Ministry of Natural Resources

Ontario

Natural. Valued. Protected.

Protecting Natural Resources

and

Endangered Species ……Redside Dace

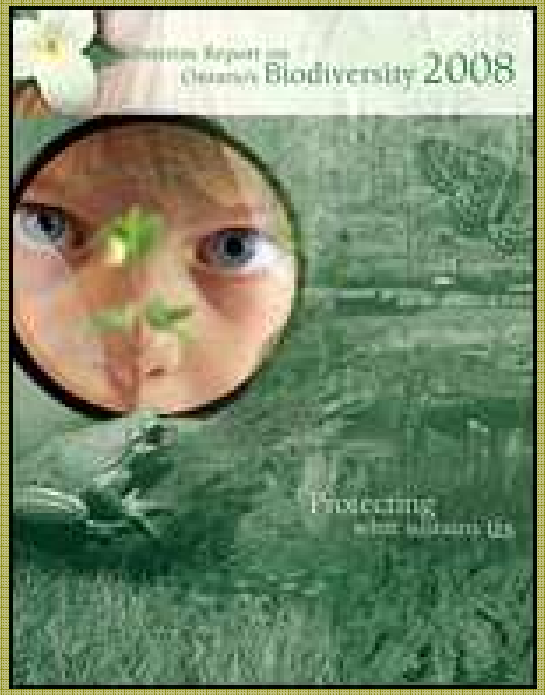
Mark Heaton
Fish and Wildlife Biologist
OMNR Aurora District

Biodiversity is all around us

- it's the variety of life on Earth, from the tiniest insect to a vast northern forest.
- Biodiversity is also about being connected – no one species lives without other species that provide its food and habitat.
- We humans are a part of this life system that enriches our lives and sustains us.

Ontario's Biodiversity Strategy

- Approved in Cabinet in 2005
- **Two goals of the strategy**
  - Goal 1: Protect the genetic, species and ecosystem diversity of Ontario.
  - Goal 2: Use and develop the biological assets of Ontario sustainably, and capture benefits from such use for Ontarians.



Ontario's Biodiversity Strategy

- Province divided into ecological regions

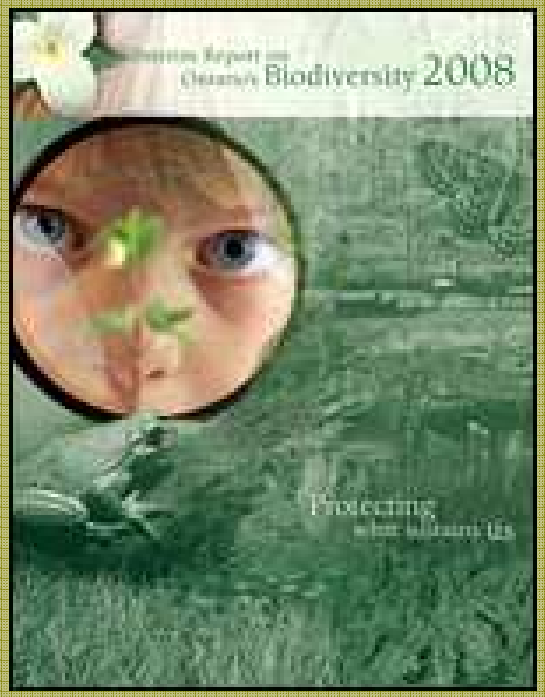
1. Hudson Bay Lowlands (25%)
2. Ontario Shield (60%)
3. Mixedwood Plains (less than10%)
4. Great Lakes (9%)

Ontario's Biodiversity Strategy

- Threats
  - Pollution
  - Habitat Loss
  - Invasive Species
  - Unsustainable use
  - Climate Change and Cumulative Effects

Ontario's Biodiversity Challenge

- Engage Ontarians
- Promote Stewardship
- Work Together
- Integrate Biodiversity into Land Use Planning
- Prevent
- Understand

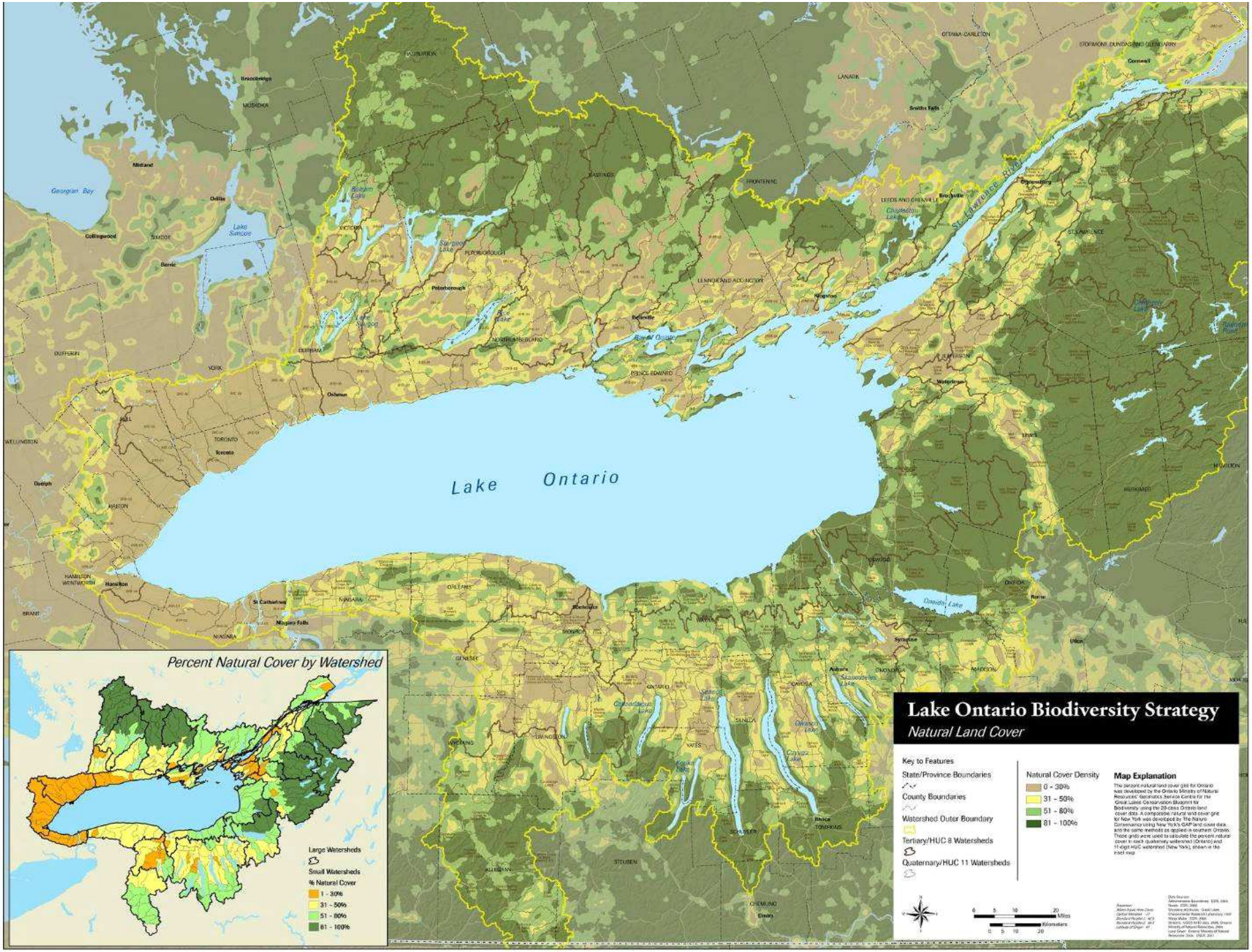


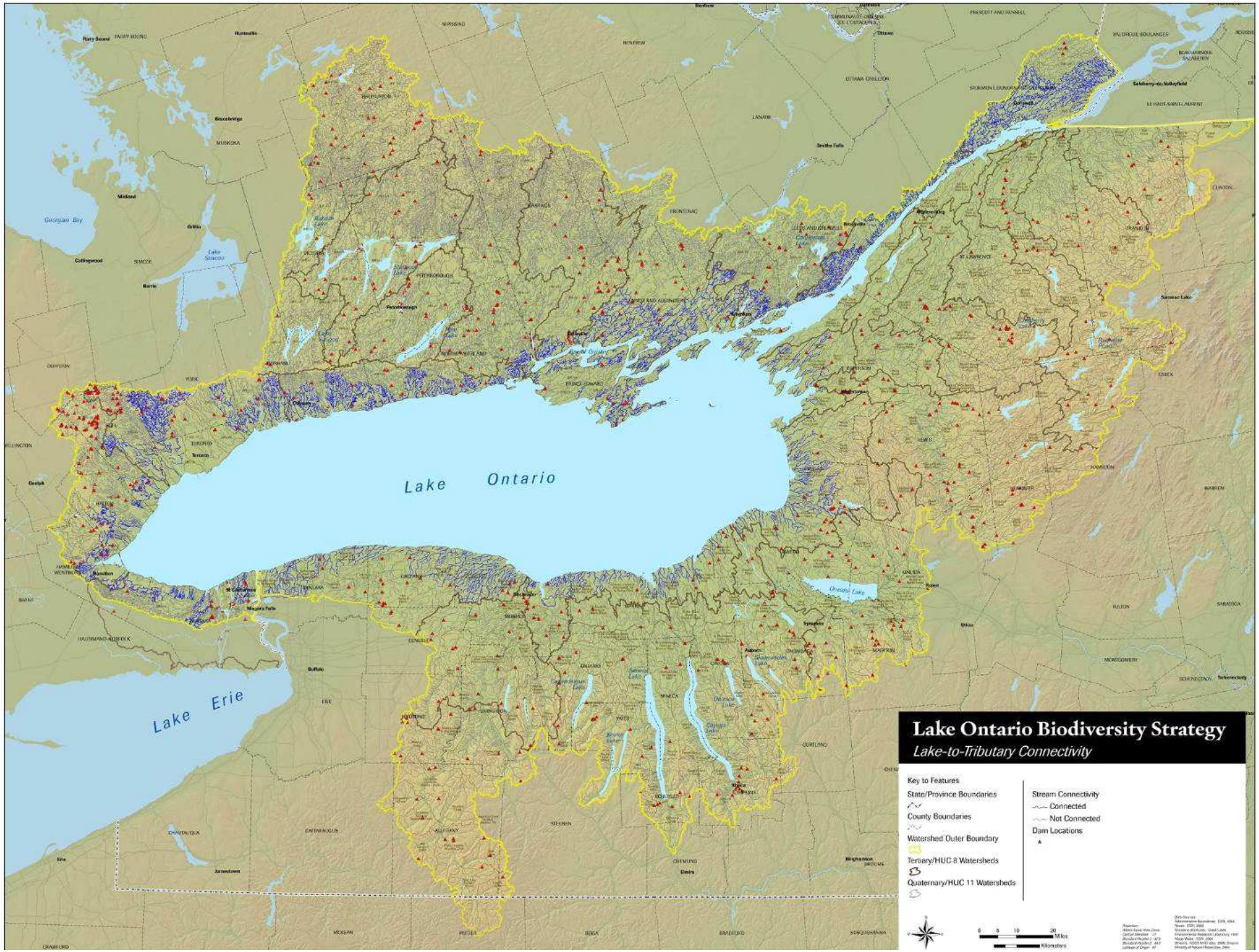
Lake Ontario Biodiversity Conservation Strategy

- Developed by Nature Conservancy (US and Canada)
- 49 agencies involved through consultation
- Available on Internet

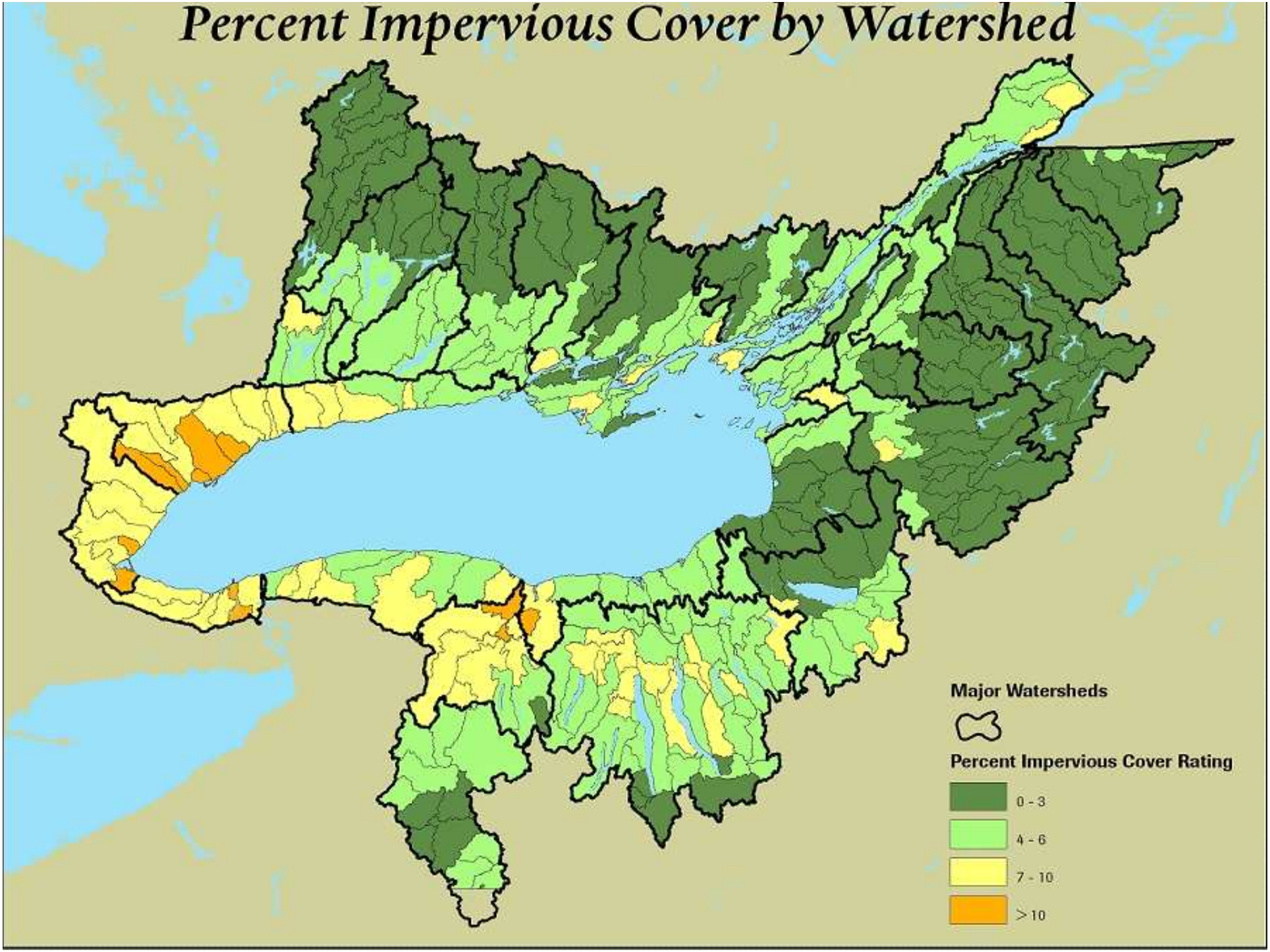
Ten Things Every Resident of the Lake Ontario Basin Should Know

1. 14th largest lake in the world
2. It is a deep, coldwater ecosystem that supports Lake Trout and Whitefish
3. A critical link in the food chain is a small freshwater shrimp
4. American Eel lives in Lake Ontario and its tributaries, but spawns in the Atlantic Ocean
5. There are almost 100 species of native fish.
6. It is one of two Great Lakes with water levels regulated through dams in outlet rivers – the other one is Lake Superior.
7. **Over 6 million people get their drinking water from the Lake**
8. **Only the western portion of the watershed is highly developed, most of the basin is characterized by rural landscapes.**
9. **The western part of Lake Ontario is the fastest growing area of the Great Lakes.**
10. The open lake is significantly cleaner than it was 20 years ago.

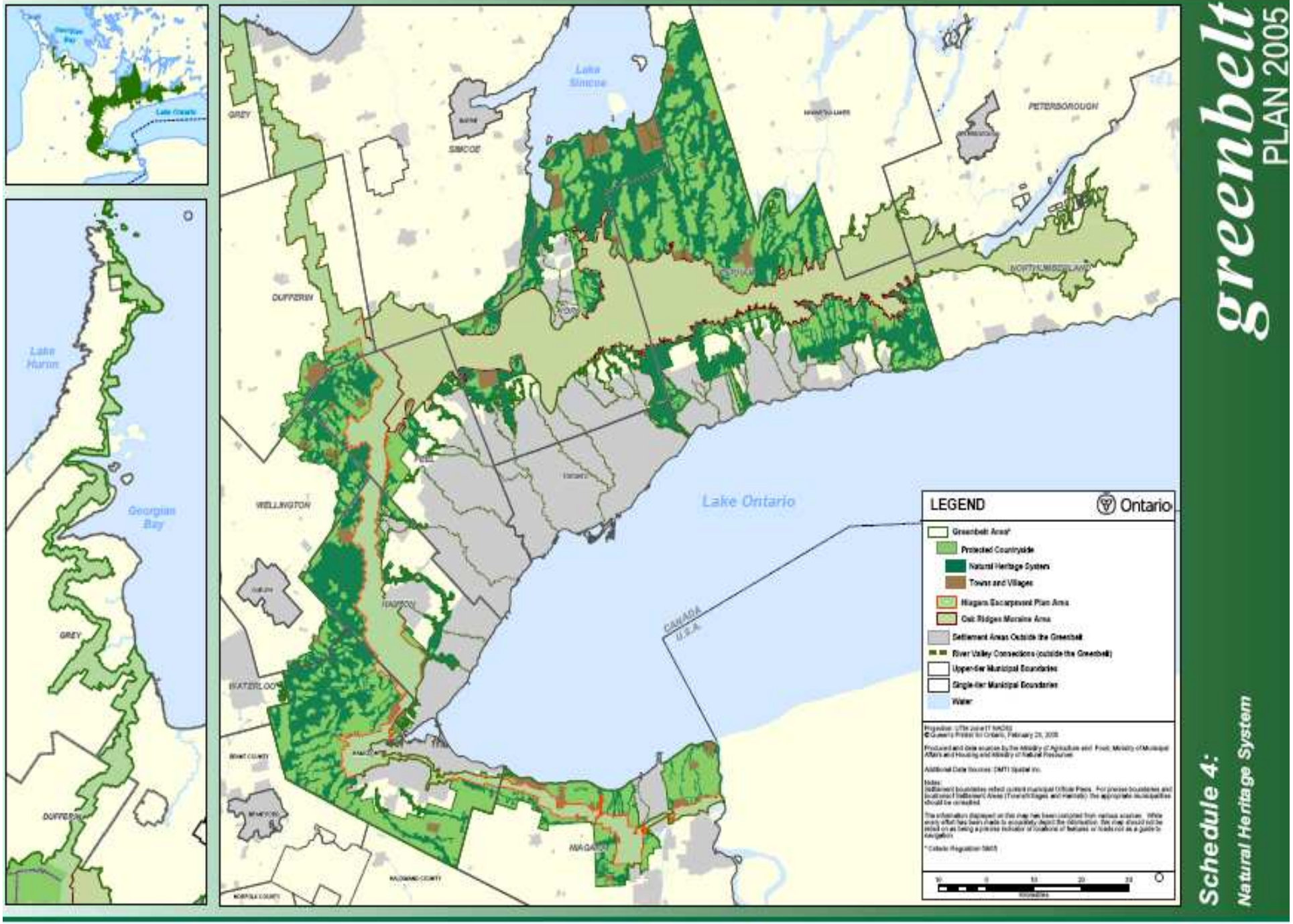

Lake Ontario
Percent Natural Cover by Watershed
Large Watersheds
Small Watersheds
% Natural Cover
1 - 30%
31 - 50%
51 - 80%
81 - 100%
Lake Ontario Biodiversity Strategy
Natural Land Cover
Key to Features
State/Province Boundaries
County Boundaries
Watershed Outer Boundary
Tertiary/HUC 8 Watersheds
Quaternary/HUC 11 Watersheds
Natural Cover Density
0 - 30%
31 - 50%
51 - 80%
81 - 100%
Map Explanation
Miles
Kilometers

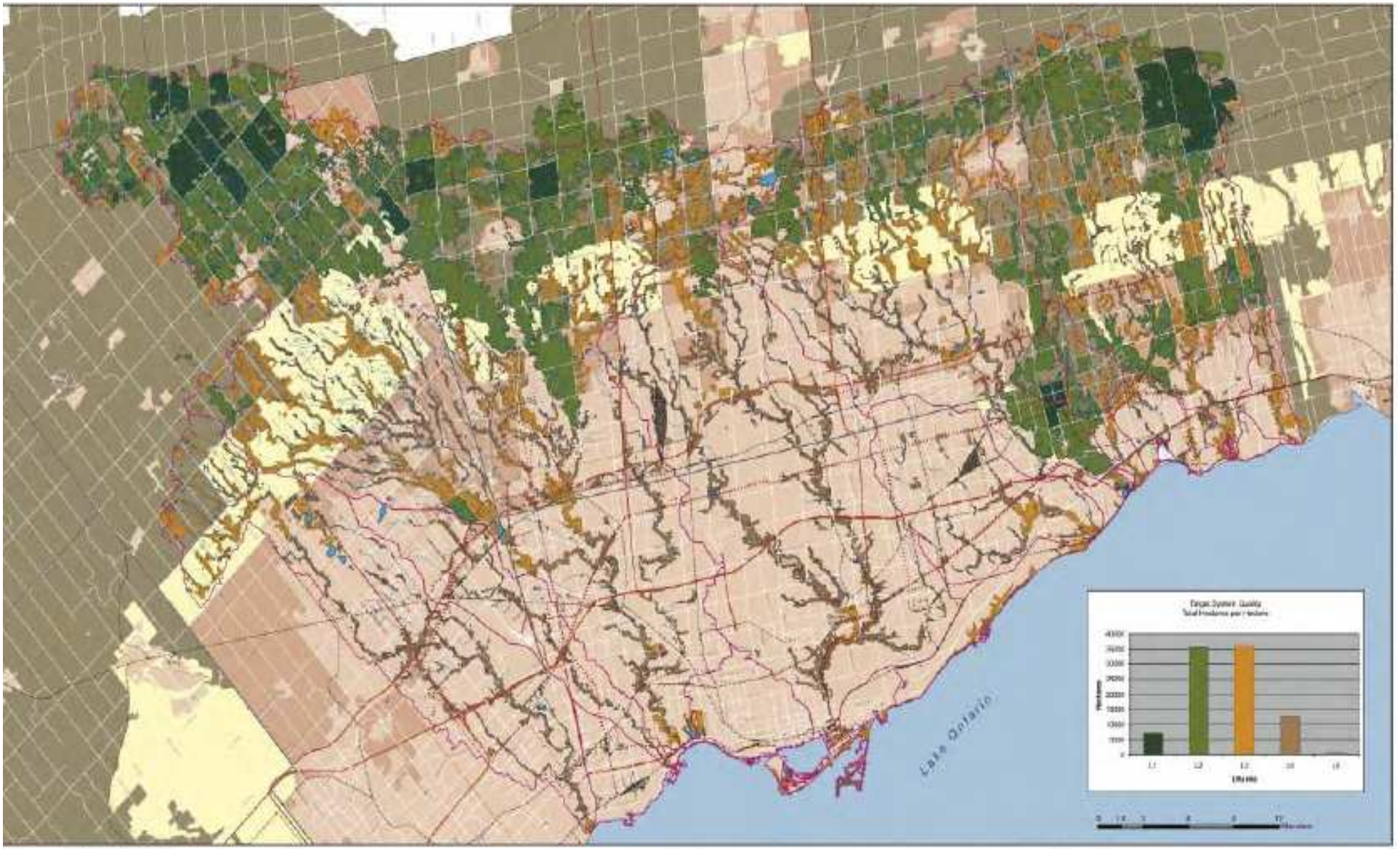

Lake Ontario
Lake Erie
Lake Ontario Biodiversity Strategy
Lake-to-Tributary Connectivity
Key to Features
State/Province Boundaries
County Boundaries
Watershed Outer Boundary
Tertiary/HUC 8 Watersheds
Quaternary/HUC 11 Watersheds
Stream Connectivity
Connected
Not Connected
Dam Locations
Miles
Kilometers

Percent Impervious Cover by Watershed



- watershed planning supported for both US and Canada
- need to develop natural heritage systems in watershed and subwatershed plans
- broad scale issues like amount of natural cover, habitat fragmentation and invasive species need to be investigated at local level.


greenbelt
PLAN 2005
Schedule 4:
Natural Heritage System
LEGEND
Ontario
Greenbelt Area*
Protected Countryside
Natural Heritage System
Towns and Villages
Niagara Escarpment Plan Area
Oak Ridges Moraine Area
Settlement Areas Outside the Greenbelt
River Valley Connections (outside the Greenbelt)
Upper-tier Municipal Boundaries
Single-tier Municipal Boundaries
Water
Lake Ontario
Lake Simcoe
Georgian Bay
Lake Huron
GREY
SIMCOE
DUFFERIN
PETERBOROUGH
NORTHUMBERLAND
WELLINGTON
HALTON
PEEL
DURHAM
WATERLOO
NIAGARA
CANADA
U.S.A.



Date: May 7th, 2007.
Created by: T.R.C.A. Information Services/ Information Technologies

Conservation for The Living City

Legend

- Collectors
- Expressway/Highway
- Freeway/Highway
- Hydro Corridor
- Railways
- Regional Boundaries
- Waterbodies
- Watersheds

Total Score

- 13+ Excellent
- 11 - 12 Good
- 9 - 10 Fair
- 6 - 8 Poor
- 0 - 5 Very Poor

Planning Zone

- Agricultural & Rural Area
- Built-up Area
- Designated Greenfield Area
- Greenbelt Area

TNHSS Map #6

Target System Evaluated

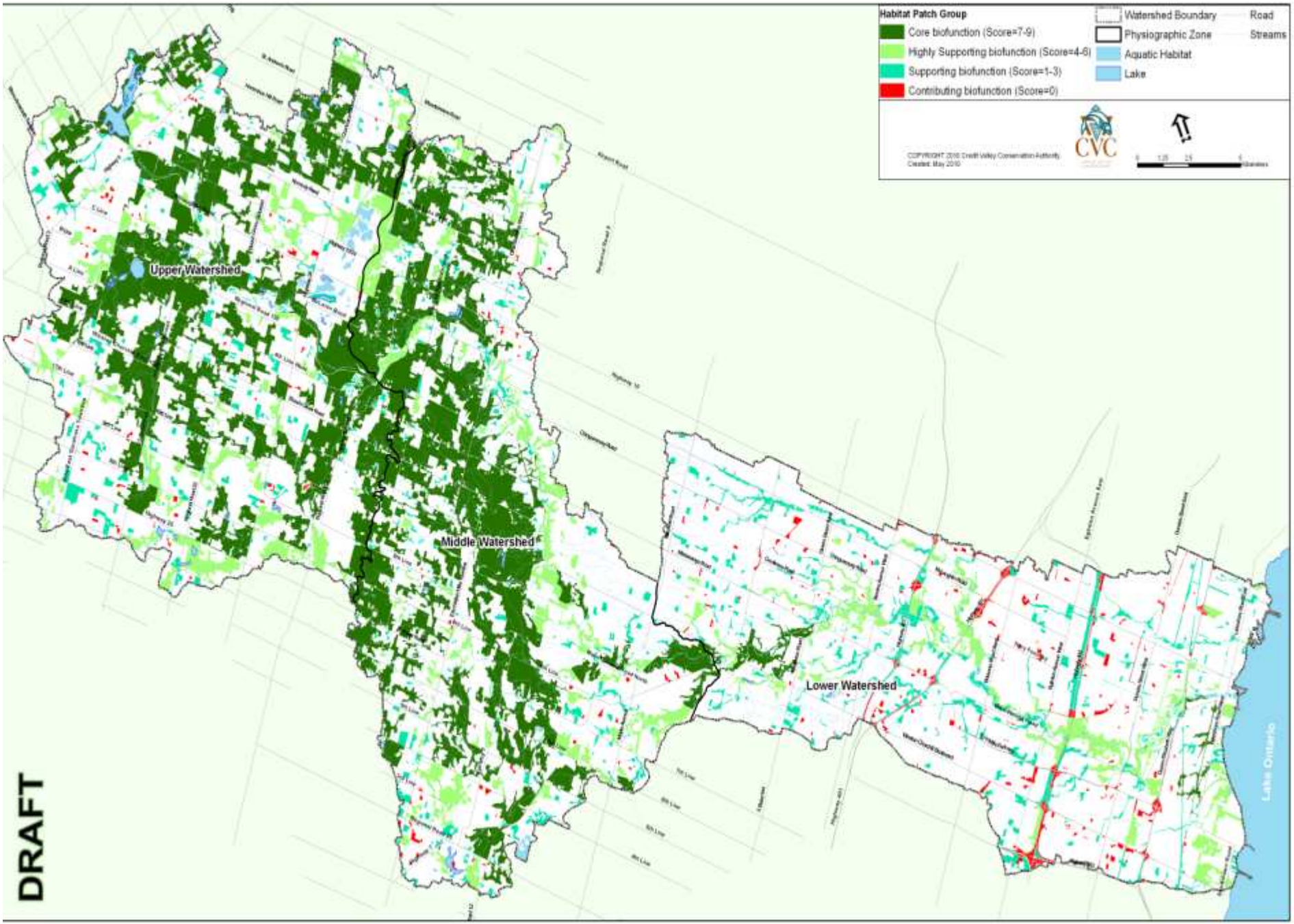


Figure A29: Core biofunction, Highly Supporting biofunction, Supporting biofunction, and Contributing biofunction habitat patches, Credit River Watershed

Ministry of Natural Resources

Ontario

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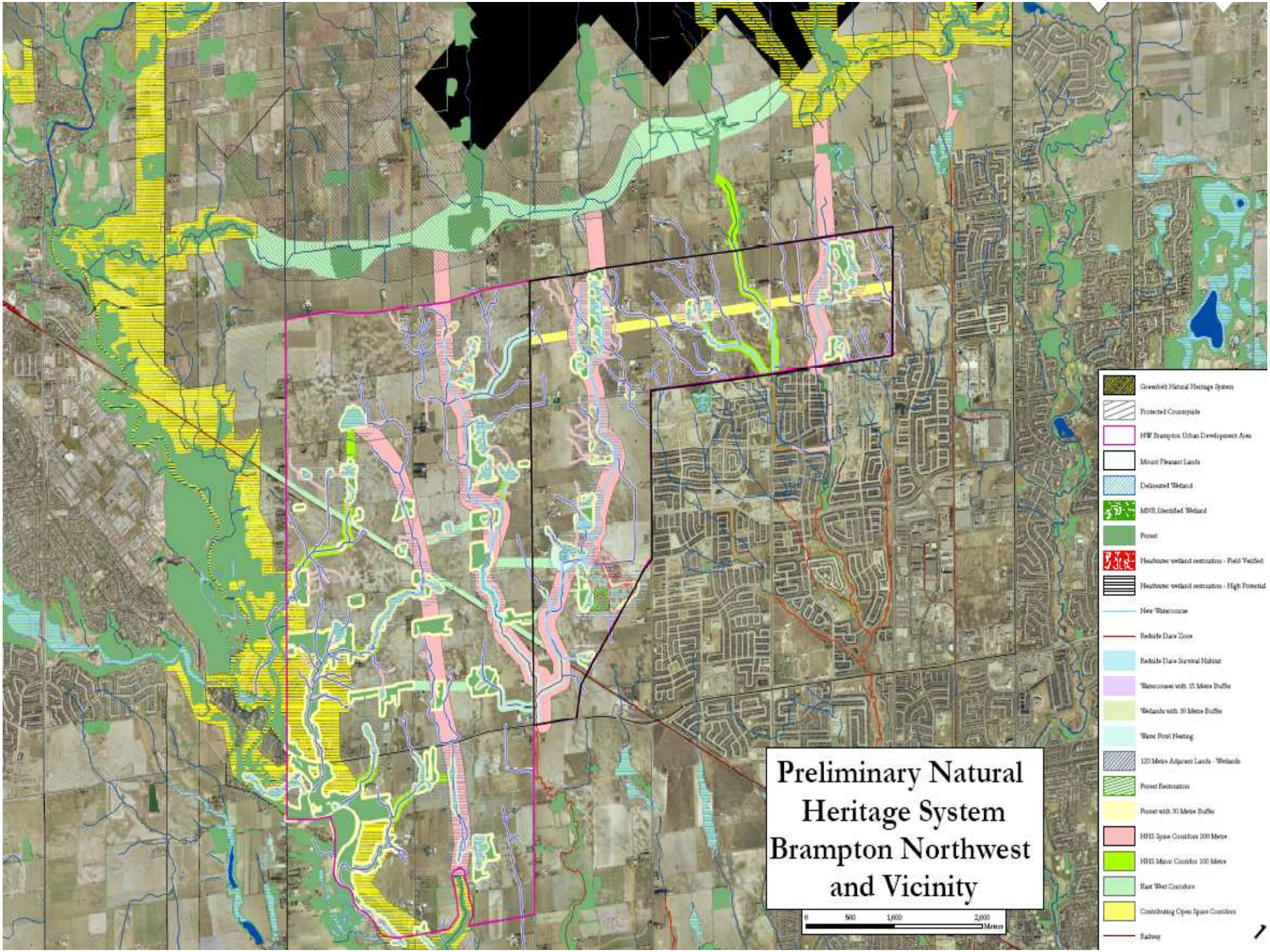
Natural Heritage Reference Manual

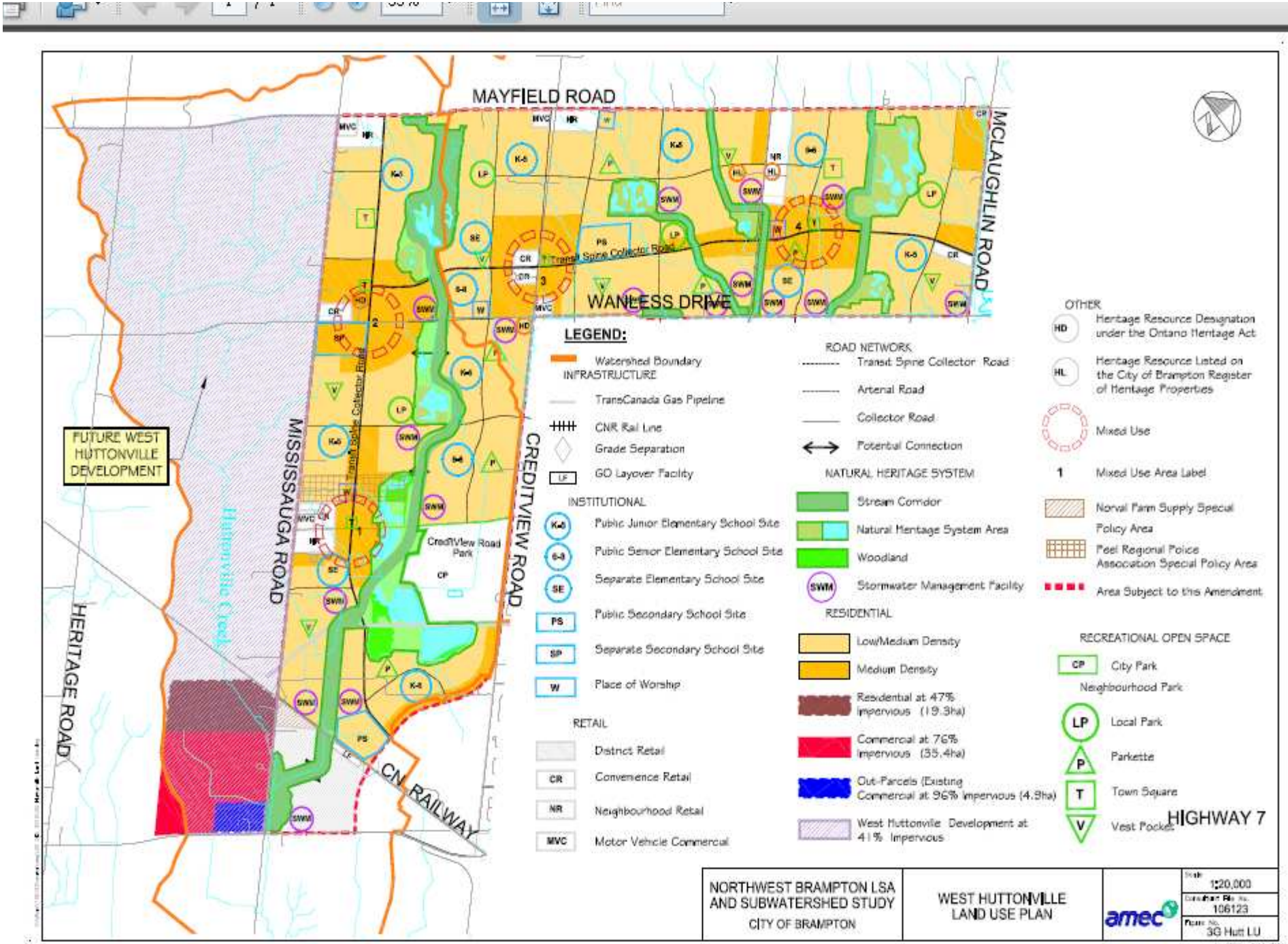
for Natural Heritage Policies of the Provincial Policy Statement, 2005

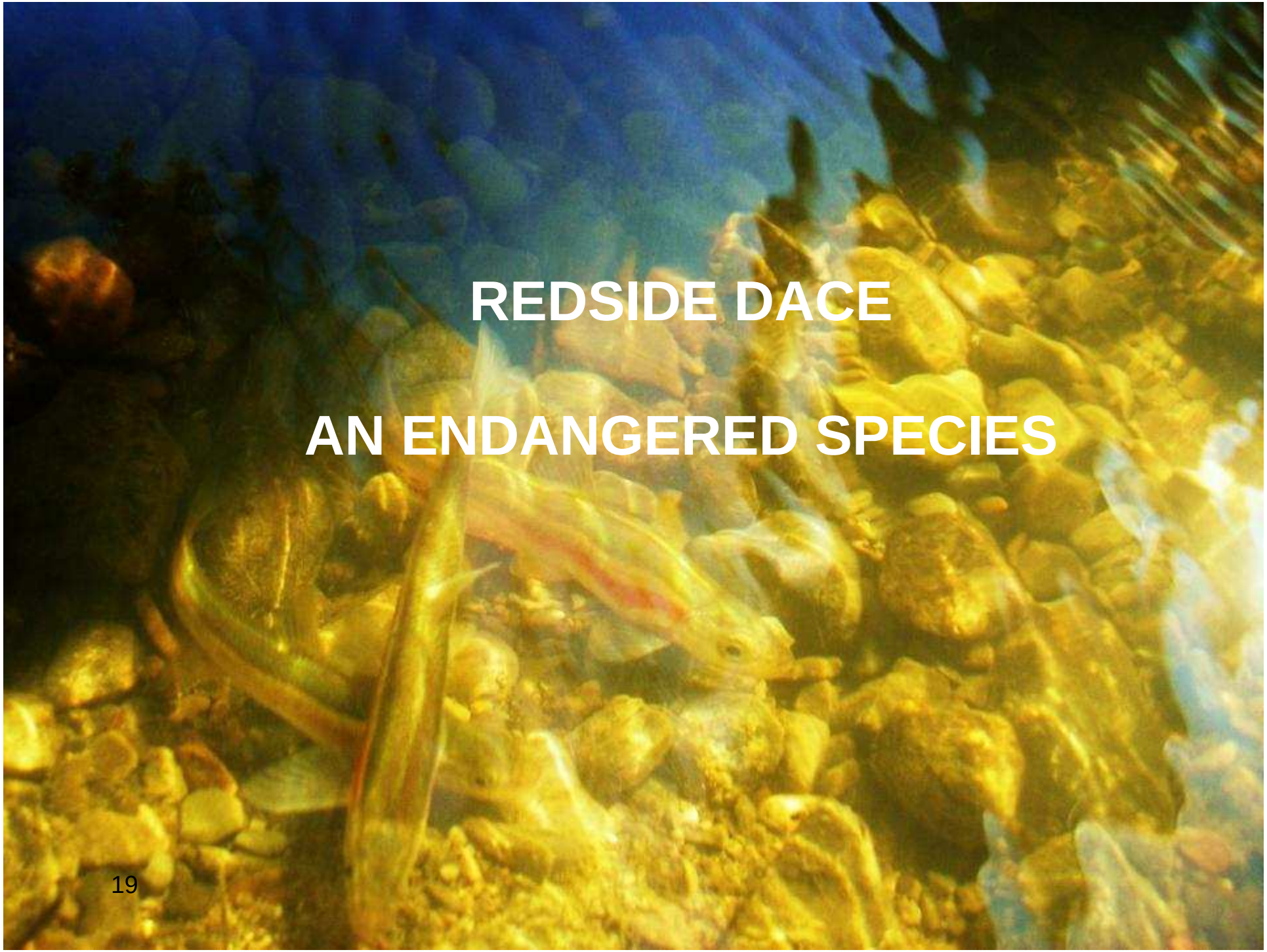
Second Edition






Greenbelt Natural Heritage System
Protected Countryside
NW Brampton Urban Development Area
Mount Pleasant Lands
Delineated Wetland
MNR Identified Wetland
Forest
Headwater wetland restoration - Field Verified
Headwater wetland restoration - High Potential
New Watercourse
Redside Dace Zone
Redside Dace Survival Habitat
Watercourse with 15 Metre Buffer
Wetlands with 30 Metre Buffer
Water Pond Heating
120 Metre Adjacent Lands - Wetlands
Forest Restoration
Forest with 30 Metre Buffer
NHS Spine Corridors 200 Metre
NHS Minor Corridor 100 Metre
East West Corridors
Contributing Open Space Corridors
Railway
Preliminary Natural Heritage System Brampton Northwest and Vicinity
0
500
1,000
2,000
Metres


MAYFIELD ROAD
MCLAUGHLIN ROAD
WANLESS DRIVE
Transit Spine Collector Road
FUTURE WEST HUTTONVILLE DEVELOPMENT
MISSISSAUGA ROAD
CREDITVIEW ROAD
HERITAGE ROAD
Huttonville Creek
Transit Spine Collector Road
CreditView Road Park
CN RAILWAY
HIGHWAY 7
LEGEND:
Watershed Boundary
INFRASTRUCTURE
TransCanada Gas Pipeline
CNR Rail Line
Grade Separation
GO Layover Facility
INSTITUTIONAL
Public Junior Elementary School Site
Public Senior Elementary School Site
Separate Elementary School Site
Public Secondary School Site
Separate Secondary School Site
Place of Worship
RETAIL
District Retail
Convenience Retail
Neighbourhood Retail
Motor Vehicle Commercial
ROAD NETWORK
Transit Spine Collector Road
Arterial Road
Collector Road
Potential Connection
NATURAL HERITAGE SYSTEM
Stream Corridor
Natural Heritage System Area
Woodland
Stormwater Management Facility
RESIDENTIAL
Low/Medium Density
Medium Density
Residential at 47% Impervious (19.3ha)
Commercial at 76% Impervious (35.4ha)
Out-Parcels (Existing Commercial at 96% Impervious (4.9ha)
West Huttonville Development at 41% Impervious
OTHER
Heritage Resource Designation under the Ontario Heritage Act
Heritage Resource Listed on the City of Brampton Register of Heritage Properties
Mixed Use
Mixed Use Area Label
Norval Farm Supply Special Policy Area
Peel Regional Police Association Special Policy Area
Area Subject to this Amendment
RECREATIONAL OPEN SPACE
City Park
Neighbourhood Park
Local Park
Parkette
Town Square
Vest Pocket
NORTHWEST BRAMPTON LSA AND SUBWATERSHED STUDY
CITY OF BRAMPTON
WEST HUTTONVILLE LAND USE PLAN
amec
1:20,000
106123
3G Hutt LU

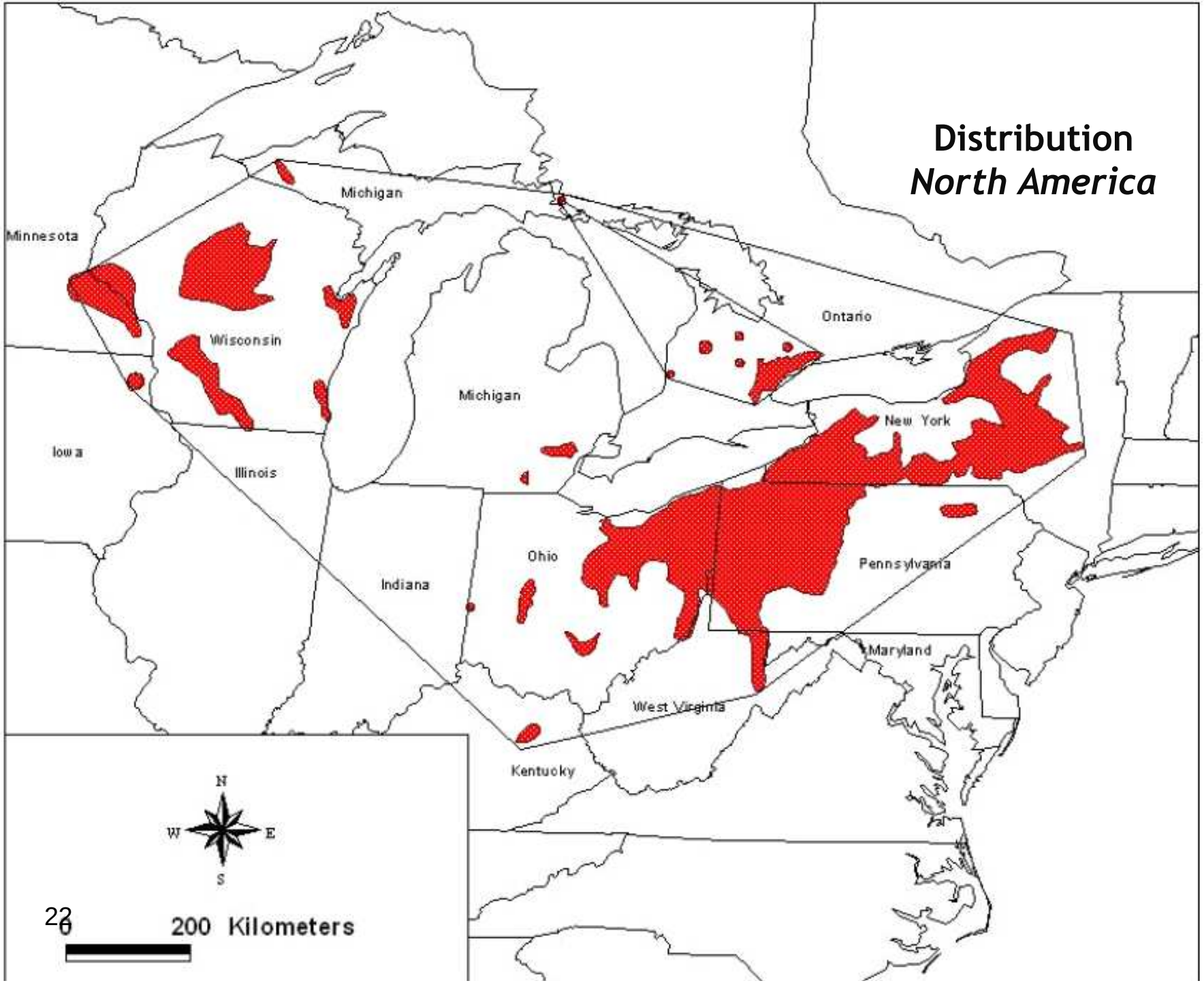

REDSIDE DACE
AN ENDANGERED SPECIES

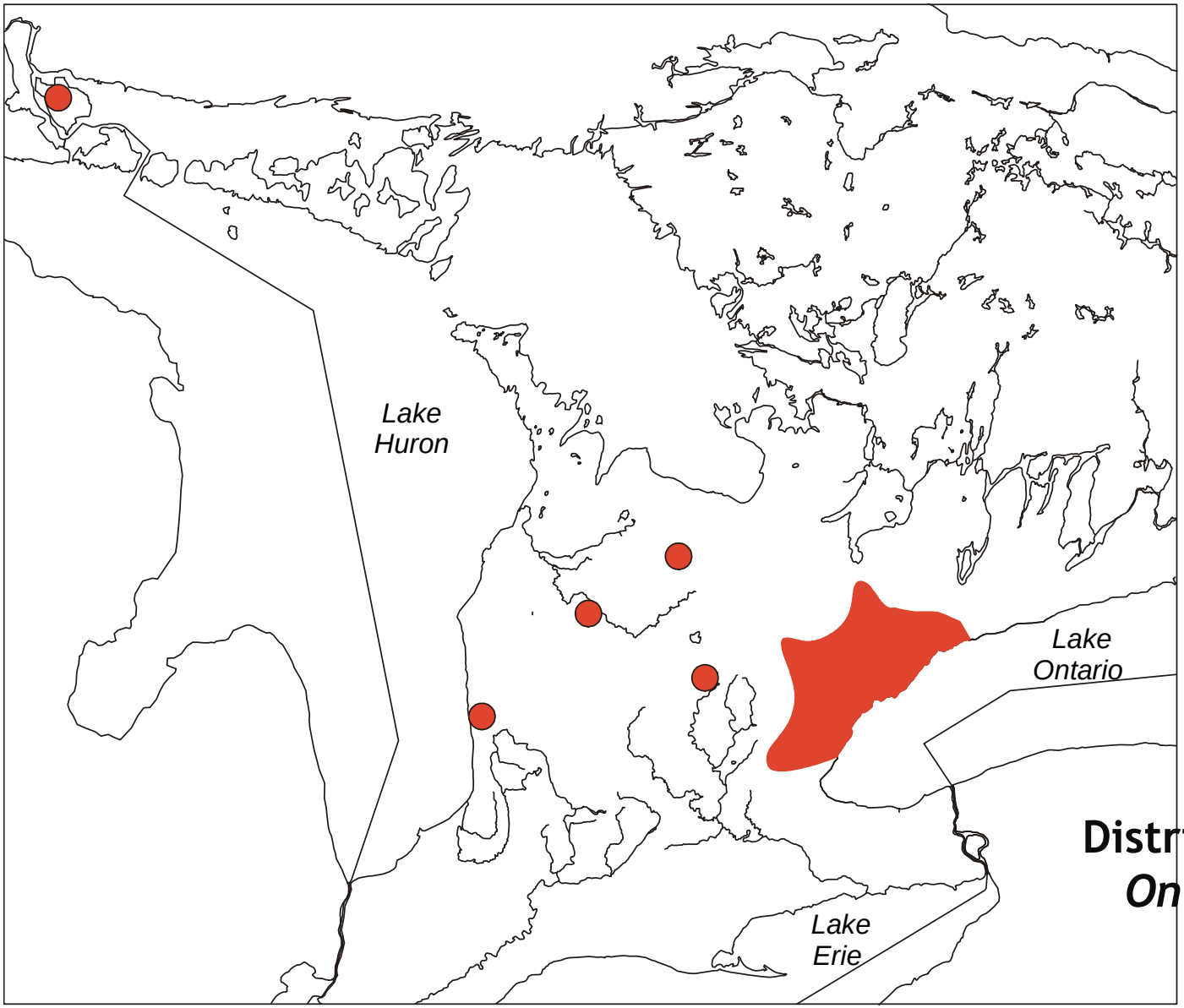
Lives in small streams in the southern Great Lakes basin, the upper Mississippi drainage and the upper Susquehanna River drainage.

In Canada, the Redside Dace is found only in southern Ontario where it most frequently occurs in streams flowing into western Lake Ontario. Ontario is approximately 5% of the global range

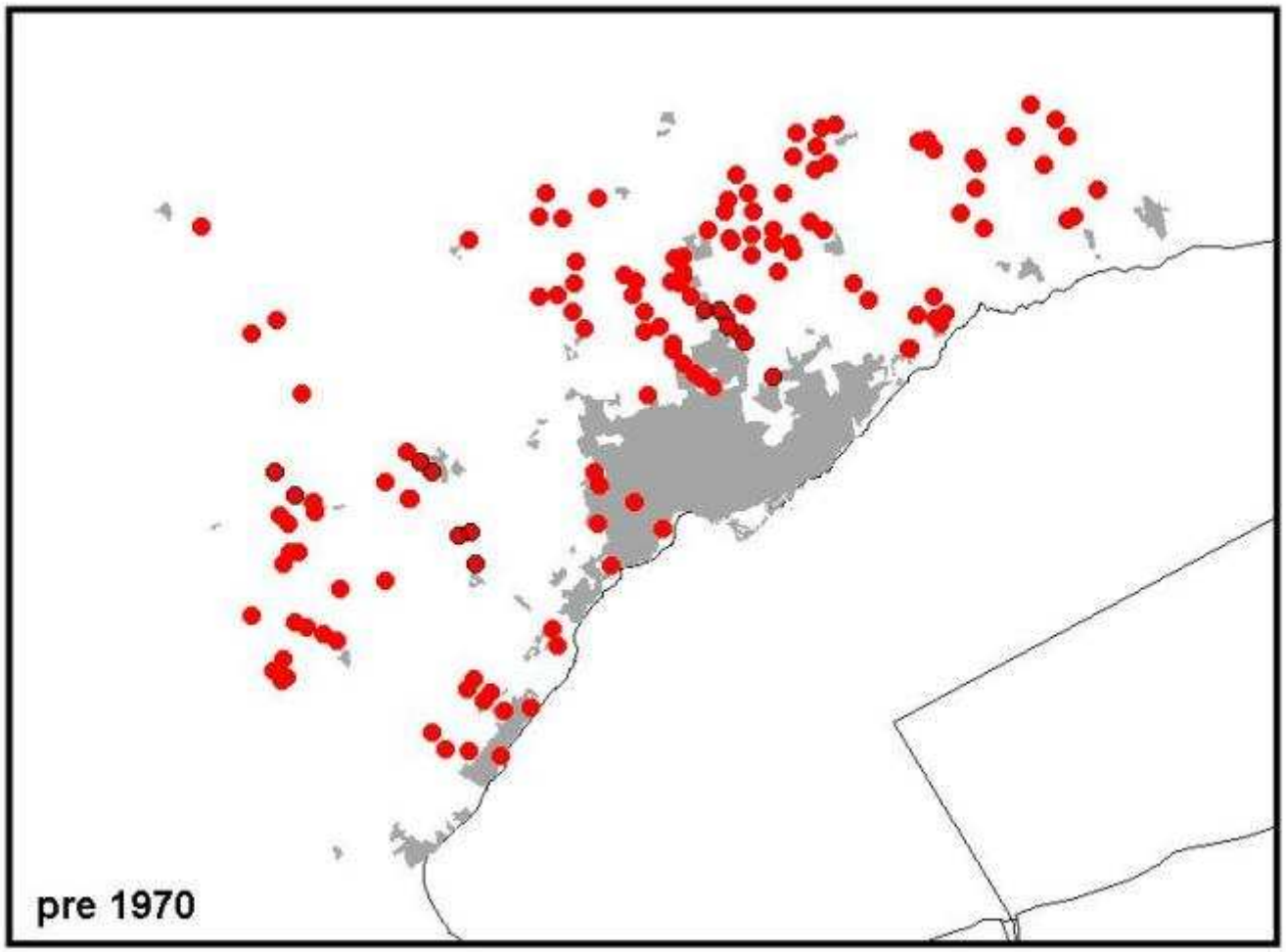
The species has declined in many areas throughout its global range.

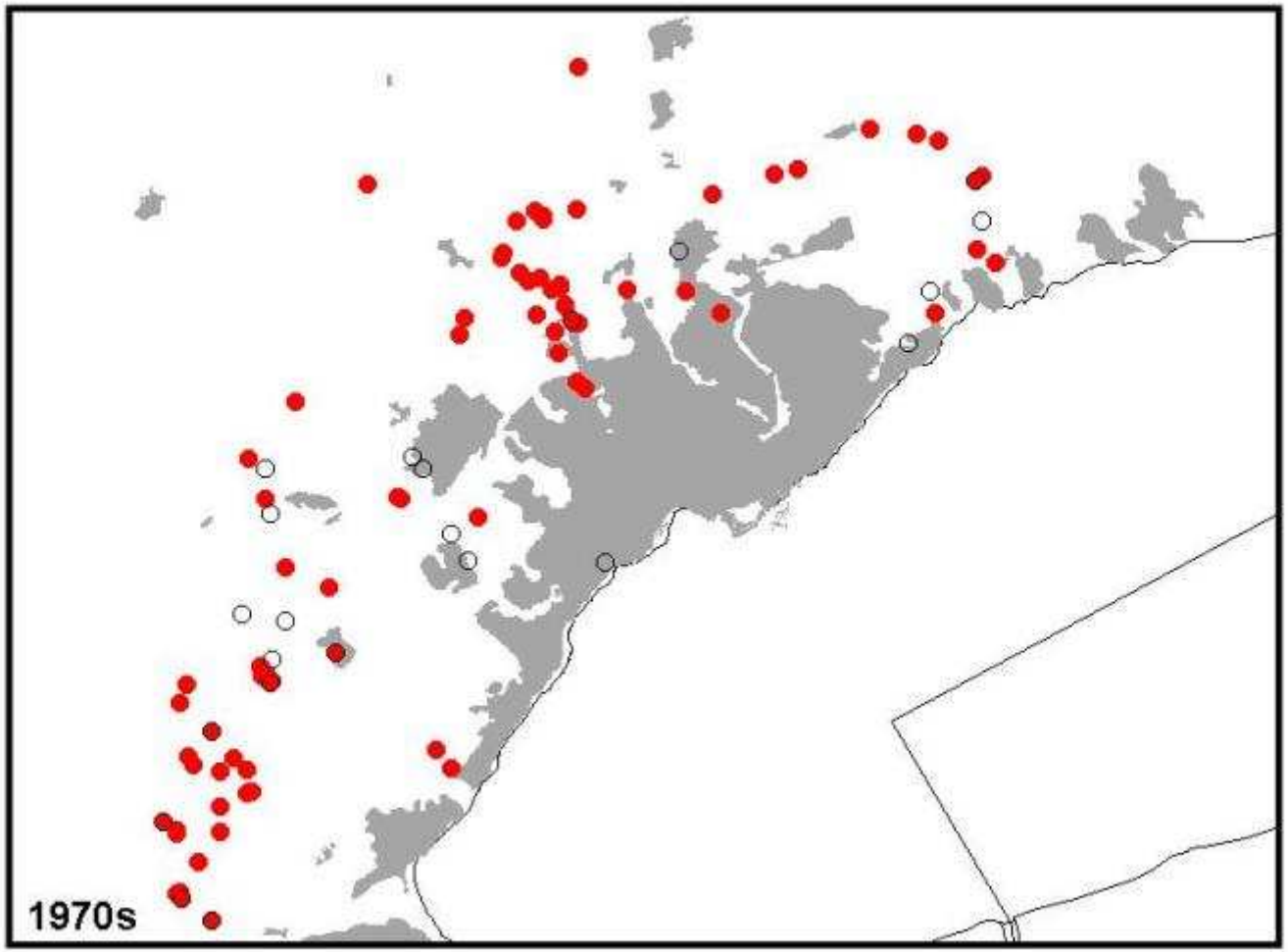
- Was once found historically in 24 watersheds in Ontario
- In 1987, the species was considered provincially vulnerable and nationally “special concern”
- In 2000, the species was designated “threatened” in Ontario based on a probable 20 locations
- In 2009, the species was designated “endangered” in the remaining 16 watersheds

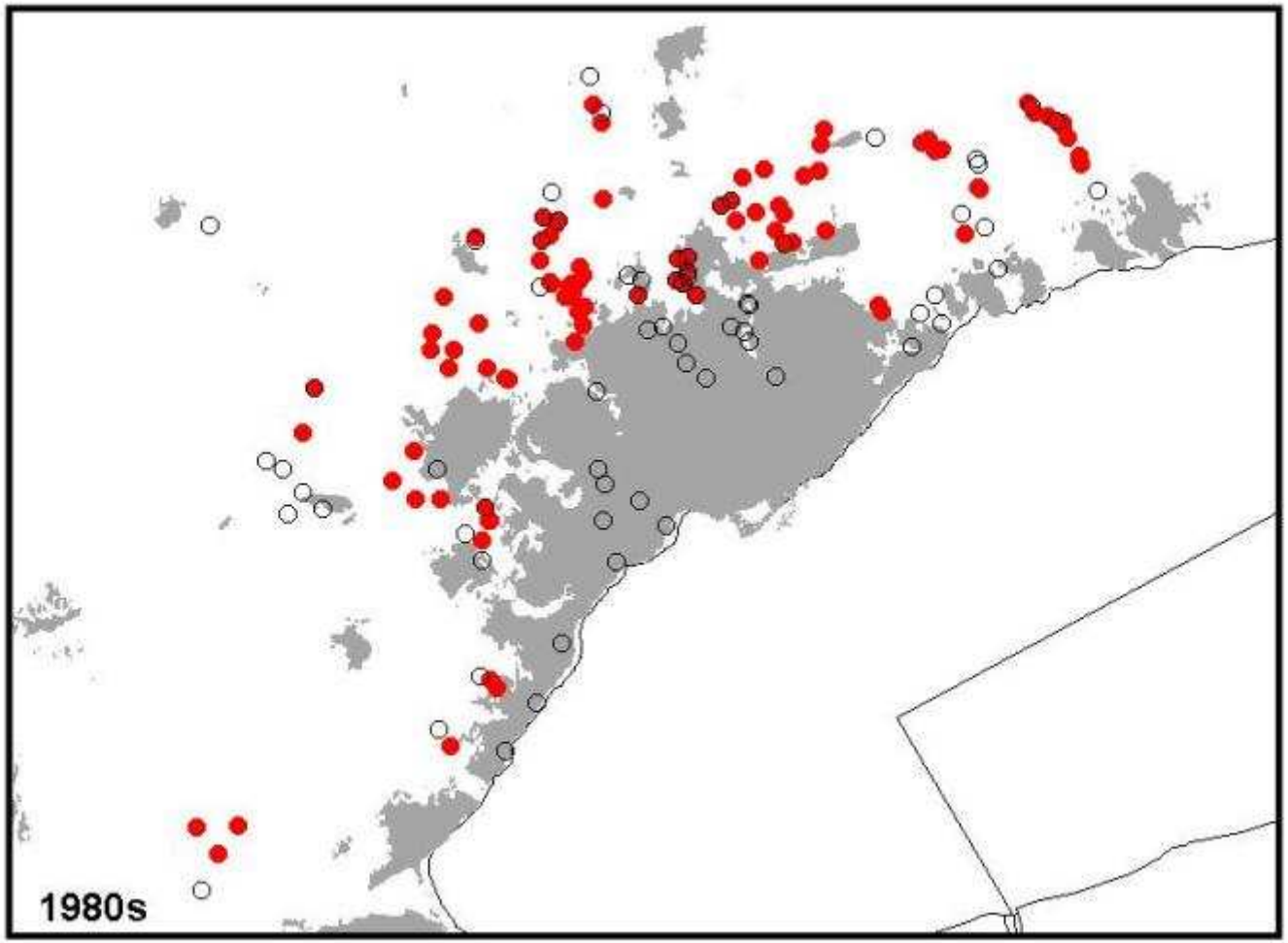

Distribution
North America
Minnesota
Michigan
Wisconsin
Michigan
Ontario
New York
Iowa
Illinois
Indiana
Ohio
Pennsylvania
Maryland
West Virginia
Kentucky
N
W
E
S
0
200 Kilometers

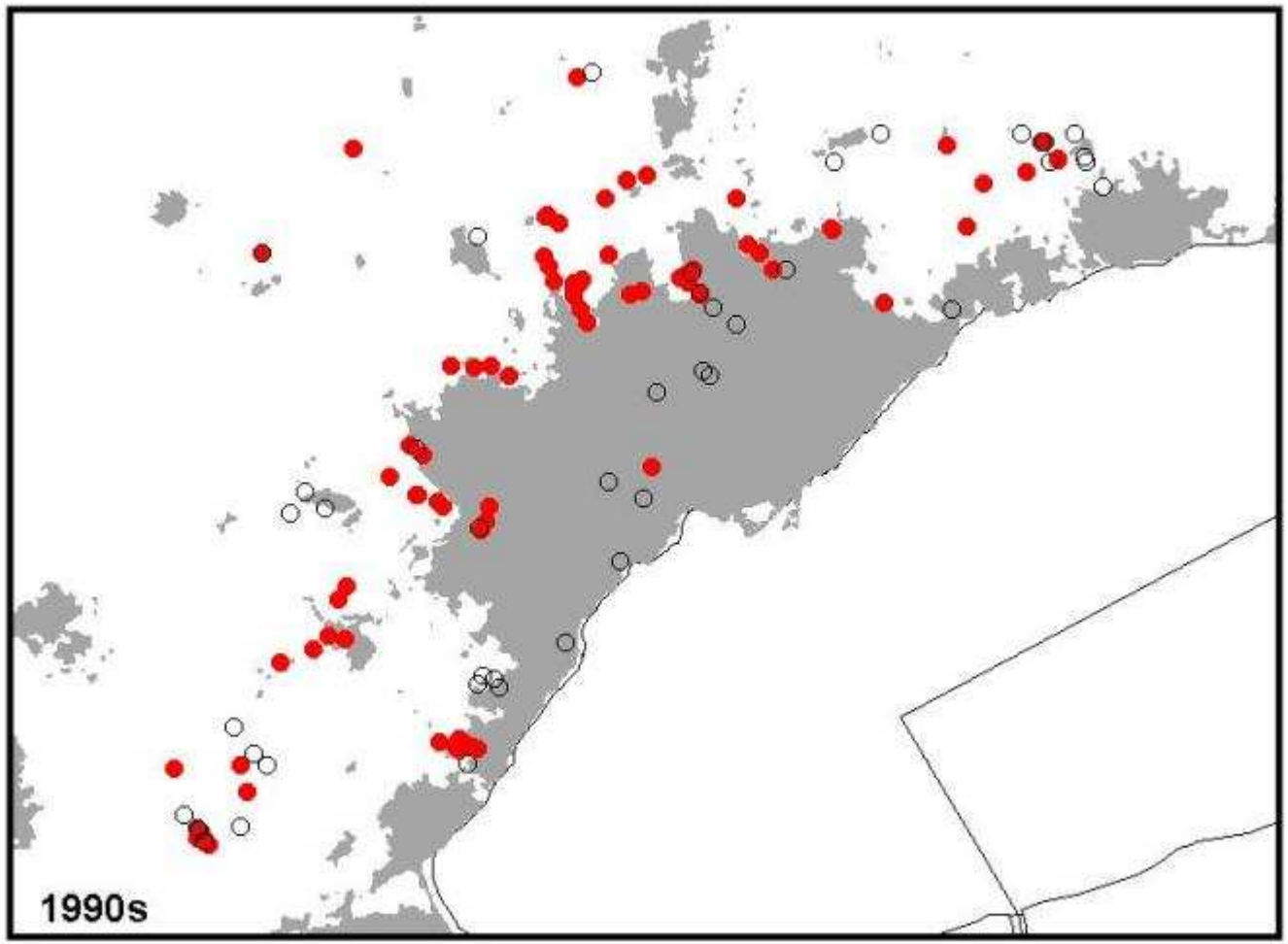


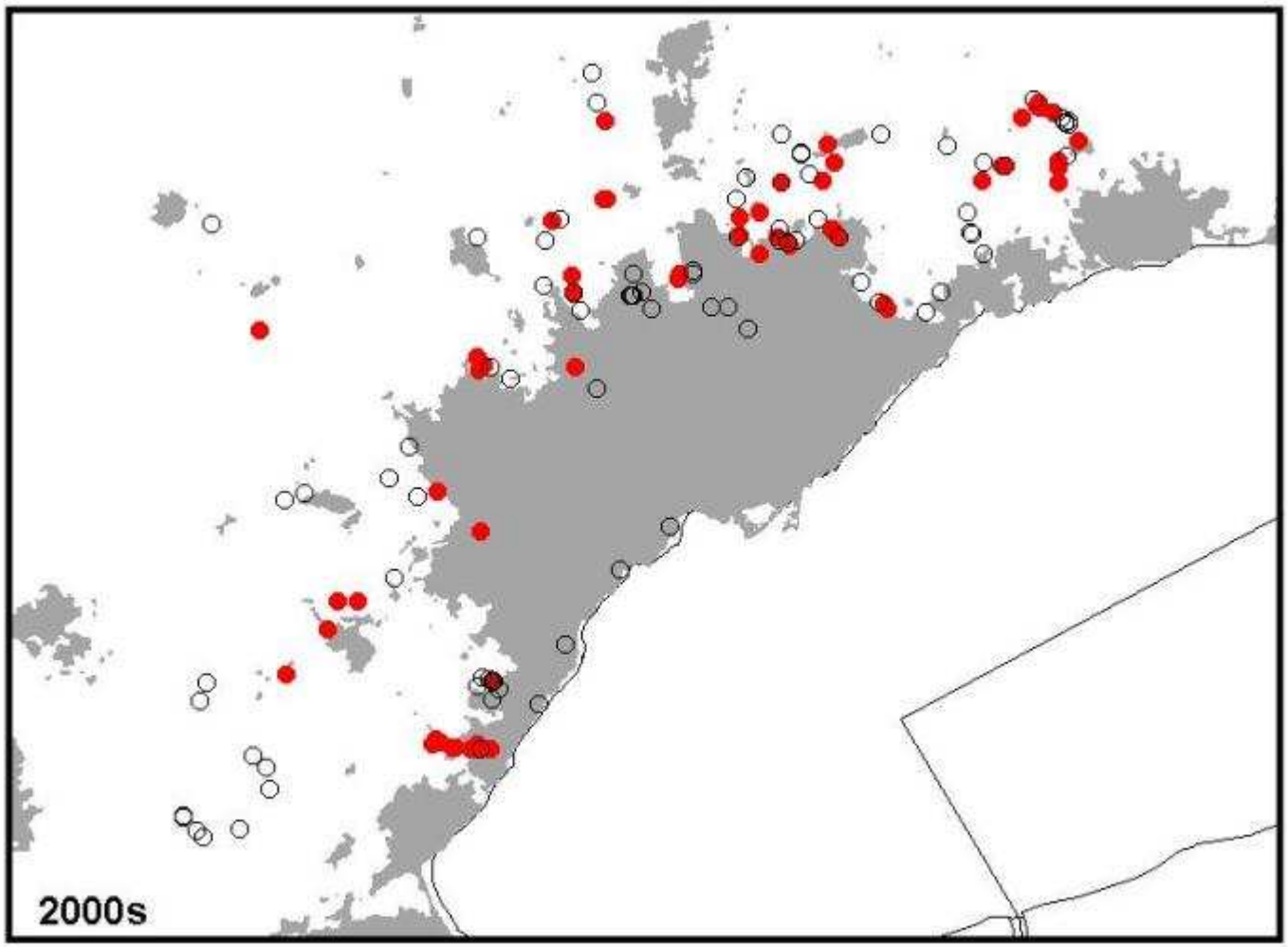
Distribution
Ontario


pre 1970

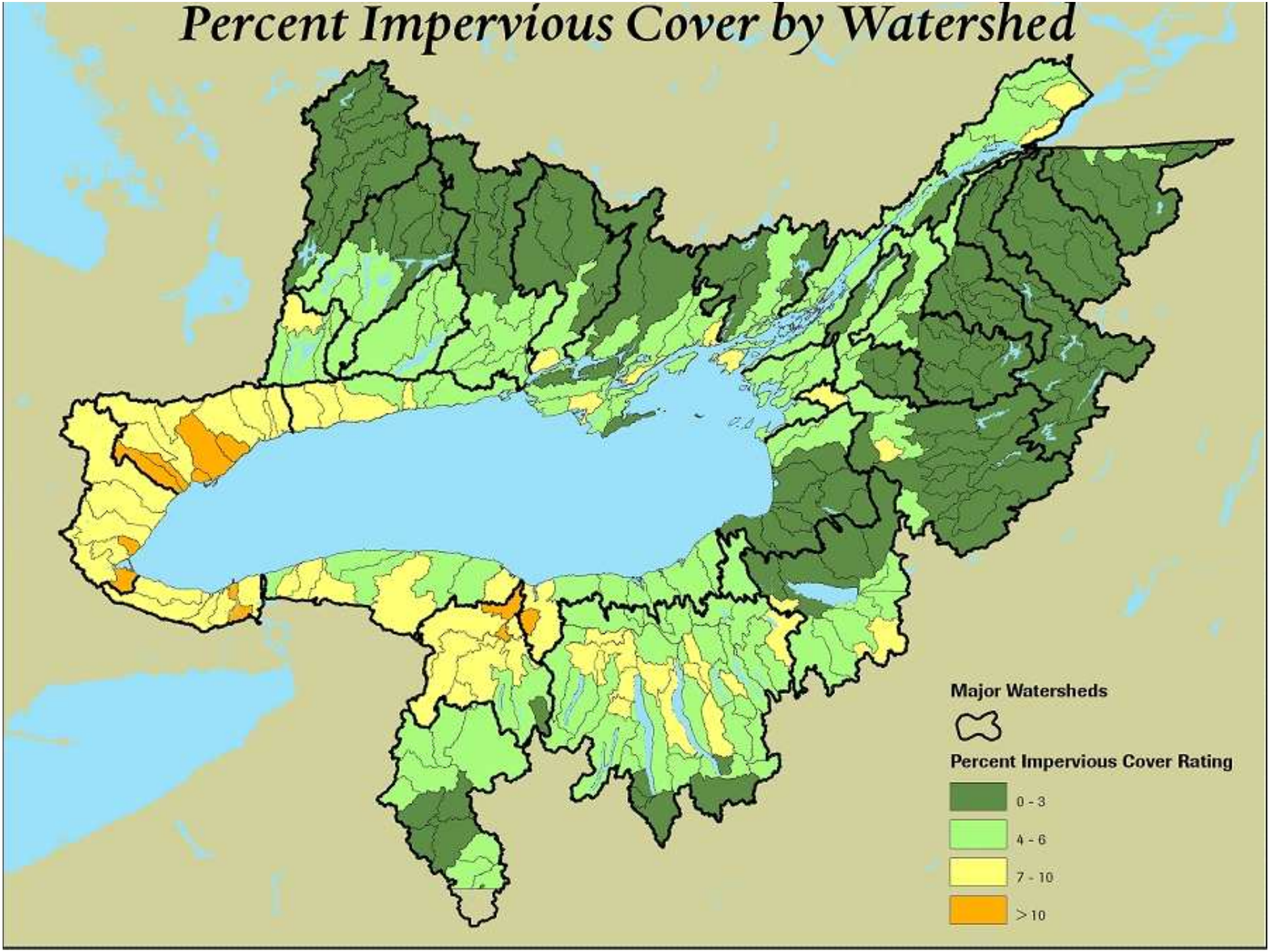

1970s


1980s


1990s


2000s

Percent Impervious Cover by Watershed




N
Springbrook
6
Queen St W
Links Ln
291 m
© 2010 Google
Image © 2010 DigitalGlobe
© 2010 Europa Technologies
Google
Imagery Date: Aug 31, 2009
17 T 596750.28 m E 4834135.20 m N elev 201 m
Eye alt 1.26 km

Three reasons this species has become endangered:

1)Loss of Habitat

2)Silt/sediment entering stream from large construction sites during development

3)Changes in stream hydrology post development
(urban stream syndrome)

Photo: W.N. Ranton/AFS Fish Slide Catalog

Redside Dace

(*Clinostomus elongatus*) in Ontario

Ontario Recovery Strategy Series

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

February 2010

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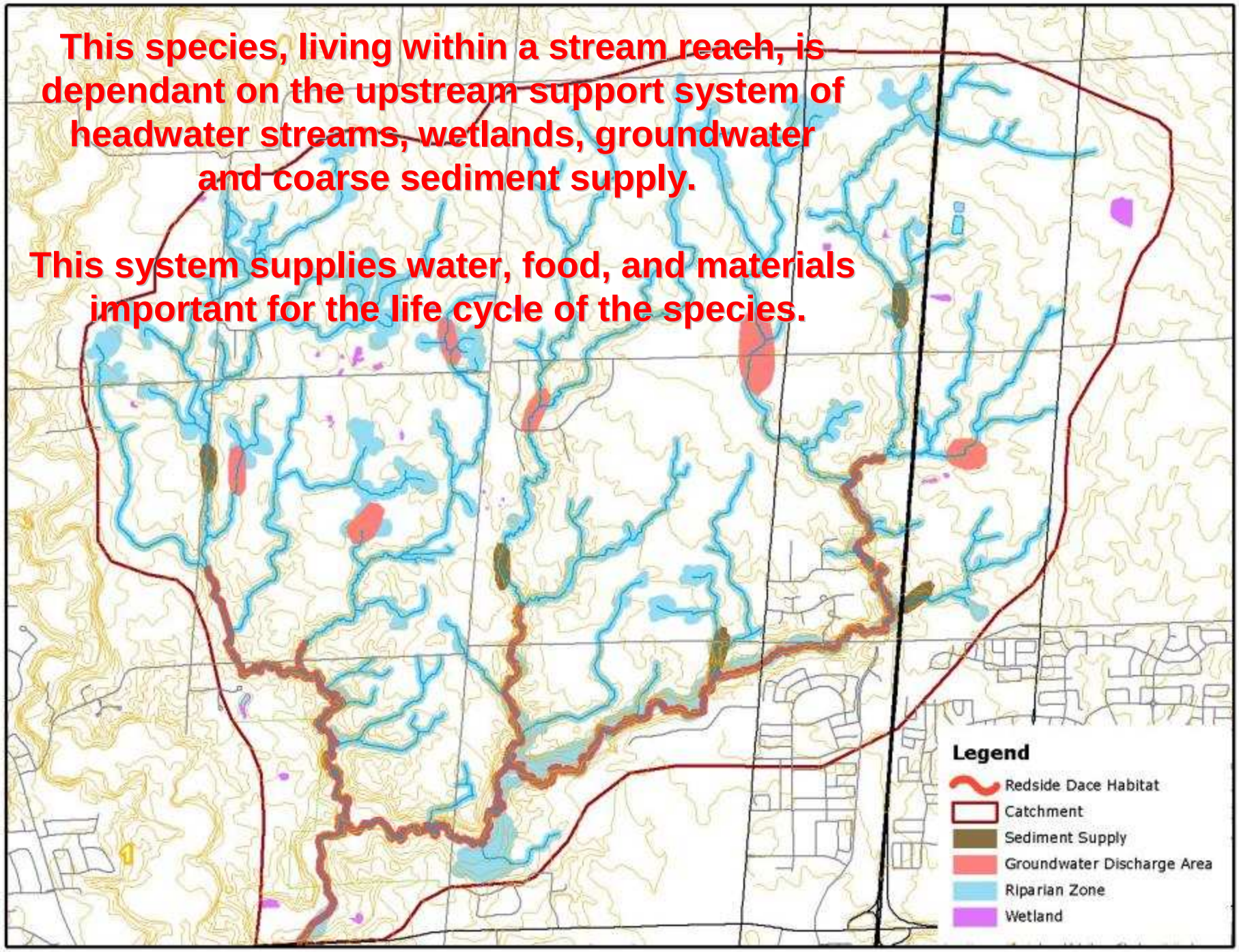
This species, living within a stream reach, is dependant on the upstream support system of headwater streams, wetlands, groundwater and coarse sediment supply.

This system supplies water, food, and materials important for the life cycle of the species.



Ministry of Natural Resources

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Redside Dace

Ontario Government Response Statement

PROTECTING AND RECOVERING SPECIES AT RISK IN ONTARIO

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

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

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

GOVERNMENT RESPONSE STATEMENTS

Within nine months after a recovery strategy is prepared, the ESA requires the Ministry to publish a statement summarizing the government's intended actions and priorities in response to the recovery strategy. The recovery strategy for Redside Dace was completed on February 18, 2010.
(http://www.mnr.gov.on.ca/stdprodconsume/groups/lr/@mnr/@species/documents/document/286971.pdf)

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

Redside Dace is a member of the minnow family. In Canada, the species is found in some streams flowing into Lake Huron and western Lake Ontario, in the Holland River, and in Irvine Creek of the Grand River system. Habitat loss and degradation caused by development activities are the most significant threats to Redside Dace. These activities can alter streams and the streamside vegetation Reside Dace depend on.

Ontario

MOVING FORWARD TO PROTECT AND RECOVER REDSIDE DACE

The Redside Dace is listed as an endangered species under the ESA which protects both the species and its habitat. The ESA prohibits any damage or destruction of that habitat without authorization. Such authorization would require that conditions established by the Ministry of Natural Resources be met.

The government's goal for the recovery of Redside Dace is to protect existing populations and their habitats and where feasible, restore degraded habitats to allow for increased distribution adjacent to occupied reaches.

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

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

GOVERNMENT-LED ACTIONS

To help protect and recover Redside Dace, the government will directly undertake the following actions:

- Maintain a database of Redside Dace distribution and ensure that information on the currently occupied range of the species is available to appropriate planning authorities.
- Develop urban development guidelines to provide guidance where there is an interest in developing urban areas within Redside Dace habitat, as protected under the ESA.
- Ensure appropriate timing windows for activities in and around Redside Dace habitat are considered in the application of the ESA.
- Educate other agencies and planning authorities on the requirement to consider the protection of Redside Dace and its habitat in planning activities and environmental assessment processes.
- Finalize and implement the "Framework for Managing Commercial Baitfish Harvest to Protect Redside Dace Populations."
- Encourage the submission of Redside Dace data to the Ministry of Natural Resources' central repository at the Natural Heritage Information Centre.
- Undertake communications and outreach to increase public awareness of species at risk in Ontario.

DRAFT

Guidance for Development Activities in Redside Dace Protected Habitat

February 2011

Scale: Actual length of Redside Dace depicted is 7 centimetres.

TABLE of CONTENTS

Subwatershed plans should identify the following items to protect Redside Dace:

- ☐ The protected habitats of Redside Dace (i.e., habitat as outlined above in the Redside Dace habitat regulation)
- ☐ The water management targets that need to be achieved in order to protect and rehabilitate the local subwatershed population including for example:
  - Stormwater management targets designed to help mitigate the impacts of development (i.e., impervious cover) on water balance
  - Recommended stream temperatures
  - Recommended water quality parameters (e.g., concentration of total suspended solids)
- ☐ Approaches to meeting targets, goals and objectives including for example:
  - Designating areas and low impact development approaches for stormwater management
  - Minimizing the number of stream crossings (i.e., bridges, culverts, etc.) and directing the location and design of these crossings
  - Identification of trail locations (i.e., proximity and impact on streams)
  - Identification of wetland and stream restoration areas
  - Direction for Erosion and Sediment Control Plans/Environmental Control Plans and the development of related bylaws (e.g., Topsoil bylaws to regulate/prohibit the removal of topsoil)
  - Location and design of infrastructure (e.g., watermains, pipelines, etc.)
  - Enhancement opportunities via the removal or mitigation of existing impacts on Redside Dace (e.g., barriers, online ponds, etc.)

See Section 4.2 Best Management Practices for specific sediment, temperature, water balance, water quality targets for Redside Dace, as well as preferred construction practices.

The following represent BMPs for stormwater management.

As described in the previous BMP Section regarding Construction Site Preparation, the discharge of water from urban development stormwater management facilities into Redside Dace habitat should not exceed 25 mg/l of total suspended solids (TSS) above the background stream level of total suspended solids. Should proponents be able to control stormwater without connection to Redside Dace habitat, they can avoid the need for a permit. However a permit would be required if direct connections are made between stormwater management ponds and Redside Dace habitats due to the potential for negative impacts (e.g., sediment release, increased water temperatures).

Discharge temperatures for stormwater management facilities connected to Redside Dace streams should be below 24°C and have dissolved oxygen concentrations of at least seven milligrams per litre. These thresholds represent the maximum (temperature) and preferred (oxygen) conditions for Redside Dace (MNR 2010a).

Post development water balance (i.e., the hydrological cycle of the water including the flow and levels of surface and ground water) should match predevelopment water balance in order to protect the natural hydrological functions of Redside Dace streams. Therefore, there should be no storm run-off from rainfall events in the range of 5 – 15mm (however, this may depend on the recommendations set forth in the subwatershed plan and on soil permeability).

To maximize the absorption of nutrients and other contaminants and prevent them from entering streams, stormwater management facilities adjacent to Redside Dace habitat should be designed as hybrid extended detention wetlands/wet ponds. These facilities are more effective than traditional ponds at removing pollutants harmful to Redside Dace including nitrates, phosphorous and copper.

The above objectives can be achieved by utilizing a low impact development strategy for stormwater management that treats stormwater as close to the source as possible and focuses on runoff prevention. This includes such measures as:

- Site design strategies to minimize runoff which involves:
  - conserving natural features that absorb rainfall (e.g., wetlands, stream buffers, forested

29.1 For the purpose of clause (a) of the definition of "habitat" in subsection 2 (1) of the Act, the following areas are prescribed as the habitat of redside dace:

1. Within the cities of Hamilton and Toronto, the counties of Bruce, Grey, Huron, Simcoe and Wellington, the regional municipalities of Durham, Halton, Peel and York, the Townships of St. Joseph, Jocelyn and Hilton, and the Village of Hilton Beach,

   i. any part of a stream or other watercourse that is being used by a redside dace,

   ii. any part of a stream or other watercourse that was used by a redside dace at any time during the previous 20 years and that provides suitable conditions for a redside dace to carry out its life processes,

   iii. the area encompassing the meander belt width of an area described in subparagraph i or ii,

   iv. the vegetated area or agricultural lands that are within 30 metres of an area described in subparagraph i, ii, and

   v. a stream, permanent or intermittent headwater drainage feature, groundwater discharge area or wetland that augments or maintains the baseflow, coarse sediment supply or surface water quality of a part of a stream or other watercourse described in subparagraph i or ii, provided the part of the stream or watercourse has an average bankfull width of 7.5 metres or less.

2. Within the City of Hamilton, counties of Bruce, Grey, Huron, Simcoe and Wellington and the regional municipalities of Durham, Halton, Peel and York,

   i. any part of a stream or other watercourse used by a redside dace at any time in the past that is located in the same or adjacent sub-watershed as the area identified in subparagraph 1 i or ii that provides suitable conditions for successful stream corridor rehabilitation and for natural recolonization of redside dace,

   ii. the area encompassing the meander belt width of an area described in subparagraph i,

   iii. the vegetated area or agricultural lands that are within 30 metres of an area described in subparagraph ii, and

   iv. a stream, permanent or intermittent headwater drainage feature, groundwater discharge area or wetland that augments or maintains the baseflow, coarse sediment supply or surface water quality of a part of a stream or other watercourse described in subparagraph i, provided the part of the stream or watercourse has an average bankfull width of 7.5 metres or less. O. Reg. 293/11, s. 6.

Silt Smart

Erosion and Sediment Control Effectiveness Monitoring and Rapid Response Protocol for Large Urban Development Sites

Version 1.2
March 2012


AREAS WE NEED TO:
PROTECT NATURAL HERITAGE SYSTEMS
DO A BETTER JOB OF CONTROLLING SOIL EROSION DURING CONSTRUCTION
DEVELOP BETTER METHODS OF PREVENTING URBAN STREAM SYNDROME
THANK YOU