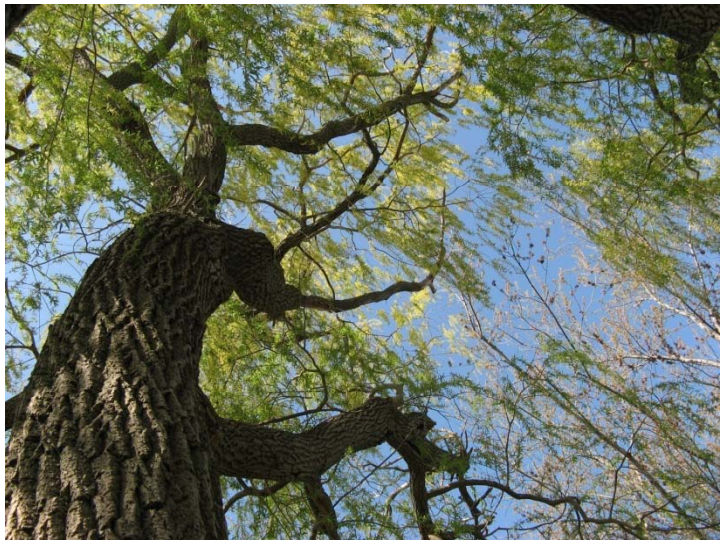
MIDDLESEX NATURAL HERITAGE SYSTEMS STUDY

EEPAC
September 18, 2014

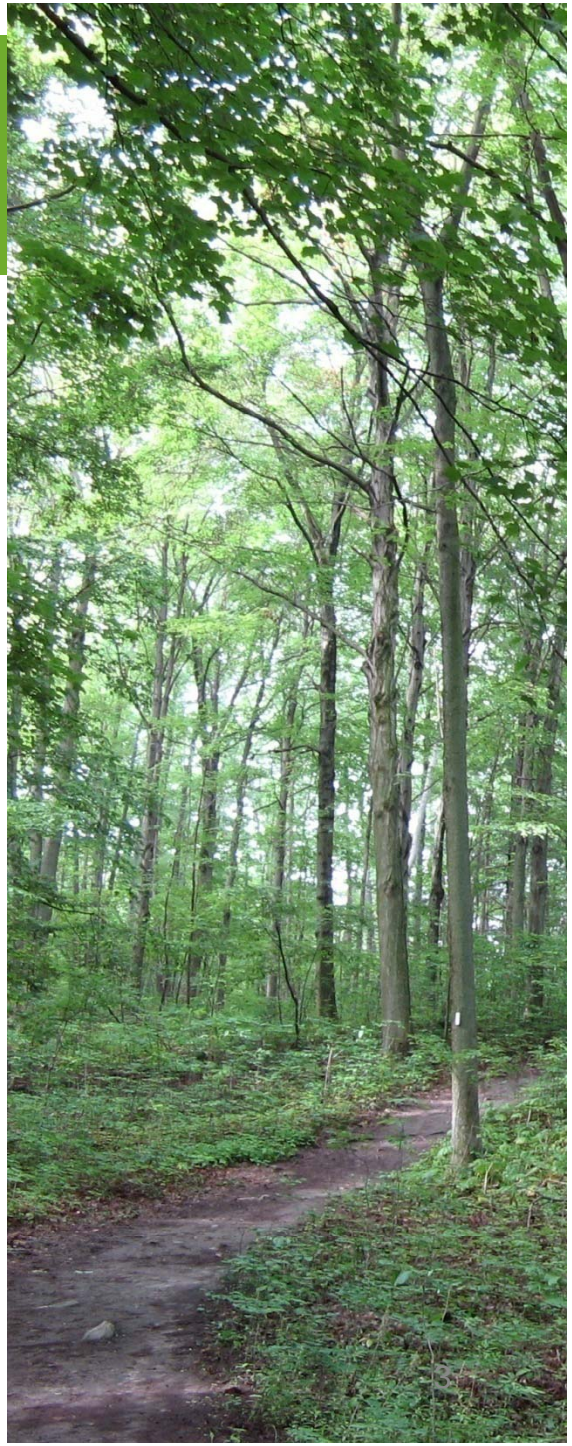


OUTLINE

- Original MNHS (2003)
- Need for an Update
- Project Methodology
- Findings
- Recommendations/Implementation
- Next Steps
- Questions and Discussion

MNHS (2003) Highlights

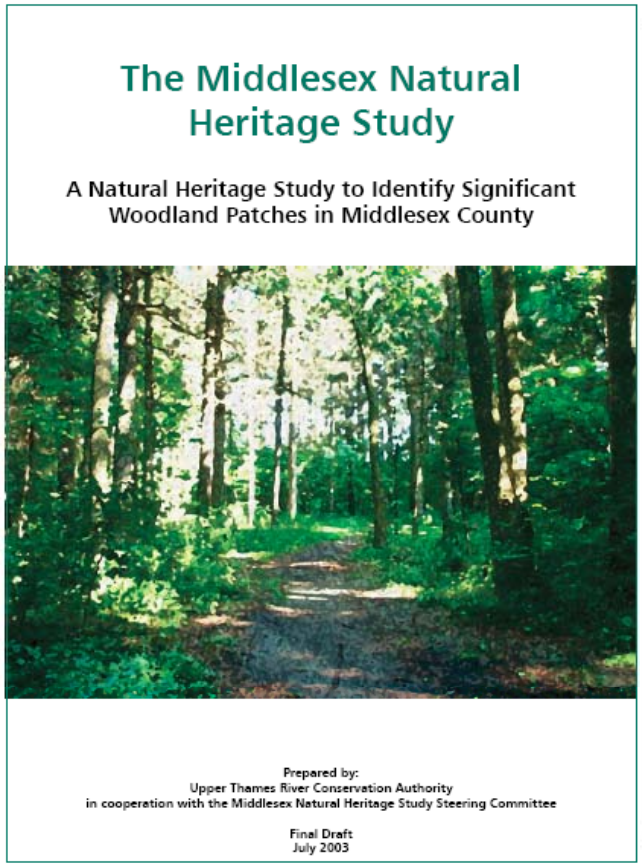
- Limited Natural Heritage information and what was available was outdated, inaccurate and inconsistent
- County Project lead by the Conservation Authorities with multiple other partners
- Focused on identifying “significant” woodlands
- Final Report included science methodology and mapping



MNHS (2003) Highlights

- Landscape study – approx. 8,200 woodland patches in the Study Area
- Complimented by some inventory data:
  - new sites in the County
  - Used subwatershed study sites for the City
- Met the PPS definition of “significant woodlands” for planning purposes

MNHS (2003)



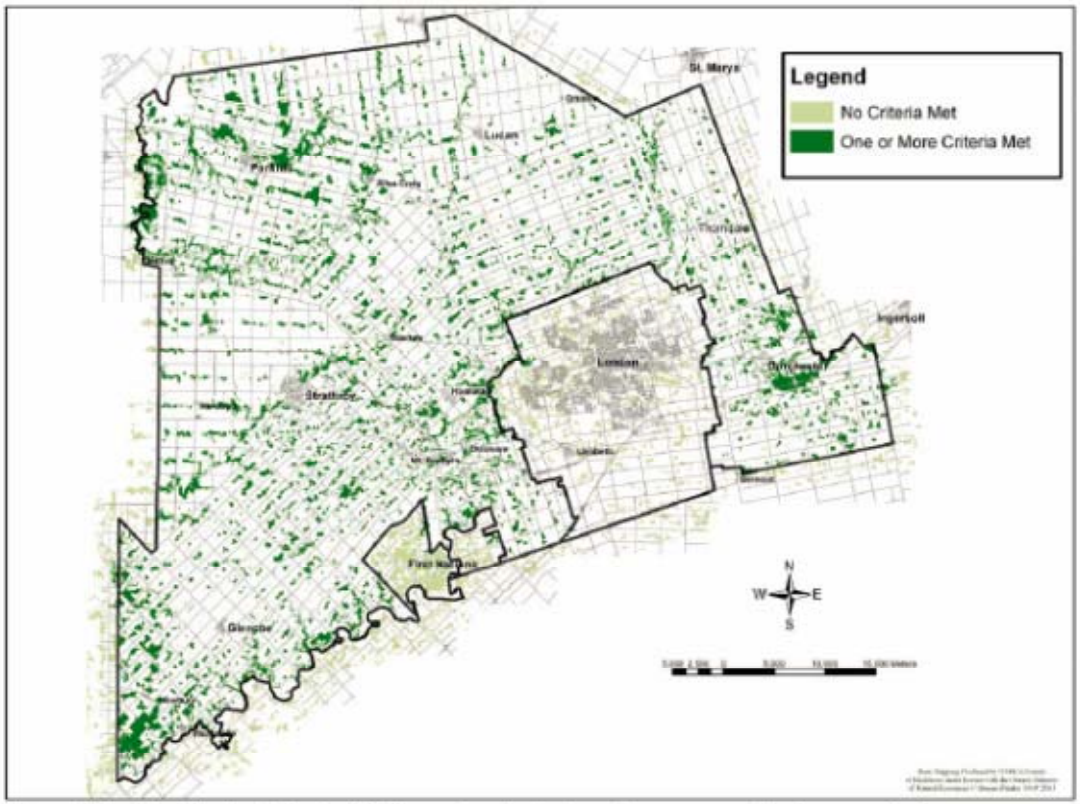
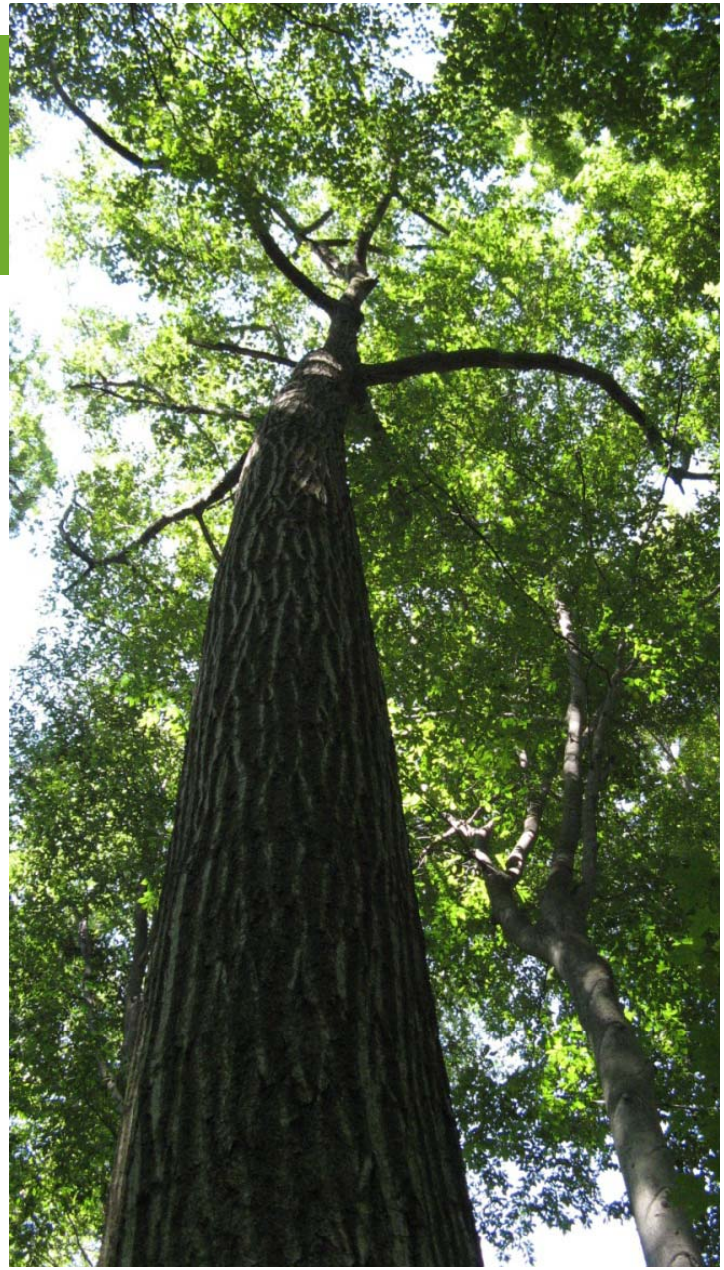


Figure 27. Woodland patches in Middlesex County that meet one or more landscape criteria.

http://www.thamesriver.on.ca/MNHS/MNHS.htm

MNHS Update - Need

- The County Official Plan includes policy direction for ongoing monitoring of the state of the natural environment
- Better photo-imagery available to support a study (2006 and 2010 photography)
- Refined methodology based on work in other areas (particularly Oxford County and Huron County)



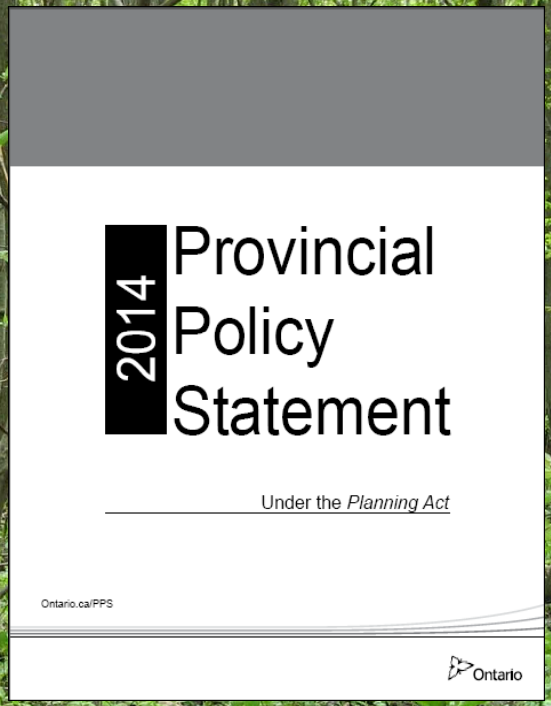
MNHS Update - Need

- Provincial Policy Statement (2005) shift in focus from woodlands to broader natural heritage systems
- New PPS (2014) requirement that Natural Heritage Systems be identified

MNHSS and New PPS (2014)

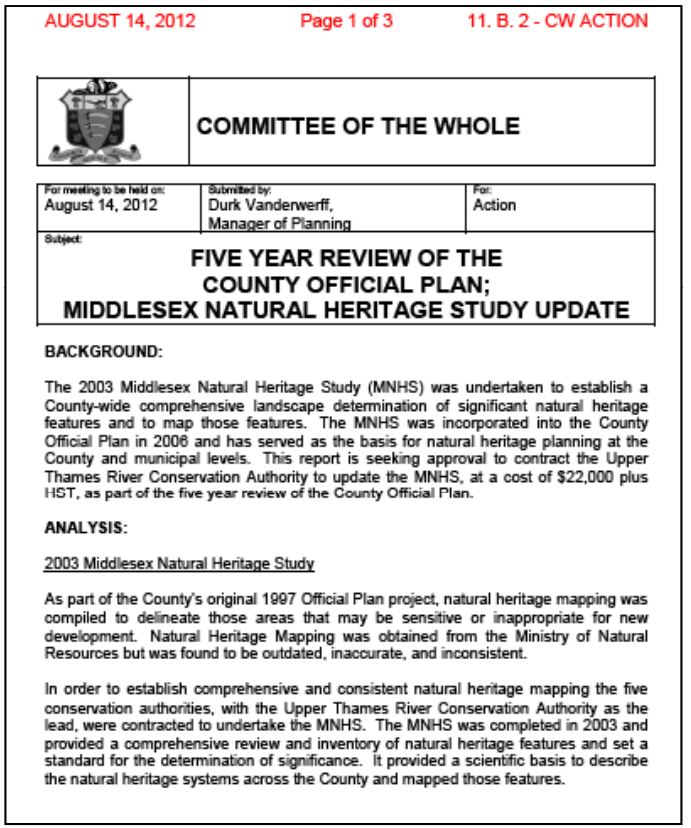
2.1.3 *Natural heritage systems* shall be identified in Ecoregions 6E & 7E[1], recognizing that *natural heritage systems* will vary in size and form in *settlement areas*, *rural areas*, and *prime agricultural areas*.

Natural heritage system: means 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 hydrologic functions, and working landscapes that enable ecological functions to continue. The Province has a recommended approach for identifying *natural heritage systems*, but municipal approaches that achieve or exceed the same objective may also be used.



MNHS Update

- Proposal developed by Conservation Authorities
- Expand scope from woodlands to broader natural heritage system
- Included the City of London in the project to have a study that covers the broader “planning area”



AUGUST 14, 2012 Page 1 of 3 11. B. 2 - CW ACTION

COMMITTEE OF THE WHOLE

For meeting to be held on:	Submitted by:	For:
August 14, 2012	Durk Vanderwerff, Manager of Planning	Action

Subject:

FIVE YEAR REVIEW OF THE COUNTY OFFICIAL PLAN; MIDDLESEX NATURAL HERITAGE STUDY UPDATE

BACKGROUND:

The 2003 Middlesex Natural Heritage Study (MNHS) was undertaken to establish a County-wide comprehensive landscape determination of significant natural heritage features and to map those features. The MNHS was incorporated into the County Official Plan in 2006 and has served as the basis for natural heritage planning at the County and municipal levels. This report is seeking approval to contract the Upper Thames River Conservation Authority to update the MNHS, at a cost of $22,000 plus HST, as part of the five year review of the County Official Plan.

ANALYSIS:

2003 Middlesex Natural Heritage Study

As part of the County's original 1997 Official Plan project, natural heritage mapping was compiled to delineate those areas that may be sensitive or inappropriate for new development. Natural Heritage Mapping was obtained from the Ministry of Natural Resources but was found to be outdated, inaccurate, and inconsistent.

In order to establish comprehensive and consistent natural heritage mapping the five conservation authorities, with the Upper Thames River Conservation Authority as the lead, were contracted to undertake the MNHS. The MNHS was completed in 2003 and provided a comprehensive review and inventory of natural heritage features and set a standard for the determination of significance. It provided a scientific basis to describe the natural heritage systems across the County and mapped those features.

MNHSS 2014: Study Area

- Corporate County of Middlesex and City of London
- Report and recommendations targeted to the County of Middlesex but benefit for London as the study provides a regional context for City natural heritage planning (regional context may assist the City with fulfilling the new PPS “system” requirement)

Study Methodology

- Accurate mapping of vegetation polygons using the 2010 ortho-imagery
- Landscape ecology analysis of existing vegetation inventories and the corrected vegetation information to develop landscape criteria
- Strong reliance on the landscape literature and past studies
- Use GIS to model patches that meet criteria

MNHSS 2014 - Methodology

- Project guided by a Steering Committee including County, Local Municipal Staff, CA's, MNR and the City of London
- Input obtained from a Technical Committee through a workshop format
    - Participants included Carolinian Canada, Ducks Unlimited, Nature Conservancy, UWO, MNR and CA's
- Peer Review of the science built into the project

Vegetation Communities

- Smallest units (> 0.5 ha) of homogeneous vegetation

18 Vegetation Communities	
Deciduous Woodland	Young Plantation
Coniferous Woodland	Young Plantation Swamp
Mixed Woodland	Wetland Thicket
Mature Plantation	Meadow Marsh
Coniferous Swamp	Upland Meadow
Deciduous Swamp	Connected Vegetation Feature
Mixed Swamp	Watercourse Bluff, Depositional Area
Plantation Swamp	Water Bodies
Upland Thicket	Major Watercourses

Vegetation Groups - Based on Similar Ecological Patterns and Processes

1.Woodland

- Coniferous, Deciduous and Mixed Woodland (3)
- Coniferous, Deciduous and Mixed Swamp (3)
- Mature Plantation and Plantation Swamp (2)

2. Wetland

- Coniferous, Deciduous and Mixed Swamp (3)
- Mature Plantation and Plantation Swamp (2)
- Wetland Thicket (1)
- Meadow Marsh (1)

3. Thicket

- Upland Thicket and Wetland Thicket (2)
- Young Plantation and Young Plantation Swamp (2)

4. Meadow

- Meadow Marsh and Upland Meadow (2)

5. Connected Vegetation Feature

- Connected Vegetation Feature / hedgerow (1)

6. Watercourse Bluff, Bar or Beach

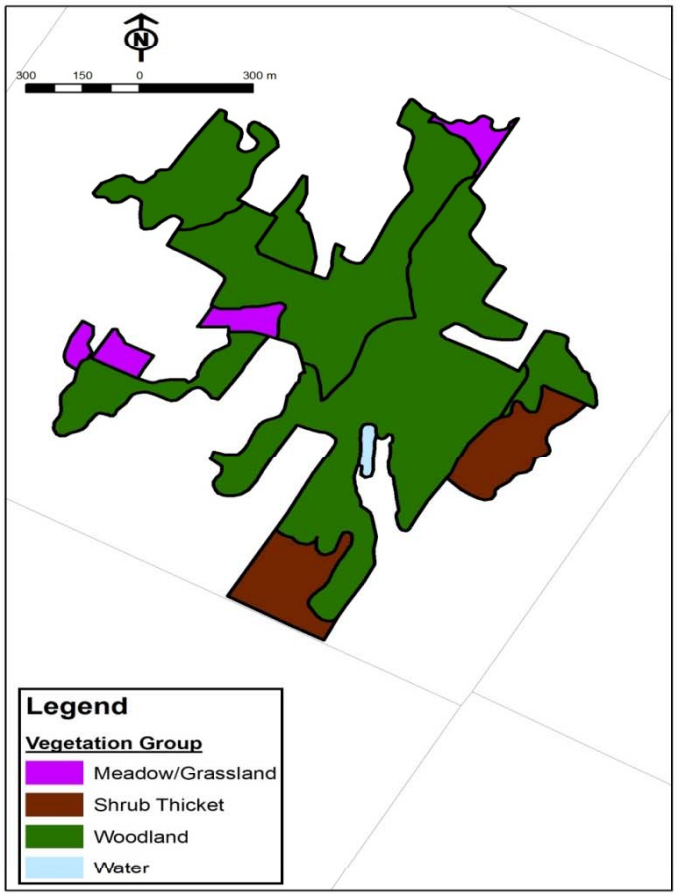
- Watercourse Bluff and Depositional Area (1)

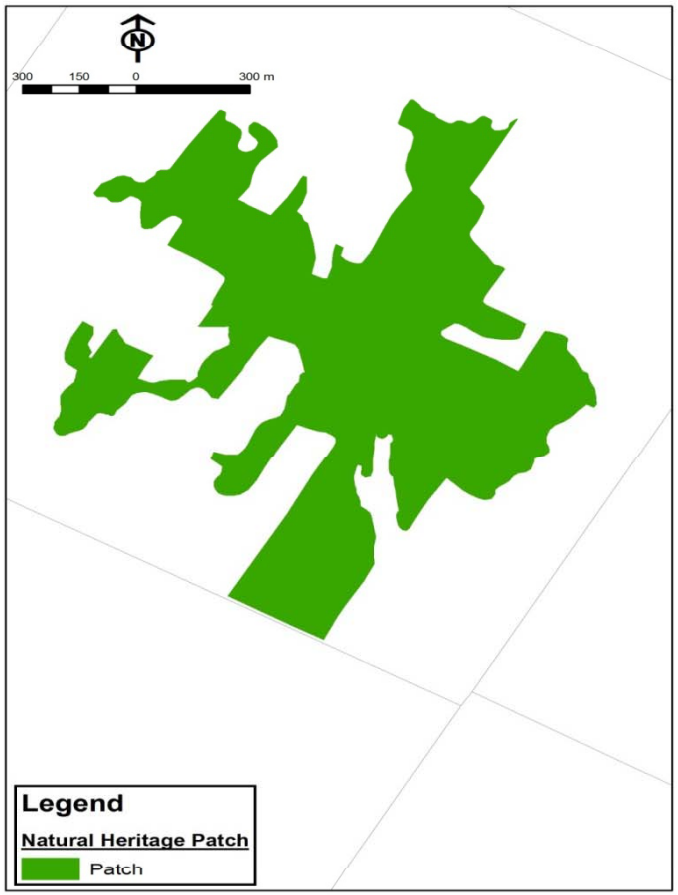
7. Water Feature

- Water Body and Major Watercourse (2)

Vegetation Patch

- A mosaic of one or many different abutting vegetation groups
- 3,503 patches in Middlesex County

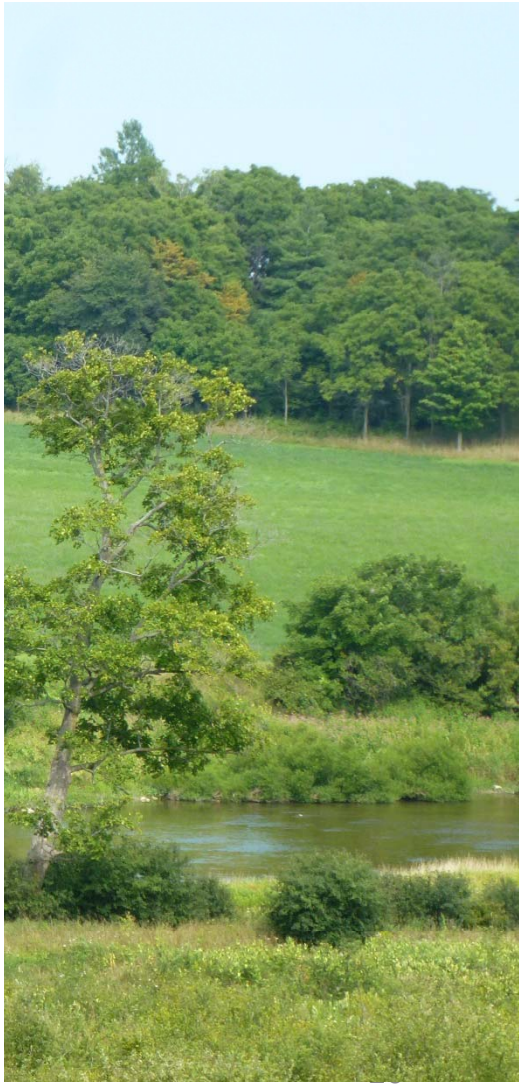




Vegetation Ecosystems

- 3 types of Vegetation Ecosystems
- Grouping of Vegetation Communities
- Used in diversity criteria

1. Terrestrial (9 vegetation communities)
2. Wetland (7 vegetation communities)
3. Aquatic (2 vegetation communities)



Mapping Results

Approximately 20.1% of the County is vegetated

Vegetation Group	% of Middlesex Land Base (333,592 ha)
Woodland	15.9%
Thicket	1.0%
Meadow	2.5%
Water Feature	0.7%
Connected Veg Feature	<0.1%
Watercourse Bluff + Depositional Area	Not mapped
Total	20.1%

Wetland Group	% of Middlesex Land Base (333,592 ha)
Wetland	3.1%

Significance Criteria

There are 15 unique significance criteria to identify significant Vegetation Patches in Middlesex.

- 9 are applied to Vegetation Groups
- 3 are applied to Vegetation Patches
- 3 are applied to Vegetation patches but are not currently mapped

There are 4 types of criteria

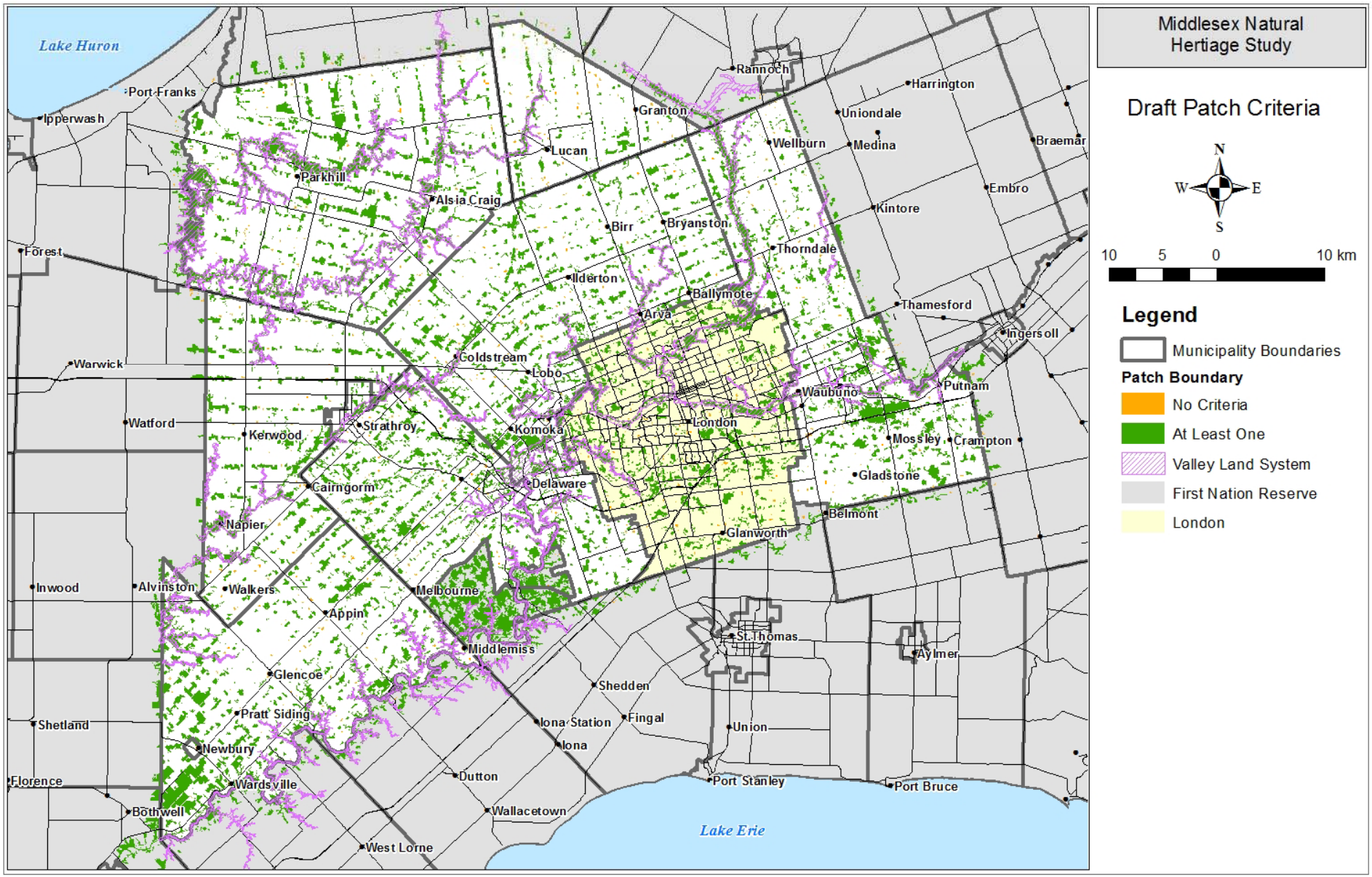
- Presence of unique features
- Size
- Proximity
- Diversity

Criteria #	Key Words	Description
Applied to Vegetation Groups		
1	**Significant Valley System**	Any veg. groups within/touching a significant valley system
2	**ANSI**	Any veg group within/touching a Life Science ANSI
3	**Open Watercourse**	Any veg group within 30 m of an open watercourse
4	**Wetlands**	All evaluated wetlands and any unevaluated wetland veg groups >0.5 ha
5	**Woodland Size**	Any woodland veg group ≥4 ha
6	**Woodland Proximity**	Any woodland veg group within 100 m of a 4 ha woodland veg group
7	**Thicket Size**	Any thicket veg group ≥ 2 ha
8	**Meadow Size**	Any meadow veg group ≥ 10 ha
9	**Meadow Proximity**	Any meadow veg group within 100 m of a large size woodland or thicket veg group

Criteria #	Key Words	Description
Applied to Vegetation Patches		
10	**Significant Vegetation Group**	Any veg patch containing a veg group identified as significant (meet criteria 1-9)
11	**Diversity**	Any veg patch that contains a diversity of veg communities, groups or ecosystems
12	**Proximity**	Any veg patch within 100 m of a significant veg patch (meeting criteria 10 – 11)
Applied to Vegetation Patches but Not Mapped Currently		
13	**Significant Wildlife Habitat**	Any veg patch containing Significant Wildlife Habitat
14	**Groundwater Ecosystem**	Any veg patch containing a Groundwater Dependent Ecosystem
15	**Watercourse Bluff, Depositional Area**	Any veg patch containing a Watercourse Bluff or Depositional Area (beaches, bars)

Results Of Significance Analysis

- Research concluded that anything that meets one criteria is significant (same as 2003 conclusion).
- 19.7% of the landscape in the County of Middlesex is considered significant, which is approximately 98% of the vegetated features on the landscape.


Middlesex Natural Hertiage Study
Draft Patch Criteria
N
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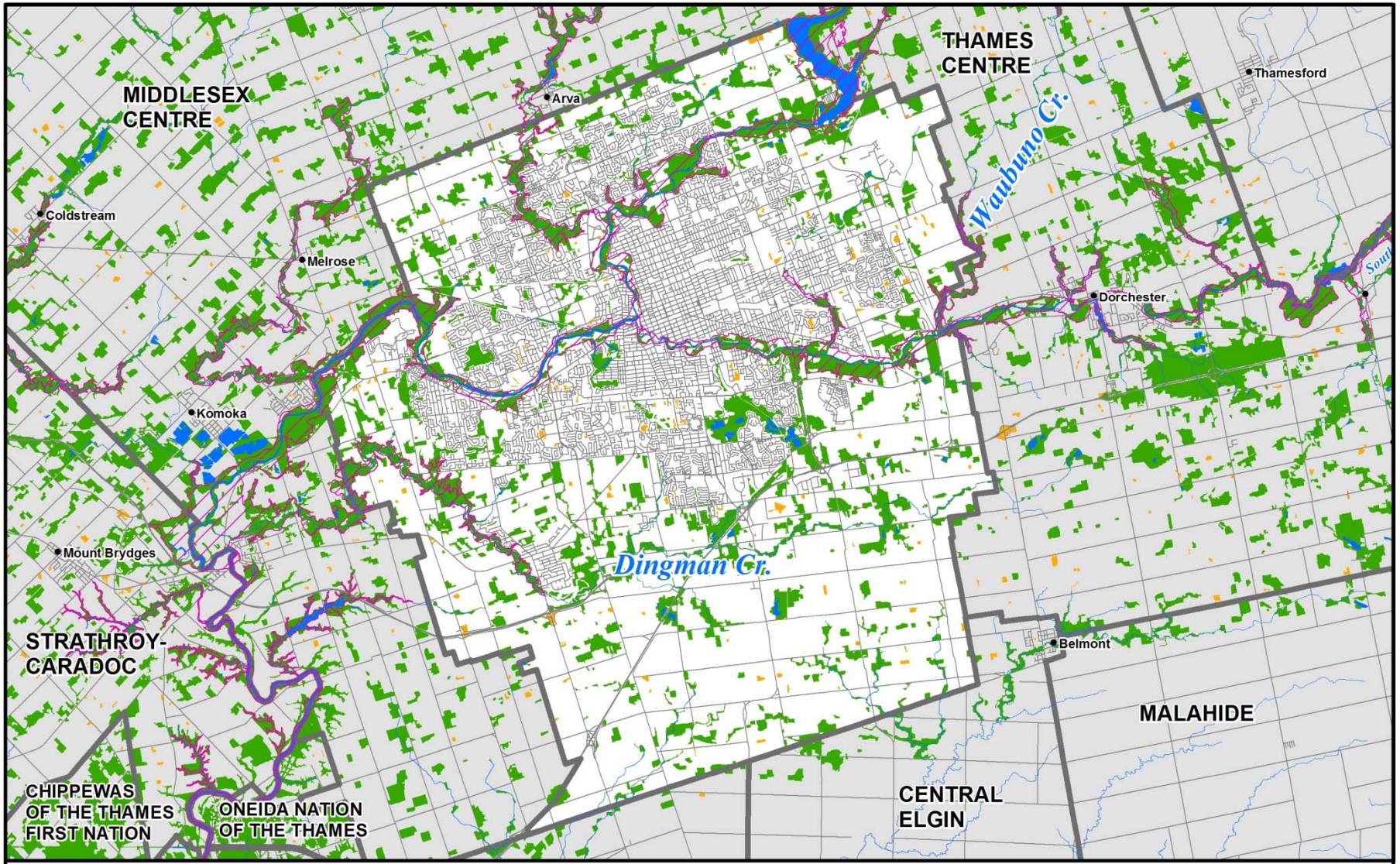
S
10 5 0 10 km
Legend
Municipality Boundaries
Patch Boundary
No Criteria
At Least One
Valley Land System
First Nation Reserve
London
Lake Huron
Lake Erie
Port Franks
Ipperwash
Forest
Warwick
Watford
Kerwood
Strathroy
Cairngorm
Napier
Inwood
Alvinston
Walkers
Appin
Melbourne
Middlemiss
Glencoe
Pratt Siding
Shetland
Newbury
Florence
Wardsville
Bothwell
Dutton
Wallacetown
West Lorne
Shedden
Iona Station
Fingal
Iona
Port Stanley
Union
St. Thomas
Aylmer
Port Bruce
Rannoch
Granton
Lucan
Parkhill
Alsia Craig
Birr
Bryanston
Ilderton
Ballymote
Arva
Goldstream
Lobo
Komoka
London
Delaware
Waubuno
Thorndale
Harrington
Uniondale
Wellburn
Medina
Braemar
Embro
Kintore
Thamesford
Ingersoll
Putnam
Mossley
Crampton
Gladstone
Belmont
Glanworth



middlesex county

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Produce by Upper Thames River Conservation Authority, July 2014,
Basemapping :Land Information Ontario, Copyright © Queens

Draft - Middlesex Natural Hertiage Study 2014

London
Significant Vegetation Patches

5 2.5 0 5 km

Legend

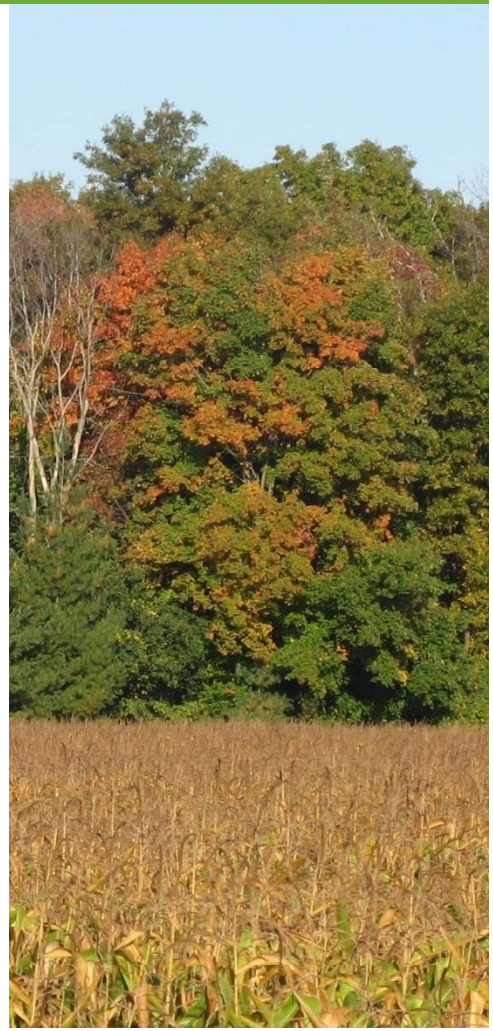
- Meet No Criteria
- Meet At Least One Criteria
- Significant Valley System
- Municipality Boundaries

Recommendations and Implementation

- The MNHS 2014 provides a scientifically based analysis of the Middlesex County landscape
- The study can be implemented through various means including land use planning, Forest Conservation By-Law, stewardship programming, education and monitoring

Implementation Examples

- The findings from the study can be incorporated into the City of London Official Plan – sets the system context for London's natural heritage planning:
  - Non-Urban Growth Boundary
  - Urban Growth Boundary
- Findings can be implemented through the City Urban Forest Strategy
- System characterized would assist with review of Urban Expansions



Recommendations - Examples

- Update the City's EIS Guideline document
- Plan for consistent natural heritage policy input and peer reviews
- Future updates of the vegetation information as new photography comes available for use as an official plan monitoring tool
- Meadow management planning to allow for early successional habitat to be provided while managing the risk of losing future development opportunities

Next Steps

- Complete documentation of methodology and findings in a Final Draft Report
- Finalize recommendations
- Presentation of the Final Draft Report to County Council in late September
- Deliver the data to the County
- Present to local municipalities
- Present to the City??
- Natural heritage policy workshops

Questions and Discussion