

KAWARTHAS, NATURALLY CONNECTED

Working together to sustain our landscape

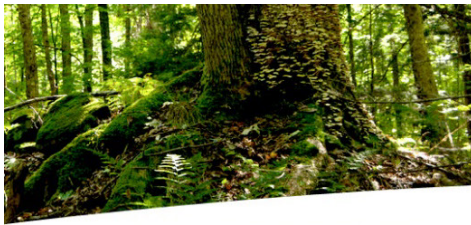
Natural Heritage System Planning in Peterborough and the Kawarthas

Kawarthas Naturally Connected

Friday, January 13, 2017

Natural Heritage Systems Planning Workshop
Peterborough, ON

Image: Kawartha Conservation

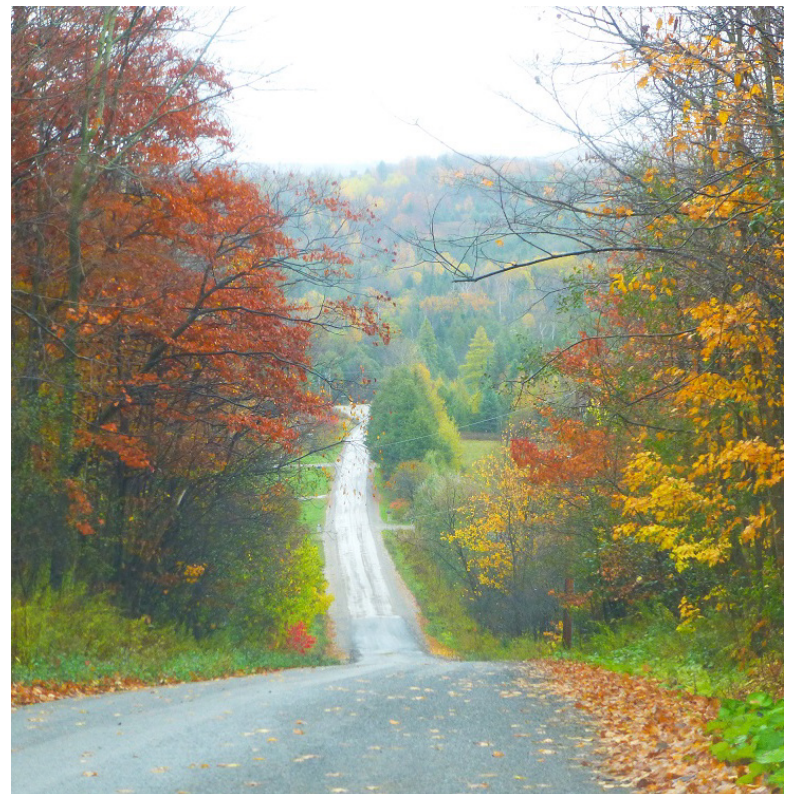


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Outline

- **Vision and Goals**
- **Natural Heritage Systems (NHS)**
- **Why Identify a NHS**
- **Creating a NHS (Design Process)**
- **Mapping Products & Tools**
- **Implementing the NHS**
- **Case Studies**



Ian Walker



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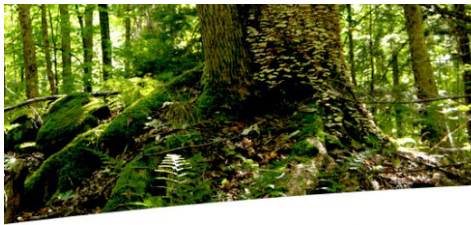
Our Vision and Goals

Vision: A landscape that supports the needs of people and nature in a way that preserves and enhances the unique character of the Kawarthas.

Goal: Engage the community to implement a connected system of natural areas that support or prioritize:

- Sustainable land use planning
- Resource management decision-making
- Strategic stewardship and restoration projects
- Conservation land purchases and/or acquisitions
- Inventory programs and research projects





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What is a Natural Heritage System?

“...a system made up of natural heritage features and areas, and linkages intended to provide connectivity...to maintain biological and geological diversity...can include lands that have been restored or have the potential to be restored...”

(Provincial Policy Statement (PPS) 2014)

- Maintains the health of the landscape and communities

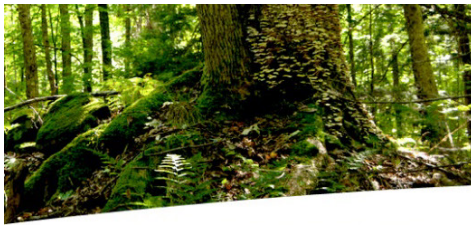
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Amanda Warren

Kawartha Conservation



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What are Natural Heritage Features?

- Significant wetlands
- Fish habitat
- Significant woodlands
- Significant valleylands
- Endangered/threatened species habitat
- Areas of Natural and Scientific Interest (ANSI)



Kawartha Conservation
Blanding's Turtle - Joe Crowley

Kawartha Conservation



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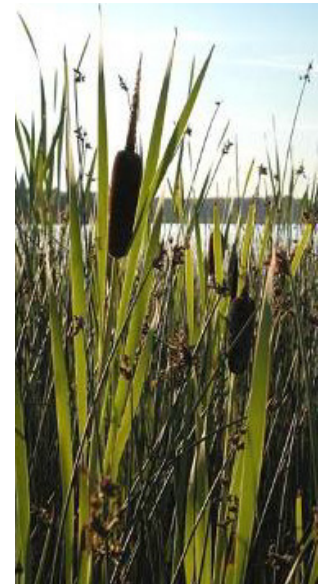
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Why Identify a Natural Heritage System?

Some of the many benefits provided by healthy natural areas include:

- Maintaining good air and water quality
- Supporting the health of humans and our communities
- Providing habitat for Ontario's native species
- Preventing soil erosion
- Reducing flooding
- Providing pollination of crops
- Reducing the effects of climate change
- Production of medicines, biofuels and forest products
- Providing recreational opportunities

Individual natural areas are healthiest when they are connected to other natural areas – when they are part of a “system”.





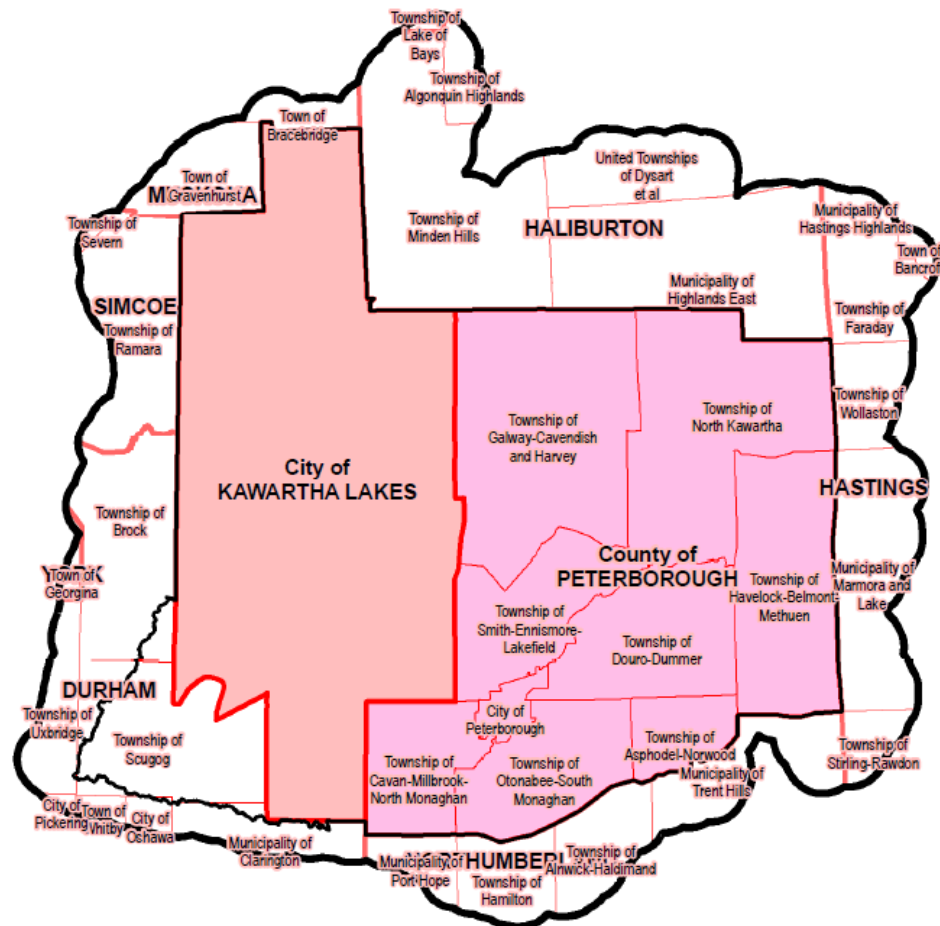
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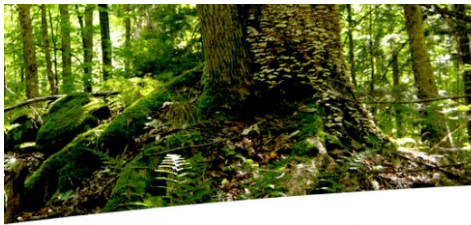
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The Project Area

The core area of interest includes:

- City of Kawartha Lakes
- City of Peterborough
- Eight (8) lower tier municipalities in Peterborough County
- Conservation Authorities:
 - Otonabee Conservation
 - Kawartha Conservation
- 33 quaternary watersheds
- A 5 kilometre buffer zone





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The Partners Involved



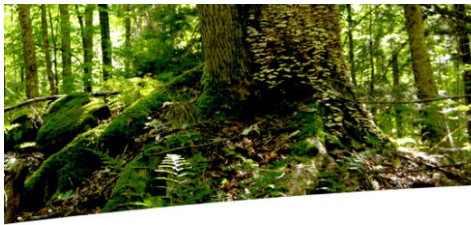
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Ontario



Ducks Unlimited Canada
Conserving Canada's Wetlands



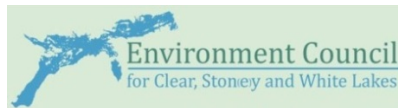
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Stakeholders Include:



Havelock-Belmont-Methuen Lake Association
Victoria Land & Water Stewardship Council
Kawartha Lakes Stewards Association
Jack's Lake Cottagers Association



An agency of the Government of Ontario





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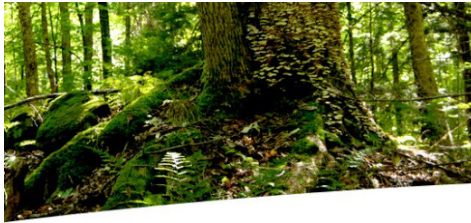
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Creation of the Natural Heritage System

Objective: To design a natural heritage system made up of connected areas that will help to maintain our ecological, social, and economic values.

- Process involved different viewpoints of various stakeholders
- Stakeholders identified important natural heritage features & set targets
- Computer modelling software (Marxan) identified most effective arrangements of natural areas
- Various options explored based on different targets
- Process can be repeated or adjusted as stakeholder input changes

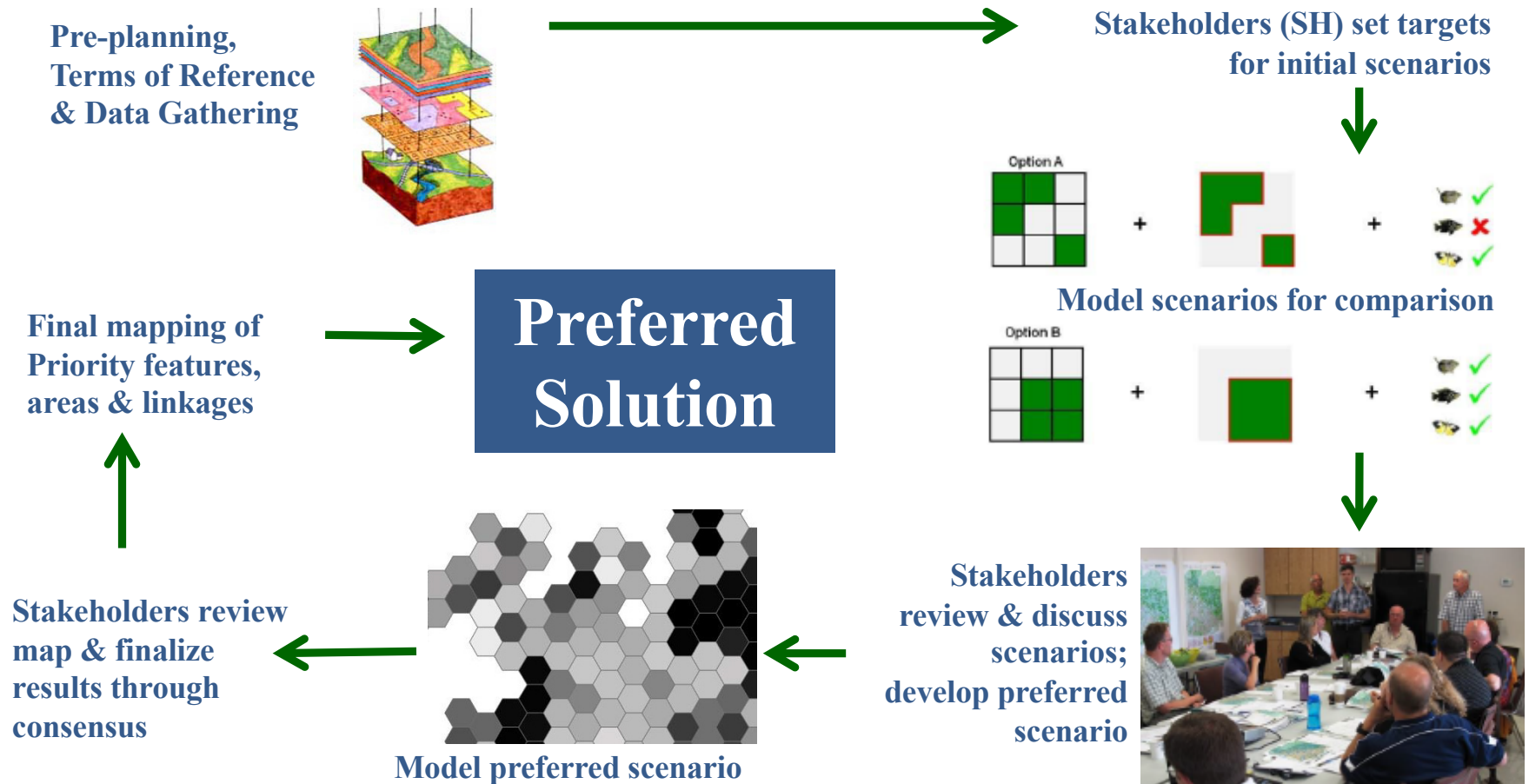




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NHS Design Process



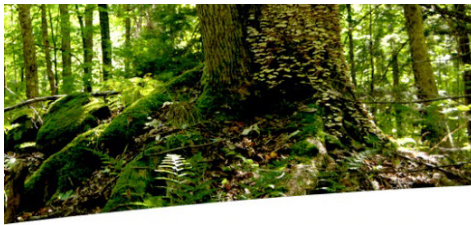


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The Science of Marxan

- Decision-support tool to support conservation planning
- Stakeholder consensus & informed scientific/expert knowledge
- Mapped Features with assoc. conservation targets (e.g., wetlands, forests, habitat, cultural features) are inputs
- Landscape divided into 5-hectare hexagonal 'land units' (LUs)
- Multiple scenarios generated and considered by stakeholders
- Scenario outcomes based on millions of possible LU combinations
- Preferred Solution chosen by stakeholder consensus to best achieve environmental, social & economic conservation plan objectives

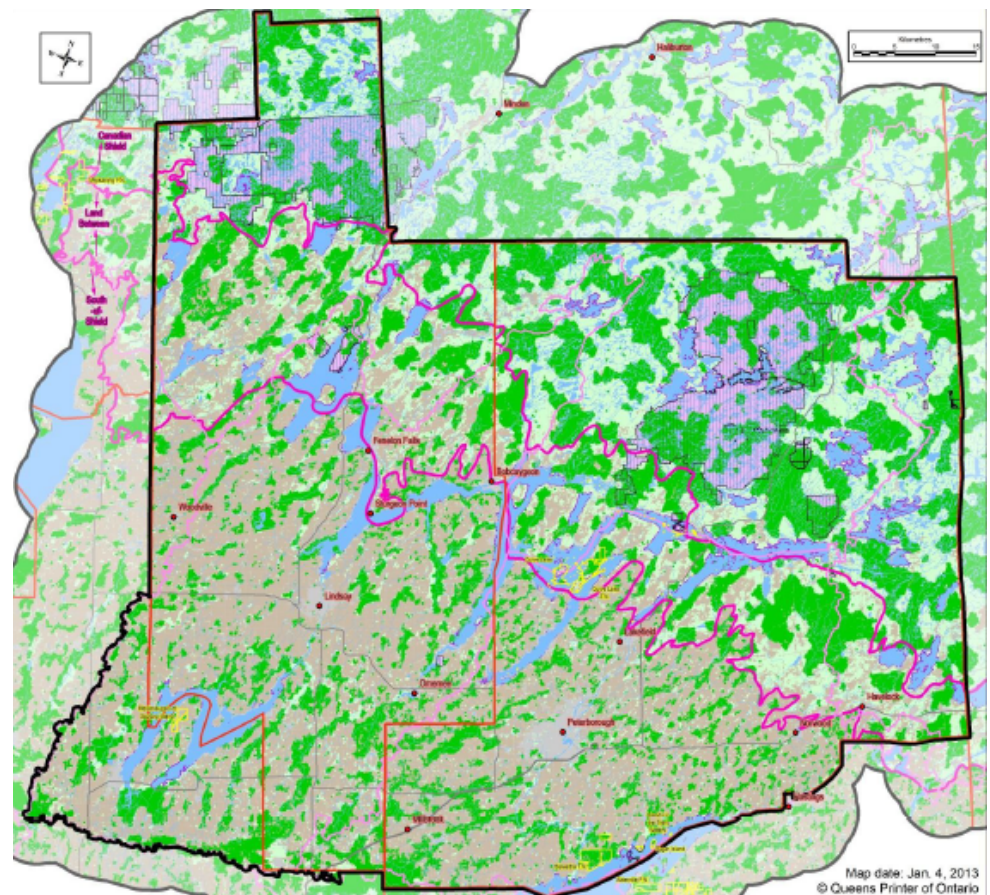


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The Preferred Solution

- Comprised of 3 zones:
 - Canadian Shield
 - The Land Between
 - South-of-Shield
- Targets % existing features:
 - Landscape features
 - Biodiversity representation
 - Unique character features
 - Wild rice stands
 - Known rare habitat features
 - Riparian zone on lakes > 200 ha

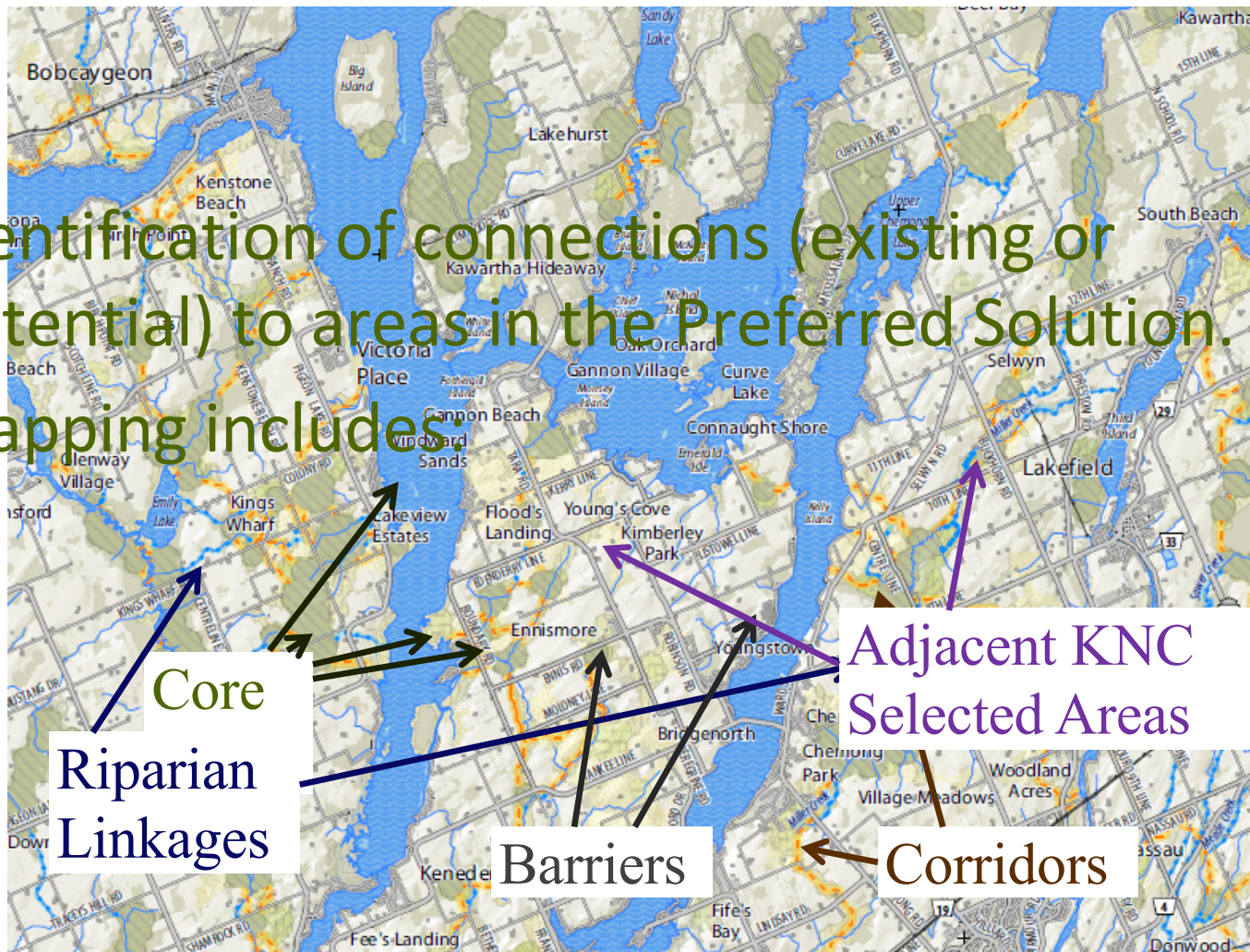




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- Identification of connections (existing or potential) to areas in the Preferred Solution.
- Mapping includes:





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Where to Find NHS Products

The screenshot shows a web browser window with the URL www.kawarthasnaturally.ca/resources/. The browser's address bar and tabs are visible at the top. The website's navigation menu includes links for HOME, ABOUT THE PROJECT, PROJECT AREA, RESOURCES, and CONTACT. Below the navigation menu is a banner featuring four images: a forest, a lake, children on a dock, and a farm. The banner text reads "KAWARTHAS, NATURALLY CONNECTED" and "Working together to sustain our landscape".

Resources

Kawarthas, Naturally Connected Reports and Maps

Phase 1 Project Report
[Download PDF, 6.2 MB](#)

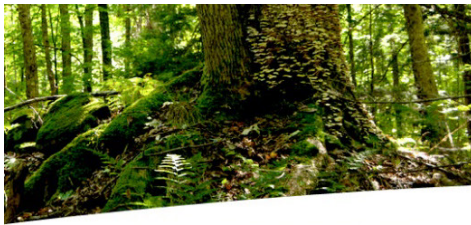
The following three maps represent the central mapping outcomes of Phase 1 of the KNC project.

The Preferred Solution is the final map product. The other two maps – **The Preferred Sum Solution** and the **Combined Feature Sum Solution** – represent the mapping data

STEPS TO CREATING NATURAL HERITAGE SYSTEM

[Click here to view the steps](#)

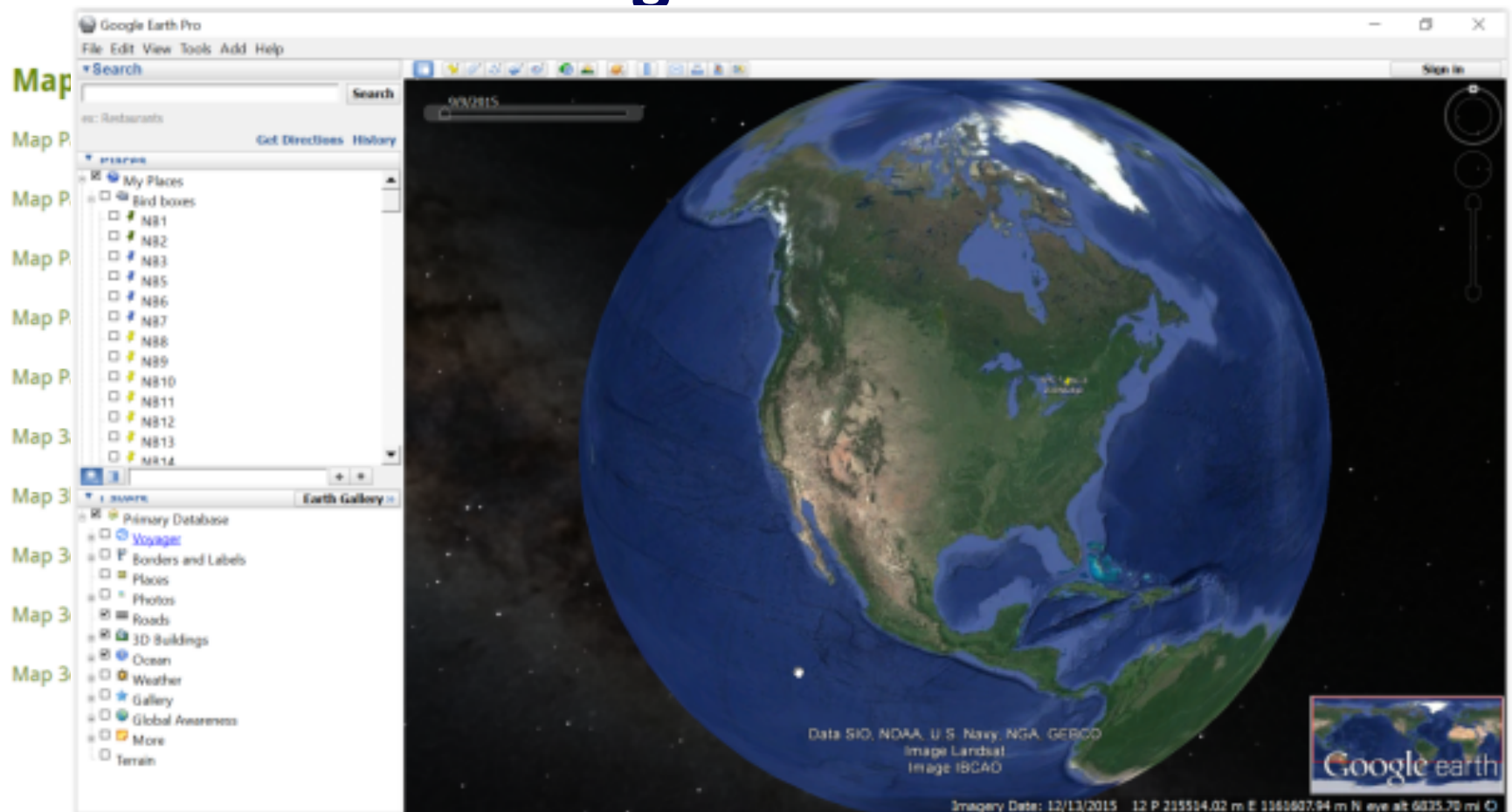
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graph TD
    1[1. Identify the project area and its boundaries] --> 2[2. Conduct a field survey to collect data on natural resources]
    2 --> 3[3. Develop a map of the project area showing natural resources]
    3 --> 4[4. Develop a map of the project area showing natural resources]
    4 --> 5[5. Develop a map of the project area showing natural resources]
    5 --> 6[6. Develop a map of the project area showing natural resources]
    6 --> 7[7. Develop a map of the project area showing natural resources]
    7 --> 8[8. Develop a map of the project area showing natural resources]
    8 --> 9[9. Develop a map of the project area showing natural resources]
    9 --> 1[1. Identify the project area and its boundaries]
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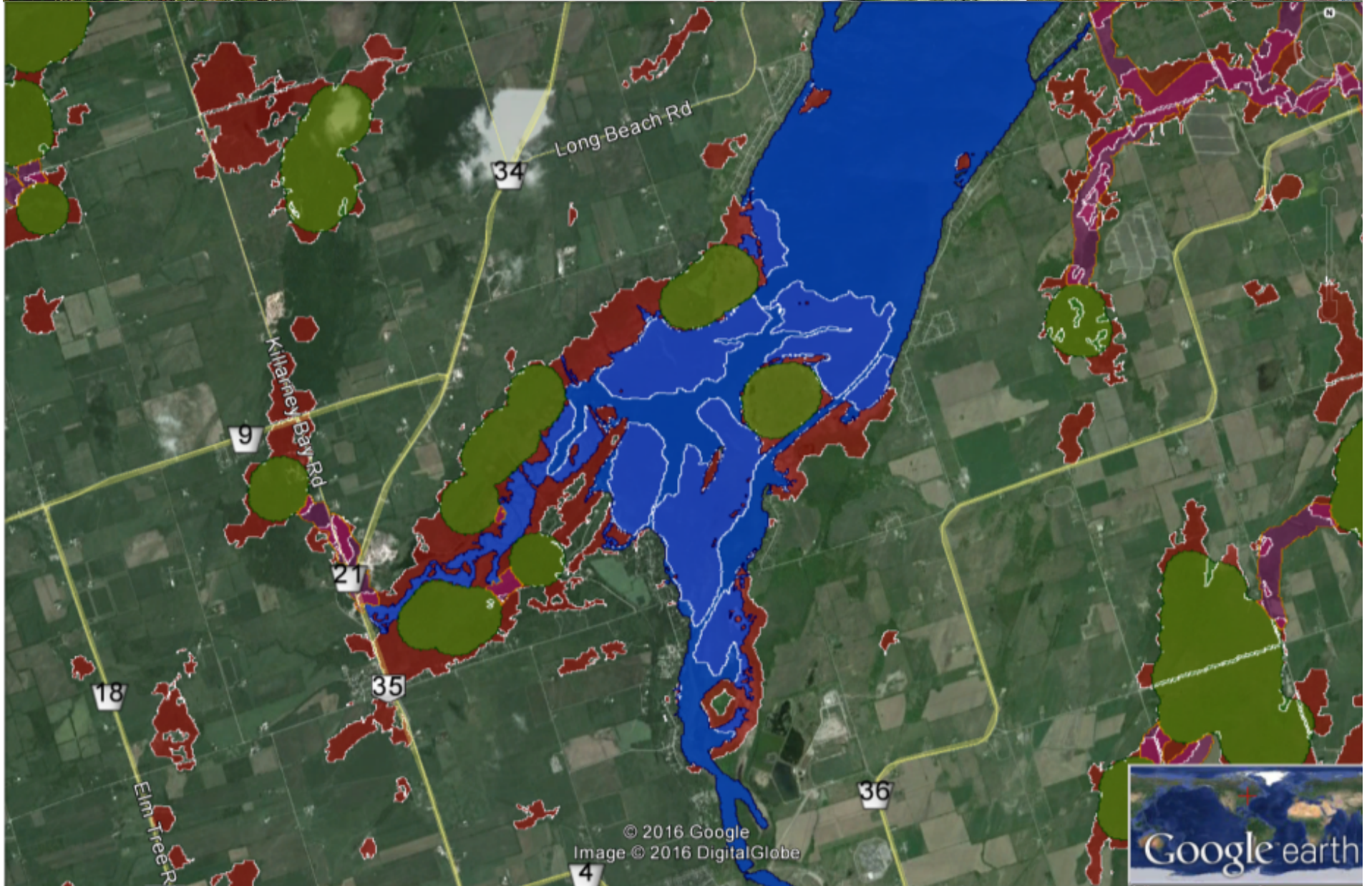
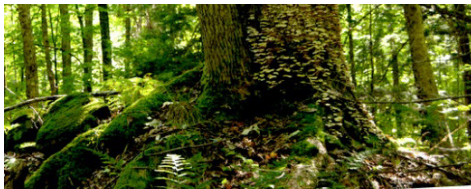


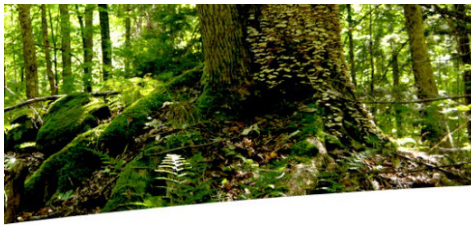
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Google Earth







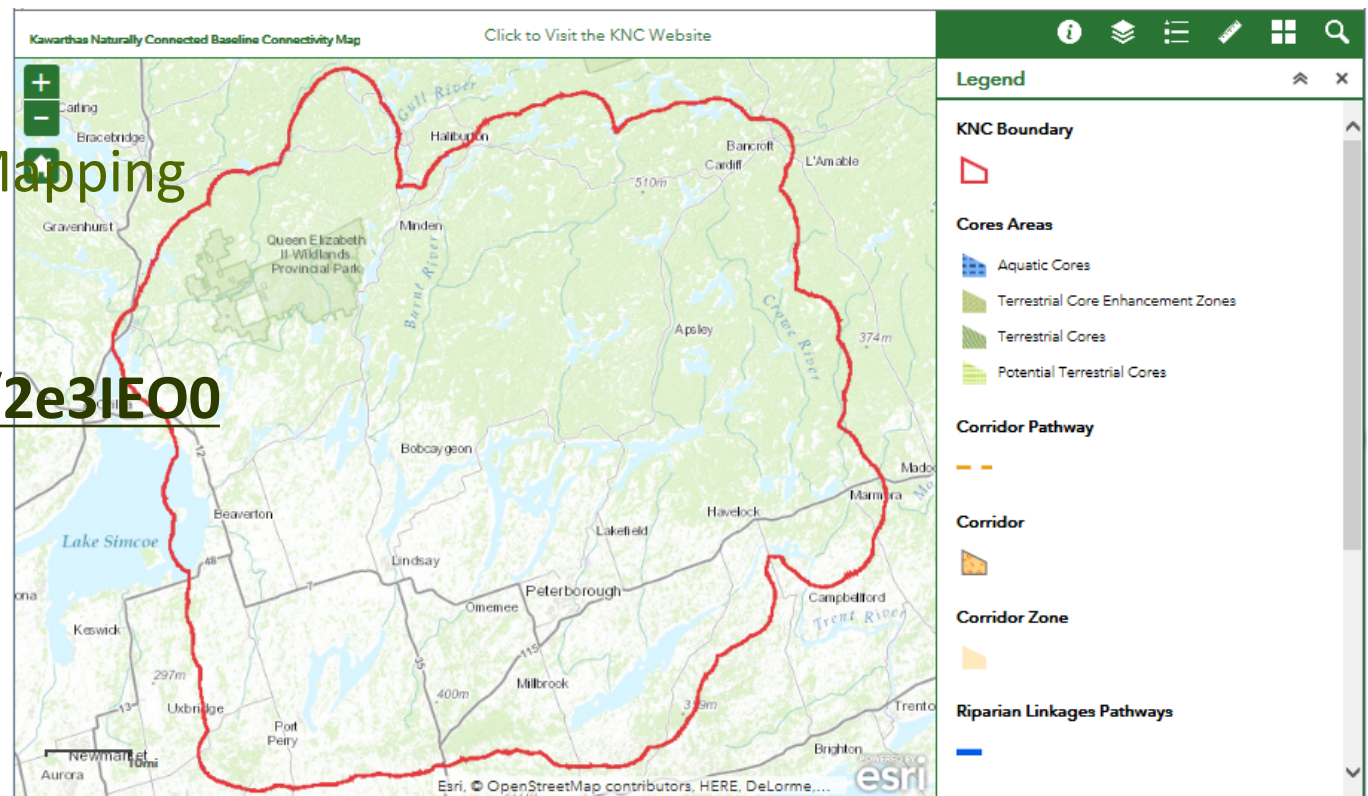
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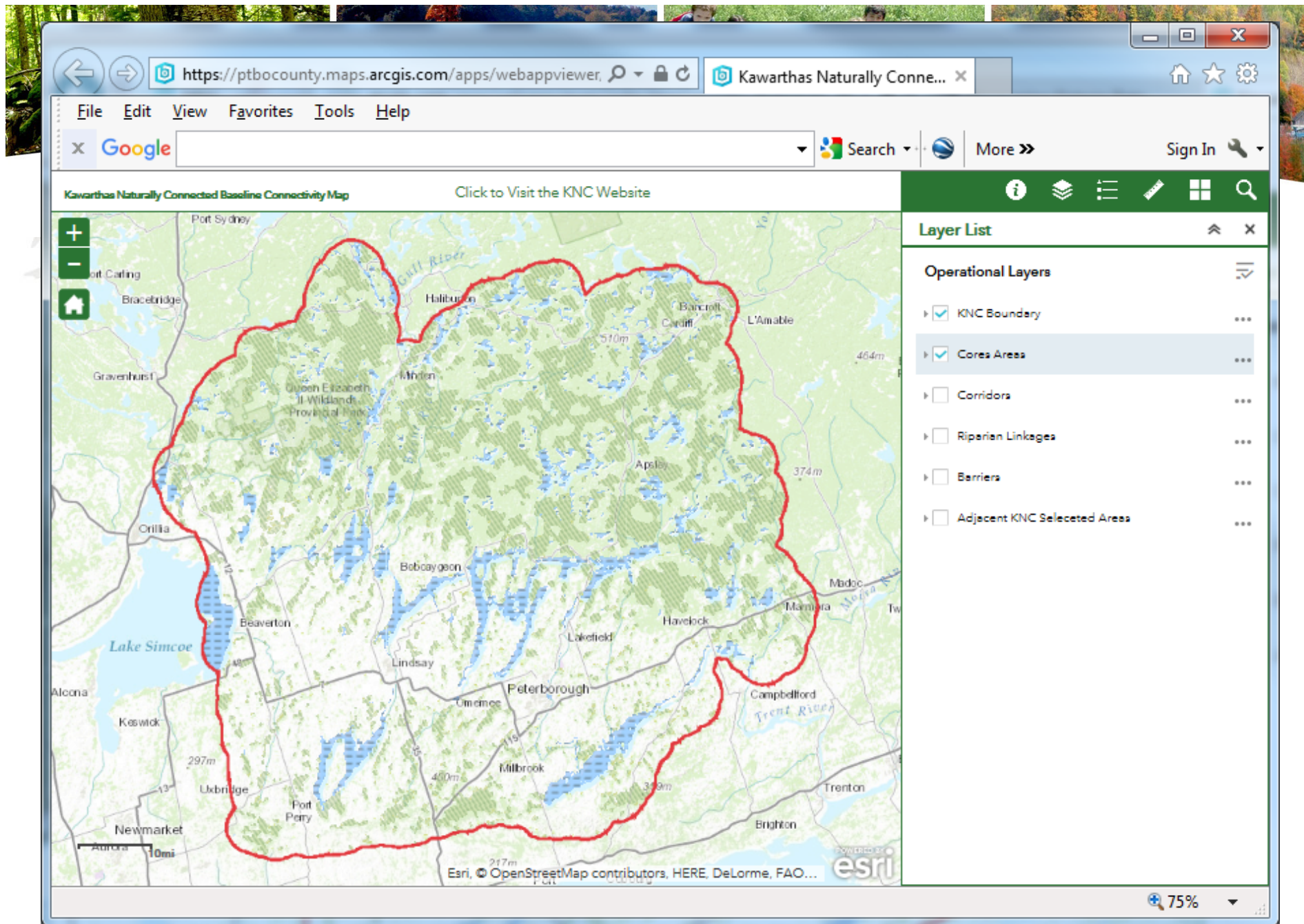
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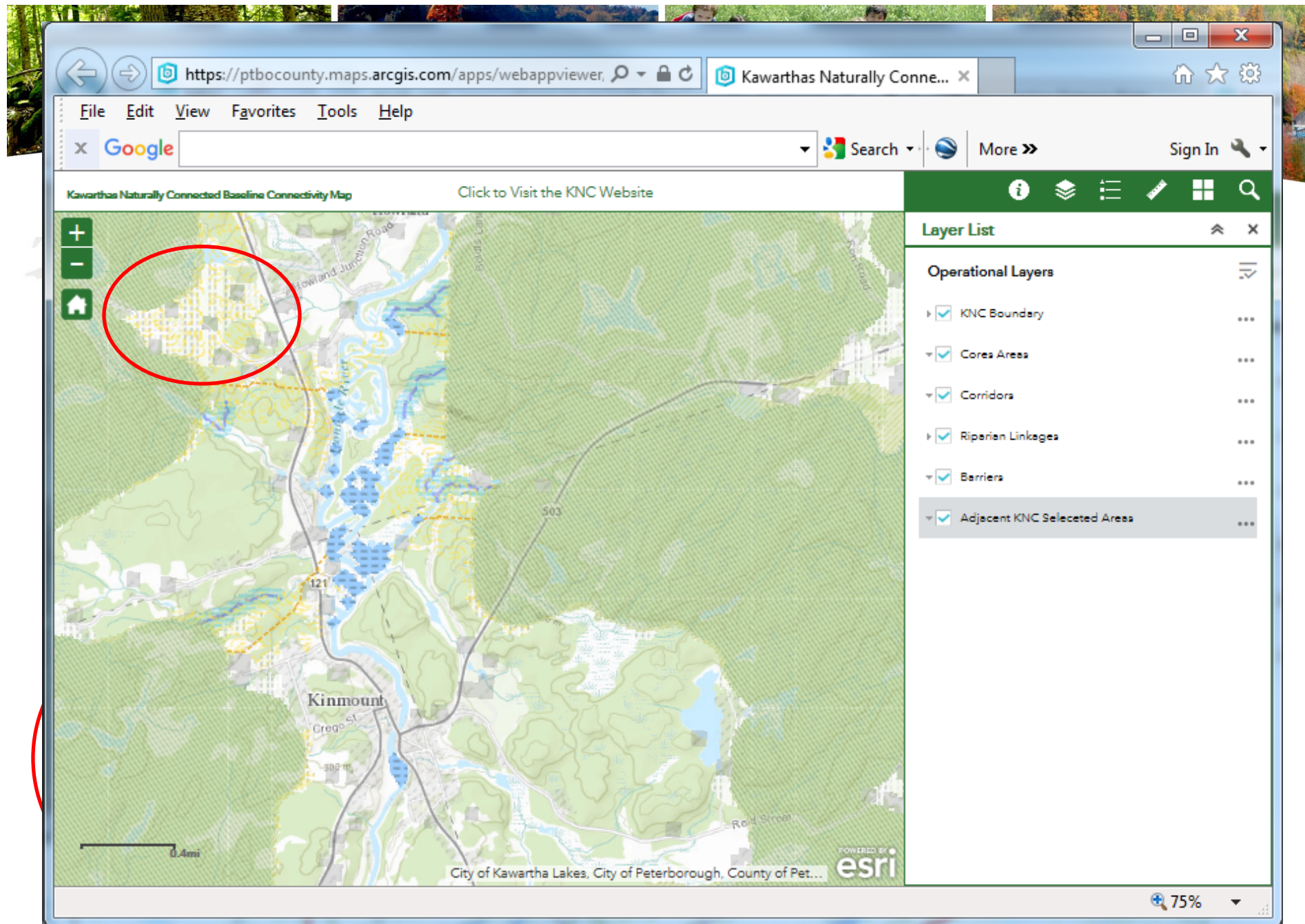
ArcGIS Online

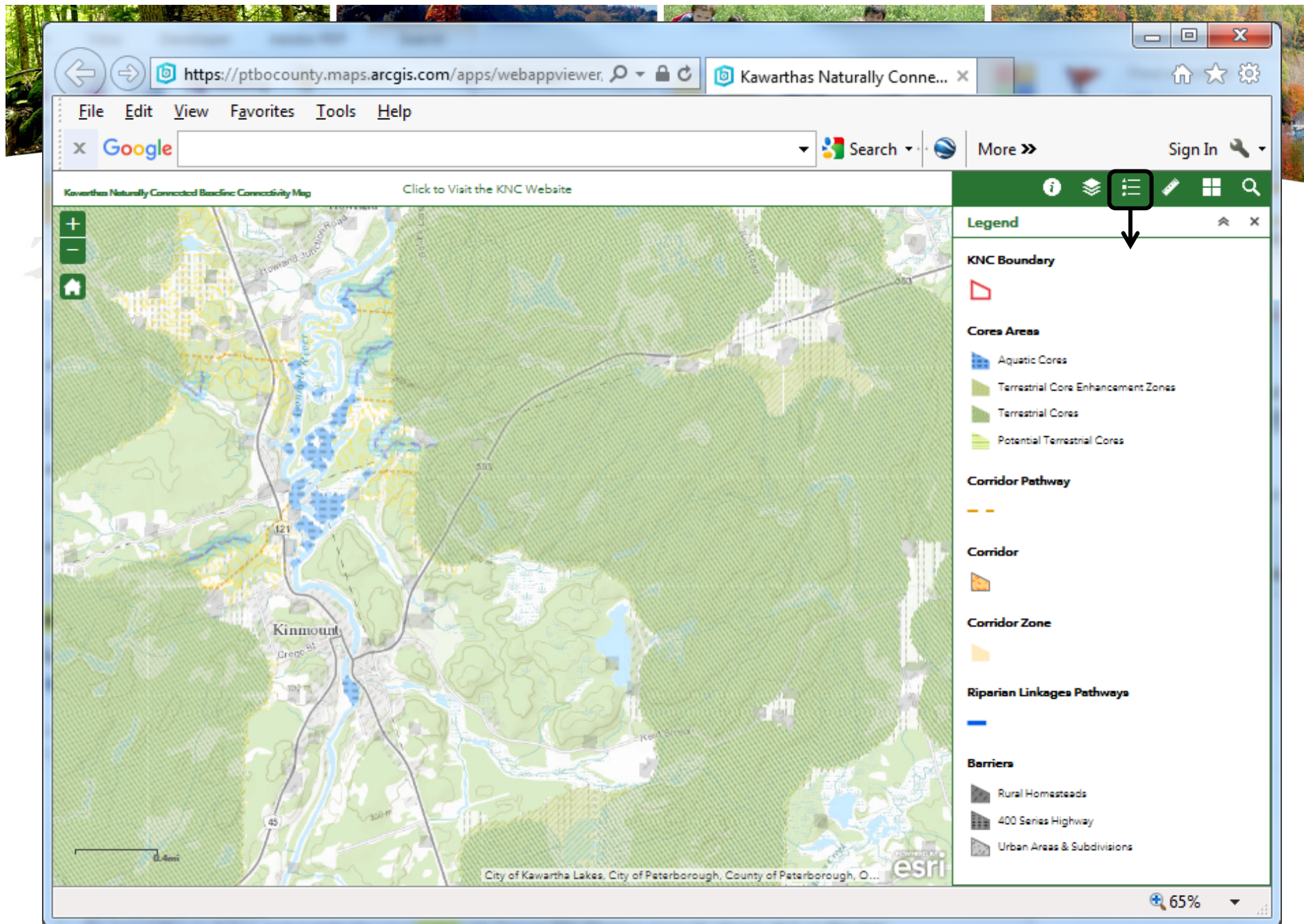
- Interactive,
ArcGIS Online
Connectivity Mapping
tool

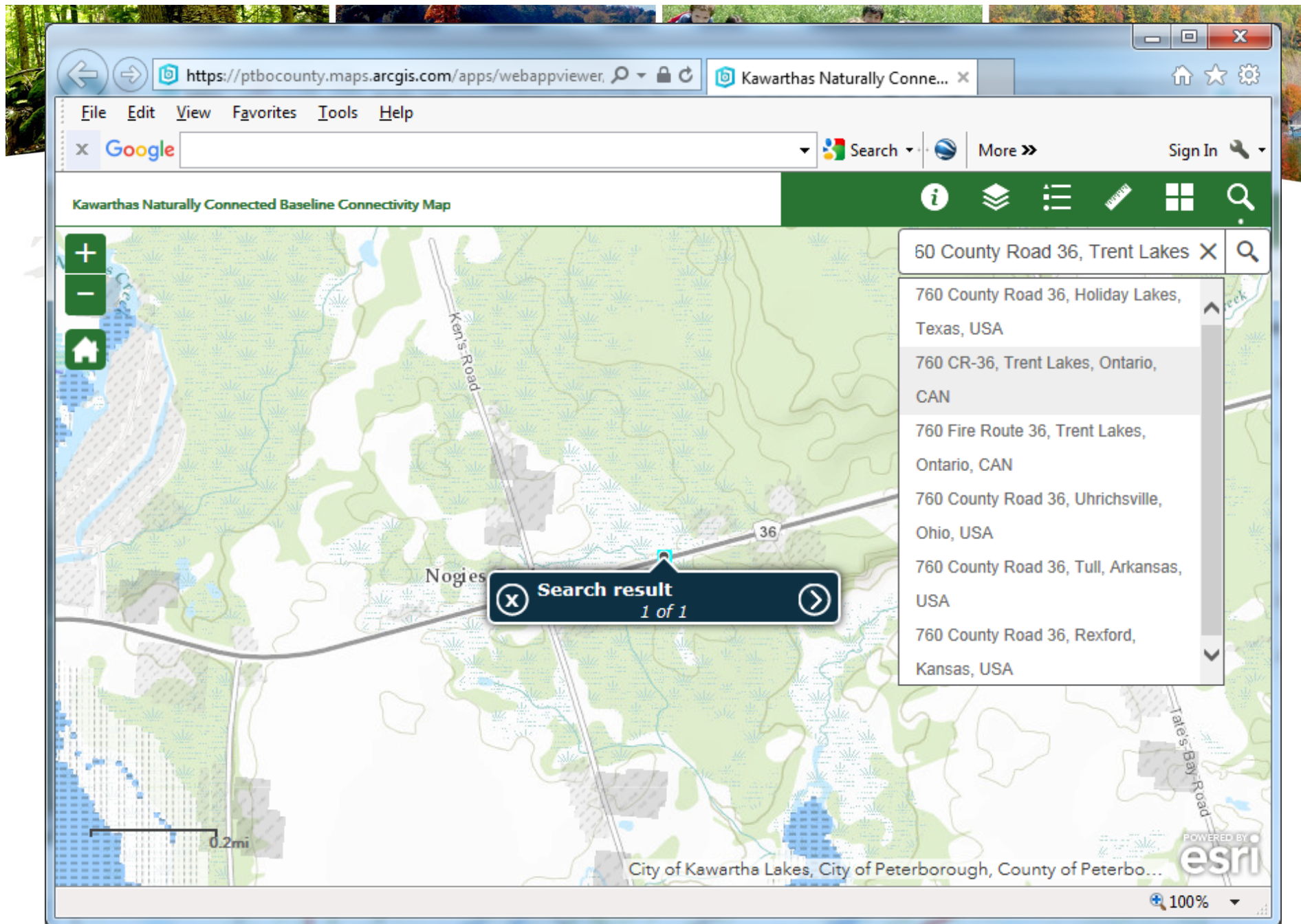
<http://arcg.is/2e3IE00>











Browser window showing the Kawarthas Naturally Connected Baseline Connectivity Map application.

URL: <https://ptbocounty.maps.arcgis.com/apps/webappviewer/ir>

Page Title: Kawarthas Naturally Connected Baseline Connectivity Map

Map View: Satellite imagery with a yellow connectivity overlay. A green location pin is visible on the map.

Measurement Panel:

- Measurement Result
- Latitude: 44.695956
- Longitude: -78.34767

Scale: 100%

A red box highlights the 'Measure' button in the top right corner of the map interface, with a red arrow pointing down to the 'Measurement Result' section.



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Data Layers

NHS products are available in several formats to support your decision-making needs:

- A package of compiled information and spatial data layers (mapping) available under Open Data license from Land Information Ontario (LIO)

<http://bit.ly/2dNpTRm>

Ontario
Metadata Management Tool > Home | Contact LIO | Links | About | Help |

Powered by Land Information Ontario

English | Username | Password | Login

WHAT? WHERE?

Map of Ontario with search filters: - Any -

Reset Advanced Options Search

Application
GIS Data
Geology Ontario
Land Information Ontario (LIO) Warehouse
Maps
Municipal Planning Provincial Portal (MP3)
Non-Commercial Use
Ontario Imagery
Open Data
Public Web Services
Weather and Water Information Gateway (WWIG)
Web Enabled Services

GeoRSS
Ontario Trail Network Trailhead

DISCOVERING ONTARIO DATA

Identification info

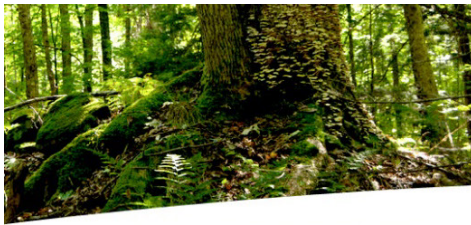
Title: Kawartha Naturally Connected 2012
Alternate title: Natural Heritage System Kawartha Project
Date: 2012-11-27
Date type: Publication: Date identifies when the resource was issued

Cited responsible party

Individual name	Kazia Milian	Voice	(705) 755-3239
Organisation name	Ministry of Natural Resources, Southern Region Planning Unit	Facsimile	(705) 755-3292
Position name	Planning Coordinator	Delivery point	300 Water Street
Role	Point of contact: Party who can be contacted for acquiring knowledge about or acquisition of the resource	City	Peterborough
		Administrative area	ON
		Postal code	K9J8M5
		Country	Canada
		Electronic mail address	kazia.milian@ontario.ca

Abstract

Natural Heritage Systems design is the process of identifying critical areas on our landscape which serve as a landscape backbone a set of natural areas and linkages that are important to maintain the health of the landscape. The mapping of and information about this backbone is useful to support land use planning, stewardship, restoration activities, the conservation of biodiversity.



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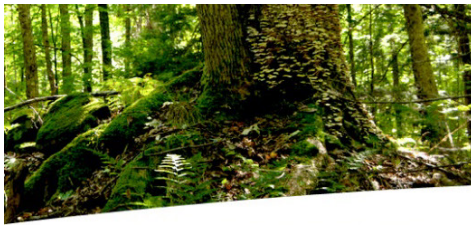
Using NHS Products

Mapping & reports can be used as decision-making support tools for the following :

- Sustainable land use planning
- Priorities for strategic stewardship and restoration projects
- Resources management decision-making
- Identifying areas for conservation land acquisitions
- Outlining priorities for inventory programs and research projects



Kawartha Conservation

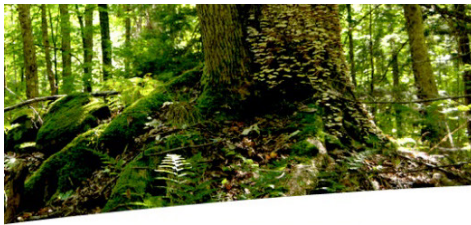


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Implementing the NHS

- Respect for private landowners' rights is a key principle
- NHS to be implemented by a diverse range of stakeholders through:
 - Municipal land-use planning (Official Plans, Secondary Plans, etc.)
 - Acquisition of environmentally sensitive properties by land trusts, Conservation Authorities, municipalities, and the Province
 - Stewardship projects on private and public lands to restore natural vegetation and other natural features
 - Education by a wide range of groups, schools, colleges, and universities
 - Integration with various strategic plans



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Implementation: Provincial

- The 2014 Provincial Policy Statement supports the implementation of the NHS:
 - Section 2.1.2 – “The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features.”



Image: Amanda Warren



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Implementation: Southern Ontario

- The 2014 Provincial Policy Statement supports the implementation of the NHS:
 - Section 2.1.3 –
 “Natural heritage systems shall be identified in Ecoregions 6E & 7E, recognizing that natural heritage systems will vary in size and form in settlement areas, rural areas, & prime agricultural areas.”

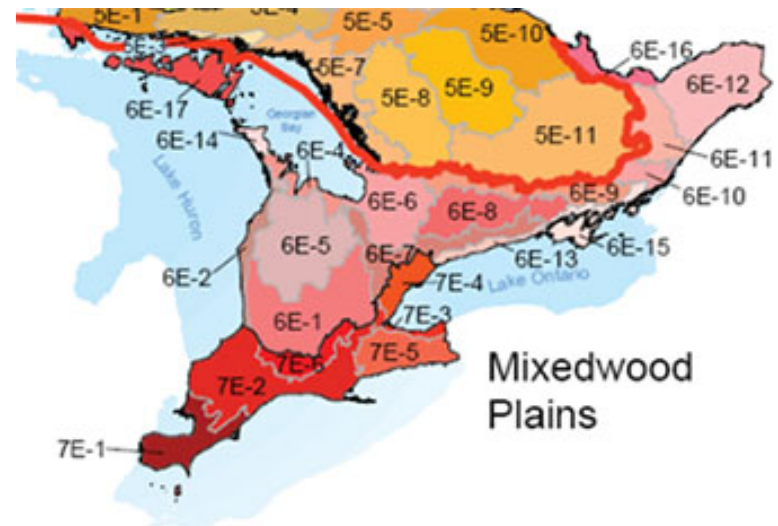


Image Source: Crins, W.J., Gray, P.A., Uhlig, P.W.C., Wester, M.C. 2009. "Ecosystems of Ontario, Part 1: Ecozones and Ecoregions"



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Implementation: Municipalities

- Planning objectives support healthy, sustainable ecosystems by identifying:
 - Natural heritage feature locations
 - Priority sites for feature restoration or creation
- Diverse interests engaged in NHS development increases the legitimacy and usefulness of the final products.
- Ongoing involvement of diverse stakeholder groups through implementation phase of KNC



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Implementation: Municipalities

Municipalities help implement the NHS by:

- Aligning Official Plans with the objectives of the NHS
- Encouraging land-use activities that are consistent with the NHS
- Developing stewardship programs that target key NHS areas
- Protecting natural areas on municipal properties
- Naturalizing/enhancing municipal properties within the NHS
- Providing public education and communication about the NHS

Image: Penn State





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Case Study: City of Kawartha Lakes

- City of Kawartha Lakes commencing 5 year review of Official Plan in 2017
- City consists of large rural land base with 5 urban areas
- Many background studies and Public Meetings will inform this review
- Need to complete updates consistent with 2014 Provincial Policy Statement and incorporate proposed 2016 Growth Plan and Oak Ridges Moraine Conservation Plan updates
- City will undertake an updated review of its rural land base
- Natural Heritage System as prepared through KNC will inform a large component of the City's land use review
- NHS will work together with other reviews currently being conducted by other agencies

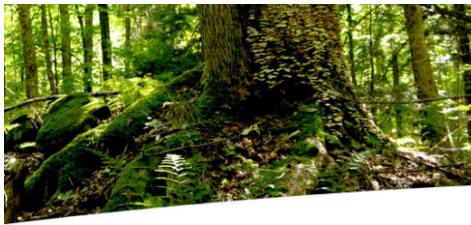


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Case Study: City of Kawartha Lakes

- KRCA is undertaking lake management planning and floodplain mapping for various river systems for the City
- City will update Source Water Protection policies
- A portion of the City is subject to the Lake Simcoe Protection Plan – need further policy update for conformity
- Proposed 2016 Growth Plan policies suggest that the Province will complete a NHS strategy for the Greater Golden Horseshoe
- Natural Heritage System would likely be shown as a series of development constraints mapping for features with policies
- Will be integrated with other features and land use considerations



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Implementation: Conservation Authorities

Conservation Authorities help implement the NHS by:

- Considering various, identified natural heritage features needed to support a healthy, sustainable ecosystem
- Using it as a tool to prioritize stewardship activities
- Using it as a criteria for evaluating potential land acquisitions

Image: Kawartha Conservation





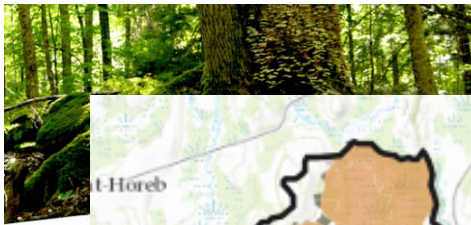
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Implementation: Conservation Authorities

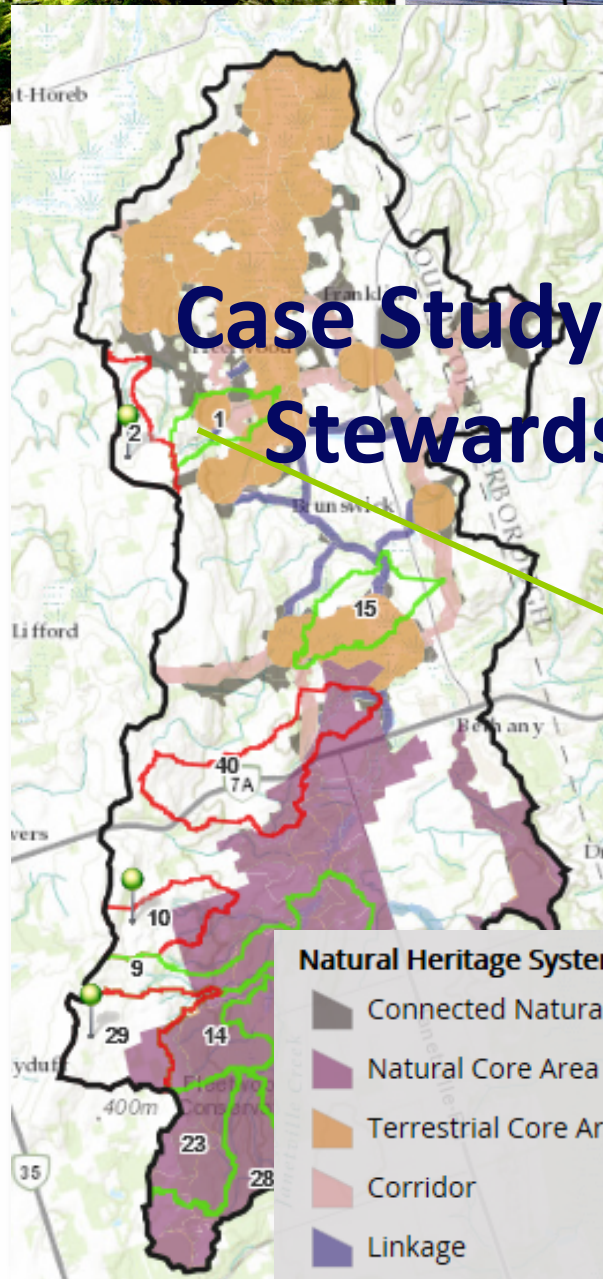
Conservation Authorities help implement the NHS by:

- Planning and regulation policies & other strategic documents
- Targeting stewardship activities within the NHS
- Including lands within the NHS among criteria for land acquisition
- Providing public education and communication about the NHS
- Working with municipal partners to implement naturalization projects on municipal and private lands
- Securing grants for various projects



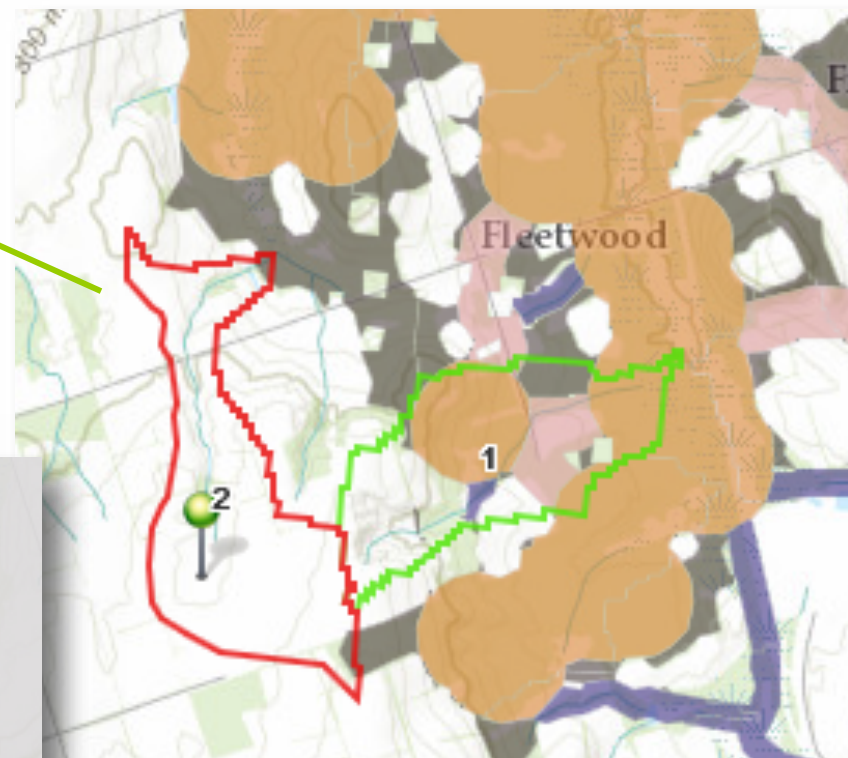
NATURALLY CONNECTED
Landscape

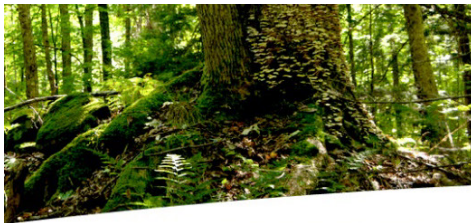
Case Study: Kawartha Conservation Stewardship Prioritization Tool



Natural Heritage System Features

- Connected Natural Heritage Feature
- Natural Core Area
- Terrestrial Core Area
- Corridor
- Linkage
- Natural Linkage Area



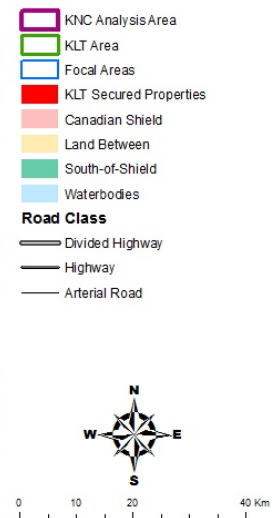
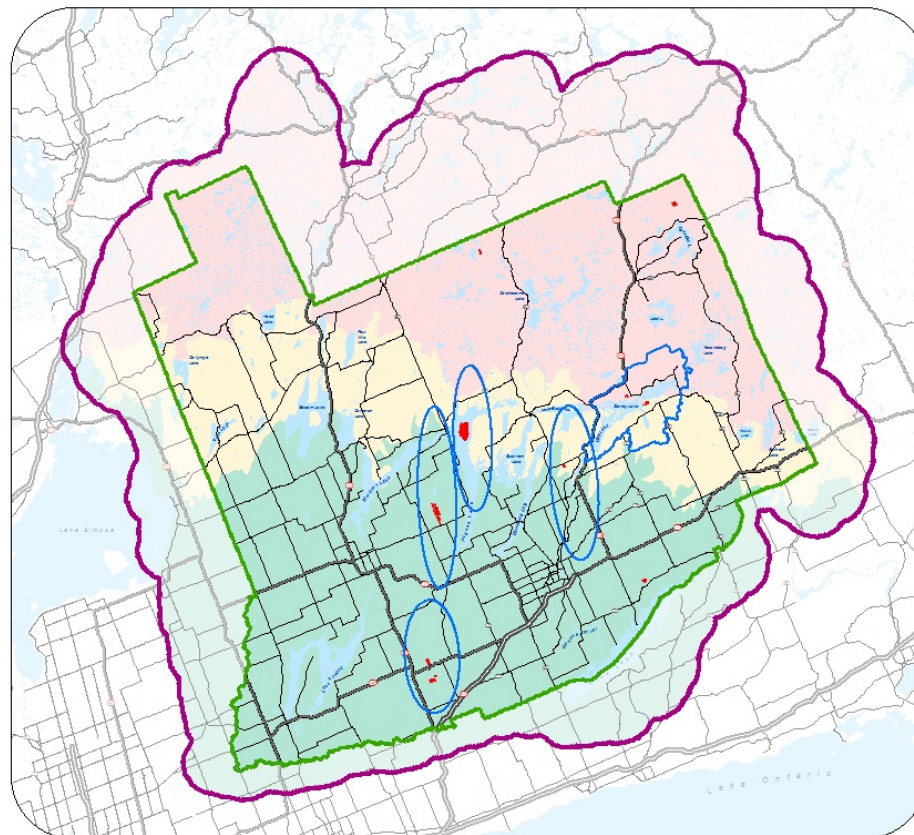


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Case Study: Kawartha Land Trust

KLT Funnel Approach - Focal Areas



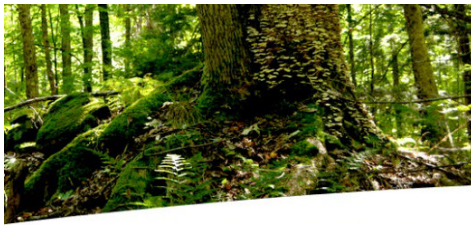
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Peterborough, ON K9J 7Y8
705.743.5599, info@kawarthalandtrust.org

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Ministry of Natural
Resources and Natural Resources Canada.

This map is illustrative only. Do not rely on it as
being a precise indicator of privately-owned land,
routes, locations of features, nor as a guide to
navigation. This is not a plan of survey.



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Protecting 100 years of nature



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Implementation: Private Landowners

- How existing natural features on your property contribute to the ecological health of the region
- Opportunities to enhance the ecological value of your property
- Protecting or enhancing natural features on your property helps contribute to the health and prosperity of your community!



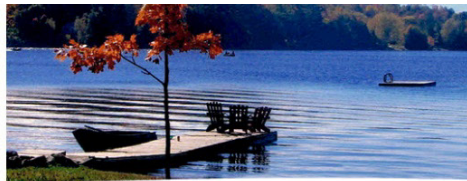
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Implementation: Private Landowners

Private landowners can help implement the NHS by:

- Undertaking stewardship projects on their properties (e.g. tree planting, native grass species planting, wetland restoration, habitat enhancement - e.g. duck nest boxes, hibernaculum areas, fish habitat/spawning areas)
- Encouraging neighbours to undertake stewardship projects
- Promote sustainable development/construction practices



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Questions?

