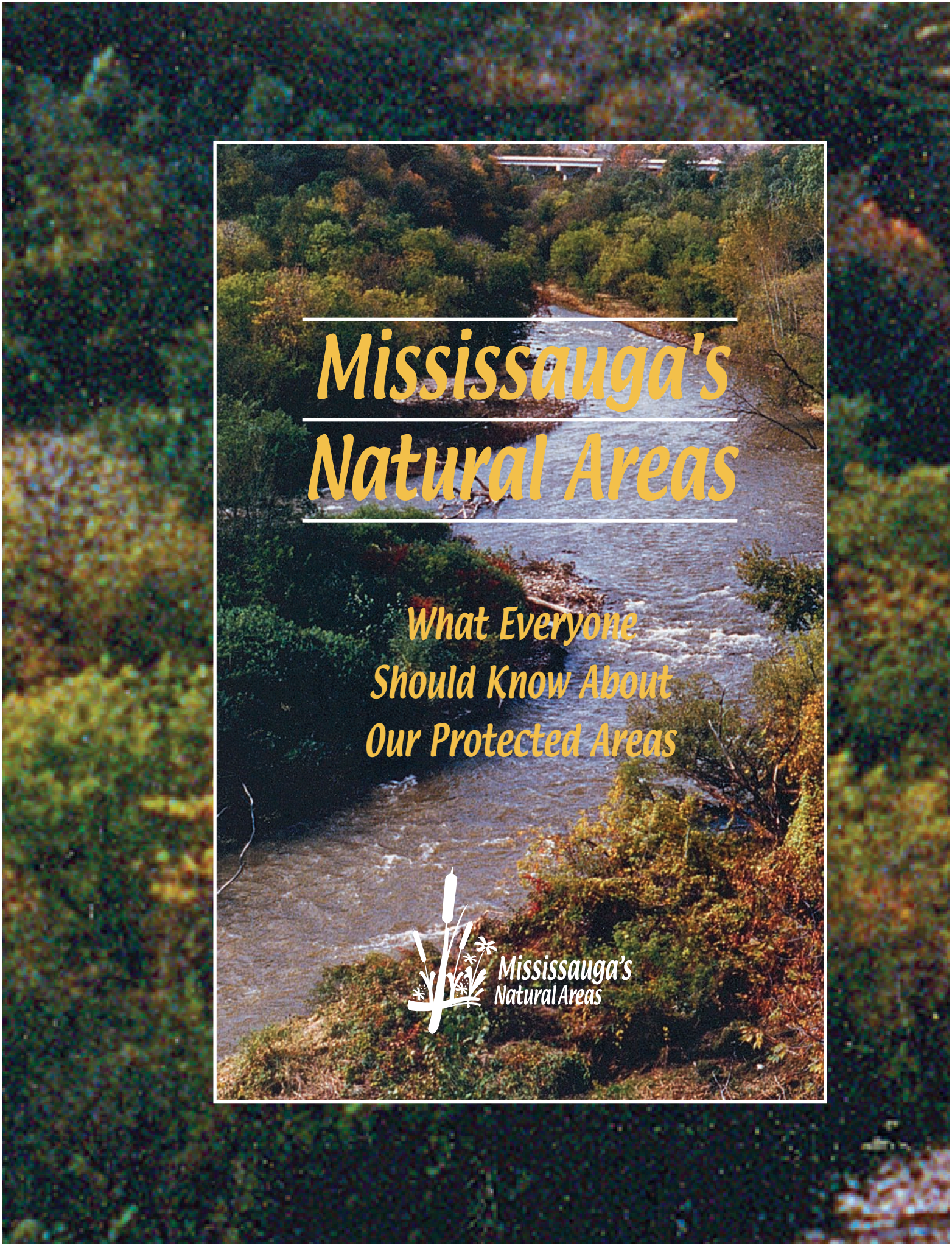

Mississauga's
Natural Areas
What Everyone
Should Know About
Our Protected Areas
Mississauga's
Natural Areas

Mississauga's Natural Areas

If the health and integrity of Mississauga's Natural Areas are to be preserved, everyone must understand their significance

Sawmill Creek

Creditview Wetlands Park

Windy Hollow Park

Credit River Marshes

Mimico Creek

Mississauga's Natural Areas

Everyone can make a difference

Whether it is by hiking, bird-watching, fishing, or just simply enjoying the scenery, many people in Mississauga have made use of the natural areas in our city. You don't have to travel very far from most neighbourhoods to experience nature in Mississauga.

The great diversity of habitats in the natural areas of Mississauga is hard to find in other urban centres. The City of Mississauga realizes this and has made every effort not only to preserve our existing natural areas, but also to create new ones.

The City of Mississauga has found several ways to promote the healthy success of its natural environment. We feel that it is important for the residents of Mississauga to be aware of the projects the City is involved in for their own interest, and for the benefits of the natural areas we are trying to protect and enhance. Everyone must understand the significance of these natural areas and be aware of their sensitivity to our intrusions if their health and integrity are to be preserved.

We have created this booklet to inform residents and visitors about...

- ❒ Mississauga's Natural Areas
- ❒ The Benefits of Natural Areas
- ❒ What Mississauga is Doing to Protect Natural Areas
- ❒ Preventable Stressors to Delicate Ecosystems
- ❒ Ways to Get Involved in Stewardship and Park Partnerships
- ❒ The City of Mississauga Watershed Map
- ❒ Chart of Fauna native to Mississauga
- ❒ Chart of Flora native to Mississauga

Big Bluestem photo: Terry Fahey

Mississauga's Natural Areas

Mississauga is located at the intersection of two ecological zones, the Carolinian and the Great Lakes-St. Lawrence forest regions, giving it a great diversity of species. Woodlands, meadows, wetlands, greenbelts, valley lands, and corridors are all classified as natural areas. These natural areas make up only 6% of the City's land base, divided into 136 sites, under both private and public ownership. Given this relatively small land base, every little bit counts, giving rise to the need for careful management and protection of all natural areas present within the City.

Wetlands

"Wetlands" are areas of land that are inundated by surface or groundwater. This inundation has a frequency sufficient to support the growth and reproduction of vegetation and aquatic life. There are wetlands in Mississauga that have been declared **provincially significant** because of the species present, and the quality of their habitats. You may be familiar with some of our significant wetlands: Rattray Marsh, Creditview Wetland, Credit River Marshes, and Cawthra Woods **Wetland Complex**. Rattray Marsh is particularly interesting because it contains the last shingle bar marsh between St. Catharines and Oshawa. In this type of marsh, shale brought in by the waves from Lake Ontario builds up at the mouth of Sheridan Creek. This build-up acts as a dam allowing the water level in the creek to rise and a marsh to form. Once the water level gets high enough, the dam is washed out and the process begins again. These conditions result in a unique combination of aquatic and terrestrial life forms.

2000 square metres (2,392 square yards) of wetland flooded only 15 centimetres (6 inches) deep, holds approximately 1 million litres (264,173 gallons) of stormwater. This water is slowly released to groundwater and streams.

Local residents, naturalist groups, the Credit Valley Conservation Authority and the (past) Township of Toronto struggled long and hard to preserve the marsh against the threat of development.

For more information on Rattray Marsh contact the Credit Valley Conservation at 905-670-1615 or visit their website: www.creditvalleycons.com

Greenbelts

"Greenbelts" are City lands that are set aside for the purpose of creating natural or semi-natural open spaces. Most greenbelts in Mississauga are not developable lands since they are within a floodplain. A floodplain is the flat land bordering a stream or river onto which a flood will spread. Greenbelts are usually linear parkways, tracts or belts of land running through or around urban landscapes. These greenbelts are physical links or corridors, connecting two areas of habitat and differing from the habitat on either side. These corridors are linear

80% of the natural areas in Mississauga are associated with watershed valley systems

Mississauga Greenbelt along Cooksville Creek subwatershed

patches through which species can travel to reach habitat more suitable for reproduction and other life-sustaining needs, without being forced to venture into the hostile urban environment.

Floodplains are categorized according to the largest flood that would occur in a given period of time. For example a fifty year floodplain would be defined by the largest flood that would, on average, occur once within a fifty year period, estimated from historic stream flow records.

Riparian Zone or Area

"Riparian" pertains to anything connected with, or immediately adjacent to the banks of a stream or any other body of water. The land areas adjacent to creeks or streams are referred to as "riparian zones". Plants and trees that grow in these areas are referred to as "riparian vegetation". Riparian vegetation provides habitat for fish and wildlife, and is a critical link in the food chain cycle for all life forms. Riparian vegetation such as overhanging trees shield streams and rivers from summer and winter temperature extremes that may be stressful or fatal to fish and aquatic life. In addition, riparian shrubs and tall grasses provide resistance to rushing stormwater after heavy rains, reducing flooding down-stream and preventing soil **erosion** along the banks of the stream.

Riparian zone along Mimico Creek

Watersheds

"Watershed" is the entire area of land that drains water into a lake or stream. Watershed boundaries are distinguished from one another by topographical features, usually a height of land, that marks the dividing line from which surface streams flow in two different directions. Mississauga's rivers and streams are aligned geographically north to south and all eventually drain into Lake Ontario. There are three conservation agencies in Mississauga which govern all watershed areas: Toronto and Region Conservation, Credit Valley Conservation, and Conservation Halton.

There are 20 watershed areas and 15 subwatersheds within the City's boundary. The Credit River and Etobicoke Creek are two principal watersheds in Mississauga. There are several other streams, creeks, and rivers in the City of Mississauga which have their own watershed areas, referred to as subwatersheds.

The Etobicoke Creek watershed includes three main branches (Etobicoke Creek main branch, Little Etobicoke Creek, and Spring Creek) with the headwaters in the town of Caledon. The Etobicoke Creek and its branches drain an area of 211 square kilometres (82 square miles), and flow 60 kilometres (38 miles) before draining into Lake Ontario.

The Credit River watershed starts in Orangeville and flows through Caledon, Brampton and Mississauga before draining into Lake Ontario. The length of the river is approximately 90 kilometres (56 miles) and the entire watershed drains an area of approximately 1000 square kilometres (386 square miles).

- ***Natural areas protect and offer sanctuary for the reintroduction of rare or disappearing species.***

Mississauga is home to many rare animal and plant species, some of which are in danger of disappearing from this area. Many of them live in

Cool, shaded streams have less algae and are able to hold more oxygen, which fish need to breathe

Mississauga's Natural Areas

Benefits of Natural Areas

All natural areas have an important function to perform, whether it's the protection of public and private property, or the protection of rare species and their habitats. Some natural areas may appear to some as forgotten, unkempt, overgrown, or weedy areas; however, these areas are being developed and maintained with specific management plans because of the environmental benefits they afford. The following is a description of just some of the benefits of Mississauga's Natural Areas.

fragile habitats and are sensitive to human disturbances, such as pollution. When natural areas are set aside, these species are given the protection they need to flourish and reestablish themselves in areas from which they had disappeared.

- ***Natural areas provide habitat, food sources, and safe corridors for migrating species.***

There are only a few species of wildlife able to live and reproduce themselves easily in and around urban environments. Their survival depends on local natural areas for habitat and food source. Some bird and animal species with larger habitat ranges, such as deer, rely on connections from one natural area to another. These natural area connections or corridors are crucial to the preservation of these species. A concern for migrating wildlife has inspired the City of Mississauga to ensure we have a linked system of natural areas and corridors where these species can travel and live safely.

In streams, large snags of tree roots and trunks create pools and riffles. Riffles are shallow, gravelly sections of a stream where water runs fast

- ***Natural areas increase natural fertilization through plant matter build-up.***

Plants and trees draw the nutrients and minerals they need from the soil in natural areas. The supply of nutrients and minerals must be replenished if the plants and trees are to survive. Dead trees and plants in natural areas decompose and nutrients are recycled back into the soil where they can be taken up again by the forest.

- ***Natural areas along streams, in floodplain valleys, wetlands, and other natural areas are important in stormwater management.***

The abundance of paved surfaces and man-made structures in a city prevent rainwater from being absorbed naturally by soil. Therefore it is essential to have a local area able to store high volumes of water accumulated in a sudden rainstorm, especially where the effects of flooding could be substantial and costly. Wetlands and streams are amazingly well adapted to deal with these fluctuations in water level. Water entering these waterways is retained and slowly released, preventing coursing into lowlands where flooding could result. Vegetation is maintained along the sides of waterways to act as a buffer, slowing the speed of surface runoff water entering creeks during seasonal rains.

Natural areas act as buffer zones against water contamination. Aquatic plants growing in our

Standing and fallen dead trees provide wildlife habitat

Ways to get involved in Stewardship and Park Partnerships

- creating stewardship programs and volunteer programs to assist with the removal of these invasive species from sensitive sites
- excluding invasive tree species such as Norway maples from the City's tree planting programs near natural areas

Invasive garlic mustard in White Oaks Park

Check with your local nursery or contact Mississauga's Parks Natural Areas Coordinator for alternatives to the aggressive invasive species

Help protect our urban & natural forests by not moving wood

Stop the spread of destructive pests by not moving firewood or other types of wood from regulated areas. These include: trees, nursery stock, pruned branches, logs and forest products with bark attached.

The Asian Long-horned Beetle is a destructive beetle which attacks hardwood trees, including maple, elm, poplars, birch and willow. It is under eradication in the Toronto/Vaughan area in Ontario.

The ***Emerald Ash Borer is killing ash trees*** in Southwestern Ontario and control measures are in place there to prevent its spread. These beetles are native to Asia.

Asian Long-horned Beetle

Emerald Ash Borer

For further information on the identification, signs of, or symptons please call the Urban Forestry Section at 905-615-4100 or visit the CFIA's website at www.inspection.gc.ca or call the Canadian Food Inspection Agency toll free at 1-800-442-2342 Toronto: 416-665-5055

Posters are available in English and French. To obtain copies please contact the CFIA directly. Ce document est aussi disponible en français. S'il vous plâit contracter le CFIA pour les copies.

Images of insects courtesy of CFIA.

Volunteers are encouraged to participate in special projects including planting initiatives, trail maintenance, invasive plant eradication and public information campaigns. Residents can actively participate in the management and protection of natural areas in their neighbourhood.

Partnerships with parks are designed to give the public an opportunity to work with the City of Mississauga to ensure the well-being of our parks through their active participation in conservation efforts. Communities involved with tree planting and clean-up events such as Arbor Day, Earth Days, and LitterNot are a valuable learning experience for children, which may lead to a life-long interest in nature and conservation.

For information on how you can be involved in the community group in your neighbourhood, or if you would like to volunteer in park partnerships, please contact the Recreation and Parks, Natural Areas Coordinator at 905-615-4100 or visit our website at www.mississauga.ca/rec&parks

Actively protecting their neighbouring natural areas

Mississauga's Natural Areas

Benefits of Natural Areas

wetlands and streams store much of the excess pollution, such as phosphates and other chemicals. The slow-moving or standing water of wetlands and some streams allow

Aquatic insects, which fish eat, live in these riffles and pools. Trout and salmon, during the fresh water stage (spawning) of their life cycle, eat mainly aquatic insects

sediment and minerals to settle out of the water. As the water is absorbed through the soil, pollutants such as pesticides and pavement oils are filtered out. This cleaner water enters the groundwater table and replenishes local streams that eventually flow into Lake Ontario.

- ***Natural areas promote the growth of trees and plants whose roots trap sediment and prevent soil erosion.***

Wind, rain and foot-trampling lead to soil erosion, which causes soil sediments to enter our water system. Excess soil sediment destroys fish habitat and creates silt deposits at the mouth of our waterways, where they enter Lake Ontario. The root systems of trees and plants in natural areas help trap and anchor soil along the banks of our waterways. This in turn results in a huge reduction of capital costs for erosion protection and reduction of maintenance costs for dredging of sediment in streams and creeks.

- ***Natural areas reduce carbon dioxide and increase oxygen in the atmosphere.***

During the process of photosynthesis, plants and trees "breathe in" carbon dioxide so they can turn energy from the sun into food energy. As a part of this process, valuable oxygen is released into the atmosphere.

- ***Natural areas provide recreational and educational opportunities.***

Mississauga has over 180 kilometres (112 miles) of bicycle facilities throughout the City. These facilities include over 20 trails which wind their way through parks and natural areas. Fishing, birding, cycling or just walking in the woods are recreational activities which contribute to the quality of life in Mississauga. Trail walkers and hikers, please stay on marked or well established trails. Refrain from walking on creek beds and banks or through wetland areas to avoid the disturbance of aquatic habitat and

Please be aware of water levels at all times and use existing creek crossings to cross moving water for your safety.

the release of sediments in the watercourse. In addition to encouraging a sense of responsibility for the environment, our natural areas provide students and adults with opportunities for education, an intellectual understanding and an aesthetic appreciation of the natural world.

For information on Mississauga Trails please call Mississauga Sports Council 905-896-5853 or visit our website: www.sportsmississauga.org

Copies of ***"Trailblazers"*** are available at your local Community Centre or Public Library Branch.

- ***Natural areas add to the biodiversity of a region.***

Biodiversity or biological diversity refers to the variety, distribution and abundance of different plants, animals and microorganisms, the ecological functions (what they do for each other) and processes they perform, and the genetic diversity

Fishing along the Credit River

What Mississauga is doing to protect our Natural Areas

The development of the City of Mississauga precipitated the need for a mechanism to protect remnant natural areas. Natural areas in Mississauga are quite often degraded when compared to the wilderness of remote areas. Nonetheless, they play a crucial role in an urban setting. In order to preserve and enhance the biodiversity of our region, we take an ecological approach to all resource planning and management activities. This means that all of our management plans for natural areas take into consideration the relationship between all organisms (including humans) and their environment.

they contain at local or regional landscape levels.

Natural Areas Survey

A two-year study published in 1996 created an inventory of natural features in the City of Mississauga and provided recommendations for their long term protection. This document is referred to as the Natural Areas Survey (NAS). The NAS includes in-field data, guidelines, and strategies to further the preservation, enhancement, and restoration of Mississauga's natural areas, their functions and their linkages, during development applications, capital works projects and acquisition plans within the City.

For additional information on the NAS and the 2004 NAS Update, please contact the Planning and Building Department with the City of Mississauga, at 905-896-5511 or visit our website: www.mississauga.ca/environment

Old design, concrete-lined banks for stabilization along Sawmill Creek

Natural Stream Designs for Channel Rehabilitation

At one time, eroding creek banks were stabilized with concrete, rock-filled wire baskets and armourstone [stone with weight greater than 3 metric tonnes (3.3 tons)]. These designs were very efficient in directing stormwater out of the floodplain and into the lake. However, these methods are expensive to maintain, do not consider the natural environment, are not very pleasing to the eye, and increase the speed of water during heavy rainstorms. These fast-moving waters can present a public safety concern and cause major erosion along sections of the creek banks which do not have similar armoured protection. As the development of the City grew and more stormwater was directed into streams and creeks using these designs, there was significant habitat loss.
In 1992, conservation authorities directed that all new stormwater management facilities and engineered watercourses had to include in their design the protection of fish and wildlife habitat. Accordingly, the approach now used by the City, for the construction of new and the reconstruction of existing designs, is to soften the edges of banks to reflect a more natural stream system. This includes pools and riffles and the establishment of a natural vegetation buffer along the tops of banks. This riparian vegetation creates fish and wildlife habitat, improves water quality, and reduces water velocity.

New ecological design for bank stabilization along Sawmill Creek

What Mississauga is doing to protect our Natural Areas

This reduces or eliminates long-term, costly repairs for bank stabilization.

For additional information on Stormwater Management, please contact the Transportation and Works Department with the City of Mississauga at 905-615-3200 ext.5155 or visit our website:www.mississauga.ca/environment /water/creeks.htm

Naturalization

Naturalization is a process in which altered or degraded ecosystems are encouraged to regenerate into a more natural area consisting of **native species.** The main objective of the City's naturalization program is not to displace formal or traditional parkland. Rather it seeks to broaden and add diversity to public open space, to include an ecological approach and to provide a wide variety of environmentally-based recreational, educational and stewardship activities. There is a common misconception that naturalized areas are examples of a municipality being negligent in an area's upkeep. To the contrary, naturalization sites are chosen with care for one or more of the following reasons:

- to improve water quality;
- to prevent soil erosion;
- to reduce flooding in flood-prone sites;
- to reduce water velocities in channels;
- to protect fragile river valleys;
- to create or enhance wildlife corridors;
- to create or enhance native wildlife habitat within riparian zones;
- to create forest edge buffers for the protection of forest interior;
- to modify maintenance practices on parkland sites which are dangerous for staff to maintain due to slope angle and access;
- to support areas whose ecosystems require special protection and preservation;
- to increase public awareness and appreciation of the natural environment.

Since the late 1980s, the City of Mississauga has been involved in the naturalization of more than 200 sites and over 303 hectares (750 acres) of public land. Many areas in Mississauga are undergoing naturalization projects, including land next to streets and roadways; areas bordering on existing woodlands, wetlands, and stream valleys; steep slopes, and other areas prone to erosion and flooding.

There has been a significant increase in the diversity of wildlife habitats for both flora and fauna since the establishment of these natural areas. This is largely due to the addition of native plants which are food source and provide habitat for native wildlife. Native species are adapted to our natural levels of rainfall and to the regional climate, requiring less maintenance such as watering and fertilizing. The genetic variations and the diversity of native plant populations allow them to cope better with environmental stresses and to be more pest-free. They are also less aggressive and less invasive within a natural area.

Naturalized areas are not examples of a municipality being negligent in an area's upkeep. To the contrary, naturalized sites are chosen with care

These characteristics of native species allow for greater diversity in flora and fauna within a natural area.

Naturalization can be accomplished through natural **succession** or managed succession.

Natural Succession

In this process all maintenance practices and interventions are discontinued and the area is left to return to a natural, self-sustaining environment. Any untended area will eventually develop back into a natural area through the process of succession. For example, a lawn left untended would grow wildflowers (weeds) and tall grasses. Next, bushes would colonize and eventually trees would begin to grow. As the trees grow larger, the overstorey cover that they create

Naturalization project in Malton Greenway Park

What Mississauga is doing to protect our Natural Areas

blocks the sunlight from getting down to the floor of the forest, reducing the amount of grasses and bushes that can grow there. The forest reaches its mature state when the native grasses, wildflowers, ferns, understorey shrubs, trees, and mature trees reach a balance in which they can coexist.

Managed Succession

In areas that have been significantly degraded, human intervention may be needed to accelerate the succession process. Managed succession may include the reintroduction of native plants, restoring the soil structure, and repairing damage that may have been done to the area.

Succession is a gradual process and in the intermediate stages, especially during the stages of grass and bush growth, can be considered unsightly. It is important to remember that you are not looking at an overgrown weedy area, but rather a successional process in the works. One day these areas will develop into mature, natural forested areas. Regardless of the stage of succession, the benefits of naturalization are numerous and important.

Protection of Native Prairie Tallgrass Vegetation Communities

Tallgrass prairie habitat is one of the most endangered habitats in southwestern Ontario. Within this habitat plants such as big bluestem, Indian grass and bush-clover are considered rare within the City, making them worthy of protection. Lorne Park Prairie is the only remnant prairie site under public ownership and it is under careful management to ensure its preservation. In the past, naturally- occurring fires and fires set by indigenous people played a key role in the preservation of the tallgrass prairie habitats. In 1998 and again in 1999, fire was re-introduced to the site as a management tool to control the invasive non-native species now present and threatening the prairie habitat.

During the redevelopment of Jack Darling Park in the late 1990s, indicator prairie species such as big bluestem, Indian grass and little bluestem were identified in Jack Darling Park. This discovery spurred the City to put together a management plan for the reintroduction of additional prairie species to Jack Darling Park.

Restoration of these unique areas will not only enhance the natural significance of our city, but also provide habitats for the wildlife species that depend on these types of vegetation communities.

If you would like additional information on the reconstruction of native Prairie Tallgrass habitat, please contact the Recreation and Parks Division at 905-615-4100 or visit our website: www.mississauga.ca/rec&parks

Waterways Identification Program

Mississauga is involved in an ongoing project where all the rivers, streams and creeks in the city are identified and their names are displayed on signs at road crossings in local neighbourhoods. This project was initiated in recognition of the importance of watersheds in Mississauga, and to increase public awareness and pride in the natural areas in their communities.

Urban Forest Management Technical Advisory Committee

During the winter of 1993-1994, the City of Mississauga was involved in the implementation of the Urban Forest Management Technical Program for Cawthra Woods. As part of the evolution of the Urban Forestry Management Program, the Urban Forest Management Technical Advisory Committee (UFMTAC) was

Fire used as a tool for preserving rare habitats: Controlled Burn at Lorne Park Prairie

What Mississauga is doing to protect our Natural Areas

created. The creation of UFMTAC was necessary in order to create comprehensive management plans which reflect an "ecosystem approach" for City-owned forests. UFMTAC is composed of several interested citizens whose education and expertise allow them to provide City staff with valuable advice and recommendations. Committee members assist in the development of an "ecological approach" to the planning and management of City forests. The philosophy that guides the Committee in its role as an advisory body aims to ensure the continued existence of all City forests, through conservation management techniques designed to enhance, restore or preserve these areas.

For more information on UFMTAC or how you can participate, please call the Recreation and Parks Division, Urban Forestry Section 905-615-4100

Millennium Grove

As part of the City's Millennium celebrations, Mississauga residents have planted a collection of native southern Ontario trees as a special reference site within Dunn Park. Visitors are treated to an educational experience in which they can gain an appreciation and awareness of the diversity of native trees that can be found in this region.

Millennium Grove information is available at 905-615-4100 or at www.mississauga.ca/rec&parks

Addressing Encroachments On City lands

An encroachment is any use of City owned land by individuals for their own purposes. Encroachments in natural areas can cause irreparable damage to these sensitive ecosystems. Most residents who encroach on natural environments are unaware of the negative impact resulting from their actions. Composting of grass clippings, brush and garden waste in natural areas may seem like a good idea. Not so. Piled material, such as grass clippings, takes a long time to decompose, smothering plants underneath and destroying important habitat. Structures, landscaping, unauthorized paths or alterations to the land can contribute to the deterioration of the natural areas. In an effort to protect our natural areas, City staff regularly inspect natural areas, engage in property boundary clarification and provide fencing where required. In addition, a policy was recently passed requiring fencing in all newly acquired natural areas. Brochures, site visits and telephone calls are ways the City uses to inform residents regarding the problems resulting from encroachments.

For additional information on what is considered encroachments on City lands, please contact the Recreation and Parks Division at 905-615-4100 or visit our website: www.mississauga.ca/rec&parks

Educational Brochures

The residents of Mississauga have a diverse cultural and educational background and, as such, the attitudes and values with respect to natural areas may be varied from community to community. Mississauga has published several brochures and other information to help residents understand how to appreciate and interact with natural areas. For protection and preservation efforts to succeed, people's awareness, perceptions, attitudes and values must be addressed in the management and stewardship process.

Mountain and BMX Bike Trails

Random mountain bike trails and BMX tracks are a continual cause of native vegetation losses. These activities result in soil compaction, which leads to soil erosion and further loss of native vegetation and wildlife habitat. Mississauga has worked with youths and users to develop and designate two BMX tracks, in an attempt to both address community needs for recreation and to limit the harmful effects of this activity in natural areas.

Leash Free Areas

Pets running off leash can cause irreparable damage, habitat destruction and harassment of wildlife in natural areas. Working with the communities and establishing park partnerships, the City has designated several "Leash Free Areas" in the most ecologically appropriate areas of parkland throughout the City.

Leash Free Areas are an attempt to

Preventable Stressors to Delicate Ecosystems

The effects of climate change and global warming can be traced through local plant growth and health. This is because climate changes have direct results on groundwater availability, temperature changes and temperature extremes. This can result in repeated drought conditions, lack of sufficient snow cover, and repeated insect infestations. In addition to local air and water pollution, these all have a stress effect on natural areas. While most of these global changes are unavoidable, natural systems have the ability to heal, given the chance. Unfortunately, urban activities can contribute more stress to an already stressed natural system, preventing the healing process from occuring.

address community needs in a way that protects the environment.

For the location of the BMX Tracks or the Leash Free Area near your community please contact the Recreation and Parks Division at 905-615-4100 or visit our website at: www.mississauga.ca/rec&parks

Non-native Plant Control

City development has contributed many stresses to the natural areas in Mississauga, the most obvious stress being the outright elimination of many natural areas to make way for building construction. Another less obvious but extremely important stress on our natural areas is the introduction and proliferation of non-native species. The problem with non-native species is that some of them are more aggressive than native species. They have been capable of displacing native trees, shrubs and wildflowers, and consequently reducing the biodiversity within natural areas. Once there is loss of native plants within the natural areas, there is a related loss of native fauna due to loss of habitat. Although the tree canopy may persist for many years, as individual trees die, there are no regenerating native trees to replace them, and eventually the whole natural system will fail.

Unauthorized bike trails in White Oaks Park

The introduction of non-native species began with European settlement of North America, when many plants were imported from Europe for use in agriculture and horticulture. This trend has continued and become widespread ever since. Proliferation of non-native species has also increased due to City water control works, which have had the result of stabilizing natural fluctuations in water levels. This stabilization has favoured the establishment of purple loosestrife (a non-native plant) in shoreline marshes. Various changing site conditions in areas adjacent to natural areas have produced excellent growing conditions for non-native plants such as Manitoba maple, Japanese knotweed and dog-strangling vine. Their aggressive nature outcompetes native species for nutrients, resulting in dominance of non-native species such as garlic mustard and European buckthorn.

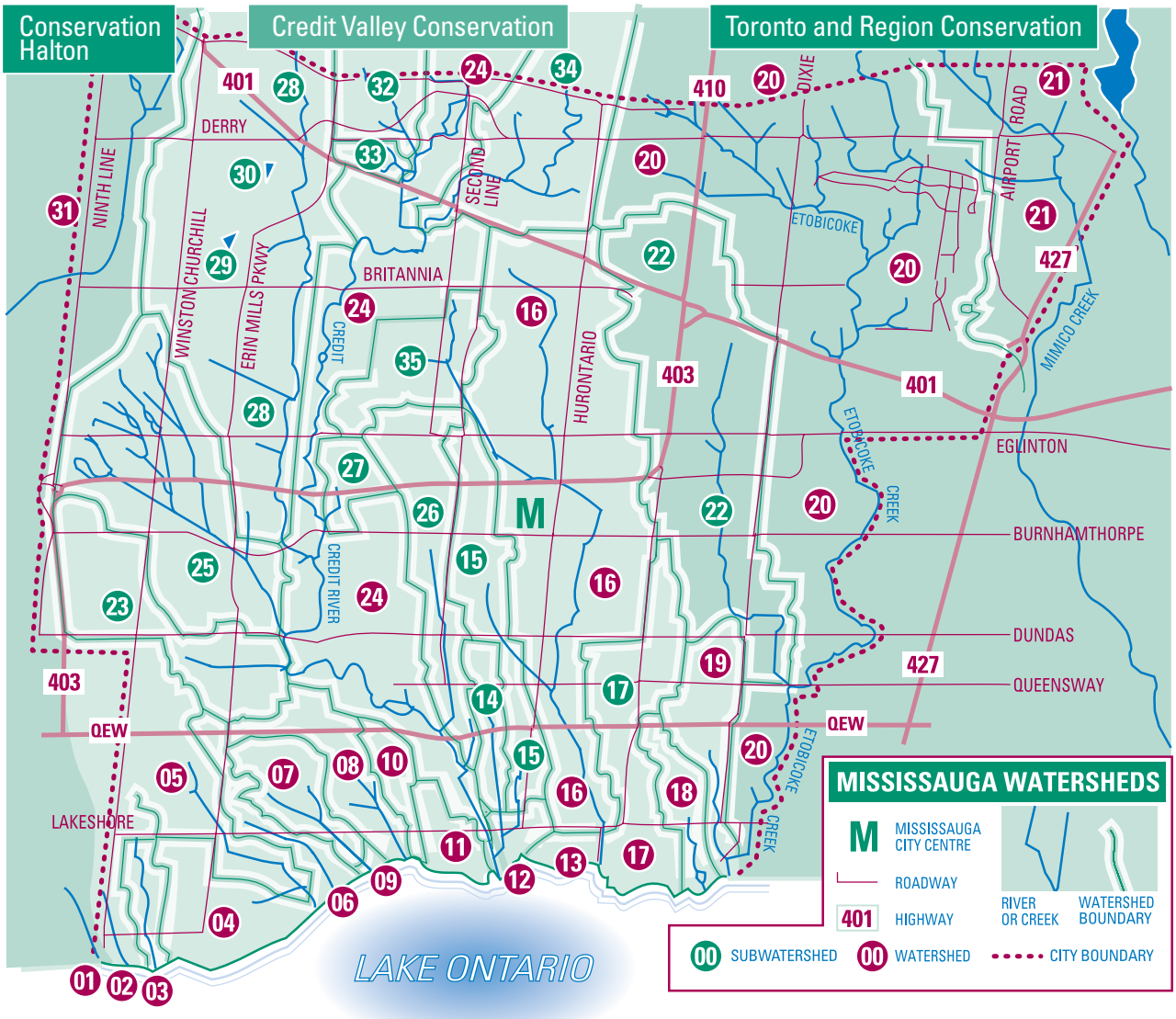
Even good intentions can contribute negatively when you don't have the necessary information about natural areas

Some of the steps which the City has initiated to deal with non-native species include:

- requiring management plans to identify and recommend steps for non-native plant control
- developing and distributing educational brochures to inform residents adjacent to natural areas about aggressive plants and how to reduce their destructive impacts
- providing residents with lists of species that are invasive and threaten native ecosystems, and recommending native alternatives

Mississauga's Natural Areas

The City of Mississauga has over 20 watersheds with 15 subwatersheds



1. **Joshua Creek**
2. **Clareview Creek**
3. **Avonhead Creek**
4. **Lakeside Creek**
5. **Sheridan Creek**
6. **Turtle Creek**
7. **Birchwood Creek**
8. **Lornewood Creek**
9. **Moore Creek**
10. **Tecumseh Creek**
11. **Port Credit West Watershed**
12. Port Credit Watershed
13. **Cumberland Creek**
14. Kenollie Creek
15. Mary Fix Creek
16. **Cooksville Creek**
17. **Cawthra Creek**
18. **Serson Creek**
19. **Applewood Creek**
20. **Etobicoke Creek**
21. **Mimico Creek**
22. Little Etobicoke Creek
23. Loyalist Creek
24. **Credit River**
25. Sawmill Creek
26. Wolfedale Creek
27. Chappell Creek
28. Mullett Creek
29. Lake Wabukayne
30. Lake Aquitaine
31. **Sixteen Mile Creek**
32. Levi's Creek
33. Meadowvale North Watershed
34. Fletcher's Creek
35. Carolyn Creek

(Main Watersheds are shown in bold text, subwatersheds shown in light text.)

For additional information on Mississauga's watersheds and subwatersheds, please contact Mississauga's Environmental Services Section at 905-896-5170 or visit our website: www.mississauga.ca/environment

Mississauga's Natural Areas

The following table identifies some of Mississauga's diverse fauna (animals)

Vertebrates Native to Mississauga

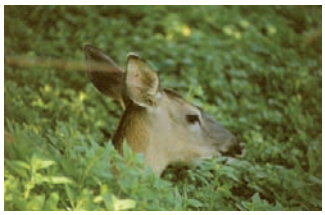
Reptiles and Amphibians	Birds	Mammals	Fish
mudpuppy	great blue heron	Virginia opossum	white sucker
red-spotted newt	wood duck	common shrew	smallmouth bass
blue spotted salamander	osprey	star-nosed mole	rock bass
redback salamander	red-shouldered hawk	little brown bat	longnose dace
Jefferson salamander	peregrine falcon	eastern cottontail	creek chub
eastern American toad	snowy owl	porcupine	redside dace
gray tree frog	downy woodpecker	coyote	hog sucker
striped chorus frog	Acadian flycatcher	red fox	rainbow darters
spring peeper	purple martin	mink	common shiner
leopard frog	warbling vireo	white-tailed deer	fathead minnow
bullfrog	indigo bunting	striped skunk	blacknose dace
midland painted turtle	western meadowlark	raccoon	brook trout
Blanding's turtle	northern oriole	beaver	
wood turtle	American goldfinch	eastern chipmunk	
garter snake	great horned owl	red squirrel	
northern ribbon snake			
smooth green snake			
northern brown snake			

Immature Green Heron photo: Linda Dent

Monarch Butterfly photo: Sheena McColl

Snowy Owl photo: Linda Dent

Merlin (commonly seen in Mississauga during migration) photo: Linda Dent



White-tailed Deer photo: Linda Dent

The following table identifies some of Mississauga's diverse flora (plants)

Plants Native to Mississauga

Trees	Shrubs	Wildflowers	Grasses and Sedges	Ferns
black walnut	rough-leaved dogwood	columbine	tall brome grass	spinulose wood fern
eastern red cedar	witch-hazel	jack-in-the-pulpit	foxtail sedge	oak fern
yellow birch	wild black currant	butterfly-weed	horsetail	ostrich fern
bitternut hickory	prickly gooseberry	false foxglove	nut-grass	sensitive fern
butternut	red raspberry	toothwort	bottlebrush grass	cinnamon fern
black maple	early lowbush blueberry	hairy bush-clover	big bluestem	Christmas fern
sassafras	buttonbush	false pimpernell	little bluestem	Virginia chain fern
sycamore	sweetfern	harebell	Indian grass	marsh fern
white birch	swamp blackberry	strawberry	perennial bent grass	stiff clubmoss
beech	smooth gooseberry	fragrant bedstraw	sand dropseed	royal fern
musclewood	dryland blueberry	woodland sunflower		
hop-hornbeam	meadowsweet	Solomon's seal		
black ash	highbush cranberry	northern green orchid		
white pine		bloodroot		
sugar maple		wild ginger		
black willow		sky-blue aster		
		round headed bush-clover		
		marsh marigold		
		swamp milkweed		
		turtlehead		
		Joe Pyeweed		
		boneset		
		ironweed		

Jack-in-the-Pulpit photo: Terry Fahey

Woodland Sunflower photo: Terry Fahey

Native Sweetfern along Cooksville Creek

A shift in consciousness towards our environment... is crucial

Mississauga's collection of natural areas is undoubtedly one of our greatest treasures. It is important that we realize the significance of our natural areas so that we can ensure their survival for generations to come. The City of Mississauga is involved in almost every aspect of conserving its natural areas, but there is only so much the City can do on its own. Mississauga can create laws, set boundaries and create conservation programs, but in the end it must rely on the continuing involvement and caring attitudes of its residents to make the difference. Of prime importance is a shift in consciousness in which residents adopt a stewardship approach and participate in many of the environmental projects. These activities are excellent opportunities for people to engender a healthy relation with the environment that supports us all.

Mimico Creek through Malton Greenway Park

Mississauga's Natural Areas

Glossary

Corridor
A natural passageway or route where wildlife can live and travel safely.

Diversity
The range of organisms in a given community or region. Diversity can be measured by the numbers or types of species, the relative abundance or distribution of species, or the genetic variability within or between species.

Ecological zone
An area distinctive from other areas around it because of the organisms and physical environment it contains.

Ecosystem
Both a community of organisms and the physical environment they inhabit and depend on, functioning as a unit.

Erosion
The gradual process of the removal or wearing away of soil and rock. Can be caused by wind, rain, compaction or ice.

Fauna
The animal life of a region.

Flora
The plant life of a region.

Forest regions
There are nine forest regions in Canada. They are differentiated from each other based on soil, climate and terrain.

Native species
Species known to have existed on a site prior to the influence of humans.

Natural Areas
Protected areas within the city containing natural features.

Provincial Significance
Recognition of the rarity or importance of a natural feature within the province.

Sediment
Matter that is carried by water, wind or ice and is deposited at a new location.

Succession
The series of changes that a natural environment undergoes to arrive at a natural, mature state.

Wetland Complex
An area encompassing two or more wetlands that are functionally related, and their adjacent lands.

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The City of Mississauga's Community Services Department would like to extend our appreciation to the following Groups, Agencies and City Departments for their comments and contributions in the development of this booklet.

University of Toronto, Erindale Campus (Environmental Studies)

Credit Valley Conservation

Toronto and Region Conservation

Conservation Halton

Mississauga Garden Council

Canadian Food Inspection Agency

South Peel Naturalists' Club

Credit Valley Horticultural Society

The Rattray Marsh Protection Association

Mississauga's Transportation and Works Department

Mississauga's Corporate Services Department

Mississauga's Planning and Building Department

To find out more about the natural area in your community or if you would like to be involved in conservation efforts, please contact Mississauga's Parks Natural Areas Coordinator with the Recreation and Parks Division at 905-896-5384.

For additional information on being a good natural neighbour, we suggest...

- Johnson, Lorraine, 1995, ***The Ontario Natural Garden,*** Whitecap Books, Toronto, Ontario.
- Ministry of Natural Resources, 1990, ***Landscaping for Wildlife,*** Queen's Printer for Ontario, Ontario.
- Rubin, Carole, 1989, ***How to Get Your Lawn & Garden Off Drugs,*** Friends of the Earth, Ottawa, Ontario.
- Federation of Ontario Naturalists, ***Brochures on Wildlife Habitats, Preservation of Natural Areas,*** 355 Lesmill Road, Don Mills, ON M3B 2W8, 416-444-8419, 1-800-440-2366 or visit their website: www.ontarionature.org

For information on Ontario's Invasive Plants and what is being done, we suggest...

- Havinga, Donna and the Ontario Invasive Plants Working Group, 2000, ***Sustaining Biodiversity–A Strategic Plan for Managing Invasive Plants in Southern Ontario***, Toronto Parks and Recreation.
- Mississauga Garden Council, ***Garlic Mustard OUT,*** 905-279-5878 www.mississaugagardencouncil.org

For additional information on "living with wildlife", please contact Mississauga's Animal Services or visit our website...

www.mississauga.ca/animalservices

Corporate Services Department
Animal Services
Wildlife Line
905-896-5862

For additional information on all City environmental policies and initiatives, please contact the Infrastructure and Environmental Planning Division or visit our website...

www.mississauga.ca/environment

Transportation and Works Department
Environmental Services Section
905-896-5170

Planning and Building Department
Policy Planning Division
905-615-3200 ext.5538

For additional information about Mississauga's Natural Areas, please contact Mississauga's Recreation & Parks Division, or visit our website...

www.mississauga.ca/rec&parks

Community Services Department
Recreation & Parks Division
905-615-4100

For additional information about Mississauga's Flora and Fauna, or if you would like join the South Peel Naturalists' Club, please call their membership line or visit their website...

www.spnc.ca

South Peel Naturalists' Club
905-844-2817

For additional information on the watershed in your community, please contact the following Conservation Agencies...

Credit Valley Conservation
905-670-1615
www.creditvalleycons.com

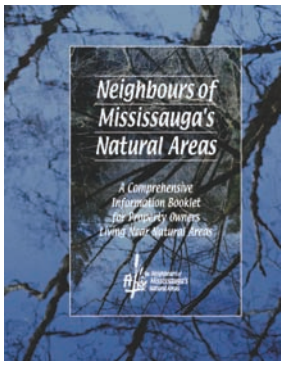
Toronto and Region Conservation
416-661-6600
www.trca.on.ca

Conservation Halton
905-336-1158
www.conservationhalton.on.ca

For information on safe disposal of yard waste, construction materials, tires, batteries and hazardous materials contact ...

Region of Peel Wasteline
905-791-9499

If you would like to receive a copy of the "Neighbours of Mississauga's Natural Areas" booklet, please contact the Recreation and Parks Division at 905-615-4100



Cover: Credit River

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