A Five-Year Biodiversity Action Plan for Hamilton, 2024

HAMILTON BIODIVERSITY ACTION PLAN

⌂ Contents

Cover image — View from east Escarpment overlooking lower City of Hamilton. PHOTO Madolyn Armstrong

Land Acknowledgement

The City of Hamilton is situated upon the traditional territories of the Erie, Neutral, Huron-Wendat, Haudenosaunee and Mississaugas and is covered by the Dish with One Spoon Wampum Covenant, which was an agreement between the Haudenosaunee and Anishinaabek to share and care for the resources around the Great Lakes. This land is covered by the Between the Lakes Purchase, 1792, between the Crown and the Mississaugas of the Credit First Nation.

For thousands of years, Indigenous worldviews and stewardship have protected Mother Earth for future generations. With deep appreciation and in the name of Truth and Reconciliation, the contributing organizations who have helped to develop the Biodiversity Action Plan are committed to working collectively to ensure our natural world will be protected so it can sustain future generations.

The Biodiversity Action Plan Working Group acknowledges the many First Nations and Indigenous peoples who have and continue to serve as caretakers of this land.

Each of the partner organizations are committed to building relationships with the traditional rights holders of the lands that Hamilton is situated upon. The Biodiversity Action Plan is an opportunity to learn and incorporate traditional knowledge into our work and practices.

Sunset over Cootes Paradise. PHOTO Lauren Vraets

Dundas Valley. PHOTO City of Hamilton

Preface

Hamilton is rich in biodiversity with many important natural features such as mature Carolinian forest and woodlands, the Niagara Escarpment, Lake Ontario, and numerous wetlands and watercourses that support an incredible diversity of common and at-risk species.

Organizations across Hamilton, including the City of Hamilton, have worked to protect nature through partnerships and collaborations with one another, resulting in conservation success stories like the ones shared throughout this document. Conservation experts, organizations and community members continue to work together to protect, enhance and restore biodiversity in Hamilton for a healthy and resilient environment.

Several partner organizations and the City of Hamilton have come together to develop Hamilton's first Biodiversity Action Plan which will guide the protection and enhancement of biodiversity across the city and build on the strong foundation formed by the local environmental community. Each partner organization provided staff time as in-kind support for the development of the document, community engagement, and technological and communications support.

Development of the Biodiversity Action Plan was funded by the City of Hamilton and ArcelorMittal Dofasco Corporate Community Investment Fund.

Partner Profiles

BAY AREA RESTORATION COUNCIL

bayarearestoration.ca

Formed in 1991, the Bay Area Restoration Council (BARC) is a registered charitable corporation that represents the public interest in the revitalization of Hamilton Harbour and its watershed. For more than 30 years, the Bay Area Restoration Council has played a pivotal role in helping the community see the potential of a Harbour where nature can thrive.

The Bay Area Restoration Council leads and promotes collective action to revitalize Hamilton Harbour and its watershed through education and community engagement. Our vision is a thriving, healthy and accessible Harbour for all.

Albion Falls. PHOTO Lauren Vraets

Hamilton

hamilton.ca

The City of Hamilton is home to approximately 570,000 residents spread across an area of approximately 1,118 km^2. The City of Hamilton is a diverse landscape of natural areas as well as rural and urban geographies. Set out in the *2016–2025 Strategic Plan*, the City's Vision "To be the best place to raise a child and age successfully" is a reflection of the kind of city that Hamiltonians can collectively strive for. Hamilton's Council and staff are tasked with ensuring that this vision is implemented in all aspects of planning and decision making for constituents.

The 2022-2026 Council priorities are: Sustainable Economic and Ecological Development; Safe and Thriving Neighbourhoods; and Responsiveness and Transparency. Participation in the development and implementation of the Biodiversity Action Plan touches on each of these Council priorities and is a positive step in establishing the City of Hamilton as a municipal leader in natural heritage protection and enhancement.

Cootes to Escarpment EcoPark System

cootestoescarpmentpark.ca

The Cootes to Escarpment EcoPark System is a collaboration among nine government and not-for-profit agencies that collectively protect nearly 2,200 ha of open space and nature sanctuary between Cootes Paradise Marsh, Hamilton Harbour and the Niagara Escarpment.

Since 2007, the collaboration has evolved as a voluntary park alliance in which the participating agencies own and manage their lands individually but collaborate on areas of mutual interest.

The partners of the Cootes to Escarpment EcoPark System are Royal Botanical Gardens, Hamilton Naturalists' Club, Hamilton Conservation Authority, Conservation Halton, Bruce Trail Conservancy, McMaster University, City of Burlington, City of Hamilton and Halton Region.

Ravine Road Trail, Royal Botanical Gardens. PHOTO Lauren Vraets

Hamilton Conservation Authority

conservationhamilton.ca

Conservation authorities are local, community-based public sector organizations that are provincially legislated by the Conservation Authorities Act which was originally passed in 1946. Conservation authorities are Ontario's community-based environmental experts who use integrated, ecologically sound environmental practices to manage Ontario's water resources on a watershed basis, maintain secure supplies of clean water, protect communities from flooding and contribute to municipal planning processes that protect water.

There are four conservation authorities with jurisdiction in Hamilton: Hamilton Conservation Authority, Niagara Peninsula Conservation Authority, Grand River Conservation Authority and Conservation Halton.

Hamilton Conservation Authority (HCA), located at the western end of Lake Ontario, is the area's largest environmental management agency and is dedicated to the conservation and enjoyment of watershed lands and water resources.

The HCA's Mission is to lead in the conservation of our watershed and connect people to nature. As of 2023, the HCA holds or manages 4,400 hectares (10,872 acres) in public trust and is responsible for approximately 56,800 hectares (140,355 acres) of watershed area, much of it is home to rare plants, birds and mammals whose existence depends on an environment that is not pressured by human activity.

Niagara Peninsula CONSERVATION

npca.ca

The Niagara Peninsula Conservation Authority (NPCA) watershed is uniquely situated between two Great Lakes, with the Niagara River as a boundary shared with the United States of America. NPCA's jurisdiction includes the entire Niagara Region and portions of Haldimand County and City of Hamilton. Like other conservation authorities, NPCA is a community-based natural resource management agency that protects, enhances and sustains healthy watersheds.

With more than 63 years of experience, NPCA offers watershed programs and services that focus on flood and hazard management, source water protection, species protection, ecosystem restoration, community stewardship and land management. The NPCA's jusisdiciction covers approximately 21% of Hamilton. The NPCA provides services related to numerous surface water quality initiatives, groundwater monitoring, floodplain mapping, conservation lands, landowner education and engagement programs, watershed strategies and several special agreements with the City of Hamilton and its respective partners.

Hamilton waterfront area. PHOTO City of Hamilton

Hamilton Naturalists' Club

hamiltonnature.org

Hamilton Naturalists' Club is a non-profit, volunteer-led organization dedicated to the study, appreciation and conservation of our wild plants and animals. Since its founding in 1919 the Club has been working to protect and restore biodiversity in Hamilton and beyond. HNC's focus is to permanently protect and steward natural lands through its system of nature sanctuaries, while also working to enhance biodiversity in urban areas by creating habitats in public spaces with native plants.

Community tree planting. PHOTO Hamilton Naturalists' Club

Executive Summary

Biodiversity is the variety of life on Earth. Hamilton is a biodiversity hotspot with many unique habitats that support hundreds of common and many at-risk species. This biodiversity of life and the interactions that occur between species support vital ecosystem services that all life depends on such as cleaning our air and water and providing spaces for us to explore and engage with nature.

Unfortunately, biodiversity is in decline globally and locally due to a growing number of threats including climate change, habitat loss, fragmentation and alteration, pollution and invasive species. As a response to these threats at a global scale, Canada is a signatory to the United Nations Convention on Biological Diversity.

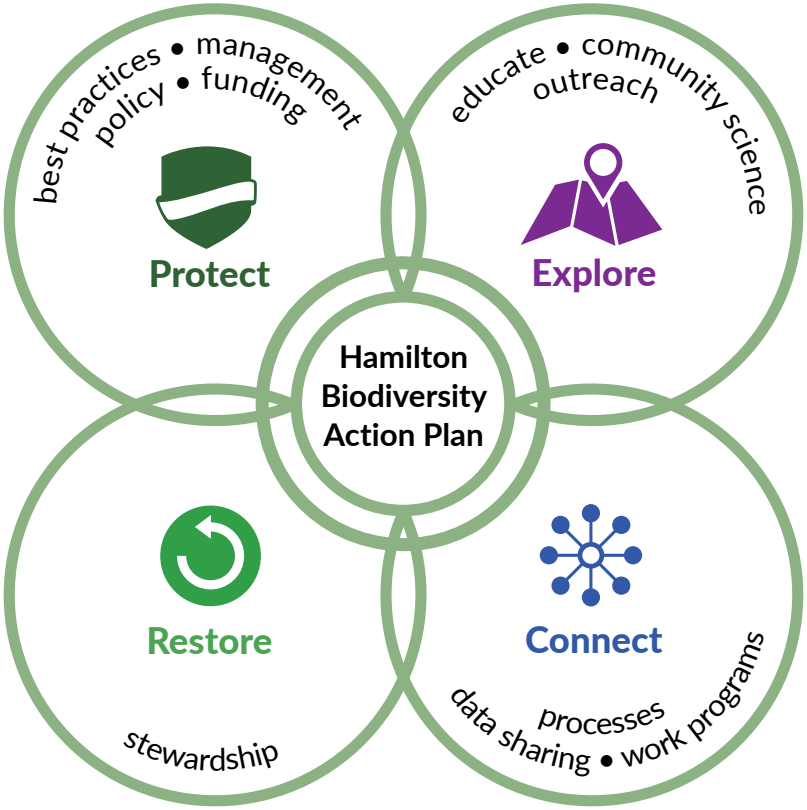
Hamilton's unique geography supports regional biodiversity by providing critical habitats for many common and at-risk species.

Hamilton's first five-year Biodiversity Action Plan (BAP) has been developed to address biodiversity loss on a regional scale. The BAP is a city-wide, multi-partner plan that will guide the collaborative protection and restoration of biodiversity through a set of strategic **goals**, **key priorities** and associated **actions** related to policy, regulatory and on-the-ground programs.

Because flexibility and adaptability are key to ensuring positive outcomes for Hamilton's biodiversity, additional collaborations will need to be undertaken that are not listed in this plan. Regular reporting on the implementation of the Biodiversity Action Plan will help everyone know what work is happening across the City.

The BAP envisions "**A Hamilton that is resilient to climate change, celebrates nature and provides a healthy environment for all life.**"

Hamilton's Biodiversity Action Plan's Goals



Everyone has a role to play in helping to implement the BAP and now is the time to act. The "What Can You Do" section provides suggestions for how anyone can get involved — **what will you do to protect, explore, connect and restore Hamilton's biodiversity?**

Introduction

Biodiversity is the variety of life on Earth. It includes the complex relationships and interactions that all living things, including people, plants, animals, fungi and bacteria, have with one another and their environment. All species, including humans, are connected and depend on one another to survive. Places with high biodiversity are healthier, more resilient and more resistant to short- and long-term threats.

Biodiversity is everywhere. It's on land and in water, in forests, in parks and around our homes. You'll find biodiversity not only on protected and rural lands but also in the most densely populated and developed areas of a city, including spots like balcony planters and garden beds. Biodiversity is inter-connected and even the smallest spaces in a city can provide habitat and connections for local plants, insects and wildlife.

Healthy biodiverse areas provide ecosystem services, such as flood management by storing water, climate change mitigation by sequestering carbon, clean air and water by filtering harmful particulates and food production through pollination. Biodiverse areas also provide recreational and spiritual opportunities that support the health and well-being of the community.

Ecosystem services are complex, invaluable and very difficult to assign a monetary value to. As an example, Hamilton's urban forest has been conservatively estimated to provide $8.2 million annually through ecosystem services, including avoided runoff, oxygen production, pollution removal, carbon storage and sequestration, and energy savings (Hamilton's Urban Forest Strategy). We must do more to protect and enhance biodiversity, not only for nature's sake but to ensure

Leafcutter Bee on Butterfly Milkweed. PHOTO Hamilton Naturalists' Club

View of Hamilton's City Hall through the canopy of trees. STOCK PHOTO

Caterpillar of Monarch Butterfly.
PHOTO Hamilton Naturalists' Club

we continue to receive these important services that add resiliency to Hamilton's future.

Unfortunately, we are experiencing a global biodiversity crisis.

The *Global Assessment Report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services* (IPBES*) (#6, page 46, 2019) states that "around 1 million species already face extinction, many within decades, unless action is taken to reduce the intensity of drivers of biodiversity loss." Sir Robert Watson, chair of the IPBES and former chair of the Intergovernmental Panel on Climate Change, pointedly titled his associated op-ed "Loss of biodiversity is just as catastrophic as climate change."

Scientists agree that anthropogenic (human) activities have led us into the midst of the sixth mass extinction event in Earth's history. Consistent with global and provincial trends, Hamilton's biodiversity is threatened primarily by habitat loss and fragmentation, invasive species, pollution and climate change.

Globally biodiversity loss continues to accelerate, resulting in the breakdown of natural systems and threatening humanity's existence. Canadians are facing a growing list of complex issues associated with global biodiversity loss in addition to the loss of species: food insecurity, reduced water quality, poor human health, reduced municipal resilience to natural disasters and climate emergencies, and significant harm to economies.

However, there is hope. The 2019 IPBES report ends on this key message, urging us to take immediate action for our

environment: “Nature can be conserved, restored and used sustainably while other global societal goals are simultaneously met through urgent and concerted efforts to fostering transformative change.”

By working collaboratively we have the ability to conserve and enhance biodiversity. Hamilton needs to be resilient to climate change and biodiversity loss in order to protect local biodiversity for future generations. A multi-partnered Biodiversity Action Plan (BAP) for Hamilton has been created to guide collective organizational and individual actions that will benefit local biodiversity for the long-term.

Whether you live, work, or play in Hamilton you can have a positive impact on biodiversity by helping to implement the BAP.

Let’s take action together.

Brief History of Global Biodiversity Initiatives

To recognize the global impacts of biodiversity loss, the United Nations Convention on Biological Diversity was initiated in 1993 to conserve biological diversity. In 1992 Canada was the first industrialised nation to join the Convention, even before it was fully ratified by all nations. Loss of biodiversity and degradation of ecosystems is one of the top threats facing humanity and the United Nations is continuing work on biodiversity to reach the goal of the 2050 Vision for Biodiversity, “living in harmony with nature.”

Canada has committed to protecting 25% of our lands and waters by 2025 and 30% by 2030. The targets build upon prior commitments set under the Convention on Biological Diversity in 2010. Known as the Aichi Biodiversity Targets, these included a commitment to protect 17% of our lands and inland waters by 2020.

The UN Biodiversity Conference — COP15 was held in Montreal in December 2022 and the Kunming Montreal Framework was developed to specify 23 targets to address biodiversity impacts by 2030. Inspired by these targets, the Montreal Pledge asks Canadian municipalities to commit to 15 areas of action (Ville de Montreal, 2022), many of which are represented in the actions of Hamilton’s Biodiversity Action Plan. **At the time of writing, Hamilton is one of five Canadian cities to sign the Montreal Pledge and many of the actions in the Biodiversity Action Plan align with the commitments in the pledge.**

Where We Are

View of Hamilton Harbour. PHOTO Hamilton Naturalists' Club

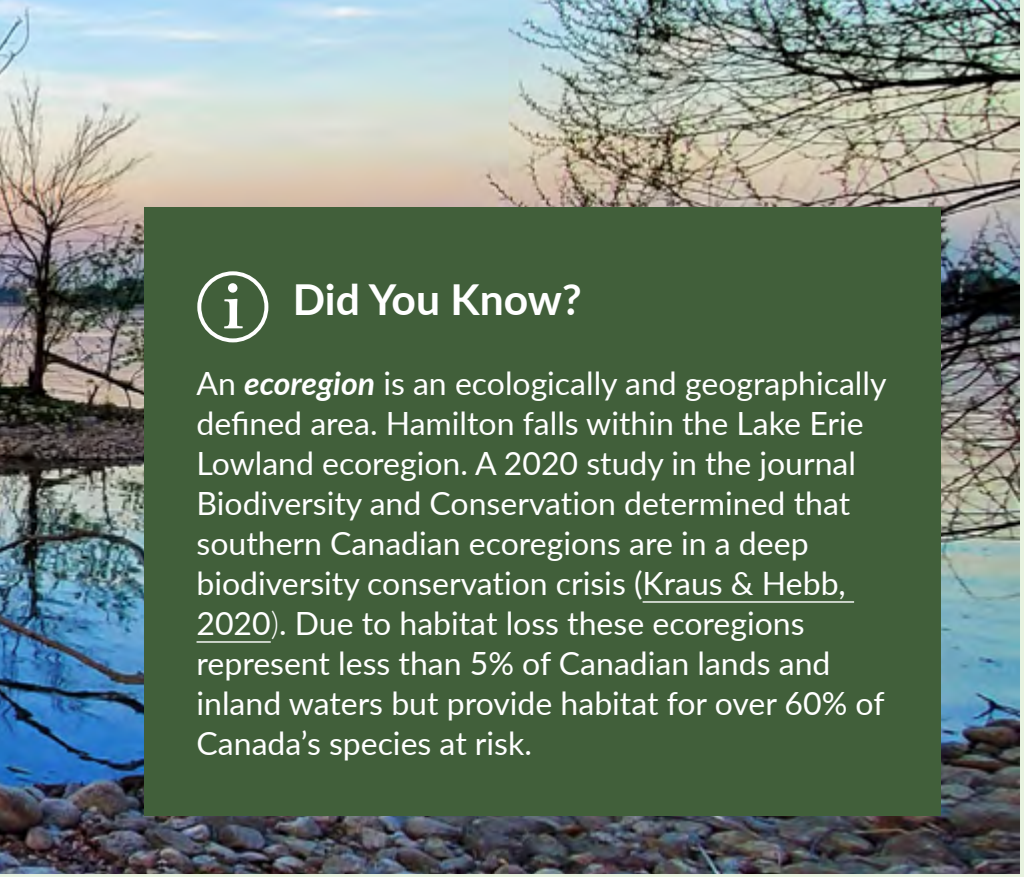
What is Biodiversity?

Nature and ***biodiversity*** are often used interchangeably and although their meanings are similar, they are not quite the same. Without biodiversity, nature could not function.

Nature is all the plants, animals, geological features, natural events and processes that occur in the environment.

Biodiversity, or biological diversity, refers to all living things. It is the variety and variability of life on Earth. It is a term that is as wide-ranging and vast as the life that it looks to define. Biodiversity encompasses every individual plant, animal, fungi and single-celled life form. It also includes the genes and DNA that make each living thing unique.

A group of organisms that share similar genes and can produce fertile offspring are called ***species***. Biodiversity measures both the number of individuals of each species and the number of different species in an area. For example, on a property with tallgrass prairie we might count 62 individual Butterfly Milkweed (*Asclepias tuberosa*) plants, which is one of the 46 plant species found there.



Did You Know?

An ***ecoregion*** is an ecologically and geographically defined area. Hamilton falls within the Lake Erie Lowland ecoregion. A 2020 study in the journal Biodiversity and Conservation determined that southern Canadian ecoregions are in a deep biodiversity conservation crisis (Kraus & Hebb, 2020). Due to habitat loss these ecoregions represent less than 5% of Canadian lands and inland waters but provide habitat for over 60% of Canada's species at risk.

Did You Know?

Hamilton makes up a sizeable portion of Ontario's Greenbelt. This area is the world's largest greenbelt and protects farmland, forests, wetlands, rivers and lakes. Two million acres of protected land work together to provide fresh air, clean water, local food and drink, and outdoor recreation opportunities.

According to the report Ontario's Good Fortune: Appreciating the Greenbelt's Natural Capital, the Greenbelt delivers $3.2 billion in ecosystem services every year, making it an irreplaceable resource critical for the future of the province (Friends of the Greenbelt Foundation, 2016).

An ***ecosystem*** is a community of different species (plants, animals, fungi, bacteria, etc.) in a specific area that interact with individuals of their own species, with other species and with abiotic (non-living) things in their environment.

Over time, these interactions influence the behaviours and physical characteristics of each species and the changes are passed down genetically from one generation to the next. This genetic diversity between individuals or populations allows species to adapt to and survive environmental changes.

Biodiversity measures the variability of life, like the genetic differences between individuals or populations and the various interactions that occur in an ecosystem.

A healthy, thriving environment has a wide range of species with genetically diverse populations that engage in complex interactions and relationships that form resilient and biodiverse ecosystems. Biodiversity is the foundation for a healthy environment and is essential to all life.

The Benefits of Biodiversity

Everyone benefits from healthy ecosystems and the services they provide. Ecosystem services are essential to our health, environment and economy. These services include filtering harmful microscopic particles from our air and water, supplying oxygen, mitigating climate change through carbon storage in plants and soil, mitigating flooding and erosion with water storage, decomposing waste and cycling nutrients and providing the natural resources humans use every day including food, water, medicine and materials. The natural world also provides us with recreational (hiking, camping, birdwatch, fishing, etc.) and spiritual connections.

Both urban and rural communities benefit from a healthy environment.

Healthy forests store a lot of carbon and help to mitigate against climate change.

Nature provides habitat for many species, including at-risk species.

We depend, directly and indirectly, on biodiversity for clean air, water, food and uplifting nature experiences.

Green streetscapes and natural features make urban commercial spaces more appealing, which stimulates local economic growth, lowers energy costs for businesses and residents.

Passive experiences, like viewing nature from an office window or walking by trees, parks and gardens, can help people recover from daily and chronic stress.

75% of our food crops depend on pollination. Pollinators need healthy biodiverse areas to thrive.

Biodiversity invigorates Hamilton's tourism industry and allows us to host a variety of adventure and tourism experiences.

Spending time in nature can decrease stress and anxiety, boost our attention, and improve our physical health by helping to prevent disease and boosting our immune function.

Access to nature provides children in cities with tremendous benefits that are essential to their development.

Nature also has its own value outside of the services it provides to humans. It provides food, water, shelter and resources to countless species that are all connected to each other in some way. Species and ecosystems continue to change and evolve over time as the delicate balance of life ebbs and flows. Each species has its own place and role in an ecosystem, though with enough disturbance species may become threatened or endangered. Healthy, biodiverse areas are more resilient to threats and provide important habitat for species at risk.

Nature in Urban Areas

In urban communities, nature provides services like managing stormwater and buffering traffic noise. The relationship between green streetscapes and positive health outcomes is notable. Small actions — such as creating parkettes, applying street-side landscaping and planting front yard rain gardens — can yield big results. Trees shade both buildings and streets during the summer, reducing energy costs and temperature in urban areas. Through the application of a climate change lens, natural assets can enhance the resiliency of the city over time.

Unfortunately, urban areas often lack adequate, healthy tree canopy, parks and gardens. Protection and enhancement of Hamilton's biodiversity can assist in rehabilitating urban areas, making them more resilient to the pressures of the urban environment while providing the community with a nearby natural space.

Nature in Rural Areas

In addition to agricultural lands, rural areas have large, vegetated natural ecosystems like forests, wetlands and meadows that provide food, water and shelter for many species. These areas also contribute to surface water and groundwater quality and quantity by slowing down, storing and filtering stormwater runoff. These areas filter the air, store water to mitigate flooding and are often connected, providing wildlife corridors — uninterrupted habitat for wildlife movement.

These natural areas support biodiversity, which in turn supports a healthy agriculture industry as 75% of our food crops depend on pollination by a wide diversity of pollinators. Biodiversity also invigorates our tourism industry, allowing individuals and businesses to host a variety of adventure experiences and nature-based activities.

According to the Organisation for Economic Co-operation and Development (OECD) report Biodiversity: Finance and the Economic and Business Case for Action, ecosystem services delivered by biodiversity, such as crop pollination, water purification, flood protection and carbon sequestration, are worth an estimated $125–140 trillion USD per year, more than 1.5x the global gross domestic product (GDP) (OECD, 2019).

The 2016 report Ontario's Good Fortune: Appreciating the Greenbelt's Natural Capital estimates the value derived from the natural capital of the Greenbelt. This is used to establish a baseline natural capital accounting framework that can be maintained and built upon over time to support decision making and advocacy work related to the Greenbelt. It also presents a natural capital accounting framework that demonstrates to decision makers how to identify and measure the benefits derived from natural capital.

Biodiversity Policy Context

Grindstone Marsh. PHOTO Hamilton Naturalists' Club

Global Biodiversity Initiatives

In 1992, Canada was an early signatory of the United Nations Convention on Biological Diversity which was created to recognize and mitigate the global impacts of biodiversity loss being witnessed. The Convention came into effect in late 1993 and has been ratified by an overwhelming majority of countries. Its main objectives are "to conserve biological diversity, to sustainably use its components and to share equitably the benefits arising from the use of genetic resources" (UN, 2000).

As part of the Convention of Biological Diversity Strategic Plan for Biodiversity 2011-2020, an ambitious set of 20 targets known as the Aichi Biodiversity Targets were proposed to meet five overarching goals to preserve global biodiversity. The targets included protecting lands and waters, ensuring species-at-risk populations remain secure, and that biodiversity consideration is incorporated into planning of major municipalities across Canada. Canada submitted a National Biodiversity Strategy and Action Plan with the goal of protecting 17% of terrestrial areas and inland waters and 10% of coastal and marine areas by 2020.

In December 2022 the UN Biodiversity Conference: COP15 met in Montreal and participants agreed to the historic Kunming-Montreal Global Biodiversity Framework which aims to halt and reverse biodiversity loss by 2050. The framework "sets out an ambitious plan to implement broad-based action to bring about a transformation in our societies' relationship with biodiversity by 2020...and ensure that, by 2050, the shared vision of living in harmony with nature is fulfilled" (UN, COP 15). Within the framework there are 23 targets for 2030 and four goals for 2050. Building off the Aichi Biodiversity Targets, Canada now aims to protect 25% of its lands and oceans by 2025 and 30% of each by 2030.

Female cardinal. PHOTO Peter Kelly

Pollinator meadow planting. PHOTO Peter Kelly

Canada's 2030 National Biodiversity Strategy

Canada's 2030 Strategy will build on existing initiatives in all regions and sectors across the country and follow seven guiding pillars. The seven guiding pillars are:

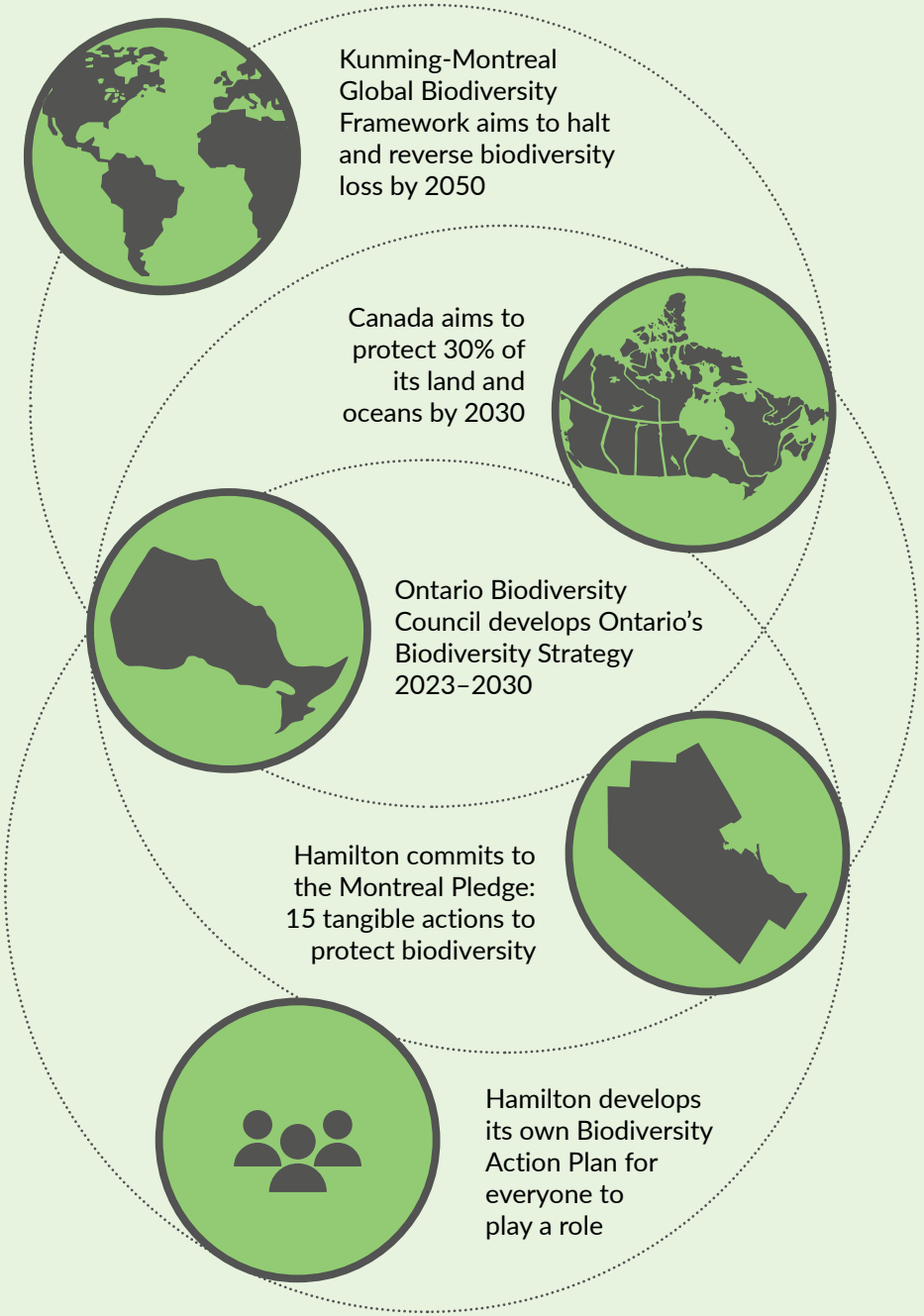
1. Recognizing, upholding and implementing the rights of Indigenous Peoples and advancing reconciliation.
2. Committing to urgent, ambitious and transformative action.
3. Ensuring a whole-of-government approach.
4. Fostering a whole-of-society approach.
5. Empowering on-the-ground action.
6. Using the best available science and knowledge.
7. Applying an ecosystem approach and holistic perspectives.

Canada's National Biodiversity Strategy will outline how each target will be achieved in 23 implementation plans. To ensure accountability, progress will be measured through Canada's Domestic Biodiversity Monitoring Framework. The final 2030 Strategy will be available in 2024, prior to the sixteenth meeting of the Conference of the Parties to the Convention on Biological Diversity.

The Montréal Pledge was brought forth at COP 15 in 2022 to encourage cities around the world to commit to tangible actions for protecting biodiversity. The City of Hamilton has committed to the Montréal Pledge alongside many other cities worldwide. Further in this document we outline key priorities and actions for Hamilton, and many of these actions reflect those outlined in the Montreal Pledge.

Hamilton's BAP will help work towards these international and national commitments and goals. Actions within this document address many of the actions in the Montréal Pledge and 13 of the 23 Kunming-Montreal Global Biodiversity Framework targets for 2030, helping Hamilton and Canada meet the national and international targets for preserving and enhancing biodiversity.

Global to individual biodiversity strategies



Tews Falls. PHOTO Hamilton Conservation Authority

Ontario Biodiversity Strategy

Ontario's Biodiversity Strategy guides conservation across the province. It's like a "to-do" list to help us take actions that will benefit biodiversity, address climate change, improve human health, make our communities stronger and safer and support the economy. Five strategic directions reflect the key components required to conserve biodiversity at a provincial level:

- Empower people
- Enhance resilience
- Reduce threats
- Improve knowledge
- Transform investments

Each strategic direction includes targets and actions to focus efforts and guide actions and activities from all sectors. The Ontario Biodiversity Strategy was recently updated in 2023.

Niagara Escarpment Commission

The Niagara Escarpment spans the City of Hamilton, providing a ribbon of green that separates the lower and upper city. It is an internationally recognized landform and was designated as a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Biosphere Reserve in 1990. Biosphere reserves are intended to promote solutions to live, work and play in and around important natural areas so that biodiversity is conserved and enjoyed sustainably.

On a provincial level the escarpment is protected by the Niagara Escarpment Commission (NEC). NEC is a statutory body that operates at arm's length from the Ontario Government and is mandated to develop, interpret and apply Niagara Escarpment Plan policies that maintain and enhance the vitality of the Niagara Escarpment's unique environmental and landscape features.

Provincial Policy Statement — Natural Heritage System

The Provincial Policy Statement (PPS) provides specific direction for land use planning and development in Ontario, including natural heritage. Policies have been developed within the PPS to ensure natural features and areas shall be protected for the long term. Local decision making for development must be consistent with direction provided in the PPS.

Ontario's Natural Heritage System is defined in the Provincial Policy Statement as "a system made up of natural heritage features and areas and linkages intended to provide connectivity (at the regional or site level) and support natural processes which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species and ecosystems. These systems can include natural heritage features and areas, federal and provincial parks and conservation reserves, other natural heritage features, lands that have been restored or have the potential to be restored to a natural state, areas that support hydrological functions and working landscapes that enable ecological functions to continue." (Provincial Policy Statement 2020)

These natural heritage features and areas include significant wetlands, woodlands, valley lands, fish habitat, habitat of endangered and threatened species, and Areas of Natural and Scientific Interest on public and private lands.

The City's Official Plan policies implement the policies of the PPS with respect to all matters, including Natural Heritage.

Greenbelt Plan — Natural Heritage System

The Greenbelt Plan, implemented in 2005, provides policies for where urban activities should and should not occur in the Greater Golden Horseshoe areas. It builds upon the ecological protections outlined in the Provincial Policy Statement and works together with the policies of the Niagara Escarpment Plan.

Within the Protected Countryside of the Greenbelt Plan, Natural Heritage System policies speak to core areas of ecological signficance, and the requirement that these areas not be subjected to negative impacts as a result of development. Policies of the City's Official Plans must conform with the policies in the Greenbelt Plan.

Hamilton, north-west view from Sam Lawrence Park. STOCK PHOTO

Hamilton's Natural Heritage System

Hamilton contains many natural areas and features that contribute to the municipality's beauty, unique character and quality of life. These areas include, but are not limited to, the Niagara Escarpment, Lake Ontario shoreline and Eramosa Karst.

Hamilton has a long-standing history of protecting natural features. Historically, this has been through the establishment of Environmentally Significant Areas (ESAs) within the former Region of Hamilton-Wentworth. It is now contemplated through a more landscape-level approach, known as a Natural Heritage System (NHS). The City-wide NHS recognizes the importance of both a natural feature and its functions. While the NHS slightly differs between the rural and urban landscapes, the building blocks of this system, Core Areas and Linkages, remain the same. A connected NHS is important for maintaining biodiversity and the long-term health and viability of natural systems.

The City of Hamilton Urban and Rural Official Plans contain policies and definitions for the City's NHS. Specifically, Core Areas and Linkages of natural lands across Hamilton are mapped and form the NHS in the Official Plan. The NHS has specific protections through land use policy in both the Rural and Urban context.

What is a Core Area?

A Core Area is a natural area that is considered highly valuable for providing many irreplaceable benefits. Core Areas include Significant Woodlands, Environmentally Significant Areas (ESAs), Areas of Natural and Scientific Interest (ANSIs), Significant Wildlife Habitat, Significant Habitat for Threatened and Endangered Species, wetlands and watercourses. These areas are the most important component of the NHS in terms of biodiversity (sustains species populations), productivity and ecological functions (provides breeding habitat and foraging habitat for wildlife) and hydrological functions (groundwater recharge and discharge, flood and erosion control). They are necessary for improving Hamilton's resiliency to a changing climate and providing a healthy environment for all life. Hamilton's Core Areas provide habitats for many species and opportunities for people to experience nature.

What is a Linkage?
A Linkage is a natural area within the landscape that ecologically connects Core Areas. These can include old fields, meadows, thickets and hedgerows. Linkages provide plants and wildlife with the opportunity to move to new areas in response to environmental changes and life cycle requirements. Linkages can be important natural features on their own, or degraded habitat which can be improved through restoration to enhance biodiversity.

Targets for Natural Cover
The City recognizes that to expand the existing natural heritage system in the long-term, restoration may be required. Within the City's Official Plans, targets, based on Environment Canada's 2004 report *Framework for Guiding Habitat Restoration in the Great Lakes Area of Concern,* have been identified. The targets have been identified as:

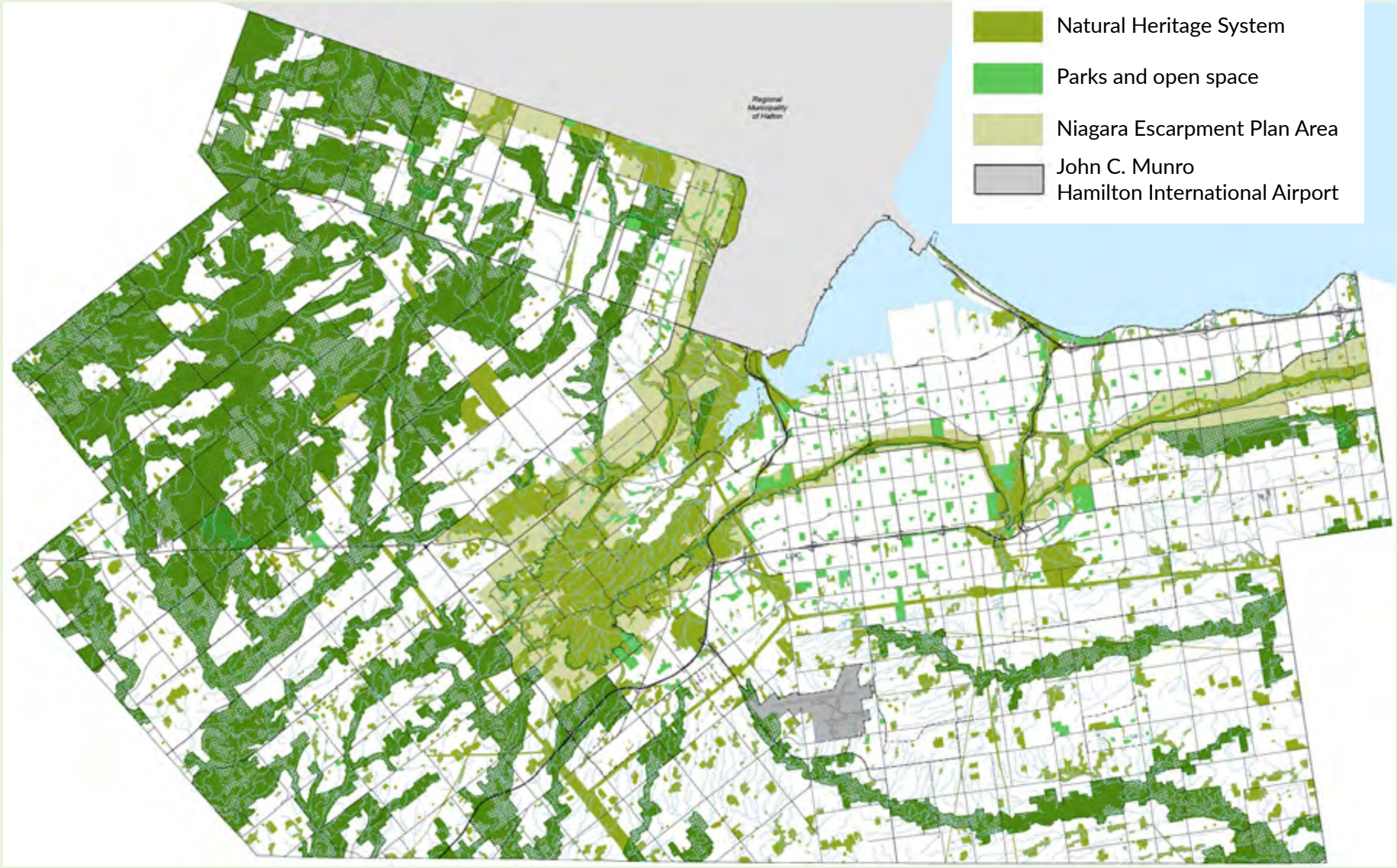
Natural Cover Type	Existing Cover	City-wide Target
Forest cover	17.7%	30%
Interior forest cover (100 m from edge)	4.2%	10%
Interior forest cover (200 m from edge)	1.4%	5%
Riparian vegetation (>30 m wide)	34.7%	75% of stream length naturally vegetated
Wetland cover	8.3%	10%

It is important to note that through other City initiatives, such as the *Urban Forest Strategy* (UFS), additional targets have been identified, e.g. in the 2023 UFS an urban tree canopy target of 40% by 2050 was approved. Canopy enhancements can include street trees, private trees and urban forests.

Recreational trails. PHOTO City of Hamilton

Bioswale in Gage Park. PHOTO City of Hamilton

Policy Context:
Hamilton's Natural Heritage System

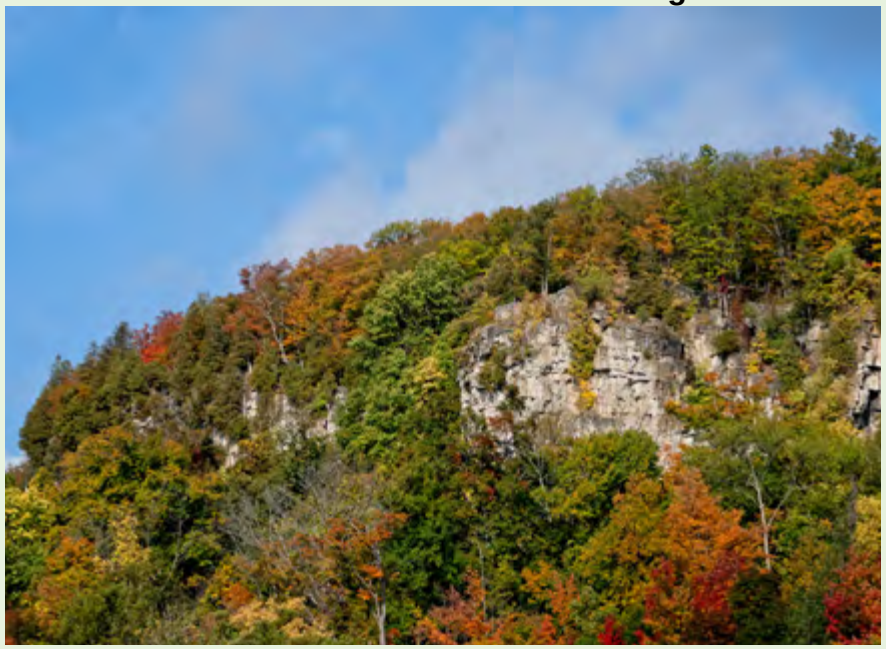


Composite map derived from Schedule B - "Natural Heritage System" contained within the Urban Hamilton Official Plan and Rural Hamilton Official Plan

Hamilton's Biodiversity

Hamilton's biodiversity is rich with an incredibly diverse variety of species due to its unique climate and geography. The shoreline features of Lake Ontario, including Hamilton Harbour and Cootes Paradise Marsh, lie below the cliffs, waterfalls, gorges and valleys of the Niagara Escarpment — a 725 km long landform stretching through the United States and Ontario. Hamilton is home to one of the few sections of the Niagara Escarpment with south-facing cliffs.

The city lies within the Carolinian zone, a transition zone between southern and northern forests where the winters are mild and the average temperatures are warmer than anywhere else in Ontario. It is also situated along the Atlantic Flyway, one of four major pathways followed by migratory birds from the Arctic to South America.



Niagara Escarpment. PHOTO Conservation Halton

Did You Know?

The Carolinian zone stretches from Toronto to Windsor and supports over 2,000 plant species, 70 tree species, almost 400 bird species, 27 reptile species, over 20 amphibian species and a large portion of threatened or endangered species in Canada, all while being called home by ~25% of Canadians.

Map of Carolinian zone

Peregrine Falcon.
PHOTO Brian Wylie

Monarch.
PHOTO Hamilton Naturalists' Club

Jefferson Salamander.
PHOTO Conservation Halton

American Columbo.
PHOTO Public domain

Eastern Flowering Dogwood.
PHOTO Hamilton Naturalists' Club

Blanding's Turtle.
PHOTO David Smith

The unique habitats created by these geographic and climate conditions support a wide diversity of species. In addition to housing some of our more common species of plants and animals, these habitats also support species at risk such as the Bald Eagle, Peregrine Falcon, Blanding's Turtle, Jefferson Salamander, Brook Trout, Monarch, American Columbo and Eastern Flowering Dogwood.

Across Hamilton there are numerous sites and ecosystems with national and provincial environmental designations like Important Bird Area (IBA), Area of Natural and Scientific Interest (ANSI), Environmentally Sensitive Area (ESA), Provincially Significant Wetland (PSW) and Important Amphibian and Reptile Areas (IMPARA). These areas have significant environmental value, but it does not necessarily mean the site has environmental protections.

Due to its geography, location amongst the Great Lakes and rich diversity, the landscape has been strongly influenced by human settlement and land use activities. Local Indigenous peoples have been stewards and caretakers of this land for thousands of years. These natural areas of Hamilton continue to be essential to local Indigenous people that collect plants and other medicines and exercise their hunting and fishing rights.

Black-crowned Night Heron. STOCK PHOTO

Success Story: Hamilton Harbour Remedial Action Plan

In 1987 the International Joint Commission designated Hamilton Harbour as one of 43 Areas of Concern on the Great Lakes. The site was and continues to experience significant environmental challenges due to pollution. The Hamilton Harbour Remedial Action Plan is a formal process that guides the clean up the Hamilton Harbour Area of Concern through the identification and implementation of remedial actions to address environmental issues resulting from historical human activities in the area. One successful restoration project from the Hamilton Harbour Remedial Action Plan and its partners involved creating several small nesting islands. These nearshore island habitats have supported successful nesting of colonial waterbirds such as Black-crowned Night Herons, Caspian Terns, Common Terns, Double-crested Cormorants, Herring Gulls and Ring-billed Gulls.

Highlighting Hamilton's Biodiversity

- Hamilton has many unique habitats, including a south-facing segment of the Niagara Escarpment and Cootes Paradise, a large river-mouth marsh.
- Carolinian life-zone stretches from Toronto to Windsor and its forests provide habitat for one-third of the country's species at risk, many of which are found in Hamilton.
- Royal Botanical Garden's natural areas hold the highest number of spontaneous plant species (i.e. growing there on their own, not planted) of any area in Canada.
- Biological inventories have identified 98 species of damselflies and dragonflies.
- The Dundas Valley contains important interior forest habitat and supports a nationally significant community of forest birds. During recent years, about 100 species of breeding birds have been recorded within the valley, making it one of the most species rich areas in southern Ontario.
- Confederation Park, Fifty Point Conservation Area and the west end of Lake Ontario are all considered important areas for migratory birds.
- Eramosa Karst Conservation Area is an Area of Natural and Scientific Interest and has the largest number of unique karst features in the province, providing habitats which support a diverse number of species.

Threats to Biodiversity

Scientists agree that anthropogenic (human) activities are the greatest threat to biodiversity, putting the complex ecosystems of Earth at risk of collapse at a rate unseen in human history. Biodiversity loss is not caused by a single threat, but by the cumulative effects of many, such as habitat loss and fragmentation, climate change, pollution, invasive species, industrial agriculture, unsustainable building practices and energy production, policy changes and overharvesting of resources. Across all levels of government, the political landscape can favourably or unfavourably influence policy development and implementation that makes protecting biodiversity challenging.

The repercussions of unsustainable human activity cannot be understated. The negative impacts of each threat overlap and compound with each other to intensify impacts. For example, human activities like deforestation degrade the environment, which impacts the water cycle and contributes to climate change. Climate change takes a toll on these degraded forests that are less biodiverse and less resilient to change, resulting in further environmental degradation that worsens the climate crisis and so on.

Bayfront Trail flooding. PHOTO City of Hamilton

According to the 2019 IPBES report, three-quarters of the world's land-based environment and about two-thirds of the marine environment have already been significantly altered by humans. Negative trends in nature will continue to 2050 and beyond in all the policy scenarios explored in the 2019 IPBES report — except those that include transformative changes that ensure biodiversity is protected and enhanced.

Hamilton is no exception to the global biodiversity crisis. Hamilton's biodiversity is primarily threatened by **invasive species, habitat loss, fragmentation and alteration, climate change and pollution.** Since the arrival of Europeans to North America, there have been significant changes to the landscape. Rural, urban and industrial development in Hamilton and the surrounding area has destroyed, degraded and fragmented our wetlands, forests, meadows and prairie ecosystems. As an industrial hub, toxic pollutants have been introduced to our soil, air and waterways along with numerous invasive species throughout the region. Urbanization has reduced the amount of natural vegetation cover across Hamilton's watersheds and increased the amount of hard surfaces, resulting in a landscape unable to adequately capture stormwater. These conditions have led to an increased risk of flooding during storm events that are accelerating in frequency and intensity.

Invasive Species

Invasive species are "plants, animals, insects and pathogens that are introduced to an area and cause harm to the environment, economy, or society" (Invasive Species Centre, 2023). They can outcompete native species for resources, damage ecosystems and impair ecosystem services, threaten infrastructure, reduce crop yields, impact human health and negatively impact recreational and cultural activities. Overall, invasive species negatively impact our native species and decrease biodiversity.

Native species are indigenous to an area and occur naturally without intervention or introduction by settlers. Native species have evolved alongside one another for millennia. The relationships between them, from predator-prey interactions to providing forage, nesting habitat and shelter, are intricate and deeply entrenched. Some species have become so specialized that they only interact with a small number of other species, like the Monarch caterpillar's dependence on Milkweed plants for food and habitat. When one native species is lost it can set off a cascade of changes in the ecosystem that result in greater biodiversity loss. Preserving a diversity of native species is vitally important for the health of Hamilton's environment.

Hamilton has many established invasive species in our natural areas. It is common for invasive plants to spread from gardens to natural areas. Some examples are Garlic Mustard, Common Buckthorn, Invasive Honeysuckles, Japanese Knotweed, Dog-strangling Vine, Periwinkle, Goutweed, Spongy Moth, Emerald Ash Borer and Beech Bark Disease. Unfortunately, it is very difficult and costly to manage invasive species once they have established in an area, so prevention is key.

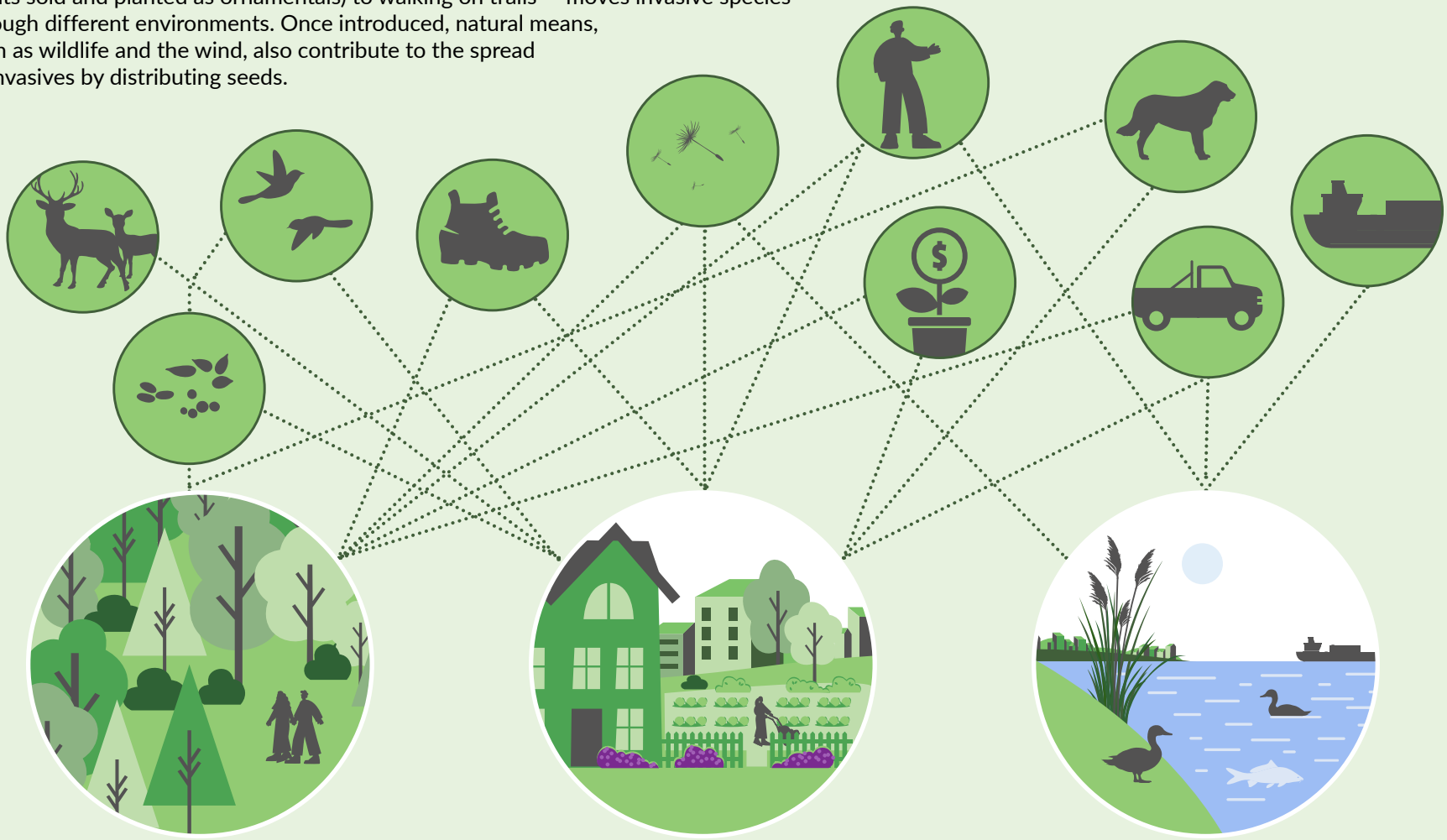
Invasive Phragmites. PHOTO Hamilton Conservation Authority

Success Story: Managing Invasive *Phragmites*

Organizations across Hamilton have been working to manage invasive European Common Reed (*Phragmites australis* subsp. *australis*), one of the most aggressive invasive plant species in Ontario. *Phragmites* is a tall perennial grass that damages wetland ecosystems by outcompeting native plants for water and nutrients, reducing habitat quality for wildlife and decreasing biodiversity. The Hamilton Conservation Authority and Royal Botanical Gardens are two examples of organizations that have been working hard to manage *Phragmites* in Cootes Paradise. After many years their hard work is paying off, as the population has dramatically decreased and native plants are returning to the area.

Some ways invasive species get around

Human activity — from international shipping, construction, home gardening (invasive plants sold and planted as ornamentals) to walking on trails — moves invasive species through different environments. Once introduced, natural means, such as wildlife and the wind, also contribute to the spread of invasives by distributing seeds.



Forest/Terrestrial Natural Areas

Examples of invasive species:

- Hemlock Woolly Adelgid, *Adelges tsugae*
- Common Buckthorn, *Vincetoxicum rossicum*
- Honeysuckle, *Lonicera* spp.
- Dog Strangling Vine, *Vincetoxicum nigrum*
- Oak Wilt, *Bretziella fagaecearum*

Home/Private

Examples of invasive species:

- Garlic Mustard, *Alliaria petiolata*
- Goutweed, *Aegopodium podagraria*
- Periwinkle, *Vinca minor*
- Norway Maple, *Acer platanoides*
- Jumping worms, *Amynthas* spp, *Metaphire* spp, *Pheretima* spp

Water/Aquatic Natural Areas

Examples of invasive species:

- Carp, *Cyprinus carpio*
- Reed, *Phragmites australis* subsp. *australis*
- Flowering Rush, *Butonus ubellatus*
- Goldfish, *Carassius auratus*
- Zebra Mussel, *Dreissena polymorpha*
- Marbled Crayfish, *Procambarus virginalis*

Habitat Loss, Fragmentation and Alteration

Habitat loss is a predominant threat to biodiversity worldwide and it is happening here in Hamilton. It occurs when natural habitats are destroyed or converted for human uses like agriculture, urban development and infrastructure, such as roads. Habitat loss is especially detrimental to species at risk, who may have a limited range, an inability to move, or rely on a specific habitat for one or more of their life stages.

Loss of habitat can happen rapidly, like when an area is prepared for development, or slowly over time. As invasive species establish in an area, they will begin to degrade the habitat quality, which can eventually alter the habitat so severely that wildlife can no longer use it. Human disturbances like off-trail use compact the soil in natural areas, destroying sensitive native plants and changing how easily the ground can absorb water. Even the types of land management activities undertaken at a site can shift a habitat from one type to another. What may seem like an inconsequential issue or action will quickly compound into a larger issue if not addressed.

Fragmentation occurs when habitats or ecosystems are broken into smaller areas by infrastructure like roads and paths or by development. These fragmented areas may be too small to sustain populations of species that require large spaces and many species face barriers when travelling between areas. In waterways, dams can impede the movement of fish upstream to their spawning sites. Large forests that have been divided into smaller woodlots over time are not able to spread seeds between the sites. Roads are especially deadly for wildlife — amphibians, snakes, turtles, birds and mammals must risk their life crossing the road through their home to reach important habitat.

Blanding's Turtle in a subdivision. PHOTO Sarah Richer

Urban development. STOCK PHOTO

Even when a natural space is protected, the activities on surrounding lands can cause **habitat alterations**. For example, a healthy watershed will have good vegetation coverage and many natural areas that can absorb or catch water during storm events, slowly trickling it through the waterways to larger waterbodies. However, widespread development has created large areas of impermeable surfaces, like concrete and buildings, that cannot absorb or catch water, resulting in major hydrological changes. Water instead flows quickly across these surfaces and into stormwater systems, simultaneously moving water away from some areas and moving too much water to others. Protected areas may receive too little or too much water, causing issues like erosion, sedimentation and changes to plant communities.

Burlington Heights looking south. PHOTO Royal Botanical Gardens

Cootes to Escarpment EcoPark System Vision Map

Success Story: Cootes to Escarpment EcoPark System

The Cootes to Escarpment EcoPark System is a collaboration among nine local government and not-for-profit agencies that was formed, in part, to help "fight the fragmentation" of natural lands and to ensure a green corridor exists between Cootes Paradise and the Niagara Escarpment.

Since 2012, the EcoPark System partners and neighbouring landowners have been taking actions to enhance ecological corridors between Cootes Paradise Marsh, Hamilton Harbour and the Niagara Escarpment, including:

- Private landowner stewardship projects.
- Restoration of critical habitat in natural areas.
- Looking for opportunities to permanently protect and connect more natural areas.
- Enhancing roadways and buildings to ensure wildlife can move freely and safely between habitats.
- Inviting Indigenous experts to participate and share knowledge regarding the land and its management.

Climate Change

Climate change and biodiversity are interconnected. Even small changes in average temperature and precipitation have a significant effect on ecosystems and the wildlife that rely on them. Biodiversity loss, particularly at the ecosystem level, greatly aggravates climate change impacts.

According to the City of Hamilton's Climate Action Strategy, the local impacts of climate change include:

- Increased frequency and severity of heat waves resulting in heat-related illnesses and drought conditions;
- Increased severity and frequency of storms, including heavy precipitation leading to flooding, shoreline and escarpment erosion;
- Increased frequency and severity of temperature and precipitation leading to the increased replacement and maintenance costs of roads and transportation infrastructure.

Climate change is causing extreme weather events with increased rainfall that challenge the combined sewer system in the older parts of the city. Combined sewer systems contain pipes that carry both sewage and stormwater and the system can be overwhelmed with large volumes of stormwater. As a result, the tanks discharge the excess mixture of sewage and stormwater directly into waterways, impacting aquatic organisms. As these extreme weather events are becoming more frequent, the number of discharge events has increased.

Addressing Hamilton's Aging Combined Sewer Network

In 2022 staff from Hamilton's Public Works Department presented a Flooding and Drainage Improvement Framework to the Public Works Committee. This report focuses on the City's legacy combined sewer network area, outlining an overarching strategy and next steps to address short-term risk and long-term resiliency. In essence, it is a "stormwater gap" report with recommendation strategies focused on managed Sewer Separation, an effort to build separated storm sewer infrastructure within the Combined Sewer System.

Did You Know?

Climate change mitigation can begin in and around your home. Addressing stormwater management challenges by using landscape-based development and green infrastructure, including rain gardens and green roofs, opens the door to creating more native habitat and helps boost local biodiversity while, at the same time, helps slow stormwater flows.

Nature-based climate solutions — like protected areas and restoration — can help address multiple threats to biodiversity while mitigating climate change by sequestering and storing carbon in natural ecosystems (Living Plants Report Canada, 2020).

Pollution

Pollution is the global issue of harmful materials being released into the environment that damage land, water and air quality. All forms of pollution threaten biodiversity. Locally, particulate pollution and other contaminants emitted from the industrial sector and vehicles negatively impact Hamilton's environment and human health. Stormwater runoff carries excess phosphorous, road salt, per- and polyfluoroalkyl substances (PFAS) and heavy metals across the landscape. Plastics are an increasing concern due to their ability to infiltrate not only remote environments but every level of the food chain.

Hamilton's historic industrial roots and its associated pollution are still present today. Prior to modern pollution laws, industrial waste was released directly into Hamilton Harbour. Today the same waste continues to threaten public health, contaminate fish and wildlife and restrict the full use of the waterfront. Sediment on the bottom of the Harbour has been contaminated by metals, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs) and other hazardous chemicals. Due to the damage caused by this historical pollution and population growth throughout the watershed, Hamilton Harbour was designated as a Great Lakes Area of Concern through the binational Great Lakes Water Quality Agreement (Government of Canada, Great Lakes: Areas of Concern).

Significant work has been done to remediate the Harbour and have it delisted as an Area of Concern using a Remedial Action Plan. The Hamilton Harbour Remedial Action Plan is a formal process that guides the clean up of the Hamilton Harbour Area of Concern through the identification and implementation of remedial actions to address environmental issues resulting from historical human activities in the area. Hamilton Harbour Remedial Action Plan partners have been working diligently for over 30 years to return Hamilton Harbour to the vibrant centrepiece of our community.

Randle Reef, aerial view of cap.
PHOTO Environment and Climate Change Canada

Success Story: Randle Reef in Hamilton Harbour

The construction of the Randle Reef containment facility is the most significant step forward in containing toxic sediment in Hamilton Harbour and delisting the Harbour as an Area of Concern. The sediment is successfully being contained in a steel box that was built around much of the most heavily contaminated material. Although not the only step, the clean-up will lead to further reductions in exposure to and the effects of toxic deposits. Importantly, according to the 2017 Bay Area Restoration Council Report Card, contamination levels of fish and wildlife are slowly improving overall.

Cootes Paradise Marsh, Thomas B. McQueston High Level Bridge in the distance. PHOTO Peter Kelly

Where We've Come From

Hamilton's unique natural environment, geography and biodiversity have long provided humans the resources needed for survival, but at various points in time it has been put at risk by overuse, exploitation and mistreatment. Thankfully, many efforts have since been undertaken to steward and protect it. Hamilton has an opportunity to become a biodiverse, resilient and green city.

The lands of this region were cared for by centuries by Indigenous peoples before being profoundly impacted by colonization. While we work to understand and, where we can, remedy these impacts, we owe a debt of gratitude to forward thinking and ambitious environmental stewards, leaders and Hamiltonians who have worked to conserve local biodiversity.

Early settlers were often required under the terms of their agreement with the Crown to clear land they obtained. Over the course of a century, Southern Ontario's forests were cleared, mills were built and towns and cities were born. The general mindset of the time was: nature is bountiful, plentiful and needs to be contained. At the turn of the 20th Century, observant and passionate farmers, hunters, naturalists and individuals were pushing to change this mindset as poor land management practices led to wide-spread soil erosion, habitat loss, species loss and habitat fragmentation. The general mindset developed to: nature needs to be conserved.

Despite being at the epicentre of the Golden Horseshoe, large and remnant natural areas have persisted in Hamilton thanks to civic leaders like Thomas McQuesten and organizations like the Hamilton Naturalists' Club, Royal Botanical Gardens and the Hamilton Conservation Authority, who focused on acquiring lands to provide natural spaces and areas to protect biodiversity.

Collectively, these efforts have given rise to many nature sanctuaries, conservation areas and parks that have protected the land in a natural state. Hamilton is home to incredible natural spaces like the 1200-hectare Dundas Valley Conservation Area, the UNESCO Niagara Escarpment Biosphere Reserve, Cootes Paradise — the largest remaining coastal wetland in western Lake Ontario — and the surrounding Royal Botanical Gardens.

Where We Are Going

Monitoring Hamilton's biodiversity. PHOTO Hamilton Conservation Authority

Our Vision

A Hamilton that is resilient to climate change, celebrates nature and provides a healthy environment for all life.

Hamiton's Biodiversity Action Plan's vision statement acknowledges that the state of local biodiversity will continually adapt over time. However, if Hamilton's biodiversity is prioritized, healthy ecosystems can play a role in mitigating the effects of climate change. Celebrating nature by building public knowledge of and appreciation for the unique environment of Hamilton is key to prioritizing biodiversity. Finally, a healthy natural environment is essential for all life, not just human life.

A Biodiversity Action Plan for Hamilton

Hamilton's Biodiversity Action Plan outlines the actions needed to protect and enhance the biodiversity within Hamilton to ensure our community remains a healthy, biodiverse place for people to live, work, visit, or invest and for plants and animals to thrive.

The BAP is our opportunity to create a Hamilton that is resilient to climate change impacts, protects nature and provides a healthy environment for all life. Everyone that lives, works, travels to, or relies on Hamilton and the health of its ecosystems has a role to play in its implementation. Government, institutional, industry and not-for-profit organizations have a particularly important role to play.

Achieving the identified key priorities and actions in this Plan (page 39–60) will build on Hamilton's successful history of collaboration, innovation and project scaling to protect biodiversity from the impacts of a growing city.

The BAP fills existing gaps and complements existing strategies, plans and activities including the *Natural Heritage System in the City of Hamilton's Official Plan*, the *City's 2016–2025 Strategic Plan*, *Our Future Hamilton*, the *Urban Forest Strategy* and the *Hamilton Climate Action Strategy*.

It will also support the work of current projects by local environment-focused organizations like the Hamilton Conservation Authority, Environment Hamilton, the Hamilton Naturalists' Club, Hamilton 350, Action 13, the Bay Area Climate Change Council, along with the City of Hamilton's Office of Climate Change Initiatives.

Hamilton's Biodiversity Action Plan aligns with existing local, provincial, federal and international goals and commitments that move toward global sustainability. Some examples include the United Nations Convention on Biological Diversity and the Great Lakes Water Quality Agreement. These guiding frameworks, along with special legislation to protect Species at Risk at both the provincial and federal level, form the foundation of biodiversity sustainability.

This plan is ambitious but achievable with collaboration. It includes actions to be initiated in the next five years that will have a significant positive impact on Hamilton's biodiversity.

Barn Swallow. PHOTO Hamilton Naturalists' Club

Outreach and Engagement

The BAP is intended to guide collective action over the next five years and so it is important that it reflect the values and concerns of the broader Hamilton community.

Over the spring and summer of 2023, the BAP working group partners undertook a series of engagement and outreach activities to hear from members of the public, community and environmental organizations and Indigenous communities. A variety of opportunities were made available for individuals and groups to learn about why the BAP was being developed, review the draft BAP document and provide feedback for the final plan. Methods of engagement included:

- Engage Hamilton webpage (survey, comment submission tools)
- In-person Open House events
- Paper surveys through the Hamilton Public Library branches
- Information tables at local events
- Virtual public information meeting
- Presentations to local schools
- Social media video series — BiodiverSTORIES
- Topic-based walking group events
- Workshop with local ecology experts
- One-on-one meetings (virtual and in-person)
- Presentation to development industry representatives
- Intra-organization knowledge sharing

What we heard from the public

There was broad engagement from the public from both urban and rural Hamilton on the draft BAP material. From those that responded to the survey and participated in local events, most identified that they had a good working knowledge of what biodiversity means and how it impacts their experiences in the city.

Protecting habitats of local species, climate change mitigation and adaptation, and improved air and water quality were the top reasons selected for protecting Hamilton's biodiversity. There was also a strong focus on a collective duty to protect ecosystem functions for future generations, preventing urban sprawl and improving public health outcomes through access to greenspace. Concerns about invasive species were raised frequently and there was a strong preference for learning opportunities through hands-on stewardship and restoration work.

Volunteers planting trees. PHOTO Hamilton Naturalists' Club

What we heard from interested community partners

Local environmental experts and community partner organizations were engaged in a facilitated, half-day workshop, focused follow-up meetings and continued correspondence with BAP project partners. The focus of these interactions and conversations were the draft BAP's key priorities and actions as well as how the BAP will be implemented.

Those that participated noted that they found the draft very ambitious and suggested that it should be better connected to broader federal and provincial strategies. Resourcing for the BAP coordinator role and governance structure came up frequently and there was consensus that this role will be critical in ensuring connected workplans and data sharing across partner organizations.

There was a strong desire for clear land use policies that are enforceable and that are not wavered upon if political preferences shift. Goals need to be set and acted upon for the long term. Outreach and education coupled with stewardship opportunities were noted as the foundation to build public, business and developer awareness about how their actions impact local biodiversity.

What we heard from Indigenous communities

Opportunities to discuss the draft BAP were extended to the Six Nations of the Grand River, Mississaugas of the Credit First Nation, Huron-Wendat Nation, Métis Nation of Ontario and the Haudenosaunee Development Institute Joint Stewardship Board. Staff from Six Nations of the Grand River met virtually with BAP project partners on two occasions and provided comments on the draft BAP. Comments and discussions focused on how the BAP could improve education about the presence and impact of invasive species in all natural contexts, as well as protection measures for restored areas and education about Best Management Practices for certain species to ensure their long-term survival. There was a strong desire for Hamilton's BAP to signal commitment to going beyond legislative requirements for protection of species and habitats.

In the following section of the BAP, the **goals, key priorities and actions** have been reviewed against the comments received and revised accordingly. The BAP project partners extend sincere thanks to all those individuals and representatives who took the time to comment and engage with the draft BAP.

How We Get There

Goals, Key Priorities and Actions

The following **goals**, **key priorities** and **actions** have been identified as strategic areas of focus to address local threats and protect biodiversity in Hamilton.

Goals

The **goals** are the overarching themes of the document that have guided the development of the BAP and its **key priorities**. The goals are:

- **Protect** biodiversity by incorporating best practices to protect natural areas and greenspaces in policy, guidelines and land management plans and by identifying funding strategies that support the protection and enhancement of the natural environment.
- **Explore**, educate and exchange information about biodiversity through partnerships, community science and outreach.
- **Connect** partner policies, processes, data and workflows to streamline efforts to support biodiversity in Hamilton.
- **Restore** biodiversity across Hamilton by implementing nature-based stewardship activities on public and private land.

Trail through forest. PHOTO Hamilton Naturalists' Club

PHOTO City of Hamilton

Seven Key Priorities

The **key priorities** provide a high-level description of the specific areas of focus for the BAP that are required to ensure the long-term protection, enhancement and restoration of biodiversity in Hamilton. The key priorities are:

- **Key Priority 1: Administration and Governance**
  To maintain momentum of the Biodiversity Action Plan and ensure implementation of the Actions is successful, an on-going governance framework and long-term funding are needed. This will help ensure that Actions committed to by BAP partners are executed in a coordinated way and that their implementation is communicated to the public effectively.
- **Key Priority 2: Evaluation and Monitoring**
  It is necessary to continue to identify gaps in the collection and sharing of data about biodiversity between conservation community partners in Hamilton. The actions under this Key Priority will assist in establishing the baseline information about the state of biodiversity across Hamilton. This baseline data will inform future monitoring reports which will measure the effectiveness of the collective actions.

Success Story: Natural Areas Inventory (NAI)

The Natural Areas Inventory (NAI) is a partnership between the City of Hamilton, Hamilton Conservation Authority (HCA) and Hamilton Naturalists' Club to collect data on plants, mammals, birds, butterflies, moths, reptiles, amphibians and fish. Previous inventories (1993, 2003, 2014) have focused on Environmentally Significant Areas (ESAs) within the City of Hamilton. This has led to inclusion of these areas within the City's Natural Heritage System.

Through this initiative the City, in conjunction with its partners, has developed a Natural Heritage Database. The HCA is the depository of this information.

Churchill Park rain garden. PHOTO Lauren Vraets

Wildlife need safe passage. PHOTO Royal Botanical Gardens

Success Story: Wildlife Roadkill Mitigation Fencing

Royal Botanical Gardens and Hamilton Conservation Authority have installed special wildlife roadkill mitigation fences along parts of Cootes Drive to reduce road mortality and increase ecological connectivity between important natural areas. The fences guide turtles and other small wildlife to safer crossings under the road, helping them avoid dangerous road crossings on their journey between Spencer Creek and Cootes Paradise Marsh. This kind of nature-first infrastructure helps protect local biodiversity.

- **Key Priority 3: Long-Term Protections and Connections**
  There are spaces around Hamilton that are important for the overall health and long-term stability of local biodiversity, but which may not have protections from threats for the long-term. This key priority focuses on investigating options for permanently protecting natural lands and ensuring their connectivity for species movement and migration.

- **Key Priority 4: Education and Stewardship**
  The BAP partners recognize that everyone must play in protecting and enhancing Hamilton's biodiversity. Public education and awareness of the importance of biodiversity will be enhanced through learning opportunities and hands-on stewardship activities with partner agencies. Through the actions in this key priority, community members and private landowners will be given opportunities to learn and undertake actions to address threats to biodiversity.

Did You Know?

BAP partners follow best management practices (BMPs) to restore or improve habitat for species at risk. The BMPs provide important information about the species and the measures that can be taken for Hamilton's rare species that also help to protect and enhance biodiversity for all species. For more information about BMPs, visit Recovery of species listed under the Species at Risk Act: backgrounder — Canada.ca and Help protect or recover a species at risk | ontario.ca.

Did You Know?

There are incentive programs to help residents enhance biodiversity on their properties. One example is the Water Quality and. Habitat Improvement Program (WQHIP) administered through the Hamilton Watershed Stewardship Program (HWSP), a program of the Hamilton Conservation Authority. The HWSP works with landowners to help them undertake conservation projects on their properties. For more information, visit conservationhamilton.ca/hwsp-homepage.

Cootes Paradise Marsh. PHOTO Lauren Vraets

Native bee on annual sunflower. PHOTO Hamilton Naturalists' Club

Success Story: Classroom Mini Marsh Program

Each year, hundreds of teachers register their class to receive one of the Bay Area Restoration Council (BARC) Classroom Mini Marsh kits. Students are given a close-up look at how marsh ecosystems function — the kit is filled with native plants, soil and a much beloved snail. The classes care for their Mini Marsh over several months, learning about wetlands, Hamilton Harbour and environmental issues along the way. The kits are then returned to BARC, who plant them into Cootes Paradise Marsh as part of the restoration efforts.

In 2023 alone, BARC distributed over 400 kits, planted 1,350 plants into Cootes Paradise and engaged over 10,000 studentsfrom 84 schools/organizations!

Success Story: Pollinator Paradise Certification

Since 2015, Environment Hamilton and the Hamilton Naturalists' Club have been building a Pollinator Paradise of certified gardens across the city to provide food and shelter for native pollinators, strengthening and enhancing Hamilton's unique biodiversity. Over 450 residents have certified their garden helping to build the pollinator network.

This project has contributed to Hamilton being certified as a Bee City through Pollinator Partnership Canada's Bee City Canada program.

- **Key Priority 5: Invasive Species Management**
  A focused effort is needed to manage invasive species and is critical for the protection and enhancement of local biodiversity. Management of invasive species will be challenging, and collaboration will involve sharing data and expertise as well as careful coordination of on-the-ground interventions. Addressing the threat of invasive species will improve the quality of local habitats, and lessen the threat of habitat loss, fragmentation and alteration on local biodiversity.

- **Key Priority 6: Aquatic Habitat Restoration and Enhancement**
  Opportunities to improve the health of aquatic habitats and source water are critical to addressing the threat of pollution in Hamilton's ecosystems. Implementation of the Actions in this key priority will assist with delisting Hamilton Harbour as an Area of Concern (Government of Canada, Hamilton Harbour: Area of Concern), investigate opportunities for enhancing on-site stormwater management practices, and providing public education programs on sustainable stormwater management practices.

- **Key Priority 7: Local Decision-making**
  Prioritizing biodiversity in all planning, development, and municipal decision making will help to ensure that impacts on biodiversity are consistently considered, with negative impacts avoided or minimized. All threats to biodiversity should be considered in decision making, with outcomes focused on achieving the four goals of the Biodiversity Action Plan (protect, restore, connect, explore).

Cootes Paradise Fishway. PHOTO Royal Botanical Gardens

Success Story: Project Paradise

Project Paradise is an innovative freshwater marsh restoration venture encompassing a range of conservation projects for two large river mouth wetland systems. The project began in 1993 as part of the Hamilton Harbour Fish and Wildlife Habitat Restoration Project, stemming from the Hamilton Harbour Remedial Action Plan. The work has been undertaken by Royal Botanical Gardens. The Fishway, located between Cootes Paradise and Hamilton Harbour, was the first two-way fishway structure on the Great Lakes. It functions as a carp barrier, helping to keep carp out of the marsh while facilitating the migration of native fish species. It also serves as an educational site for the public.

Actions

The **actions** listed under the **key priorities** were developed to be tangible activities that can be reasonably initiated within the next five years to address gaps in local conservation efforts. They are intended to compliment and build upon current initiatives within the community. Each action can support more than one key priority — for the purposes of this document, each action is listed under one main key priority. The actions are further categorized by the goal they help to address.

As part of this five-year plan, each action has been assigned an anticipated timeframe to initiate the action: Immediate (0–1 year), mid-term (1–3 years) and long-term (3–5 years). These timeframes are dynamic in nature and may be adjusted as the project evolves, collaboration occurs, or priorities emerge.

For each action a lead organization and potential partner(s) have been identified. This is not an exhaustive list of partners and it is anticipated that additional support will be identified throughout the implementation of the BAP.

Churchill Park tree planting day organized by Royal Botanical Gardens.
PHOTO Lauren Vraets

Monitoring and Governance

BAP Coordinator

In order for the BAP to be effective, regular reporting and monitoring of the committed actions needs to be undertaken. To achieve this, a BAP Coordinator is needed to support and provide leadership to the partner organizations in moving forward with their committed actions. In the immediate and short term (1–3 years), the BAP Coordinator will fulfil these reporting and administrative duties, while also communicating to and sharing resources with the broader community about Hamilton's biodiversity. The BAP Coordinator will also organize and facilitate the governance structure for the BAP, ensuring a whole-of-community approach.

As the role of the BAP Coordinator becomes more established (3–5 years), there may be potential for expanding the role and responsibilities associated with this position, including leading related workplans to implement certain BAP actions.

Committed funding from multiple sources will be needed to establish the foundation for this role and ensure its longevity.

BAP Coordinator

A role that will support the administration, collaboration and reporting of the BAP actions. This role will be housed at one of the BAP partner organizations.

BAP Governance

BAP Governance will be determined by the BAP partners as an initial key priority for action (see Key Priority 1). Initial discussions have proposed the following framework.

The BAP may require the creation of a Management Committee and Steering Committee. The BAP Management Committee may include key decision makers from the partner organizations with the objective to ensure that financial and operational decisions about the BAP Action workplans are coordinated.

The BAP Steering Committee may include representatives from partner organizations who have Actions stated in the BAP. The objective of the membership of the BAP Steering Committee is to regularly report to other partners about the status of actions that are underway, share resources and facilitate further collaboration. The BAP Steering Committee will assist the BAP Coordinator in producing regular reports of the BAP actions.

To ensure that a whole-of-community approach is included in the BAP governance model, the BAP Steering Committee will seek out representation from local community biodiversity champions, academics and grassroots organizations. The intention is that community representation on the BAP Steering Committee will further enhance the actions being undertaken by both the partner organizations and those at the individual or neighbourhood scale. A focus of engaging community in the governance of the BAP is to build connections with those who may not have already been involved, or who may be represented by the Actions in the current version of the BAP.

Key Priorities

Key Priority 1: Administration and Governance

OBJECTIVE
Develop a governance framework and funding strategy to ensure effective and coordinated implementation of the Biodiversity Action Plan partners' actions over the long term.

Goal	Action	Timeframe	Leading Partner(s)	Supporting Partner(s)
Protect	**1.1** Identify long-term funding strategies to implement the BAP for the protection and enhancement of the natural environment to improve biodiversity.	Immediate (0-1 year)	• BAP Steering Committee	City of Hamilton (Planning and Economic Development – Planning Division)
Connect	**1.2** Establish a BAP Coordinator position within a partner agency to support the BAP partners in implementing the BAP actions and public communications.	Immediate (0–1 year)	• BAP Steering Committee	City of Hamilton (Planning and Economic Development – Planning Division)
	1.3 Formalize and continue the BAP partnership to ensure coordinated actions and ongoing communication between all partner organizations.	Immediate (0–1 year)	• BAP Steering Committee	City of Hamilton (Planning and Economic Development – Planning Division)

Key Priority 2: Evaluation and Monitoring

OBJECTIVE
Understand the current baseline state of Hamilton's biodiversity to inform future monitoring and priorities

Goal	Action	Timeframe	Leading Partner(s)	Supporting Partner(s)
Connect	**2.1** Prepare a State of Environment report to track and report the City's progress towards achieving the City's natural heritage protection goals. The basis of this report would be the Natural Areas Inventory.	Mid-term (1–3 years)	• City of Hamilton (Planning and Economic Development – Planning Division)	City of Hamilton (Planning and Economic Development – Office of Climate Change Initiatives)
	2.2 Centralize and standardize the collection and sharing of biodiversity data.	Mid-term (1–3 years)	• BAP Steering Committee	City of Hamilton (Planning and Economic Development - Planning Division)
	2.3 Develop a process for updating and maintaining the Natural Areas Inventory database.	Mid-term (1–3 years)	• Hamilton Conservation Authority • City of Hamilton (Planning and Economic Development – Planning Division) • Hamilton Naturalists' Club	
	2.4 Develop a Report Card to be completed by Biodiversity Action Plan partners to report on Actions and to assist in writing future progress reports.	Mid-term (1–3 years)	• BAP Coordinator	City of Hamilton (Planning and Economic Development – Planning Division)
Explore	**2.5** Organize an annual biodiversity workshop to discuss monitoring, results, ongoing and future projects and collaborations related to the BAP, and to share progress on the BAP actions with the public.	Mid-term (1-3 years)	• BAP Coordinator	City of Hamilton (Planning and Economic Development – Planning Division and Office of Climate Change Initiatives)

Key Priority 3: Long-term Protection and Connection

OBJECTIVE
Protect, restore and enhance natural areas within Hamilton to support biodiversity, establish and enhance core areas, connect fragmented habitats, and enhance ecosystem functions.

Goal	Action	Timeframe	Leading Partner(s)	Supporting Partner(s)
Protect	**3.1** Investigate, identify and prioritize wildlife corridors particularly where roads bisect Core Areas identified within the Natural Heritage System and respond by investigating appropriate best management practices and tools.	Long-term (3–5 years)	• City of Hamilton (Planning and Economic Development – Planning Division)	• Niagara Peninsula Conservation Authority
	3.2 Review existing inventories of protected lands to identify additional key areas (e.g. alvars, Niagara Escarpment, water quality improvement areas, wildlife corridors) that should part of an overall land securement strategy.	Long-term (3–5 years)	• Hamilton Naturalists' Club	• Niagara Peninsula Conservation Authority • City of Hamilton (Planning and Economic Development - Planning Division)
	3.3 Review the Natural Heritage policies of the Rural and Urban Hamilton Official Plans and investigate options for amendments to strengthen protection of biodiversity in both rural and urban contexts.	Mid-term (1–3 years)	• City of Hamilton (Planning and Economic Development – Planning Division)	
	3.4 Develop a Conservation Organization Working Group comprised of the City of Hamilton and conservation organizations to determine and understand acquisition priorities, assist in the evaluation of applications, and to further communicate the availability of the Natural Areas Acquisition Fund.	Mid-term (1–3 years)	• City of Hamilton (Planning and Economic Development – Planning Division and Office of Climate Change Initiatives)	• Niagara Peninsula Conservation Authority

chart continues on next page

Key Priority 3: Long-term Protection and Connection

Goal	Action	Timeframe	Leading Partner(s)	Supporting Partner(s)
Protect	**3.5** Review the findings of the Natural Areas Inventories to determine which species at risk depend on City of Hamilton owned lands and develop a plan to undertake recovery and protection activities.	Long-term (3–5 years)	• City of Hamilton (Public Works – Environmental Service – Parks and Cemeteries)	City of Hamilton (Planning and Economic Development – Planning Division)
	3.6 Identify options to enhance the function of existing greenspaces to increase connectivity (e.g. actively managing existing woodland areas for biodiversity, increasing buffer areas, restoring /creating new habitat connection).	Mid-term (1–3 years)	• BAP Steering Committee	City of Hamilton (Planning and Economic Development – Planning Division)
Explore	**3.7** Continue to support opening vistas at key areas along the escarpment to deter unauthorized trails which result in negative impact to sensitive escarpment habitat.	Immediate (0–1 year)	• City of Hamilton (Public Works Environmental Services – Parks and Cemeteries)	
Restore	**3.8** Preserve and enhance City managed dune habitat along the Lake Ontario shoreline by reducing erosion through maintaining dedicated beach access, leaving deadwood and developing a Dune Management Plan.	Mid-term (1–3 years)	• City of Hamilton (Public Works Environmental Services – Parks and Cemeteries)	• Green Venture

Key Priority 4: Education and Stewardship

OBJECTIVE
Enhance public awareness of the importance of biodiversity and engage them in stewardship actions through partner agencies.

Goal	Action	Timeframe	Leading Partner(s)	Supporting Partner(s)
Protect	**4.1** Include consideration of biodiversity in the evaluation of submissions for the City of Hamilton's Urban Design and Architecture Awards.	Mid-term (1–3 years)	• City of Hamilton (Planning and Economic Development – Planning Division)	
Explore	**4.2** Develop a community science program to educate and engage residents in collecting information about Hamilton's biodiversity and to learn more about previously inventoried areas.	Mid-term (1–3 years)	• BAP Coordinator to facilitate • Bay Area Restoration Council	• Green Venture • Niagara Peninsula Conservation Authority
	4.3 Encourage increased use of natural burial in City of Hamilton cemeteries that will consider biodiversity through landscape design, species selection and maintenance approach.	Mid-term (1–3 years)	• City of Hamilton (Public Works – Environmental Services – Parks and Cemeteries)	
	4.4 Develop tools that will support biodiversity friendly plantings on cemetery properties by cemetery patrons.	Mid-term (1–3 years)	• City of Hamilton (Public Works – Environmental Services – Parks and Cemeteries)	• Niagara Peninsula Conservation Authority
	4.5 Investigate opportunities with the local school boards to determine existing activities to manage invasive plants and enhance biodiversity, as well as opportunities for additional activities including curriculum components.	Long-term (3–5 years)	• BAP Coordinator • Bay Area Restoration Council	• Niagara Peninsula Conservation Authority

chart continues on next page

Key Priority 4: Education and Stewardship

Goal	Action	Timeframe	Leading Partner(s)	Supporting Partner(s)
 Explore	**4.6** Provide education and awareness programs to reduce bird deaths from outdoor cat populations.	Mid-term (1–3 years)	• City of Hamilton (Planning and Economic Development, Licensing and By-law Services)	• Green Venture
	4.7 Provide pollinator education within the McMaster community, with a specific focus on native bees within Hamilton.	Mid-term (1–3 years)	• McMaster University (Nature at McMaster)	
	4.8 Provide public outreach and education on invasive species and other environmental concerns as they relate to the Ancaster Creek Watershed, Cootes Paradise and the McMaster University community.	Mid-term (1–3 years)	• Hamilton Conservation Authority (Hamilton Watershed Stewardship Program)	• Hamilton Conservation Authority (Hamilton Watershed Stewardship Program)
	4.9 Target outreach and education to landowners who have property boundaries adjacent to natural areas.	Mid-term (1–3 years)	• BAP Coordinator	• Green Venture • City of Hamilton (Planning and Economic Development – Planning Division)
	4.10 Investigate the potential of hosting workshops for rural landowners on topics, such as manure runoff and well decommissioning.	Mid-term (1–3 years)	• Hamilton Conservation Authority (Hamilton Watershed Stewardship Program)	• Niagara Peninsula Conservation Authority • Conservation Halton
	4.11 Encourage regular use of native plants in all planting projects led by BAP partners to maximize the resilience of greenspaces and to support habitats.	Mid-term (1–3 years)	• BAP Coordinator	• Bay Area Restoration Council • Niagara Peninsula Conservation Authority

chart continues on next page

Key Priority 4: Education and Stewardship

Goal	Action	Timeframe	Leading Partner(s)	Supporting Partner(s)
Connect	**4.12** Establish a working group to develop and implement a communications plan to raise awareness about biodiversity in Hamilton and the role everyone has to play in protecting and celebrating it. Undertake a public survey to determine if biodiversity understanding has changed in this first five-year BAP.	Mid-term (1–3 years)	• BAP Coordinator	• Bay Area Restoration Council • Green Venture • City of Hamilton (Planning and Economic Development – Planning Division)
	4.13 Draw on the education, marketing, and communication expertise of local education partners such as Hillfield Strathallan College, Mohawk College Fennell Campus and McMaster University.	Long-term (3–5 years)	• BAP Coordinator • Bay Area Restoration Council	
	4.14 Seek opportunities to work with institutional and industrial landowners to enhance biodiversity on their lands.	Long-term (3–5 years)	• Hamilton Naturalists' Club	• Green Venture • Environment Hamilton
Restore	**4.15** Host volunteer and community events to manage invasive species, plant native species on public lands to increase biodiversity, connect fragmented landscapes, and create new natural areas.	Immediate (0–1 year)	• Hamilton Conservation Authority (Hamilton Watershed Stewardship Program, Outdoor Education Program, Capital Projects and Strategic Services, Conservation Area Services) • Hamilton Naturalists' Club • Bay Area Restoration Council	• Green Venture • Conservation Halton

chart continues on next page

Key Priority 4: Education and Stewardship

Goal	Action	Timeframe	Leading Partner(s)	Supporting Partner(s)
Restore	**4.16** Develop and maintain a focal habitat creation site on public lands in each Ward by planting native trees, shrubs and wildflowers to demonstrate the potential to increase biodiversity in the urban area.	Long-term (3–5 years)	• Hamilton Naturalists' Club	• Green Venture • Niagara Peninsula Conservation Authority • Conservation Halton
	4.17 Install trial pollinator gardens in areas of the City to promote increased pollination with native species of plants and pollinating insects.	Mid-term (1–3 years)	• City of Hamilton (Public Works – Environmental Services, Forestry & Horticulture and Parks & Cemeteries)	• Green Venture • Niagara Peninsula Conservation Authority
	4.18 Create naturalized areas in selected parks by planting native perennials and low growing shrubs.	Long-term (3–5 years)	• City of Hamilton (Public Works – Environmental Services: Parks & Cemeteries, Facilities, Forestry & Horticulture, Landscape Architectural Services)	• Niagara Peninsula Conservation Authority
	4.19 Host community tree plantings through volunteer groups to plant native species of container stock trees to enhance biodiversity. (Coordinate strategic plantings across the city, and map, monitor and commit to stewardship of all past and future sites. Develop stewardship strategies for all new native planting areas, including providing training and resources for volunteer stewards, municipal support for watering, monitoring protocols, invasive species removal and disposal best practices assistance.)	Immediate (0–1 year)	• City of Hamilton (Public Works – Environmental Services: Parks & Cemeteries, Forestry & Horticulture) • Hamilton Naturalists' Club	• Green Venture • Niagara Peninsula Conservation Authority

chart continues on next page

Key Priority 4: Education and Stewardship

Goal	Action	Timeframe	Leading Partner(s)	Supporting Partner(s)
Restore	**4.20** Identify opportunities for invasive species management, ecological restoration, enhancement, and connectivity on private properties, and offer technical and financial assistance (if applicable) to private property owners to enhance or create new connections.	Immediate (0–1 year)	• Hamilton Conservation Authority (Hamilton Watershed Stewardship Program)	• Green Venture • Niagara Peninsula Conservation Authority • Conservation Halton
	4.21 Complete native tree and plant plantings across McMaster-owned and private lands within the lower Ancaster Creek watershed.	Immediate (0–1 year)	• McMaster University (Nature at McMaster)	
	4.22 Undertake stewardship events on past tree planting sites and urban pollinator garden sites focusing on replanting and invasive species removal in degraded woodlands. Create new and expanded woodlands with native trees and plants.	Immediate (0–1 year)	• Green Venture	• Niagara Peninsula Conservation Authority
	4.23 Celebrate local biodiversity excellence through initiatives, such as the Monarch Awards and Pollinator Paradise certification programs. Integrate natural function into Trillium Awards program and modify program to celebrate sustainable gardening.	Immediate (0–1 year)	• Hamilton Naturalists' Club • City of Hamilton (Public Works – Environmental Services – Business Programs)	

Key Priority 5: Coordinated Invasive Species Management

OBJECTIVE
Protect Hamilton's biodiversity by implementing coordinated, city-wide efforts to manage invasive species.

Goal	Action	Timeframe	Leading Partner(s)	Supporting Partner(s)
Protect	**5.1** Offer technical, volunteer, and (if applicable) financial assistance to private property owners to manage invasive species on private lands.	Immediate (0–1 year)	• Hamilton Conservation Authority (Hamilton Watershed Stewardship Program)	• Niagara Peninsula Conservation Authority • Conservation Halton
	5.2 Adopt in-field and workshop-based protocols for the cleaning and sanitization of equipment and machinery on Hamilton Conservation Authority lands.	Immediate (0–1 year)	• Hamilton Conservation Authority (Terrestrial Ecology)	• Hamilton Naturalists' Club
	5.3 Support the efforts underway to ban the sale of noxious invasive species identified in Noxious Weed Act and Auditor General's report, *Management of Invasive Species – Audit at a Glance* (auditor.on.ca), following the Town of Oakville's motion to the Federal government.	Mid-term (1–3 years)	• Hamilton Naturalists' Club	
	5.4 Strengthen working group of local organizations and agencies undertaking invasive species management in Hamilton to share data and expertise and to collaborate on management initiatives and maximize resources, where possible.	Immediate (0–1 year)	• Hamilton Conservation Authority (Terrestrial Ecology)	• Niagara Peninsula Conservation Authority • Conservation Halton • City of Hamilton (Planning and Economic Development – Planning Division)

chart continues on next page

Key Priority 5: Coordinated Invasive Species Management

Goal	Action	Timeframe	Leading Partner(s)	Supporting Partner(s)
Protect	**5.5** Expand the Adopt-a-Park Program to include support for adopting natural open spaces, pollinator patches, seed banks, habitat structures, and invasive species management on Parks properties.	Mid-term (1–3 years)	• City of Hamilton (Public Works – Environmental Services – Business Programs)	• Green Venture • Hamilton Naturalists' Club
	5.6 Implement an Invasive Species Strategy and identify goals related to mapping and management of invasive species in priority areas.	Immediate (0–1 year)	• Hamilton Conservation Authority (Terrestrial Ecology) • Hamilton Naturalists' Club	• Niagara Peninsula Conservation Authority
Restore	**5.7** Host invasive species removals across McMaster University-owned and private lands within the lower Ancaster Creek watershed.	Mid-term (1–3 years)	• McMaster University (Nature at McMaster)	• Hamilton Conservation Authority (Hamilton Watershed Stewardship Program)

Key Priority 6: Aquatic Habitat Restoration and Enhancement

OBJECTIVE
Enhance local aquatic habitats through sustainable stormwater management practices and restoration of degraded watercourses, waterbodies and wetlands.

Goal	Action	Timeframe	Leading Partner(s)	Supporting Partner(s)
Protect	**6.1** Develop a Watershed Action Plan to meet the expectations for a cleaner aquatic environment. Build on the City-assembled consortium of agencies with a common goal of improving harbour conditions and ultimately delisting Hamilton Harbour as an Area of Concern, as well as looking at barriers to fish movement and possible mitigation opportunities.	Mid-term (1–3 years)	• City of Hamilton (Public Works – Hamilton Water)	• Bay Area Restoration Council • Niagara Peninsula Conservation Authority
	6.2 Develop City-wide Low Impact Development Guidelines and consider landscape-based stormwater infiltration techniques for enhancement of on-site local biodiversity in accordance with area-specific environmental reviews and sub-watershed study recommendations.	Immediate (0–1 year)	• City of Hamilton (Planning and Economic Development – Growth Management)	• Niagara Peninsula Conservation Authority
	6.3 Consider lot level stormwater management, green infrastructure, and grey water reuse opportunities at the design stage of park and cemetery projects.	Mid-term (1–3 years)	• City of Hamilton (Public Works – Environmental Services, Landscape Architectural Services and Parks & Cemeteries)	
	6.4 Develop and implement the new stormwater fee program.	Immediate (0–1 year)	• City of Hamilton, Financial Planning & Administration	

chart continues on next page

Key Priority 6: Aquatic Habitat Restoration and Enhancement

Goal	Action	Timeframe	Leading Partner(s)	Supporting Partner(s)
Protect	**6.5** Deliver technical and (where applicable) financial assistance to private property owners implementing agricultural Best Management Practices (BMPs) and Stormwater Low Impact Development (LID) practices on private properties.	Immediate (0–1 year)	• Hamilton Conservation Authority (Hamilton Watershed Stewardship Program)	• Niagara Peninsula Conservation Authority • Conservation Halton
	6.6 Assess opportunities to reduce water consumption through monitoring, maintenance, and implementing best practices.	Mid-term (1–3 years)	• City of Hamilton (Public Works – Environmental Services – Parks & Cemeteries)	
	6.7 Implement the Hamilton Salt Management Plan as it applies to public roads, bicycle infrastructure, sidewalks, and pathways.	Mid-term (1–3 years)	• City of Hamilton (Public Works – Environmental Services – Parks & Cemeteries)	
	6.8 Identify opportunities to enhance biodiversity at stormwater management facilities by establishing maintenance procedures and practices.	Long-term (3–5 years)	• City of Hamilton (Watershed Management Services)	
Explore	**6.9** Deliver education programs about stormwater management to the public and businesses to increase stormwater management on private lands.	Immediate (0–1 year)	• Bay Area Restoration Council	• Green Venture • Niagara Peninsula Conservation Authority
	6.10 Initiate conversations with institutional landowners about installing stormwater management systems (rain gardens, bioswales, rain barrels, etc) in schools and businesses.	Long-term (3–5 years)	• BAP Coordinator to facilitate	• Bay Area Restoration Council

chart continues on next page

Key Priority 6: Aquatic Habitat Restoration and Enhancement

Goal	Action	Timeframe	Leading Partner(s)	Supporting Partner(s)
Restore	**6.11** Mitigate flooding and erosion risks and improve water quality in the lower urban area of Stoney Creek by increasing stormwater retention via the installation of constructed wetlands in the upper watershed area of Battlefield and Stoney Creek.	Mid-term (1–3 years)	• Hamilton Conservation Authority (Watershed Management Services)	
	6.12 Install Seabins and litter traps in catch basins surrounding the Harbour to collect litter. Include regular maintenance to ensure they continue to work as designed.	Mid-term (1–3 years)	• City of Hamilton (Public Works – Environmental Services – Parks & Cemeteries)	• Bay Area Restoration Council

Key Priority 7: Local Decision-making

OBJECTIVE
Ensure impacts on or improvements to local biodiversity are clearly considered in all municipal decision making related to the development or use of urban and rural lands.

Goal	Action	Timeframe	Leading Partner(s)	Supporting Partner(s)
Protect	**7.1** Develop an Open Space Management Plan to guide City of Hamilton natural open space stewardship.	Long-term (3–5 years)	• City of Hamilton (Public Works – Environmental Services – Parks & Cemeteries)	• Niagara Peninsula Conservation Authority
	7.2 City-wide Green Building Standards to be implemented through review of development applications.	Immediate (0–1 year)	• City of Hamilton (Planning and Economic Development – Planning Division)	
	7.3 Perform an initial review of Parks By-law for areas for improvement from a biodiversity perspective to ensure remnant forest habitats are zoned consistently.	Mid-term (1–3 years)	• City of Hamilton (Public Works – Environmental Services - Parks and Cemeteries)	• City of Hamilton (Planning and Economic Development - Planning Division)
	7.4 Incorporate biodiversity in the Non-Public Facing Yards Review as a guiding principle for any new projects.	Long-term (3–5 years)	• City of Hamilton (Public Works – Corporate Facilities and Energy Management)	
	7.5 Consider the Biodiversity Action Plan when initiating City projects and studies, looking for opportunities for mitigation of key threats to local biodiversity.	Mid-term (1–3 years)	• City of Hamilton (Planning and Economic Development – Planning Division)	• Niagara Peninsula Conservation Authority

chart continues on next page

Key Priority 7: Local Decision-making

Goal	Action	Timeframe	Leading Partner(s)	Supporting Partner(s)
Protect	**7.6** Undertake a revision of existing Master Plans and compose new Master Plans as needed for Hamilton Conservation Authority owned Conservation Areas and natural areas. Incorporate the protection and enhancement of biodiversity into planned land management activities.	Immediate (0–1 year)	• Hamilton Conservation Authority (Capital Projects and Strategic Services)	
	7.7 Review existing landscape planting and restoration guidelines to ensure that recommended species will be able to persist and provide invaluable ecological connections for local pollinators, breeding birds and insects despite higher average temperatures and shifting precipitation.	Immediate (0–1 year)	• Hamilton Conservation Authority (Terrestrial Ecology, Climate Change Coordinator)	• Niagara Peninsula Conservation Authority
	7.8 Initiate a City-wide Ecosystem Services Study to better understand the valuable benefits provided by natural assets in both rural and urban areas of Hamilton.	Mid-term (1–3 years)	• City of Hamilton (Planning and Economic Development – Planning Division)	• Niagara Peninsula Conservation Authority
	7.9 Develop a procedure for undertaking wildlife sweeps ahead of new developments.	Long-term (3–5 years)	• Hamilton Naturalists' Club	• Niagara Peninsula Conservation Authority • City of Hamilton (Planning and Economic Development - Planning Division)
	7.10 Review and revise the Yard Maintenance By-law to clarify regulations related to naturalized areas of private yards.	Mid-term (1–3 years)	• City of Hamilton (Planning and Economic Development - Licensing and By-law Enforcement)	

Installing interpretive signage. PHOTO Hamilton Naturalists' Club

What Can You Do?

Whether you live, work, or play in Hamilton, everyone has a role to play in achieving the four main Goals of the BAP.

This section of the BAP focuses on actions that individuals, community groups and organizations can take to have a positive impact on Hamilton's biodiversity. The list of actions in this section is not meant to be prescriptive or static, and community-level actions should respond to the unique circumstances, geographies and local contexts.

Over time, it is expected that individual and community actions will need to evolve, and the BAP partner organizations are committed to supporting community level actions. For coordination on additional actions, or to see how you and your community can be supported in implementing your own actions, contacting the BAP partner organizations is encouraged.

Did You Know?

An incentive program to help residents manage stormwater on their property is the NATURhoods rebate program administered by Green Venture. The program helps residents manage stormwater on their property by slowing it down so that it soaks into the ground instead of running over the surface into the stormwater system. Additional benefits include beautification of your property, a built-in pollinator garden, shade and a place to gather, and flood protection. For more information visit greenventure.ca/naturhoods

Community-level Actions

Protect

Actions

- Encourage your workplace to donate time or funds towards local biodiversity enhancement efforts.
- Do not release live aquatic plants and animals, including live bait, into rivers, streams and lakes.

Explore

Actions

- Share information from the BAP with friends, family, co-workers and community groups.
- Follow the BAP partners on social media to learn about opportunities to get involved in volunteer opportunities or local events.
- Support existing efforts to promote and enhance biodiversity by participating in learning events, workshops, campaigns and stewardship initiatives.
- Engage with community science initiatives like iNaturalist and eBird to record the species you see around Hamilton.
- Use iNaturalist to share where you see wildlife, alive or deceased, at road crossings.
- Learn how to identify Hamilton's invasive species and stop their spread. Learn how to manage and dispose of invasive species at home through resources such as the Ontario Invasive Plant Council and their "Grow Me Instead" guide.
- Learn about and implement techniques like a rain garden or rain barrel to manage stormwater at home.

Connect

Actions

- Participate in municipal planning approvals processes to understand how natural areas are being protected in decision-making.
- Get in touch with your Councillor to let them know what your concerns are about biodiversity and natural spaces in your community.

Restore

Actions

- Provide habitat for nature by planting native trees, shrubs, and wildflowers to enhance biodiversity on your property. In agricultural areas, use agricultural best management practices to improve water quality and wildlife habitats.
- Participate in invasive species management activities through volunteer events hosted by BAP partners.
- Stop the spread of invasive species: clean boots and equipment regularly, particularly between visits to different natural areas.
- Protect drinking water by decommissioning abandoned water wells and making sure that your well and septic are upgraded to current standards and in good working condition.
- Participate in local recycling, waste reduction, composting and hazardous waste removal programs to reduce litter and pollution.

Become a Community Scientist!

Scientists cannot be everywhere at once, so they rely on community members to gather data to help understand where species are found, what habitats they use and how their populations are doing. iNaturalist is a free app and website where naturalists of all levels share photos of their observations and the online community works together to identify what you've found. Every observation contributes to science, from the rarest butterfly to the most common weed. As of 2023, the City of Hamilton has over 190,000 observations of around 7,100 species recorded on iNaturalist!

Conclusion: The Future of Biodiversity in Hamilton

Biodiversity is in crisis globally, internationally, federally, provincially and locally.

Hamilton's biodiversity needs to be protected, enhanced and conserved to support healthy ecosystems. Protecting biodiversity will provide Hamiltonians with the ecosystem services that are crucial to support not only human lives, but all species.

This Biodiversity Action Plan proposes both immediate and long-term, individual and collaborative actions to address threats to biodiversity stemming from habitat loss, alteration and fragmentation, pollution, invasive species and climate change.

The partners who have developed Hamilton's Biodiversity Action Plan are no strangers to environmental action. Each of us work respectively within our influence to enhance biodiversity, and over the years, collaboratively tackle environmental issues and challenges.

We are committed to protecting and enhancing Hamilton's biodiversity.

We recognize that the strength and resiliency of Hamilton's biodiversity and the success of this plan depends not only the actions outlined, but also on an engaged and interested public, as well as policies in place to protect biodiversity at municipal, provincial, and federal levels.

Most importantly, we recognize that everyone has a role to play in protecting biodiversity. It is our sincere hope that the conservation efforts currently underway and the actions described here inspire you to action too.

Ginger Valley Trail, Royal Botantical Gardens. PHOTO Lauren Vraets

Hamilton's Biodiversity Action Plan References

Bay Area Restoration Council. (2017). *2017 Harbour Report Card*. Retrieved from Bay Area Restoration Council: https://bayarearestoration.ca/reports/2017-towards-safe-harbour-report-card/

Carolinian Canada. Explore Carolinian Canada. Retrieved from https://caroliniancanada.ca/explore-carolinian-canada

Carolinian Canada. Opportunities for Action. Retrieved from https://caroliniancanada.ca/library/fact-sheets

City of Hamilton (2021). *City of Hamilton Urban Forest Strategy* (Appendix A to Report PED20173a). Planning Committee June 13, 2023. Retrieved from https://pub-hamilton.escribemeetings.com/filestream.ashx?DocumentId=366837

City of Hamilton (2022). *Climate Change Impact Adaptation Plan*. Retrieved from https://pub-hamilton.escribemeetings.com/filestream.ashx?DocumentId=335322

City of Hamilton (2024). *Environmental Stewardship-Pollinators*. Retrieved from https://www.hamilton.ca/home-neighbourhood/environmental-stewardship/pollinators

City of Hamilton (2022). *Flooding and Drainage Improvement Framework Information Report* (PW22071). Public Works Committee August 10, 2022. Retrieved from https://pub-hamilton.escribemeetings.com/filestream.ashx?DocumentId=336036

City of Hamilton (2012). *Rural Hamilton Official Plan* (MMAH approved Dec. 24, 2008; Council adopted Sept. 27, 2006). Retrieved from https://www.hamilton.ca/build-invest-grow/planning-development/official-plan/rural-hamilton-official-plan.

City of Hamilton (2013). *Urban Hamilton Official Plan* (MMAH approved March 16, 2011; adopted by Council July 9, 2009). Retrieved from https://www.hamilton.ca/build-invest-grow/planning-development/official-plan/urban-hamilton-official-plan.

Convention on Biological Diversity. (2022). *COP15: Final Text of Kunming-Montreal Global Biodiversity Framework*. Retrieved from https://www.cbd.int/article/cop15-final-text-kunming-montreal-gbf-221222

Environment Canada (2004). *How Much Habitat is Enough? A Framework for Guiding Habitat Rehabilitation in the Great Lakes Areas of Concern*. Downsview, Ontario. Retrieved from https://www.publications.gc.ca/collections/Collection/CW66-164-2004E.pdf

Friends of the Greenbelt Foundation. (2016). *Ontario's Good Fortune: Appreciating the Greenbelt's Natural Capital*. Retrieved from https://www.greenbelt.ca/ontarios_good_fortune_greenbelt_natural_capital

references continue on next page

References — continued

Government of Canada. (2012). *2012 Great Lakes Water Quality Agreement*. Retrieved from Environment and Climate Change Canada: https://www.canada.ca/en/environment-climate- change/services/great-lakes-protection/canada-united-states-water-quality-agreement. html

Government of Canada. *Recovery of species listed under the Species at Risk Act: backgrounder.* Retrieved from https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/recovery/recovery-species-listed-backgrounder.html

Government of Canada. (2013). *Air pollution and the ecosystem.* Retrieved from Environment and Climate Change Canada: https://www.canada.ca/en/environment-climate-change/services/air-pollution/quality-environment-economy.html

Government of Canada (2024). *Canada's 2023 National Biodiversity Strategy*. Retrieved from: https://www.canada.ca/en/environment-climate-change/services/biodiversity/national-biodiversity-strategy.html

Government of Canada. (2023). Great Lakes Area of Concern. Retrieved from https://www.canada.ca/en/environment-climate-change/services/great-lakes-protection/areas-concern.html

IPBES. (2019). *Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services.* Retrieved from https://doi.org/10.5281/zenodo.3831673

Invasive Species Centre. *Learn about invasive species.* Retrieved from https://www.invasivespeciescentre.ca/

Kraus, D., & Hebb, A. (2020). *Southern Canada's crisis ecoregions: identifying the most significant and threatened places for biodiversity conservation*. Biodiversity and Conservation, 3573-3590. Retrieved from https://doi.org/10.1007/s10531-020-02038-x

OECD. (2019). *Biodiversity: Finance and the Economic and Business Case for Action.* Retrieved from https://www.oecd.org/env/resources/biodiversity/biodiversity-finance-and-the-economic-and-business-case-for-action.htm

Ontario Invasive Plant Council. (2020). *Grow Me Instead.* Retrieved from https://www.ontarioinvasiveplants.ca/wp-content/uploads/2020/04/Southern-Grow-Me-Instead-1.pdf

Ontario Biodiversity Council. (2023). *Ontario's Biodiversity Strategy 2023-2030*. Ontario Biodiversity Council, Peterborough, ON. Retrieved from https://ontariobiodiversitycouncil.ca/ontarios-strategy/

Province of Ontario. *Help protect or recover a species at risk*. Retrieved from https://www.ontario.ca/page/help-protect-or-recover-species-risk

Province of Ontario. (2020). *Provincial Policy Statement, 2020 under the Planning Act*. Retrieved from https://files.ontario.ca/mmah-provincial-policy-statement-2020-accessible-final-en-2020-02-14.pdf

references continue on next page

References — continued

United Nations. *Convention on Biological Diversity, key international instrument for sustainable development*. Retrieved from https://www.un.org/en/observances/biological-diversity-day/convention

Ville de Montreal. (2022). *Montréal Pledge: Call for COP15 launched to world's cities*. Retrieved from Ville de Montreal: https://portail-m4s.s3.montreal.ca/pdf/vdm_montreal-pledge_2022.pdf

Watson, Robert. (2019). *Loss of biodiversity is just as catastrophic as climate change*. The Guardian. Retrieved from https://www.theguardian.com/commentisfree/2019/may/06/biodiversity-climate-change-mass-extinctions

World Wildlife Fund. (2020). *Living Planet Report Canada 2020 - Wildlife at Risk*. Retrieved from https://wwf.ca/wp-content/uploads/2020/09/WWF-7-x-9-LPRC_Web.pdf

World Economic Forum. (2019). 75% of crops depend on pollinators - they must be protected: https://www.weforum.org/agenda/2019/12/protect-pollinators-food-security-biodiversity-agriculture

HAMILTON BIODIVERSITY ACTION PLAN

hamilton.ca/city-council/plans-strategies/strategies/biodiversity-action-plan

Churchill Park and naturalization area. PHOTO Lauren Vraets