

Strategies to Reduce Biodiversity Loss in the City of Toronto

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Slide: 1

Introductions



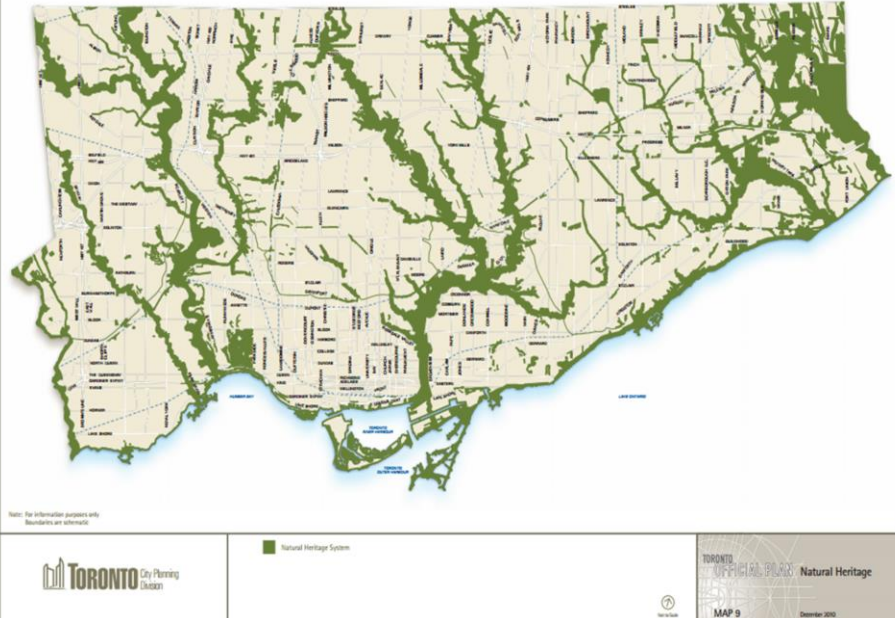
Slide 2: Natural Heritage in Toronto

Toronto still has natural features that represent its original land cover, support a diversity of organisms.

The Toronto region is located at Interface of 2 forest regions:

Great Lakes St Lawrence, aka Mixed Forest
&
Deciduous Forest Region, aka Carolinian Forest

Toronto's Natural Heritage System



Slide 3: Toronto's Natural Heritage System

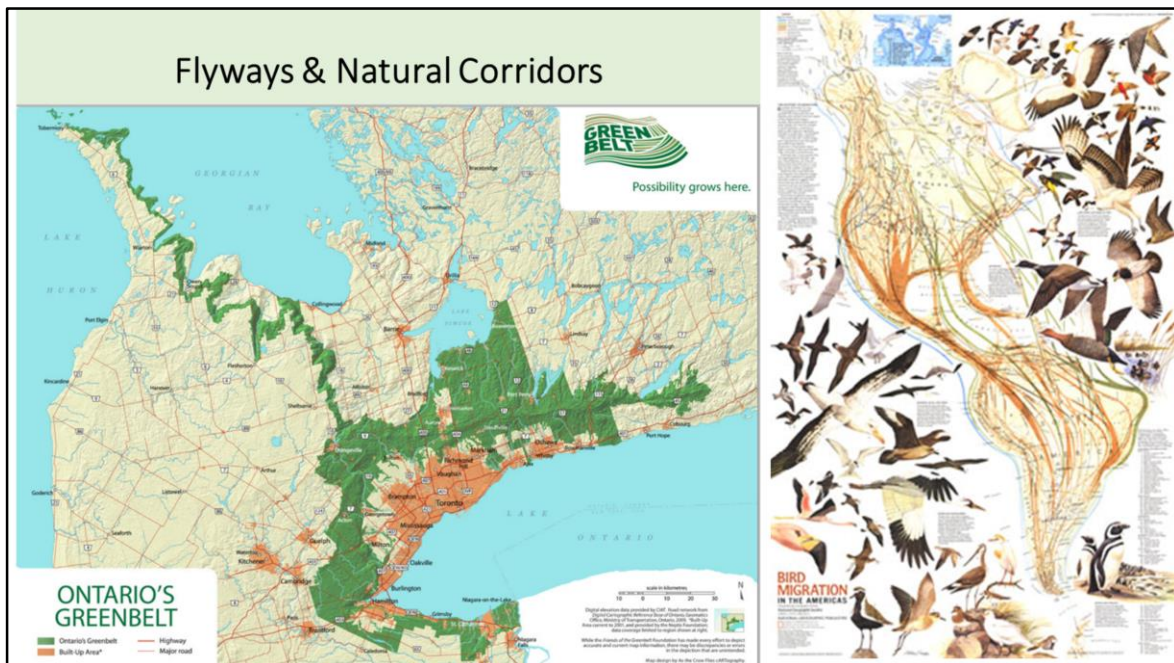
Toronto covers 64,100 ha (641 sq.km.) and stretches 43 km from east to west and 21 km from north to south at its longest points.

The City's Natural Heritage System, as identified in our Official Plan, is mainly valleys & floodplains, represents about 11,000ha of land, or 17% of the city's landmass

It is our intent to protect & enhance this natural resource base

It is also our intent to expand & connect this natural resource base by making improvements on the intervening lands

It is interesting to note that the city's natural heritage system is a legacy of Hurricane Hazel, which, in 1954, killed 81 people and caused millions of dollars of damage.



Slide 4: Flyways & Natural Corridors

The dimensions of biodiversity are global in scale and impact:

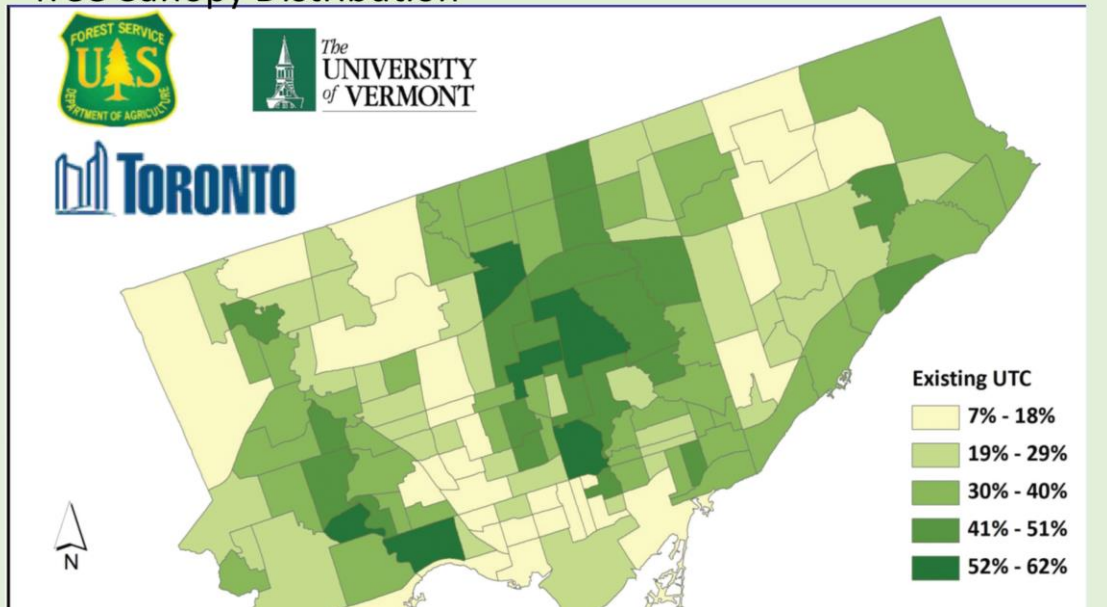
Toronto is at the confluence of two of North America's major migratory flyways – the Mississippi and the Atlantic, and thus millions of birds travel through our region each spring and fall.

Over 270 species of birds migrate through the Greater Toronto Area each year, some of which use Toronto as a stepping stone in their migration from the Arctic to nearly the Antarctic, and back again.

Many species migrate at night, using less energy under the cover of darkness. They have evolved to use natural cues including the moon and the stars to find their way along these ancient routes. Light pollution from urban areas obscures these cues, drawing birds in, and then they are exposed to the dangers of reflective glass, as birds cannot distinguish between real and reflected habitat.

By reducing light pollution, and requiring bird-friendly window treatment in Toronto, more birds will arrive in Canada's northern forests in the spring to breed, resulting in more birds migrating south in the fall.

Tree Canopy Distribution



Slide 5: Tree Distribution in Toronto, from a study in support of a Strategic Forest Management Plan

Toronto has a total of about 10 million trees, approximately 4 million of which are publicly-owned trees. These include approximately 600,000 street trees (e.g. located on public right of ways on boulevards and commercial trees in sidewalks, etc) and 3.5 million trees in parks, ravines and other natural areas.

However, the average tree diameter in Toronto is 16.3 cm. Only 14% of Toronto's trees are greater than 30.6 cm in diameter.

Toronto has an overall canopy coverage of around 26%. Our target canopy coverage is 40%, increasing canopy where it is most needed, i.e., achieving equity for all residents in having access to canopy and nature.

Achieving the canopy increase will certainly depend on getting private landowners to plant trees, something we are exploring in our Strategic Planting Strategy

We have lost almost 800,000 ash trees over the last few years due to Emerald Ash Borer.



Slide 6: Biodiversity Strategy

We recognize that we are at a forestry conference, but Biodiversity includes all forms of life and thus some of the work we are going to present today is not just about the urban forest.

Toronto has recently begun work on a Biodiversity Strategy

We have developed 3 key Principles that will guide us through this work: “Enhance”, “Connect”, and “Design”

We have identified 5 structural layers of habitat: “Major Natural Systems”, “Large Parks and Open Space”, “Liminal Linkages”, “Nodes and Patches”, and “Naturalized Development”

We have also identified 4 ‘types’ of initiatives that will be developed in relation to biodiversity: “Habitat”, “Function”, “Taxa”, and “Species” (endangered and invasive)

“Inreach” - The strategy will provide over-riding guidance, direction and actions in integrating the needs of biodiversity into day-to-day practices and work plans across all divisions of the city, as reinforced by other bio-diversity supportive initiatives.

“Outreach” - Millions of people make daily decisions in our urban area, decisions that have huge impacts on local and regional environments. In turn, these impacts can have hemispheric or global implications. If the people living in our urban region are well informed, they can make individual decisions that are less impactful on their local and regional environments.

Top Priority: Protect & Enhance

Tree Protection bylaws

- Street Tree Bylaw
- Park bylaw
- Private Tree bylaw

Conservation Authority

- Valley & Stream Regs

Species at Risk Action Plans

- Chimney swift
- Barn swallow
- Common nighthawk



Slide 7: To protect against Biodiversity loss, our Top Priority is to Protect & Enhance

Toronto's Natural Heritage System includes the City's ESAs & ANSIs, all of which are protected by OP policies

Existing tree bylaws implement protection called for in the OP policies

Also protected under Toronto Region Conservation Authority's regulation 166/06

Species-at-risk protocols and action plans are being developed



Slide 8: Protect & Enhance:

The primary form of protection for the Natural Heritage System is the Ravine & Natural Feature Protection Bylaw

The remnant forests that still survive in the city's ravines form the spine of the NHS, providing green corridors for today's wildlife, augmented to a degree by the loose matrix of intervening street and yard trees, and the occasional patch of woodland. Admitted, some parts provide poor to minimal value cover, but it is still better than nothing.

Ravine bylaw protects 11,000 ha of natural features. This is about 17% of the city's landmass.

The protected area is about 40% publicly owned land. The remaining 60% is privately owned, covering about 30,000 addresses.

Supportive Strategies to 'Biodiversify' Toronto

- Promote conservation on public and private lands
- Prevent absence of nature: Avoid loss & Mitigate loss
- Any improvement helps: 'easy' and/or 'one-time'
- Normalise 'best management practices' for daily or routine use
- Plan for long-term, incremental, 'growing' improvements

Slide 9: Supportive Strategies

It is important to recognize Biodiversity is not only about rare & significant species,

It is also about keeping common species common!

Maintain the nature that exists,
prevent absence of nature;
prevent the elimination of any species, rare or common

Restore nature that is degraded, where possible

Create the presence of diverse, functional ecosystems that are self-sustaining and sustain humans

Create conditions for nature to thrive in the future

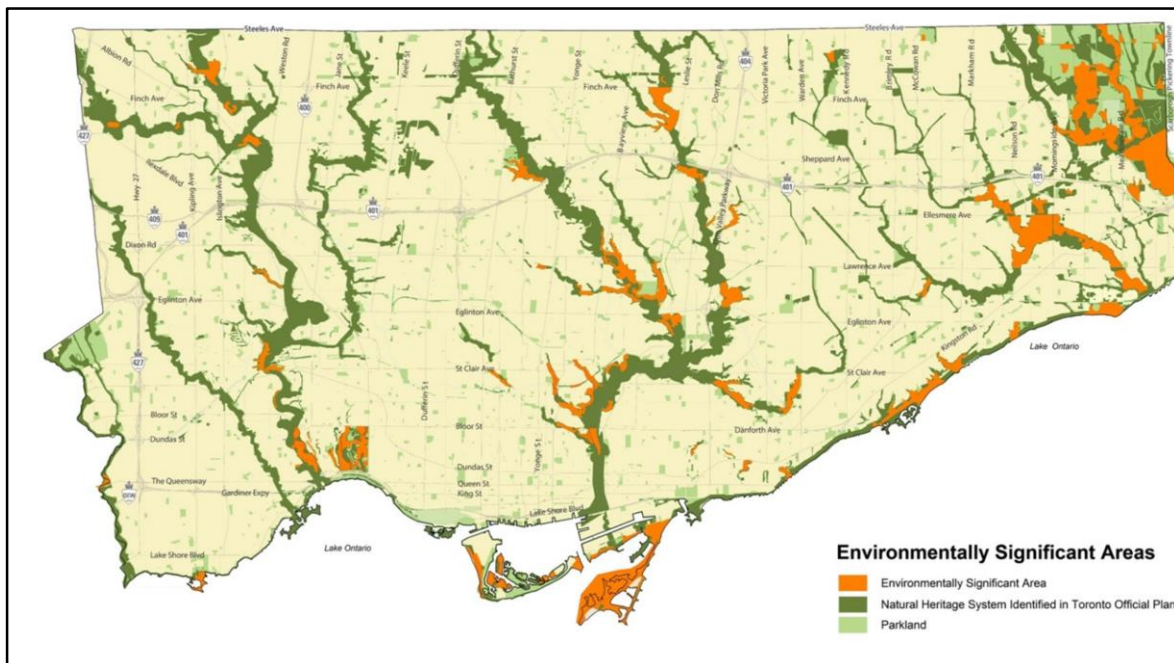


Slide 10: Ravine Strategy

The Ravine Strategy will take into account the network of various related plans/strategies, regulations and bylaws and contain a vision for the ravine system and a set of principles to guide planning and policy. It will also identify stewardship opportunities and priorities for investment.

Parks, Forestry and Recreation, City Planning and Toronto Water are developing the strategy in consultation with other City divisions, the Toronto and Region Conservation Authority (TRCA), the public and a wide range of stakeholders.

The development of the Strategy is also being supported by an Interdivisional Ravine Steering Committee created to increase collaboration among the different City divisions involved with ravines and act as the coordinating body for the implementation of strategic actions related to ravines.



Slide 11: Environmentally Significant Areas

The city has mapped and confirmed 18 former and 68 new ESA sites, based on criteria in the Official Plan. The ESAs are not just islands of green in an otherwise urbanised environment. They represent concentrations of biodiversity or hotspots of ecologically significant features and functions within the broader and relatively well connected Natural Heritage System in the city.

ESAs will degrade over time, due to invasive species, pests, climate change, hydrological changes, overuse, unauthorised use, and inappropriate management.

It is necessary to assess and balance the sustainability of the ESAs against other competing interests in an urban setting where demands for infrastructure and programs is high.

In order to promote Biodiversity, it is important to protect and enhance features and functions within the ESAs, but also the intervening features and functions as well, the City is preparing Best Management Plans for each ESA, to guide decisions and planning



Slide 12: Other Bio-Diversity Supportive Initiatives

[Design Guidelines](#) for Biodiverse Green Roofs

Hydro Corridors in Toronto: Planned Public Uses, 2005

Bird-Friendly Development Guidelines, 2007

Toronto's Strategic Forest Management Plan, 2012

Parks Plan, 2013

Natural Environment Trail Strategy, 2013

Complete Streets Guideline, 2015

Strategy for Mitigating Human-Wildlife Conflict (underway)

Pollinator Protection Strategy (underway)

Green parking lots

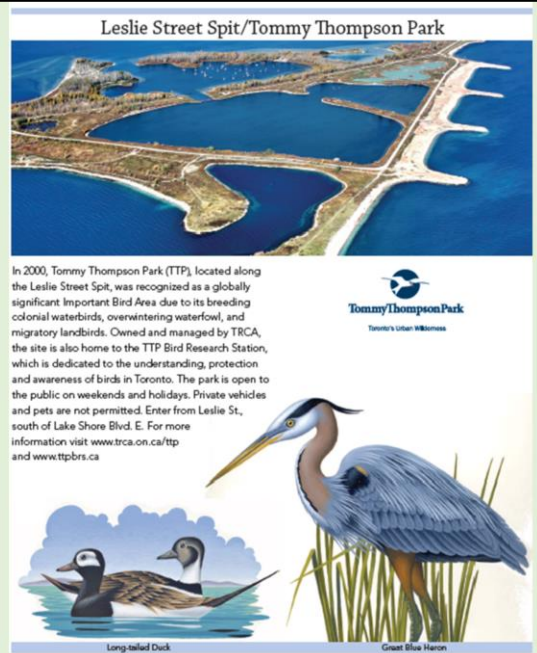
Street trees

Power line meadows

Property line plantings

Roof top oasis

Bird Friendly Design Guidelines Bird Flyways Project



Slide 13: Bird Friendly Design Guidelines & Bird Flyways Project

Toronto is a leader in the development of Bird-Friendly policies

2005 – Council directed staff to report on how Toronto can reduce migratory bird deaths

2007 – Toronto released the “Bird-Friendly Development Guidelines”

2010 – Toronto released the “Toronto Green Standard”, which includes bird-friendly performance measures required of almost all new developments

2016 – almost all new buildings are bird-friendly and the practice has become an accepted component of the development review process.

In 10 years the issue has gone from a “fringe” issue to mainstream development

Best Management Practices

- Lights Out Toronto
- Effective lighting
- Mowing
- Backyard Biodiversity



Slide 14: Best Management Practices

For example, by reducing migratory bird deaths due to night light pollution, and requiring bird-friendly window treatment in Toronto, then more birds will arrive in Canada's northern forests in the spring to breed, resulting in more birds migrating south to continue their ancient lifecycle.

Bio-Diversity Supportive Practices



Slide 15: The City has initiated many Bio-Diversity Supportive Practices, such as:

1. Humber Bay Butterfly Habitat
Canadian Tiger Swallowtail butterfly on Echinacea
2. Restoring specialised habitat – High Park Savannah
3. Planting Native species and 'near-native' species
4. Toronto-specific seed mixes, such as Pro-pollinator species
5. When & how to mow
6. 'Growing' the forests – adding buffers and connections



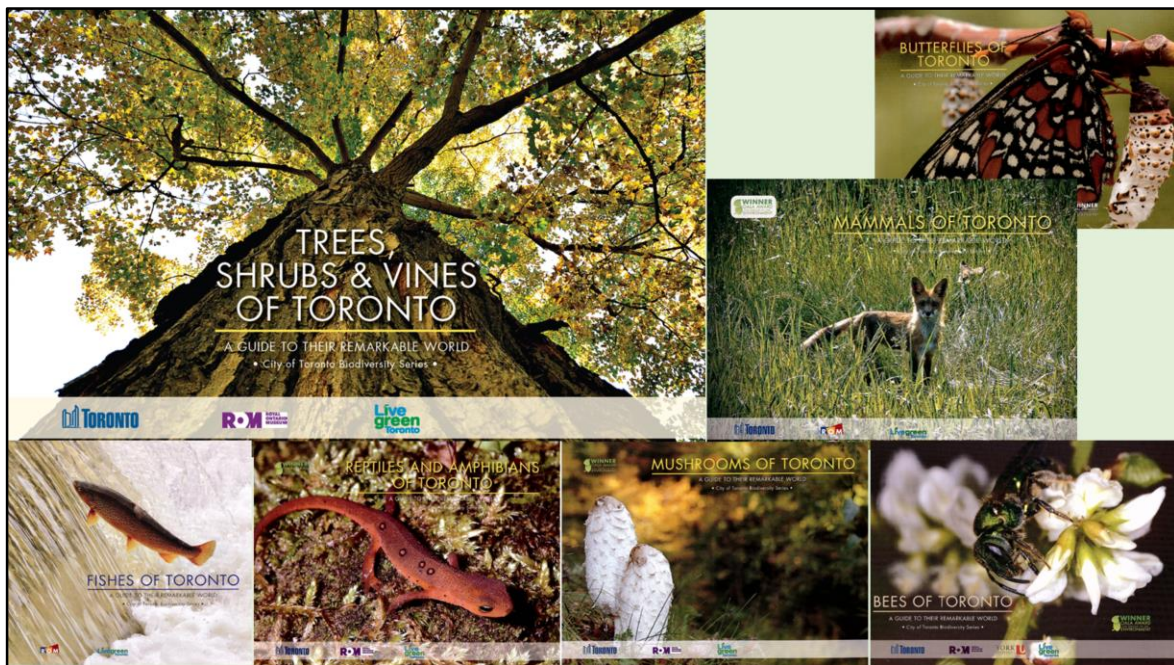
Slide 16: also looking to reduce biodiversity loss due to degradation or poor quality of the resource base

Restoration of valleys & watercourses

- Arresting loss of habitat due to erosion
- naturalisation with appropriate native species

'Growing' the natural areas, increase their area & complexity

- add buffers, setbacks, transitions and connections
- Acquire additional natural or supportive lands
- Promote naturalising on private property
- Planting Native species and 'near-native' species
- Toronto-specific seed mixes
- Pro-pollinator species
- Temporary trees



Slide 17: Biodiversity Series: Out Reach & Education

The Strategy will also serve to raise awareness and to reconnect citizens with the reality that conservation policies and initiatives developed and implemented in Toronto can have positive impacts on regions far away from the city.

A key component of the Biodiversity Strategy is public outreach. The basis of this is the City of Toronto Biodiversity Series, an innovative and creatively-developed series of publications profiling the variety of species inhabiting Toronto and how to help reduce biodiversity loss by making informed individual decisions.

Biodiversity Series of Wildlife in Toronto

Birds

Butterflies

Fish


Spiders

Mammals

Reptiles & Amphibians

Trees & Shrubs

Mushrooms



"Indeed, in its need for variety and acceptance of randomness, a flourishing natural ecosystem is more like a city than like a plantation. Perhaps it will be the city that reawakens our understanding and appreciation of nature, in all its teeming, unpredictable complexity"

— Jane Jacobs, NY Times Magazine, 2004

Slide 18: Conclusion

To conclude, enhancing our urban ecology and biodiversity is often about conservation. The question being, "How can we help to conserve species that utilize our urban environments in some facet of their lifecycle?"

The answer, ultimately, is that conservation, while based in science, is a public policy endeavour.

In these efforts, local governments can play a very significant and important role in developing and implementing policies, regulations and programs that serve to counter the negative ecological impacts of their urban areas on the environmental health of our regions.

When you read the quote, keep in mind that with increasing global urbanization the importance of cities and the work they do to prevent biodiversity loss will only grow in importance.

Enhancing biodiversity in the urban environment is made of many small steps that, together, will result in an overall improvement of the state of our regional and global biodiversity.

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