)

Cherry Birch (*Betula lenta*)				
Global (G) Rank	**National (N) Rank (Canada)**	**Sub-national (S) Rank (Canada)**	**National (N) Rank (United States)**	**Sub-national (S) Rank (United States)**
G5	N1	Ontario (S1)	N5	Alabama (SNR), Connecticut (SNR), Delaware (S4), Georgia (SNR), Kentucky (S5), Maine (SNR), Maryland (SNR), Massachusetts (SNR), New Hampshire (SNR), New Jersey (S5), New York (S5), North Carolina (S5), Ohio (SNR), Pennsylvania (S5), Rhode Island (SNR), South Carolina (SNR), Tennessee (SNR), Vermont (SNR), Virginia (S5), West Virginia (S5)

N1/S1: Critically Imperilled - At very high risk of extirpation in the jurisdiction (i.e., N - nation, or S - state/province) due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors.

S4: Apparently Secure - At a fairly low risk of extirpation in the jurisdiction due to an extensive range and/or many populations or occurrences but with possible cause for some concern as a result of local recent declines, threats or other factors.

G5/N5/S5: Secure - At very low risk of extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.

SNR: Unranked – National or subnational conservation status not yet assessed.

Part 2 – *Recovery Strategy for the Cherry Birch (*Betula lenta*) in Ontario*, prepared by C. Zoladeski and K. Hayes for the Ministry of Natural Resources and Forestry

Lynk Media

Cherry Birch
(Betula lenta) in Ontario

Ontario Recovery Strategy Series

Recovery strategy prepared under the *Endangered Species Act, 2007*

Natural. Valued. Protected.

Ministry of Natural Resources

Ontario

About the Ontario Recovery Strategy Series

This series presents the collection of recovery strategies that are prepared or adopted as advice to the Province of Ontario on the recommended approach to recover species at risk. The Province ensures the preparation of recovery strategies to meet its commitments to recover species at risk under the Endangered Species Act, 2007 (ESA, 2007) and the Accord for the Protection of Species at Risk in Canada.

What is recovery?

Recovery of species at risk is the process by which the decline of an endangered, threatened, or extirpated species is arrested or reversed, and threats are removed or reduced to improve the likelihood of a species' persistence in the wild.

What is a recovery strategy?

Under the ESA, 2007, a recovery strategy provides the best available scientific knowledge on what is required to achieve recovery of a species. A recovery strategy outlines the habitat needs and the threats to the survival and recovery of the species. It also makes recommendations on the objectives for protection and recovery, the approaches to achieve those objectives, and the area that should be considered in the development of a habitat regulation. Sections 11 to 15 of the ESA, 2007 outline the required content and timelines for developing recovery strategies published in this series.

Recovery strategies are required to be prepared for endangered and threatened species within one or two years respectively of the species being added to the Species at Risk in Ontario list. There is a transition period of five years (until June 30, 2013) to develop recovery strategies for those species listed as endangered or threatened in the schedules of the ESA, 2007. Recovery strategies are required to be prepared for extirpated species only if reintroduction is considered feasible.

What's next?

Nine months after the completion of a recovery strategy a government response statement will be published which summarizes the actions that the Government of Ontario intends to take in response to the strategy. The implementation of recovery strategies depends on the continued cooperation and actions of government agencies, individuals, communities, land users, and conservationists.

For more information

To learn more about species at risk recovery in Ontario, please visit the Ministry of Natural Resources Species at Risk webpage at: **www.ontario.ca/speciesatrisk**

RECOMMENDED CITATION

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Cette publication hautement spécialisée Recovery strategies prepared under the *Endangered Species Act, 2007*, *n'est disponible qu'en Anglais en vertu du Règlement 411/97 qui en exempte l'application de la Loi sur les services en français. Pour obtenir de l'aide en français, veuillez communiquer avec Cathy Darevic au ministère des Richesses naturelles au 705-755-5580.*

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DECLARATION

The recovery strategy for the Cherry Birch has been prepared in accordance with the requirements of the *Endangered Species Act* (ESA). This recovery strategy has been prepared as advice to the Government of Ontario, other responsible jurisdictions and the many different constituencies that may be involved in recovering the species.

The recovery strategy does not necessarily represent the views of all of the individuals who provided advice or contributed to its preparation, or the official positions of the organizations with which the individuals are associated.

The goals, objectives and recovery approaches identified in the strategy are based on the best available knowledge and are subject to revision as new information becomes available. Implementation of this strategy is subject to appropriations, priorities and budgetary constraints of the participating jurisdictions and organizations.

Success in the recovery of this species depends on the commitment and cooperation of many different constituencies that will be involved in implementing the directions set out in this strategy.

RESPONSIBLE JURISDICTIONS

Ontario Ministry of Natural Resources
Environment Canada - Canadian Wildlife Service, Ontario

EXECUTIVE SUMMARY

Cherry Birch is a medium-sized, deciduous tree, usually growing on moist, well-drained soils. There appears to be only one wild population in Canada, located in the Niagara Region of Ontario, west of St. Catharines. Despite several focused searches in natural habitats along the Lake Ontario shoreline and Niagara River valley, no additional Cherry Birch specimens have been found in this region. The nearest other population is located approximately 70 km east in New York State.

Cherry Birch is widespread in the eastern United States. Its range extends from the states of Maine, New Hampshire and Vermont, south through the Appalachian Mountains to northern Alabama and Georgia, with disjunct occurrences in Mississippi and western Kentucky.

In Ontario, Cherry Birch is thought to have always been a minor component of forests at its historical and extant locations; nonetheless, its population has declined by 72%, from 50 trees observed in 1967 to 14 trees in 2005. Presently, there are only two sites, in proximity to each other, together harbouring probably not more than 18 individuals, nearly half of them being seedlings planted on a residential lawn. At the location where young trees grow within a natural forest habitat, the individuals appear healthy and produce seeds, but the level of reproductive success is unknown.

Habitat loss and degradation, including shoreline erosion, are believed to be the greatest threat to the species' survival. The apparent inability of Cherry Birch to establish at new sites may be caused by genetic depression and loss of fitness, caused by inbreeding and long isolation from the main distribution range.

The recovery goal is to ensure continued persistence of Cherry Birch at known sites in Ontario with no further decline in population size in the short-term and an increase in population size in the long-term. The protection and recovery objectives are:

- maintain the extant population of mature trees with the number of individuals stable or increasing;
- monitor planted Cherry Birch saplings and seedlings, and investigate possibilities of transfer to natural habitat;
- identify, protect and restore potential suitable habitats and reintroduce populations where possible, particularly at historical sites; and
- gain an understanding of habitat requirements, genetics, life history and population trends.

The only major recovery action carried out recently has been the planting of several dozen seedlings, grown from seeds collected on-site within a residential lawn and adjacent forest.

The proposed approaches to recover Cherry Birch, in addition to stewardship, include monitoring the population of mature trees, monitoring planted seedlings, exploring the feasibility of transplanting the seedlings to nearby natural habitats, growing additional

seedling stock at nursery facilities and initiating rigorous research of Cherry Birch genetics, population biology and habitat requirements.

It appears that the species may not require large habitat patches for its preservation however the minimum habitat size requirements are unknown at present. As a conservative approach, it is recommended that habitat patches of the specific forest type where naturally established Cherry Birch already grows as a tree or sapling, be prescribed as habitat in a habitat regulation.

TABLE OF CONTENTS

1. BACKGROUND INFORMATION

1.1 Species Assessment and Classification

COMMON NAME: Cherry Birch
SCIENTIFIC NAME: *Betula lenta*
SARO List Classification: Endangered
SARO List History: Endangered (2008)
COSEWIC Assessment History: Endangered (2006)
SARA Schedule 1: Endangered (2007)
CONSERVATION STATUS RANKINGS: GRANK: G5 NRANK: N1 SRANK: S1

The glossary provides definitions for technical terms, including the abbreviations above.

1.2 Species Description and Biology

Species Description

Cherry Birch is a medium-sized tree that reaches up to 25 m in height and 95 cm in diameter (COSEWIC 2006). The leaves are simple, alternate, with toothed edges. The bark is initially smooth, dark cherry red to almost black in colour, with conspicuous horizontal lenticels. It becomes ashy-brown with age and breaks up into large plates, which do not curl at the edges as is characteristic of other birches (Farrar 1995, Fernald 1950). Cherry Birch is similar in appearance to Yellow Birch (*Betula alleghaniensis*), which is quite common in the forests of the Niagara Region and often confused with Cherry Birch.

Species Biology

Cherry Birch is a long-lived tree, reaching the age of 200 years or more. As with most members of this family, it is monoecious with male and female flowers found on the same tree in separate catkins. Flowering occurs in early spring before the leaves expand. Fruit has been known to develop on isolated trees indicating self-compatibility. The seeds develop over the course of the summer and are released in late fall to winter. The wind-dispersed seeds have small wings and do not require cold stratification for development, but are reliant on light for germination (OMNR 2000; Burns and Honkala 1990). Seedlings develop best in light shade conditions; in natural stands, they take advantage of small canopy openings and where crown density is moderate (Burns and Honkala 1990).

Like other hardwoods, Cheery Birch can be browsed by large herbivores. However, herbivory does not seem to affect the mature trees (COSEWIC 2006).

1.3 Distribution, Abundance and Population Trends

Cherry Birch is relatively widespread in the eastern United States. Its distribution extends from southern Maine, New Hampshire, Vermont and New York to eastern Ohio and south through the Appalachian Mountains to northern Alabama and Georgia, over a wide range of altitudes from the New England coast to 1370 m in the southern Appalachian Mountains (Burns and Honkala 1990). Disjunct populations are documented in Mississippi and western Kentucky. There are reports from Quebec; however, these are generally thought to be erroneous (COSEWIC 2006; Marie-Victorin 1935).

The only confirmed wild population of Cherry Birch in Canada is found west of St. Catharines, at the mouth of Fifteen and Sixteen Mile creeks near the Lake Ontario shoreline (Figure 1). This population presently consists of individuals growing at two adjacent sites. The closest other population is about 70 km east in New York State. In 1967 the Canadian population consisted of about 50 trees. By 2005 only 14 trees were confirmed between the two sites, six of which were fruiting (COSEWIC 2006).

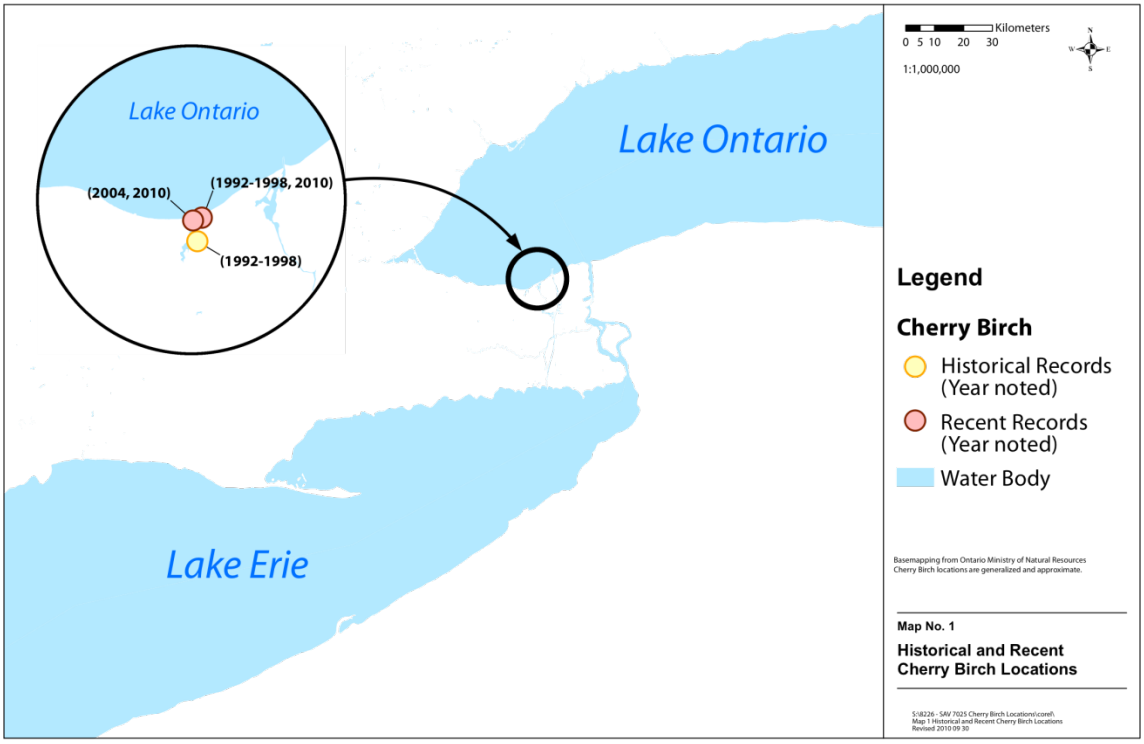

Figure 1. Historical and current distribution of Cherry Birch in Ontario (after COSEWIC 2006 surveys for this report)

A site visit in 2010 by Zoladeski and Hayes to both properties confirmed the presence of only nine young trees at the first location. At the second location, some 400 m away, no trees remained as they all had succumbed to shoreline erosion. One sapling was found at that location within a deciduous woodlot, but that specimen had been apparently planted there as a seedling in approximately 1998 (landowner, pers. comm. 2010) using seeds collected from the fruiting trees present on site at that time. Also planted at that location in 2008, were about 70 Cherry Birch seedlings propagated from seeds collected from the native individuals. The site visit revealed that only about eight seedlings were still alive. As of 2010 there appears to be a total of 18 individuals of Cherry Birch growing at the two sites.

1.4 Habitat Needs

Cherry Birch is believed to prefer moist, well-drained soils; however, the species is also found on coarse-textured and rocky, shallow soils. The New York population is found on stony clay loam, organic rich clay loam and sandy soils, and these soils are generally neutral to acidic (COSEWIC 2008). In Ontario, the location where the nine trees were found in 2010 is a north-facing slope on clay-loam soils which are generally alkaline, being associated with the presence of limestone bedrock. At the second location until recently, mature trees also grew in semi-open narrow wooded strips at the top of a cliff along Lake Ontario.

In Ontario, the forest where Cherry Birch was observed in 2010 is composed of Red Oak (*Quercus rubra*), Sugar Maple (*Acer saccharum*), Black Cherry (*Prunus serotina*) and Eastern Hop-hornbeam (*Ostrya virginiana*). In contrast, the western New York population co-occurs with Sugar and Red Maple (*Acer rubrum*), American Beech (*Fagus grandifolia*), Eastern Hemlock (*Tsuga canadensis*) and Black Cherry, with occasional associates being Tulip Tree (*Liriodendron tulipifera*), Yellow Birch, Paper Birch (*Betula papyrifera*) and Chestnut Oak (*Quercus prinus*) (COSEWIC 2006).

In New York seedlings were observed establishing in openings of the forest canopy in areas of fine gravel but not in the duff-covered portions of the forest floor. Some of the trees were also noted to have stilt roots indicating that they may have originated on a decayed stump or a nurse log.

The geographic extent of Cherry Birch in Ontario is extremely limited. Despite numerous searches no other populations have been found in the Niagara Region. Several otherwise high quality deciduous forest habitats, such as Niagara Glen Nature Reserve and Navy Island do not apparently harbour Cherry Birch trees.

1.5 Threats to Survival and Recovery

Habitat loss and degradation are the greatest threats to the survival of Cherry Birch in Ontario. Historical land clearing for agricultural development likely resulted in the direct

loss of Cherry Birch individuals and their habitat. Current residential development is widespread in the area surrounding the remaining population. Only the steep slopes associated with Fifteen Mile Creek and the associated valley floors still remain under natural forest cover.

In addition to human-caused or induced losses, natural events such as intense shoreline erosion along Lake Ontario endanger the Cherry Birch extant population. Cliff erosion from storms in 2004 and 2005 resulted in the loss of all mature trees at the second location. The nine remaining trees at the first location, at least partially, remain there because the site is sheltered and away from wave action.

There is evidence that Cherry Birch has intermediate tolerance to drought (Burns and Honkala 1990), which may have been a contributing factor affecting the Southern Ontario populations. Winter events, primarily ice and glaze storms, which cause limb damage and allow wood decay organisms to enter, can cause direct reduction of crown volume. However, Cherry Birch is probably not very susceptible to outright winter killing (Burns and Honkala 1990).

An important group of biotic factors that can impact the Cherry Birch trees are fungal pathogens, such as white trunk rot (*Phellinus igniarius*), yellow cap fungus (*Pholiota limonella*) and Nectria canker (*Nectria galligena*), the latter being the most serious threat. As well, insects feeding on Cheery Birch leaves include birch tubemaker (*Acrobasis betulella*), birch skeletonizer (*Bucculatrix canadensisella*), oriental moth (*Cnidocampa flavescens*), gypsy moth (*Lymantria dispar*) and dusky birch sawfly (*Croesus latitarsus*) (Burns and Honkala 1990).

Given the low number and isolation of extant individuals, genetic depression may also pose a potential threat. All of the seedlings planted in 1998 and 2008 at the second location originated from mature trees that used to grow there (landowner, pers. comm. 2010). However, the seedlings appear to have undergone a high rate of herbivory from rabbits and mice. Of the 70 planted on the lawn, only eight have survived. This area is also subject to mechanical mowing, trampling and vehicle storage but it is not clear to what extent these activities may have inadvertently affected the survival of the seedlings. Likely due to herbivory, most if not all of the seedlings planted in the adjacent woodlot in 2008 perished. The individual planted in 1998 in the woodlot - now a three metre tall sapling - appears to be thriving.

1.6 Knowledge Gaps

Basic facts about habitat requirements and the biology of Cherry Birch are known (COSEWIC 2006). Also the threats to the historical and present existence of the species, especially those concerning land use practices, habitat degradation and loss, have been identified and are generally understood. Still, potentially critical information in particular with relation to the Ontario population, is unavailable.

Very small populations of plants occurring within limited geographic localities often suffer the effects of isolation. The following could be identified as knowledge gaps in the understanding of Cherry Birch vigour and continued existence both at the known sites and potentially within the Niagara Region:

- genetics, in particular signs of regression and loss of plasticity due to potential inbreeding;
- seed production and germination rates;
- recruitment and seedling survivorship in the natural habitat;
- rooting habit;
- habitat requirements of the naturally recruited progeny, e.g. soil type, moisture and drainage, topography, canopy type and closure, understorey species and light levels; and
- minimum habitat size requirements for self-sustaining populations.

1.7 Recovery Actions Completed or Underway

Cherry Birch is afforded species protection under the *Endangered Species Act, 2007* (ESA). General habitat protection will come into effect for the species by June 30, 2013 unless a habitat regulation is in place first. The two extant sites are located on private property, and the landowners are aware of the species presence and appear to be supportive of its conservation.

The following recovery actions have been completed.

- Surveys in the Niagara Region undertaken in 1984, 1992, and 2004-2005 by Ambrose and Thompson, resulting in the discovery of a new site in 2005 (COSEWIC 2006).
- Survey of Niagara Glen Nature Reserve in 2006 and 2007 by M.J. Oldham, but not specifically targeting Cherry Birch (Ritchie, pers. comm. 2010).
- Survey of Navy Island in 2006 and 2007 by M.J. Oldham, but not specifically targeting Cherry Birch (R. Ritchie pers. comm. 2010).
- Plantings of Cherry Birch in Niagara Glen in 1998, but not documented.
- Planting of 70 Cherry Birch seedlings in habitat adjacent to extant populations by the Niagara Restoration Council in 2008 (Burant, pers. comm. 2010).
- Unconfirmed plantings of seedlings in Malcolmson Eco-Park in St. Catharines (landowner, pers. comm. 2010).
- Scoped survey of both extant sites in 2010 by Zoladeski and Hayes, resulting in the confirmation of the site originally found in 2005 (COSEWIC 2006) and the corroboration of the loss of six mature individuals at the second site. The survey further revealed the survival of approximately eight seedlings from the 2008 plantings by the Niagara Restoration Council and the presence of one healthy sapling planted in 1998 by the landowners (both sourced from seeds taken from native individuals on–site).

2. RECOVERY

2.1 Recovery Goal

The recovery goal is to ensure continued persistence of Cherry Birch at known sites in Ontario with no further decline in population size in the short-term and an increase in population size in the long-term.

2.2 Protection and Recovery Objectives

Table 1. Protection and recovery objectives

No.	Protection or Recovery Objective
1	Maintain the extant population of mature trees with the number of individuals stable or increasing.
2	Monitor planted Cherry Birch saplings and seedlings and investigate possibilities of transfer to natural habitat.
3	Identify, protect and restore potential suitable habitats and reintroduce populations where possible particularly at historical sites.
4	Gain an understanding of habitat requirements, genetics, life history, and population trends.

2.3 Approaches to Recovery

Table 2 Approaches to recovery of Cherry Birch in Ontario

Relative Priority	Relative Timeframe	Recovery Theme	Approach to Recovery	Threats or Knowledge Gaps Addressed
1. Maintain the extant population of mature trees with the number of individuals stable or increasing.				
Critical	Ongoing	Stewardship	**1.1** Continue to work with private landowners of both extant and historic sites to promote stewardship and conservation of Cherry Birch.	• All threats
Necessary	Short-term	Communications	**1.2** Collaborate with the Niagara Restoration Council and other partners to promote continued coordinated stewardship and outreach/education efforts related to Cherry Birch.	• All threats
2. Monitor planted Cherry Birch saplings and seedlings and investigate possibilities of transfer to natural habitat.				
Critical	Ongoing	Monitoring and Assessment	**2.1** Assess the survival rate, health and status of the saplings and seedlings on an annual basis.	• Herbivory • Lawn mowing • Trampling • Overrun by vehicles
Necessary	Short-term	Monitoring and Assessment	**2.2** Investigate feasibility of transplanting the eight surviving individuals from the lawn into adjacent forested habitat to reduce threat from mechanical mowing, vehicles, trampling.	• Herbivory • Lawn mowing • Trampling • Overrun by vehicles
Necessary	Long-term	Monitoring and Assessment	**2.3** Secure independent sources of progeny for planting in local natural habitat.	• Herbivory • Lawn mowing • Trampling • Overrun by vehicles

Relative Priority	Relative Timeframe	Recovery Theme	Approach to Recovery	Threats or Knowledge Gaps Addressed
3. Identify, protect and restore potential suitable habitats and reintroduce populations where possible, particularly at historic sites.				
Necessary	Long-term	Monitoring and Assessment	**3.1** Undertake inventories of additional suitable habitat for protection in the region including historic sites in conjunction with targeted outreach to landowners to confirm presence of any other individuals.	Soil erosion Preferred habitat
Necessary	Long-term	Research	**3.2** Survey Canadian herbaria for historical records to identify and verify potentially existing additional sites outside Ontario.	Preferred habitat
Necessary	Long-term	Monitoring and Assessment	**3.3** Initiate introduction program at identified sites	Preferred habitat
4. Gain an understanding of habitat requirements, genetics, life history and population trends.				
Necessary	Long-term	Monitoring and Assessment	**4.1** Monitor habitat characteristics at both extant sites.	Soil erosion Herbivory
Necessary	Long-term	Research	**4.2** Determine population size and age distribution, in particular new recruitment at extant sites.	Herbivory Critical population level
Necessary	Long-term	Research	**4.3** Collect tissue samples for genetic research, investigate reproductive success and habitat characteristics.	Genetic depression Critical population level Preferred habitat
Necessary	Long-term	Research	**4.4** Identify a government or academic research unit to carry out life history and population studies.	Genetic depression Critical population level Preferred habitat

Narrative to Support Approaches to Recovery

Approach 1.1: The saplings planted on a landowner's lawn are at the present time the only living offspring of parent trees at that location. Although the landowner is very enthusiastic about the species, assistance to protect the seedlings from herbivory (e.g., maintaining the guards) and mechanical damage (better identification of individuals using stakes, flags, etc.) should be offered to the landowner.

Approach 2.2 and 2.3: Within two or three years, when the seedlings are larger and stronger, they should be transplanted into the adjacent woods while providing the same level of protection (guards) from herbivory. In the meantime, to secure another and independent source of progeny, seeds collected from local trees should be germinated by an approved nursery to be subsequently planted in natural habitat (deciduous forest in ravine) in the vicinity of the lawn.

Approach 4.3: If inbreeding is identified as a limiting factor, consideration should be given to diversifying the genetic makeup by using material from the nearby New York State populations.

2.4 Performance Measures

The primary performance measures of the recovery approaches should be doubling of population size and sustained natural reproduction of the Cherry Birch in natural habitats. Secondary performance measures should be the successful propagation of the species and transplanting into natural habitats.

2.5 Area for Consideration in Developing a Habitat Regulation

Under the ESA, a recovery strategy must include a recommendation to the Minister of Natural Resources on the area that should be considered in developing a habitat regulation. A habitat regulation is a legal instrument that prescribes an area that will be protected as the habitat of the species. The recommendation provided below by the authors will be one of many sources considered by the Minister when developing the habitat regulation for this species.

It appears that Cherry Birch, both at its extant and historic sites, does not require large habitat patches for survival. In fact, at one of the sites mature trees have persisted within a strip of vegetation at the edge of lakeshore bluff (landowner, pers. comm. 2010). The extant population of mature trees is located on a narrow wooded stable slope. However the minimum habitat size below which Cherry Birch likely would not survive is unknown. As a conservative approach it is recommended that habitat patches of the specific forest type where naturally established Cherry Birch already grow as a tree or sapling, be prescribed as habitat in a habitat regulation. Temporary habitats where the species is purposely cultivated for propagation should not be protected. On the other hand, habitat

patches of the specific forest type where native Cherry Birch has been planted should also be considered for regulation.

GLOSSARY

Cold stratification: the process of subjecting seeds to both cold and moist conditions to allow for germination.

Committee on the Status of Endangered Wildlife in Canada (COSEWIC): The national committee responsible for assessing and classifying species at risk in Canada.

Committee on the Status of Species at Risk in Ontario (COSSARO): The committee established under section 3 of the *Endangered Species Act* that is responsible for assessing and classifying species at risk in Ontario.

Conservation status rank: A rank assigned to a species or ecological community that primarily conveys the degree of rarity of the species or community at the global (G), national (N) or subnational (S) level. These ranks, termed G-rank, N-rank and S-rank are not legal designations. The conservation status of a species or ecosystem is designated by a number from 1 to 5, preceded by the letter G, N or S reflecting the appropriate geographic scale of the assessment. The numbers mean the following:

1 = critically imperilled
2 = imperilled
3 = vulnerable
4 = apparently secure
5 = secure

Lenticels: spongy spots or slits in the bark of twigs and branches of woody plants that serve as pores allowing exchange of gases between the air and plant tissue.

Monoecious: related to both male and female reproductive units (e.g. flowers) present on the same plant.

Endangered Species Act (ESA): The provincial legislation that provides protection to species at risk in Ontario.

Species at Risk Act (SARA): The federal legislation that provides protection to species at risk in Canada. This act establishes Schedule 1 as the legal list of wildlife species at risk to which the SARA provisions apply. Schedules 2 and 3 contain lists of species that at the time the act came into force needed to be reassessed. After species on Schedule 2 and 3 are reassessed and found to be at risk, they undergo the SARA listing process to be included in Schedule 1.

Species at Risk in Ontario (SARO) List: The regulation made under section 7 of the *Endangered Species Act* that provides the official status classification of species at risk in Ontario. This list was first published in 2004 as a policy and became a regulation in 2008.

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Part 3 – *Cherry Birch – Ontario Government Response Statement*, prepared by the Ministry of Natural Resources and Forestry

Ministry of Natural Resources

Natural. Valued. Protected.

Cherry Birch

Ontario Government Response Statement

PROTECTING AND RECOVERING SPECIES AT RISK IN ONTARIO

Species at risk recovery is a key part of protecting Ontario's biodiversity. Biodiversity – the variety of living organisms on Earth – provides us with clean air and water, food, fibre, medicine and other resources that we need to survive.

The *Endangered Species Act, 2007* (ESA) is the Government of Ontario's legislative commitment to protecting and recovering species at risk and their habitats. As soon as a species is listed as extirpated, endangered or threatened under the ESA, it is automatically protected from harm or harassment. Also, immediately upon listing, the habitats of endangered and threatened species are protected from damage or destruction.

Under the ESA, the Ministry of Natural Resources (the Ministry) must ensure that a recovery strategy is prepared for each species that is listed as endangered or threatened. A recovery strategy provides science-based advice to government on what is required to achieve recovery of a species.

GOVERNMENT RESPONSE STATEMENTS

Within nine months after a recovery strategy is prepared, the ESA requires the Ministry to publish a statement summarizing the government's intended actions and priorities in response to the recovery strategy. The recovery strategy for Cherry Birch (Betula lenta) was completed on January 11, 2013 (http://www.mnr.gov.on.ca/stdprodconsume/groups/lr/@mnr/@species/documents/document/stdprod_075574.pdf).

The response statement is the government's policy response to the scientific advice provided in the recovery strategy. All recommendations provided in the recovery strategy were considered and this response statement identifies those that are considered to be appropriate and necessary for the protection and recovery of the species. In addition to the strategy, the response statement is based on input from stakeholders, other jurisdictions, Aboriginal communities and members of the public. It reflects the best available traditional, local and scientific knowledge at this time and may be adapted if new information becomes available. In implementing the actions in the response statement, the ESA allows the Ministry to determine what is feasible, taking into account social and economic factors.

Cherry Birch is a deciduous tree that reaches up to 25 m in height and 95 cm in diameter, and can live 200 years or more. Its bark is reddish-brown or nearly black in younger trees, becoming light grayish brown with age. The only known natural population in Canada occurs in Ontario's Niagara Region along forested slopes near the Lake Ontario shoreline.

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MOVING FORWARD TO PROTECT AND RECOVER CHERRY BIRCH

Cherry Birch is listed as an endangered species under the ESA. The ESA prohibits harm or harassment of the species and damage or destruction of its habitat without authorization. Authorization would require that conditions established by the Ministry be met.

Cherry Birch is widespread in the northeastern United States and has not been found to be common in Ontario. Records of the only Canadian population in Ontario's Niagara region indicate a decline from approximately 50 to 65 trees during the last 45 years to only 14 observed in 2005. This decline is attributed to residential development and shoreline erosion, which may be exacerbated by historical land clearing for agriculture. Cherry Birch often grows in moist, well-drained soils, and its Ontario habitat consists of clay-loam soil that is alkaline due to the presence of limestone bedrock. As of 2010, there were a total of 18 Cherry Birch trees observed at two adjacent sites west of St. Catharines. The first site consists of nine young trees that are growing along a forested slope and which appear to be healthy and producing seeds. The second site, about 400 m away, consists of a woodlot and a residential lawn on the shoreline of Lake Ontario with eight seedlings and one mature tree, all of which were planted.

Shoreline erosion, land clearing and development are thought to be responsible for much of Cherry Birch's more recent population decline in Ontario. Given the low number and isolation of the existing trees, genetic depression is also a potential threat, and it is unknown whether Cherry Birch can recover naturally. Half of the current population consists of planted seedlings on a residential lawn in an area subject to mechanical mowing, trampling, and vehicle storage which may affect their survival rate. However, transplanting these seedlings is not an appropriate recovery action due to the risk of loss. The planted seedlings on the lawn numbered 70 in 2008, but by 2010 only eight had survived. Given the limited availability of suitable habitat and to minimize the risk of loss to the existing small population of Cherry Birch in Ontario, it may worth exploring the feasibility of collecting, propagating, and planting seeds at the existing site, where there is suitable habitat.

The government's goal for the recovery of the Cherry Birch is to maintain the persistence of Cherry Birch at or above current population levels within its current distribution in Ontario.

Protecting and recovering species at risk is a shared responsibility. No single agency or organization has the knowledge, authority or financial resources to protect and recover all of Ontario's species at risk. Successful recovery requires inter-governmental co-operation and the involvement of many individuals, organizations and communities.

In developing the government response statement, the Ministry considered what actions are feasible for the government to lead directly and what actions are feasible for the government to support its conservation partners to undertake.

GOVERNMENT-LED ACTIONS

To help protect and recover Cherry Birch, the government will directly undertake the following actions:

- Educate other agencies and authorities involved in planning and environmental assessment processes on the protection requirements under the ESA.
- Encourage the submission of Cherry Birch data to the Ministry's central repository at the Natural Heritage Information Centre.
- Undertake communications and outreach to increase public awareness of species at risk in Ontario.
- Protect Cherry Birch and its habitat through the ESA.
- Support conservation, agency, municipal and industry partners, and Aboriginal communities and organizations to undertake activities to protect and recover the Cherry Birch. Support will be provided through funding, agreements, permits (including conditions) and/or advisory services.
- Establish and communicate annual priority actions for government support in order to encourage collaboration and reduce duplication of efforts.

GOVERNMENT-SUPPORTED ACTIONS

The government endorses the following actions as being necessary for the protection and recovery of the Cherry Birch. Actions identified as "high" will be given priority consideration for funding or for authorizations under the ESA. The government will focus its support on these high-priority actions over the next five years.

Focus Area: **Protection and Management**

Objective: Maintain the existing population and suitable habitat.

Actions:

1. **(HIGH)** Work with interested partners and private landowners of existing sites to:
   - maintain natural forested habitat;
   - implement best management practices to mitigate the impacts of shoreline and soil erosion near occurrences; and
   - mitigate the impacts of herbivory by rabbits and mice.
2. Investigate the feasibility of collecting a small amount of seeds from mature Cherry Birch trees for propagation in a nursery and explore the potential of planting the seedlings at the existing site, where there is suitable habitat.

Focus Area:	**Inventory and Monitoring**
Objective:	Improve knowledge of the species demographics and survey suitable habitat.

Actions:

3. Monitor existing populations of Cherry Birch to:
   - assess the survival rate, health and status of saplings, seedlings, and trees; and
   - determine population size and age distribution, including new recruitment of individuals.

IMPLEMENTING ACTIONS

Financial support for the implementation of actions may be available through the Species at Risk Stewardship Fund, Species at Risk Research Fund for Ontario, or the Species at Risk Farm Incentive Program. Conservation partners are encouraged to discuss project proposals related to the actions in this response statement with the Ministry. The Ministry can also advise if any authorizations under the ESA or other legislation may be required to undertake the project.

Implementation of the actions may be subject to changing priorities across the multitude of species at risk, available resources and the capacity of partners to undertake recovery activities. Where appropriate, the implementation of actions for multiple species will be co-ordinated across government response statements.

REVIEWING PROGRESS

The ESA requires the Ministry to conduct a review of progress towards protecting and recovering a species not later than five years from the publication of this response statement. The review will help identify if adjustments are needed to achieve the protection and recovery of Cherry Birch.

ACKNOWLEDGEMENT

We would like to thank all those who participated in the development of the "Recovery Strategy for the Cherry Birch (*Betula lenta*) in Ontario" for their dedication to protecting and recovering species at risk.

For additional information:
Visit the species at risk website at ontario.ca/speciesatrisk
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