Like the Galápagos and the Serengeti, The Niagara Escarpment is designated as a UNESCO World Biosphere Reserve. One of the world’s unique natural wonders, the Escarpment defines an area across Southern Ontario and Manitoulin Island. Its ecosystems support hundreds of at-risk species that co-exist alongside the most densely populated and heavily developed region in Canada.

Through Mark Zelinski’s images, and through the personal accounts of conservationists, scientists, scholars and members of indigenous and settler communities, readers have the opportunity to experience a multi-layered perspective of the living escarpment. “Heart Of Turtle Island: The Niagara Escarpment” is also a tribute to the work and ideals of growing legions of individuals and organizations that strive to protect the Niagara Escarpment.

In the preface Zelinski writes, “The Escarpment provides. For millennia, plants, birds, animals, and human enterprise have coexisted in its bounty. Its ancient limestone naturally purifies the water that runs through it. Its health offers us a reflection of our own health. The Niagara Escarpment is a living symbol of the immense scope of planetary time, and, most importantly, a gift to enjoy with respect and gratitude during our brief visit here on Turtle Island.”

Foreword by AFN Ontario Regional Chief, Isadore Day, Wiindawtegowini

Mark Zelinski trained as an artist and a designer, and graduated as the top student of OCAD in 1979. His diverse career as a professional photographer has taken him across 80 countries, with clients ranging from The National Film Board of Canada to Panasonic. He is also a publisher, writer, painter, filmmaker and winner of the Canadian Governor General’s Medal.

Zelinski is best known for his “Books That Heal” initiative - donating 7,000 copies of his photography books to 100 worldwide charities. His internationally acclaimed photography books include forewords by HRH Prince Philip, The Honourable Lincoln Alexander, HRH Prince Andrew, and The Right Honorable Justin Trudeau.

Mark’s ninth book “Heart Of Turtle Island: The Niagara Escarpment” brings exquisite focus to the environmental treasures of the Niagara Escarpment UNESCO World Biosphere Reserve, and to the diverse native and settler communities that thrive along its rugged, curving path.

www.MarkZelinski.com
A percentage of profit from sales of this book will be donated to Royal Botanical Gardens and to The Bruce Trail Conservancy.
contents

The Maid Of The Mist by Chezney Martin 3
Thanks to Sponsors 6
Foreword by AFN Ontario Regional Chief, Isadore Day, Wiindawtegowinini 8
Preface by Mark Zelinski 9

450 Million Years In The Making: A Geological Epic by Michael David Johnson 10
Marvel in Our Backyard: 50 Years Of The Bruce Trail by Ned Morgan 20
Good Of The Earth: Anishnaabek Of The Northern Escarpment by Lenore Keeshig 32
A Place Of Power: The Escarpment In Haudenosaunee Oral History by Richard W. Hill 42
Doorways Of Understanding: Mississaugas Of The New Credit by Giidaakunadaad Nancy Rowe 50
Transformation: Settler Communities Of The Escarpment by Tara Shannon 56
Ontario’s Greenbelt: Acres Of Inspiration by Burkhard Mausberg 88
Parks and Conservation Authorities Of The Escarpment by Robert Edmondson 100
Heart Of Turtle Island: Escarpment Biodiversity by Brian Popelier 116
The Escarpment: A Sustainable Future by Peter Kelly 144
To The Next Keepers by James Howlett 160

The Creative Team 174
Acknowledgements 175
More titles from Mark Zelinski 176
Foreword

The Niagara Escarpment is the “Heart of Turtle Island” for good reason. Our Peoples have lived and thrived on these lands and waters for thousands of years. The European explorers and settlers arrived on these very lands for two main reasons – trading with our Peoples, and later establishing their own communities amidst the beauty and bounties of what would become Southern Ontario.

In fact, this is the region where our nation-to-nation relationship with the European newcomers began over 250 years ago. The Treaty of Niagara, between our Peoples and the British Crown, was signed here because of the great significance that these lands held for our Peoples. In 1764, leaders from as far north as Mushkegowuk, from the Atlantic, and from the mid-west journeyed here to formally enter into an equal nation-to-nation relationship with the Crown. Today we know this relationship of equals never transpired.

In this new era of Reconciliation, the images and stories from “Heart Of Turtle Island: The Niagara Escarpment” will become another important document to remind Ontarians, and all Canadians, that the origins of this country began right here when, for a short time in our shared histories, we were all considered equals. The challenge we face now is not only to repair that relationship, but also to protect and preserve these beautiful and bountiful lands and waters for future generations.

Meegwetch!

AFN Ontario Regional Chief, Isadore Day, Wiindawtegowinini

AFN Ontario Regional Chief Isadore Day speaks at AMO 2015 Conference in Niagara Falls, ON (left) and at Wikwemikong Cultural Festival 2016 (right). Photos by Mark Zelinski
The rocks of the Niagara Escarpment provide an amazing window into a time long ago; a time when Ontario was a very different place, covered by a series of warm tropical seas. In those ancient times Ontario was actually located south of the equator.

During this time, life was only just establishing itself on land with the development of the earliest plants and arthropods moving onto the land. In the marine world however, there was all manner of sea life, much of it in forms that we would recognize today, such as corals and fish.

The Escarpment's rock was made by this marine life, which created calcium carbonate material of all sizes, from calcium muds and shell fragments to large coral heads. This calcium carbonate material gathered on the sea floor and with time and pressure it hardened into limestone. The limestone later became the dolostones that we see in the upper, younger, rocks of the Escarpment.

The marine life also left innumerable traces, which we can now see as fossils in the Escarpment's strata. The conditions in the tropical seas sometimes allowed the growth of massive reef complexes. The Escarpment is capped by these deposits.

To the north and east, an eroding mountain chain and the exposed Canadian Shield provided silt and clay that washed into the tropical seas. This material later hardened into the shale and silty dolostone that are well represented in the lower, older rocks of the Escarpment.

The world underwent an ice age that started 2.58 million years ago and ended only 12,000 years ago. During this ice age, the Escarpment was scoured by a series of massive, slow-moving, continental ice sheets, some up to a kilometre thick. They rode up and over the Escarpment, stripping away the previously weathered material, carving the bedrock, and depositing ground-up rock as thick sheets and surface mounds. When the ice melted, the resulting melt water inundated much of the escarpment area and created a number of river channels, such as the massive spillway at Milton.

For the past 200 years, the Escarpment has been again heavily transformed, this time by human activity. Logging, farming, quarrying and urban development have all had their impact on the landscape of the Escarpment.
The Niagara Escarpment

(clockwise from left) The famous “flower pots” of Flowerpot Island are erosion features created by the combined forces of wind, ice and waves that separated the pots from the adjacent cliffs. The northern Bruce Peninsula’s high cliffs of the Lockport Group strata, are formations that are more resistant to glacial ice erosion and have led to exposed cliffs. The flatrocks of Flowerpot Island shoreline feature bedrock with closely spaced vertical fractures or joints, some of which have been widened by a process called karioturbation.

(top left) The tear drop shaped reef in Georgian Bay on the side of the Bruce Peninsula was carved by glacial ice. (bottom left) Sunrise at Flowerpot Island shows multiple horizontal fractures, called bedding planes. (right) Two complete ‘flower pots” in view on the south-east shoreline of Flower Pot Island. The vertical fractures, called “jointing” form the edges of the bedrock on which the flower pots are standing.
The Niagara Escarpment

by Ned Morgan

All a century ago, “conservation” was not a word in vogue. When Ontario’s population grew rapidly in the decades following World War II, there was an increased demand for resource extraction from the Niagara Escarpment, an easily accessible supply of aggregate for road building. By the early 1960s, a movement began to conserve the Escarpment. By 1967 the movement would establish a public footpath called the Bruce Trail in Canada’s most densely populated region.

Today the Bruce Trail Conservancy (BTC) is one of Ontario’s largest land-protectors and by far the most active in providing public awareness to millions of people while promoting the values of conservation.

The Bruce Trail started as an idea that struck metallurgist and amateur naturalist Ray Lowes (1911-2007). In the late 1950s Lowes and a group of fellow Hamilton Field Naturalists bemoaned the lack of walking trails along the Niagara Escarpment. Lowes, known as the father of the Bruce Trail, envisioned a public footpath that followed the entire Ontario length of the Escarpment. “It’s not much to ask,” Lowes wrote. “A later generation will demand it.”

In 1962, a grant from the Atkinson Charitable Foundation empowered volunteers to plan, build, and map the Bruce Trail. By 1967, in an incredible accomplishment for conservation, outdoor recreation, and the Canadian natural environment, the Bruce Trail officially opened at a ceremony in Tobermory.

The ensuing 50 years have seen wave after wave of volunteers maintain the Trail, meeting with landowners, re-routing the Trail when necessary, and expanding the conservation corridor around it. The founders envisioned it as a way to preserve not just a footpath through the Escarpment, but the Escarpment itself and its wealth of biodiversity.

About 40 percent of the Bruce Trail corridor is still vulnerable to development. The BTC and its volunteers work to secure the Trail’s optimum route and enlarge its conservation corridor. The Trail’s contribution to the surrounding communities is incalculable—and the work to protect it is ongoing.

Ray Lowes offered these words on the Trail and its purpose: “Here stands a rugged, beautiful continuum of rocks, waterfalls, greenery and ‘recreational opportunity’ that must be preserved in its entirety for us and for the future. The Bruce Trail is the chain that at once binds this potential into a unified whole; that brings the very existence of a unique resource sharply to the attention of a population used to taking things for granted; that, when it is built and being used, will inspire a desire to protect and preserve from further encroachment a green belt across the province which could be our pride in future years.”
Felker's Falls in Minto Creek is a 22-meter high, terraced, ribbon waterfall flowing over a bedrock gorge on the face of the Escarpment. Hamilton is known as the City of Waterfalls.

“There is no getting away from the Escarpment in the Hamilton/Halton area. It is always in view. The Bruce Trail allows city dwellers the opportunity to melt into the forest and feel as if they are hundreds of kilometers away, and all the while a short distance from their homes. The Grindstone Creek valley is near my home and my favorite part of the Bruce Trail in the hot days of summer. The deep gorge still has the sound of refreshing water running through it, the air is cooler and animals are still active. I call it the Escarpment Oasis.”

Paul Toffoletti, Vice President, Iroquoia Bruce Trail Club

The Niagara Escarpment

The Niagara Escarpment is a 500-meter high bedrock escarpment that forms a natural boundary between the Southern Ontario Lowlands to the west and the Niagara Plateau to the east. The escarpment stretches for over 500 kilometers from Pelee Island in the west to the eastern Great Lakes. It is bounded on the west by the Grand River Valley and on the east by the Niagara River Valley.

Bruce Trail signs and blazes lead hikers through a network of canyons and cliff tops in Waterdown. Borer’s Falls at RBG’s Rock Chapel Nature Sanctuary is a peaceful place to hike paths and wooden boardwalks through wetlands and woodlots, within view of Burlington’s city skyline. The Dundas Valley trails coil through 1,200 acres of land carved out by a succession of glaciers.
HEART OF TURTLE ISLAND
The Niagara Escarpment
by Lenore Keeshig

The Anishaabemowin question: Ampish Wenjibyan, asks “where are you from?” or “where do you come from?” A person understanding the deeper meaning hears the question, “Where does your sound come from?” “Sound” could be one’s breath, one’s voice or one’s perspective, which is informed by that specific place.

The most northerly region of the Niagara Escarpment in Canada, namely the Saugeen Neyaashiing (Bruce Peninsula), and Manitou Mnissing (Manitoulin Island) is the traditional homeland for nine First Nations of which only two reside directly on the Escarpment: Nawash and M’Chigeeng. A strong sense of stewardship is embedded in the psyche of the First Nations who live on the point of land known as the Bruce Peninsula and on Manitoulin Island. Stewardship of this land is reflected in the name they call themselves – Anishnaabek. In English, the literal translation of Anishnaabek is “Good of the Earth” or “Good Earthling.” Stewardship is reflected in their language - Anishnaabemowin, which Elders will tell you “comes from the land and water.” Additionally, stewardship is reflected in their word for work – anokiiwin, which according to Anishnaabe author Basil Johnston, holds in it the meaning of duty to support family, community and the environment, and the right to make a living, to hunt, to fish, to harvest, and to learn. Monitoring their own harvesting practices in fishing, hunting and forest uses has always been and continues to be one way the Anishnaabek continue in their duty to protect the land and water. The other approach is through consultation and environmental assessment regarding water, water taking, quarries and gravel pits, other material extraction, and land use planning throughout their traditional territories, which are now part of the Province of Ontario.

The Bruce Peninsula is only part of the traditional territory of the Saugeen Ojibway Nation (SON), which includes Chippewas of Nawash Unceded First Nation at Neyaashiinigmiing (Cape Croker) located on the Georgian Bay side of the Peninsula, and Saugeen First Nation on the Lake Huron side, near Southampton. SON territory encompasses some two million acres, from the tip of the Peninsula, down into Southwestern Ontario, taking in the areas of the Maitland River and the Nottawasaga River and their watersheds. The territory extends to include a large section of the Niagara Escarpment.

Manitoulin Island, ‘The Island of Spirits’ is the world’s largest freshwater island. It is home to seven First Nations including: Shoquaquah – a Paleo-Indian and archaic Indian quarry and habitation site radiocarbon dated at 9,500 year before present time BP, Wikwemikong – the largest First Nation on the Island is the fifth largest unceded Indian reserve in Canada. M’Chigeeng – is the second largest First Nation on Manitoulin The four smaller First Nations are Shoeshoogwe, Wewauskong, Zhiibaahaasing, and Aundeck Omni Kanie.

The First Nations of the Peninsula and Manitoulin are part of an alliance of three tribal nations: Odawa, Pottawatomi and Ojibway, known as the Three Fires Confederacy. This Confederacy is older than the Dominion of Canada. They are the original stewards of the Niagara Escarpment.

A slow march in honour of murdered and missing Indigenous women brings a deep sorrow into the Sacred Circle of the annual pow wow at Neyaashiinigmiing (Cape Croker).
The traditions of First Nations dance are ancient but the modern day powwow evolved from the Grass Dance Societies that formed during the early 1800’s. At a time when tribal customs and religions were outlawed, the Grass Dance was one of the few celebrations allowed into this new era. Once again, the powwow circle is strong and alive. Held every civic holiday weekend in August, the Wikwemikong Cultural Festival is eastern Canada’s longest running powwow and Manitoulin’s premiere event.

“Waabi-aapki (now known as the Niagara Escarpment) is the terra for the collective soul of our peoples and visitors. Each crevice, ridge, lake, and meadow forms escarpment heaven. This land was so renowned across Indigenous North America, that people would travel across the continent to bury their dead within the powerful Waabi-aapki. It was not meant to be poisoned and exploited.”

Kenn Pitawanakwat, Author, Manitoulin Island
The Creation Story of the Haudenosaunee Confederacy, which consists of the Mohawk, Oneida, Onondaga, Cayuga, Seneca, and Tuscarora Nations tells of the reshaping of Mother Earth that was created on the back of a giant turtle. There was a great battle between the Creator and his Brother, named Flint that resulted in the formation of mountains, valleys, deep crevices and perhaps the Niagara Escarpment. Flint also made deep caves in which he tried to hide all of the animals. Today, we view these caves as avenues to the dark underworld, a place of mystery and danger.

Oral history also tells of giant serpents that lived underground and emerged into the Great Lakes, only to surface from time to time to seek out human flesh. One huge cavern behind Niagara Falls soon became the home of the Thunder Beings. These powerful spirits ride the skies behind the dark storm clouds. When they see one of those giant serpents trying to make its way to this world, the Thunder Beings would fly into action, shooting flint-tipped arrows that turned into lightning bolts, hoping to strike down the serpents and keep the land safe for humans.

Our oral history also tells of a time when the Sun, Our Elder Brother, also known as the Great Warrior, will be making his daily round of overseeing the Great Turtle Island, and he will notice that humans are fighting and hurting one another. He will pause momentarily when he is directly overhead, and if he sees such chaos, will turn up his heat hoping that the humans will pause and look skyward. In doing so, his hope is that we will recall the sacred origins of this land, and the sacred origin of humans of the clay from the back of the Great Turtle. His hope is that if we recall our Original Instructions to look after one another, humans just might stop fighting and return to the way of life that was intended for them – peace on Mother Earth. If humans refuse to reconsider their actions, the Elder Brother said he would transform himself, becoming the Spirit of the Earthquake and shake the earth so much that all that was made by humans would be destroyed, including the humans themselves.

This universal struggle between the serpents below and the Thunder Beings above is a metaphor for our own existence. We can live well, following in the footsteps of our ancestors, or we can ignore our sacred teachings. The Escarpment has had a profound impact on the Indigenous people who live on or near it. It is still a place of power, a reminder of the original battle over this land, and an ongoing threshold between the goodness of our Mother the Earth, and the mysterious forces that lie underneath.
Chezney Martin of Seneca Turtle Clan was the first runner-up for Miss Indian World in 2016. Sixty-seconds of the high-speed traditional smoke dance is considered an aerobic marathon.

Sassafras leaves, red in autumn, represent some of the last remaining Carolinian forest in Canada.

Reading from a first edition of Pauline Johnson’s Flint and Feather at the Pauline Johnson Museum/home at Chiefswood Park, Poet Laureate, media artist and radio host January Rogers has long searched for the “voice” of the famous 19th century Six Nations poet. There are no known sound recordings of Johnson.
My ancestry is that of the Mississaugas of the New Credit First Nation, of the Anishinaabek Nation. As a community, we have the responsibility to honor, care for, recognize and respect all that Creation provides us to sustain our life. This includes all lands, waters, air, fire, animals, plants and our ancestors, whose stewardship and teachings show us how to live with and preserve these gifts. The Anishinaabek Peoples have utilized and stewarded this land for millennia and we would like to acknowledge our treaty relationship and responsibilities to both the land and those original peoples.

This land is rich in pre-contact history and customs of the Anishinaabek Peoples. Since European contact, it has become home for Indigenous and non-indigenous peoples.

It is in the spirit and intent of our original agreements and treaties with Creation that together we will collectively care for and respect the land, water, animals and each other in the interests of peace, friendship and Mino Bimaadiziwin (the good life derived from the gifts of Creation) for ourselves, who exist in the present, and for our grandchildren and their children to come. Education is the doorway through which we all can create a common ground and understanding of not only Indigenous Peoples but also, and more importantly, our environment.

Sunlight streams into the shaap stwaan as Nancy Rowe addresses students from Lloyd S King Elementary School Knowledge Gate. Rowe has become an important bridge to Anishinaabe culture and ceremonies with events that include elders from across Turtle Island who carry “the old teachings.” Rowe says, “All the events that we have here are for universal teachings and everybody is welcome.” Right: Giidaakunadaad Nancy Rowe teaches from a sitting position, surrounded by ceremonial bowls of medicines, with Grandfathers and Grandmothers (sweat rocks) in the background.
Since European contact, cities, towns and villages that exist along the expanse of Ontario’s escarpment have transformed, and been transformed by, the land itself – each community having its own unique story to tell.

Historically Niagara Falls and Horseshoe Falls have always been a place of awe and wonder. During the War of 1812, the Niagara River Gorge served as a natural defense against invading American forces and became an obvious choice to divide two nations. The Falls themselves are also a source of hydroelectric power attracting the likes of Nikola Tesla who, in the 1890’s, came to study and harness their force, making AC electricity (alternating current) accessible to all. Today, the city of Niagara Falls and its surrounding region is a diverse community that thrives on tourist attractions; casinos, amusements, world-class accommodation, and above all, The Falls.

Thanks to the unique soils and microclimate found between the shores of Lake Ontario and the Escarpment, the Niagara Peninsula has grown into a major fruit growing and wine region with related culinary and cultural tourism benefits. State of the art agriculture and innovation has transformed the township of Lincoln into a leader for fruit production and grape growing, with wines achieving international recognition. Lincoln also has the largest concentration of greenhouse operators in Canada.

Transformation: Settler Communities Of The Escarpment

The city of Niagara Falls, Ontario has Canada’s longest running薰tower薰 series against a backdrop of what is undoubtedly the most well-known landmark of the Niagara Escarpment. Niagara Falls is the collective name for three waterfalls that straddle the international border between Canada and USA: from largest to smallest, the Horseshoe Falls, the American Falls and the Bridal Veil Falls.

Two-tiered Hamilton, Ontario is the Escarpment’s largest city. Known historically as the ‘Steel City’ Hamilton has become a mecca for health care innovations, education, a revitalized arts scene, and is quickly becoming known as ‘The City of Waterfalls’, home to more than 160 cascades and waterfalls. The outlying agricultural regions and rural towns contrast Hamilton’s urban core.

Always at the heart of things, Burlington, Ontario once boasted the title of the area’s largest port and marketplace. For the better part of the 19th century, thriving commercial wharves were found at Brown’s Wharf, Wellington Square and Port Nelson. A short commute to Toronto and Niagara make Burlington a prime business location, and with excellent green spaces and proximity to the Escarpment, it’s easy to feel that you are close to nature, though still within an urban community.

The town of Milton is one of Canada’s fastest growing communities, but its early history actually helped to lay the foundation for a much larger community – Toronto. The red clay soil that forms the foundation on which Milton, Ontario is built was used in the production of many of the red brick homes and the Old City Hall within the metropolis of Toronto.

The town of Halton Hills is comprised of many small agricultural communities like Georgetown, Acton, Limehouse (with its historic limestone kilns) and many others. Anne of Green Gables fans may well be familiar with the village of Norval, also found within the amalgam of Halton Hills, as this is where author Lucy Maud Montgomery lived from 1926 to 1935.

Caledon, Ontario has long been one of Ontario’s largest equestrian communities and is home to some of Canada’s top horse breeders, coaches, stables, riding schools and training facilities. In 2015, Caledon was host to the dressage and jumping events for the 2015 Pan American Games hosted by the city of Toronto.
Known for its art galleries, award-winning wines and luxurious accommodations, Jordan Village is a quaint rural village located among the vineyards of Niagara’s wine country, running along the edge of Twenty Mile Creek valley.

The future of Canada as a country was settled at the night Battle of Stoney Creek (re-enactment shown here) and at Queenston Heights. Had the War of 1812 not been lost by the USA, some argue that Canada would have not survived as a separate country from its southern neighbour.

Whimsical, colourful Victorian cottages adorned with gingerbread architecture grace the community of Grimsby Beach on the shores of Lake Ontario. The community first emerged over 150 years ago as the site of a Methodist camp.

The Comfort Maple Conservation Area in the Town of Pelham conserves what is widely believed to be the oldest and largest sugar maple tree in Canada.

(bottom left) First transformed from an abandoned gravel pit in 1932, Royal Botanical Gardens’ rejuvenated Rock Garden re-opened in 2016 to raves, establishing this horticultural landmark as a creative masterpiece. (bottom right) Strategically situated on Burlington Heights, Hamilton’s Dundurn Castle, a National Historic Site, was a key British military encampment and former home to Sir Allan MacNab, Premier of the United Canadas (1854-1856).
“The Escarpment’s rocky outline stretches across the horizon of north Burlington and reminds us of this area’s rich natural history and the importance of preserving it for generations to come. As the Greater Toronto/Hamilton area grows, we will continue to treat this UNESCO World Biosphere Reserve with the respect and reverence that it deserves. We are humbled to live among this great Canadian landmark of rock and forest.”

Rick Goldring, Mayor, City of Burlington

(Apposite page) Walkers Lane cuts across the shadow of Mount Nemo, an isolated escarpment outlier disconnected from the main escarpment feature due to huge post-glacial rivers. Feeding the chickadees at LaSalle Park boardwalk.

(below) A fly-fisherman wades into Bronte Creek as it winds through Bronte Park in Burlington.

(left) A chance to aim a fire-hose is a highlight of Halton Children’s Water Festival at Kelso Conservation Area. The Festival aims to educate students about respecting water resources to ensure a reliable water supply for the future. (top right) Rattlesnake Point’s dramatic rock faces entice rock climbers of all experience levels.

Mike Davis and Gloria Hildebrandt of Georgetown, founders and publishers of Niagara Escarpment Views magazine, often attend events in communities all along the Niagara Escarpment.
An early snowfall creates a surreal scene high above Beaver Valley.

Located on the Niagara Escarpment northwest of Collingwood, Blue Mountain Resort is the third-busiest ski resort in Canada. Its success has infused new life into the surrounding community, including the newly incorporated town of The Blue Mountains and into “villages” similar to those built at Mount Tremblant and Whistler.
The MS Chi-Cheemaun departs from Tobermory, bound for South Baymouth on Manitoulin Island. The car ferry makes the 40 km trip across Georgian Bay in 105 minutes, four times each day during peak season and twice a day during May and October, offering spectacular views of magnificent sunsets, Indigenous lectures and even star-gazing tours of the journey’s dark skies. Literally translated, “Chi-Cheemaun” means “Big Canoe” in Ojibwe.
Ontario’s Greenbelt: Acres Of Inspiration

Recompassing two million acres, Ontario’s Greenbelt is the world’s largest peri-urban protected area. Farmland and environmentally sensitive lands are permanently protected from urban development. The Greenbelt addressed a growing frustration with land use planning in the Greater Toronto Area: Ontarians asked for better regional planning. They recognized the negative impacts of poor development and the loss of green space and farmland. Since its inception, the Greenbelt has enjoyed huge public approval, consistently earning more than 90% support.

But the Greenbelt’s roots go back more than the last dozen years—to the mid-1970’s when former Premier Bill Davis protected the Niagara Escarpment. The Escarpment is known for its rich biodiversity; Great Lakes coastlines, woodlands, limestone alvar, oak savannahs, conifer swamps, centuries-old cedars trees and unique cliff ecology. Together, these diverse habitats contain a premiere level of species variety among Canadian biosphere reserves.

The Greenbelt brings many benefits to the quality of life in Ontario: it provides significant economic activity with $9.1 billion every year through land-based activities such as farming, tourism, fishing, hunting, and logging. With its 161,000 full-time jobs, the Greenbelt provides more employment than all the fish, forestry, mining, quarrying, and oil and gas extraction sectors in Ontario, combined. The Greenbelt lands continue to stay natural and green, functioning as a habitat for wildlife and recharging its vast aquifers. Every year, the forested areas of the Greenbelt alone have offset the emissions of 56 million cars. Scientists calculate the ecological services provided by the Greenbelt to be worth a conservative $3.2 billion every year.

The recreational treasures of the Greenbelt features the largest network of hiking trails in Canada, including the world-famous Bruce Trail. The Greenbelt Route is a 475 km cycling route through the countryside, highlighting bike-friendly destinations and hundreds of points of interest.

The Greenbelt is a historic shift. It acts as inspiration for others and remains a profound statement of hope now and for the future.
The majestic Niagara Escarpment is a working countryside and the cornerstone of Ontario’s Greenbelt, one of North America’s fastest-growing and most dynamic regions. It is our mission at the Niagara Escarpment Commission to preserve, protect and promote the Niagara Escarpment and uphold its prestigious UNESCO World Biosphere Reserve designation. It is through the Niagara Escarpment Plan that the Escarpment is recognized provincially and internationally as a significant landscape with policies in place to protect the natural environment and only permit compatible development. We take great pride in being Canada’s first environmental land use plan and knowing that the work we do in protecting this iconic feature will be for the enjoyment of future generations to come.

Don Scott, Chair, Niagara Escarpment Commission

The Niagara Escarpment

(Vineyards are adorned in the colors of October during grape harvest at Mike Weir Estate Winery in Beamsville.)

(Pioneering Ontario's newest wine region places Grey County's first winery, Coffin Ridge, in spectacular proximity to Georgian Bay and the Niagara Escarpment near Meaford. A boutique winery by design, Coffin Ridge produces high quality, small batch wines from hand-planted, hand-picked grapes.)
by Robert Edmondson

The Niagara Escarpment, extending through the world’s largest freshwater island, Manitoulin, and emerging from the crystal clear waters of Georgian Bay surrounding Flower Pot Island, follows a 740 kilometre journey from the tip of the Bruce Peninsula to Queenston Heights. Visual highlights along the Niagara Escarpment include dramatic views at vistas such as Lion’s Head, Colpoy’s Lookout, Nottawasaga Lookout, Rattlesnake Point, Mount Nemo, Spencer Gorge, and featuring creeks and streams flowing over such outstanding features as Inglis Falls, Eugenia Falls, Hilton Falls, Webster Falls and Rattlesnake Falls. All these natural wonders are found on publicly owned lands that make up the Niagara Escarpment Parks and Open Space System (NEPOSS). Over 44,300 hectares of land, representing close to 23% of the Niagara Escarpment Planning Area is part of the park system. For the most part, these lands are connected by the Bruce Trail as it winds its way some 855 kilometres from Tobermory on the Bruce Peninsula to Queenston on the Niagara River. Manitoulin Island, which is outside of the Niagara Escarpment Planning Area, cherishes its own incredible parks, such as Misery Bay Provincial Park; a 1000 hectare coastal alvar sanctuary, with the largest wetland in the eco-district. The Cup and Saucer trail on the Island’s east end, possesses one of the most exhilarating views in the province.

The NEPOSS is administered by the Ministry of Natural Resources and governed by a council with representatives from the park owners and the Niagara Escarpment Commission. The main objectives of the park system are to protect the unique ecological and historical areas; maintain and enhance the natural environment of the Niagara Escarpment while providing for outdoor education, recreation, and public access to the Bruce Trail; and promote the principles of the Niagara Escarpment’s UNESCO World Biosphere designation.

There are over 147 parks within the system that are maintained by a mix of public bodies and conservation organizations including seven conservation authorities: the Ministry of Natural Resources, Ontario Parks, Parks Canada, Ontario Heritage Trust, St. Lawrence Seaway Management Corporation, Niagara Parks Commission, Royal Botanical Gardens, Bruce Trail Conservancy as well as a number of municipalities and organizations such as the Hamilton Naturalists Club, Nature Conservancy and Escarpment Biosphere Conservancy. The Conservation Authorities of Grey Sauble, Nottawasaga, Credit Valley, Toronto, Halton, Hamilton and Niagara maintain more than half of the lands and 60% of the parks in the system.

All escarpment parks are classified according to their attributes and ecological significance: such as nature reserve, natural environment, recreation, historical, escarpment access and resource management areas. The parks provide a wide range of experiences: visits to preserved historical sites, walking or cycling to vistas with their breathtaking views; tumbling waterfalls; quiet strolls along hiking trails meandering through mature forests; and observing the active life of the wetlands, or the enjoyment of cross country and downhill skiing. The fundamental responsibility of the park system is to preserve the legacy of the Escarpment, all the wonders of its ecological diversity and outstanding features.
“Since early childhood, I have known a love for nature, plus the joy of running. Still experiencing both, I have found that the Owen Sound, Grey Bruce area is, for me, a natural treasure to enjoy and discover throughout the year.”

John Dickson, Past President, Owen Sound Field Naturalists

(top left) Snow clings to the high cliff-top spruce at Mount Baldy, the Beaver Valley below ablaze in autumn colour. (top right) Metcalfe Rock is an outcrop of limestone cliff near Collingwood with beautiful vistas, trails and caves, old growth cedars and a natural fed spring. (bottom left) Eugenia Falls was the locale of a ‘fools gold’ rush in the 1800’s. (top right) The views are amazing from the dolostone ledge along Skinner’s Bluff, a long escarpment face that overlooks upland hardwood forest and the islands of Colpoy’s Bay in the distance. (bottom right) A deep gorge was carved by the erosive power of the Sydenham River meeting the edge of the Niagara Escarpment at Inglis Falls.

(bottom) A mini version of Niagara Falls, Indian Falls is a 15 metre high Bridal Veil-like fall formed by the erosion of soft Queenston shale beneath hard Manitoulin dolomite. (top right) The views are amazing from the dolostone ledge along Skinner’s Bluff, a long escarpment face that overlooks upland hardwood forest and the islands of Colpoy’s Bay in the distance. (bottom right) A deep gorge was carved by the erosive power of the Sydenham River meeting the edge of the Niagara Escarpment at Inglis Falls.
The dramatic shoreline cliffs of the Niagara Escarpment can clearly be seen as they continue their sheer drop beneath the clear waters of Georgian Bay along Bruce Peninsula National Park. The popular ‘Grotto’ at Indian Head Cove is heavily touristed in summer months, (top left and right) transformed into an icy and isolated oasis in the off-season (opposite page).
The Niagara Escarpment is home to a wide variety of plants and animals, some of which are rare or found nowhere else in Ontario. The Escarpment topography and calcareous soils combine with other factors to produce exemplary habitats for over 1800 species of plants including 50 fern species and 40 species of orchids. This environment also supports 34 species of reptiles and amphibians, 55 species of mammals and more than 300 species of birds. Warm spring breezes advancing along the Escarpment bring an abundance of brightly colored warblers, vireos, sparrows, and other bird species migrating from their southern wintering grounds and returning to their northern breeding habitat. Thermal uprisings colliding with the Escarpment cliffs are used by many species of raptors as they soar with their wings spread to catch the rising air columns. Of the mammals living along the Escarpment, the larger ones such as the white-tailed deer, coyote, red fox, porcupine and raccoon are easiest to catch a glimpse of. Others, such as the black bear, opossum, flying squirrel and many smaller species are less visible because they are nocturnal or shy of the human presence. Snakes can be encountered sunning themselves on pockets of exposed rock including the common eastern garter snake and less common, Massasauga rattlesnake, found only in the more northern parts of the Escarpment. Manitoulin Island at the far north, provides habitat for lynx, bobcat, and even the most rare of Canadian felines; the eastern cougar.

Along the Escarpment forests of maples, ash, hemlock, birch and cedar extend out from the rocky surface carpeted with wildflowers, ferns and mosses. The old-growth forest includes slow growing, twisted white cedars that are “dwarfed”, often measuring only a few meters in height, even though the trees are many centuries old. Although this species is common it is rare to find trees of this age. The cliffs of the Niagara Escarpment offer a habitat on which it is a challenge for most species of plants and animals to thrive. This environment lacks the soil and organic material that most plants need to grow, and is subject to high winds, ice, rock fall, searing sun and the difficulty of existing on a vertical surface with the constant pull of gravity. Existing in these conditions can prove to be overwhelming for even the heartiest of species. As a result, many plants are unable to thrive on the Escarpment’s surface, and the animals that rely on plants for food are limited as well. The cliffs are an integral part of the Escarpment ecosystem, providing habitat for many unique, interesting and rare species. Because of the challenges that are presented by the ruggedness of the cliffs this habitat remains in isolation and relatively untouched by human disturbance. This unique biodiversity of flora and fauna might exist for as many years into the future as it took to mold the Escarpment in the past.

Female snapping turtles generally do not reproduce until 20 years of age while males do at 10 years of age which makes it a challenge to increase the already small population of this endangered species.
The Blue Mountain Watershed Trust is a grassroots, all-volunteer organization dedicated to preserving and protecting the water, the watersheds and the wetlands adjacent to the Niagara Escarpment in the vicinity of southern Georgian Bay. The Niagara Escarpment has a profound effect on nature and climate. One of its functions is to provide adjacent lands with cold, pure water from deep within the ground. This water gushes forth from countless springs and seeps, finding its way to the Great Lakes—in our case, Georgian Bay. If you have ever walked class A cold water trout/salmon streams during spawning season, you will have some idea of their vitality, their power and the crucial role that they play in preserving the integrity of our fisheries. It is an awe-inspiring spectacle that owes its existence to the continued health of the Niagara Escarpment Biosphere.

Carl Michener, Director, Communications Chair
Blue Mountain Watershed Trust Foundation

(left) The dagger-like bill of the green heron is used to spear fish. (top right) Webbed back feet and flattened tails enable the muskrat to be a superior swimmer. (bottom right) The carnivorous northern leopard frog finds its food in open meadows with low-lying vegetation.

(top to bottom) Using its swift, powerful neck to catch fish in shallow waters, the great egret is rare in Ontario. Chinook salmon provide a spectacle as they push through the shallows of creeks and rivers of the Great Lakes. A bale of midland painted turtles rest above the water way.
(clockwise from left) Shown here at Misery Bay Provincial Park, the lakeside daisy (rare in Ontario) is threatened by habitat destruction and degradation. About 20 populations still exist along the shores of Manitoulin Island, the Bruce Peninsula and Lake Huron. The two-leaf mitrewort is also known by another name - the bishop’s cap - named after the triangular shape of a Catholic bishop’s cap. Goldenrod is a host plant for monarch caterpillars. Once caterpillars transform to butterflies, the goldenrod plant also provides nutritious nectar.

(top left) The yellow trout lily grows in large colonies that cover forest floors. This plant is a spring ephemeral, with a short-lived showing in the spring only. (bottom left) Often the first to flower in spring, marsh marigold thrives around ponds and rock crevices by waterfalls. (right) The vibrant, yellow with chestnut streaked feathers of the yellow warbler contrast with its habitat in a thicket.
ark Zelinski’s photographs are a snapshot in time, our time, on the spectacular Niagara Escarpment. Through them, we explore its history; geological, natural, political or otherwise. We know that it has existed for a very long time, and we know that it has experienced change over the last 200 years. As the decades, centuries and millennia unfold before us, how comfortable should we be with further change to the Niagara Escarpment? We always hear about the inevitability of change but how do we ensure that this change is more positive than negative? What forces will need to be at work to ensure a sustainable Niagara Escarpment for the future?

Certainly, if people are the architects of change, then people will work to implement change that impacts the Escarpment positively. Organizations such as the Bruce Trail Conservancy, Friends of the Greenbelt Foundation, Ontario Parks and the various conservation authorities have succeeded in this work. There are those who have offered insights into what a sustainable future for the Escarpment might be; organizations and people that have stepped up to espouse positive change along the Escarpment.

These include the Bruce Peninsula Biosphere Association (BPBA), a community-based volunteer organization committed to sustainable development and raising awareness about the Bruce Peninsula; home of the largest contiguous forest tract in Southern Ontario. Recognizing that the karst topography in their backyards has the highest concentration of rare species in Canada, the BPBA has stepped forward to tackle issues of stewardship (through the preparation of a stewardship plan), wetland conservation, soil erosion, invasive species removal, ecological monitoring and the repair of outdated septic systems, all in the absence of a conservation authority. They have even implemented a program to keep cattle out of watercourses through the construction of solar-powered water pumps.

In the Collingwood area, another volunteer community group; the Blue Mountain Watershed Trust Foundation have become the de facto stewards of this area and are working to prevent the Niagara Escarpment from being loved to death due to pressures from recreational, residential and commercial activities. They raise awareness on the importance of streams, wetlands and other natural heritage within their watershed and have volunteered to monitor water quality and pollution in these streams.

Further south, the Cootes to Escarpment EcoPark System is a collaborative initiative, an unprecedented partnership of nine organizations with the goal of protecting, connecting and restoring natural lands in the Greenbelt at the western end of Lake Ontario, one of the most biologically rich areas in Canada. Three municipalities (Burlington, Hamilton, Halton Region), two conservation authorities (Halton and Hamilton), three non-profits (Bruce Trail Conservancy, Hamilton Naturalists’ Club and Royal Botanical Gardens) and one university (McMaster) are all partners in the initiative that has acquired 230 acres of land since 2013 for permanent protection and are actively engaged in stewardship with local landowners. The Escarpment Biosphere Conservancy has purchased land along the Niagara Escarpment and to date has a network of 140 nature reserves totaling 46 square kilometres of protected space. This includes properties still held in private hands and those where conservation agreements prevent lands from being developed.

Groups like the Owen Sound Field Naturalists and Hamilton Field Naturalists’ Club educate all age groups about their ‘backyard’ escarpments via on-the-ground education programs, public outreach, speaker series and publications. The Escarpment Project has a massive annual clean-up of the Escarpment near Hamilton. The
The Niagara Escarpment

by James Howlett

To steward it wisely, we must be part of it, rather than separate to it, symbiotic, rather than parasitic.

There are threats and pressures in being merely infatuated with it. The number of visitors to many scenic - and once remote-places along the Escarpment is now so high that biodiversity is being impacted by some who ignore signs and trails while searching for the picture of their life. Housing surveys replace cropland and wildlife habitat. Highways and roads sever its continuity. Invasive wildlife and chemicals out compete and contaminate the natural flora and fauna, leaving us with an obvious and contemporary burden. Today, more than ever, the complexities and weaknesses of the Escarpment as a rare ecosystem must be respected, or the incredible beauty of it all will recede farther away to an ever shrinking last retreat. To this end, a deep confession is owed by this generation to the next, and to Indigenous people along the Escarpment. We have not respected Mother Earth.

From now on the Escarpment’s dowry of resources must be selected and used with wisdom. At times and places it must be reseeded, left alone, or even sensitively enhanced as our understanding of what should, or shouldn’t be there develops.

Lastly, it must always be approached with awe, wonder, and appreciation. To do otherwise, would harm both her and us, for gratitude cannot grow without those vital nutrients, and the end result of life without gratitude, for us, and the Niagara Escarpment, would be the lessening of the living. No one owns it, instead, we keep watch over it, generation by generation, and never in human history has it been so important for the people of any particular watch to do their duty well, and pass the torch of stewardship over to the next keepers, the guardians of the Heart of Turtle Island.
Ever-evolving escarpment communities represent a mosaic of global schemes, as varied as the landscape itself. Much may be learned from the rich history and heritage of the First Nations: their stories and legends, and ancient beliefs that all living things, including the air, water and land are sacred.

The backbone of Southern Ontario, the Escarpment’s ancient geology provides the foundation for our ecosystems and infrastructures. (above) Near the highest point of the Niagara Escarpment’s twisted trail across the Island of Spirits, a couple pauses on the dolostone ledge of The Cup and Saucer’s east lookout. (left) Pollinators face-off in the Dundas Valley.
Ecosystems of the Niagara Escarpment support hundreds of at-risk species that coexist alongside the most densely populated and heavily developed regions in Canada. Finding a balance between human activities and nature protection is a delicate, ongoing process.