

## 4 RECOMMENDATIONS

This report contains a number of recommendations for establishing, protecting and enhancing the natural heritage system including individual sites and restoration areas which have been prioritized through the analysis conducted during the course of this study. Commonly utilized methods to ensure long term protection of significant natural heritage features includes appropriate Official Plan designation and securement. The use of policies including dual designation and/or an overlay approach, conservation easements, grants and stewardship agreements may serve to create linkages and enhancements between natural features and add to the natural heritage system.

These recommendations are intended to be a comprehensive set of overarching strategies for the protection of natural areas:

1. Planning jurisdictions should adopt policies to protect natural features which meets or exceeds the standards of the Provincial Policy Statement.
2. Planning jurisdictions are encouraged to continue supporting and to further strategize the securement of significant natural features through land use designations, public acquisition or by other means in conjunction with the work undertaken by the Essex Region Conservation Authority and the Lower Thames Valley Conservation Authority.
3. It is recommended that municipalities, with the assistance of ERCA and LTVCA, develop subwatershed plans and property management plans to appropriately manage ecologically significant lands that are in public ownership, to discourage the introduction and spread of invasive species and to promote a high level of biodiversity.
4. Private individuals and businesses should be strongly encouraged to participate in tree planting, restoration and stewardship programs and opportunities.
5. Strategic planning for restoration and conservation of biodiversity is based on the premise that all existing natural areas remain intact and that there is no further loss.

### 4.1 Policy Development and Implementation Concepts

#### 4.1.1 Policy Recommendations

One purpose of this undertaking is to provide information for planning jurisdictions to develop a scientifically defensible planning approach to protecting significant natural heritage features for their Official Plan. It is important to note that aside from natural heritage policies proposed for Official Plans, additional environmental practices by planning jurisdictions will form an important component in the creation and protection of the natural heritage system. In the Essex region the level of urbanization is continuing and pressures on the remaining natural heritage features not designated for protection endures. The intent by planning jurisdictions to focus on Smart Growth types of development patterns through carefully assessing where urban boundaries and infrastructure should be extended, crossing municipal boundaries, will assist with protecting natural heritage and agricultural areas. The specific focus of this study has been to assess fundamental components that makeup the natural system in this region's landscape, determine deficiencies, and apply policy concepts and practices to improve its ecological function and biodiversity.



This study has not attempted to define and map the habitat for threatened and endangered as defining significant habitat specific requirements is under the jurisdiction of the OMNR. Specific locations of endangered or threatened species or mapping of their significant habitat are not available in a form or to the level of detail to add value, and therefore are not specifically included in the prioritization analysis. Therefore, additional natural heritage features beyond those identified in this study may require a protection designation based on the presence and definition of the habitat for threatened and endangered species in consultation with the OMNR.

#### 4.1.2 Restoration Recommendations

The existing Provincial Policy Statement came into effect on March 1, 2005. The PPS provides additional protection for significant natural features and their adjacent lands. Section 2.1.2 of the PPS provides the following policy regarding the protection of biodiversity and importance of the functioning natural heritage system *“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”*.

Typically, the goal of natural habitat restoration is to attain a more fully-functioning natural heritage system through the enlargement of core natural areas and connection of these core features utilizing naturally vegetated corridors. Any habitat restoration initiatives should apply the following general guidelines:

- consideration of the landscape as an interconnected system;
- preservation and reestablishment of streamside vegetation;
- enhancement of species and habitat diversity;
- ensuring good genetic diversity;
- utilization of native species;
- working with the site’s natural vegetation and capabilities; and,
- creation of low maintenance, ecologically self-sustaining solutions.

(Catawaqui Region Conservation Authority, 2006, pages 39 and 40)

Restoration projects may also accommodate passive recreational and educational uses such as trails, boardwalks and interpretive panels.

All planning jurisdictions should, in order to meet the intent of the above policy, put in place appropriate policies and zoning to protect high priority restoration opportunities. These high priority restoration opportunities could be defined utilizing an overlay or dual designation type of approach which recognizes existing land use however identifies the long term intention of natural heritage restoration on those sites.

There is recognition of the vast amount of productive agricultural land in the Essex region. These lands are considered to be Class 1 through 3 quality lands as defined by the PPS throughout the entire region. The Natural Heritage Reference Manual recommends an overlay approach to address a continuation of existing agricultural practices along with the identification of those priority areas for natural heritage system restoration. *“It is a common and often appropriate municipal practice to use an overlay approach in the official plan to identify natural heritage*

*systems, features and areas within Ontario’s agricultural system designated as prime agricultural lands.”*

The Natural Heritage Reference Manual also recommends the dual designation approach for implementing the high priority restoration opportunities/agricultural uses designation and policies. Under this type of approach, some permitted uses may be restricted in areas where the natural heritage component of the designation applies.

Implementation of the natural heritage system can also be accomplished during the *Planning Act* application pre-consultation and review/response phases of proposed development processes. Should there be a *Planning Act* application proposed for those lands identified as high priority restoration area, planning jurisdictions should require the proponent to demonstrate how they have achieved the intent of PPS 2.1.2 and the Essex Region Natural Heritage System Strategy. In many cases these high priority restoration areas are adjacent lands to significant natural heritage features defined by the PPS and would require the preparation of an Environmental Impact Assessment (EIA) and ultimately the dedication lands for buffering the natural feature as mitigation in order to receive planning approvals. This requirement for buffering may also fulfill the intent of PPS 2.1.2 and this Strategy.

#### **4.1.3 Mitigation Techniques**

The intent of mitigation techniques is to avoid negative impacts on natural heritage features resulting from a proposed development. The implementation of mitigation techniques as a result of the approval of a planning application rests with the proponent. The impacts associated with different types of development are quite varied, however some common mitigation techniques include fencing, naturalized buffering and the use of stormwater swales to redirect run-off away from natural features. The Natural Heritage Reference Manual, prepared by the Ontario Ministry of Natural Resources, provides substantial detail on potential impacts due to development and guidelines for mitigation in page 129, Section 13.5.4.

#### **4.1.4 Monitoring**

Monitoring is an effective tool to let Administration, Council and the public know in a credible manner, if and how the established goals and objectives of a particular undertaking have been met. The successful monitoring of different objectives will require the tracking of information for each objective separately as indicated in the below concepts.

All planning jurisdictions and ERCA could utilize the following concepts for monitoring, which include:

1. maintain a region wide database to monitor the status (designation and ownership) of all natural areas within the municipal limits;
2. establish a region wide database to monitor the implementation of those areas targeted for restoration and protection which are part of the “natural heritage system” and are viable linkages and corridors;

3. maintain a database (information about stewardship activities) throughout the region in order to document activities which change the landscape of the natural environment. (World Wildlife Fund, 2000, page 2)

#### ***4.1.5 Rehabilitation of Core Natural Heritage Features***

In areas such as the Essex region with a limited amount of natural cover, protecting existing core natural features through appropriate designations is a priority. In addition to this, rehabilitation priorities and policies may be necessary in Official Plans to recognize and encourage the rehabilitation of degraded features which may be impacted by natural or anthropogenic influences however, are still in prime areas to contribute to the natural heritage system once functioning at a greater natural heritage capacity.

## 5 REFERENCES

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## 6 APPENDIX – GIS TECHNICAL INFORMATION

Table 1 – Natural Heritage System GIS Input Datasets				
Dataset	Description	Geographic Extent	Source	Vintage
<b>Aerial Photography</b>				
2008 Mainland	10cm colour digital aerial photography of the City of Windsor and the County of Essex. Used as the base to which data was corrected within its extent unless otherwise noted.	Windsor, Essex County	City of Windsor/ County of Essex	2008
2006 Pelee	30cm colour digital aerial photo of the Township of Pelee. SWOOP product. Used as the base to which data was corrected within its extent unless otherwise noted.	Township of Pelee	OMNR/ Township of Pelee	2006
<b>Floodplain Mapping</b>				
Limit of Regulated Area	Limit of regulated area boundary as defined by ERCA.	ERCA Watershed	ERCA	2010
1:100 year Flood Line	1:100 year flood line within ERCA watershed.	ERCA Watershed	ERCA	2000
Maximum Observed Flooding	Maximum observed flooding.	Study Area (Windsor, Essex County, Pelee Island)	ERCA/LTVCA	2000
<b>Watercourses</b>				
ERCA Drains	Represents stream centrelines in the ERCA watershed.	ERCA Watershed	ERCA, based on 2004 aerial photos	2005
LTVCA Drains	Represents stream centrelines in the Lower Thames Region within the County of Essex.	LTVCA watershed within Essex County	Leamington, Lakeshore, ERCA	2009
<b>Natural Areas</b>				
Wetlands	Provincially Significant Wetland (PSW, aka Wetland Unit) boundaries	Study Area (Windsor, Essex County, Pelee Island)	OMNR	2012
Woodlands	Represents woodlands (and other types of natural areas in limited areas)	Study Area (Windsor, Essex County, Pelee Island)	ERCA	2008
Plantations	Best available data for plantations. Generally ERCA plantations over 5 ac in size (2000-2010 inclusive). Also some tallgrass prairie plantations and MNR plantations.	ERCA Watershed	ERCA	2010
<b>Natural Heritage Designations</b>				
Areas of Natural and Scientific Interest	Areas of Natural and Scientific Interest (ANSI) boundaries.	Study Area (Windsor, Essex County, Pelee Island)	OMNR	2010
Significant Valleyland	Significant Valleyland (SVL) boundaries.	ERCA Watershed	ERCA	2004
Environmentally Significant Area	Environmentally Significant Area (ESA) boundaries.	ERCA Watershed	ERCA	2006
<b>Original BCS Data</b>				
Plantations	Plantation data from 2002 study that was verified and updated with airphotography.	ERCA Watershed	ERCA	2002/2008
Restoration Opps	Restoration opportunities data from 2002 study that was verified and updated with airphotography.	ERCA Watershed	ERCA	2002/2008

Table 1 – Natural Heritage System GIS Input Datasets				
Dataset	Description	Geographic Extent	Source	Vintage
<b>Other</b>				
NCC Priority Areas	Priority areas as identified by the Nature Conservancy of Canada (NCC).	ERCA Watershed	NCC	2009
Public Lands	Land identified as held in public ownership. Derivative product compiled by ERCA.	Study Area (Windsor, Essex County, Pelee Island)	ERCA	2010
Normalized Difference Vegetation Index	Normalized Difference Vegetation Index (NDVI) data and analysis was produced from 2006 satellite imagery and compiled by ERCA.	ERCA Watershed	ERCA	2006
Physiography	Major physiographic landforms of southern Ontario. The mapping is at a scale of 1:600,000.	Study Area (Windsor, Essex County, Pelee Island)	OGS (Chapman & Putnam, 1984)	1984
<b>Reporting Areas</b>				
Subwatersheds	Used to define subwatershed reporting areas.	Study Area (Windsor, Essex County, Pelee Island)	ERCA	2008
Municipal Boundaries	Used to define municipal reporting areas.	Study Area (Windsor, Essex County, Pelee Island)	ERCA/County of Essex	2008
<b>Exclusion Areas</b>				
Urban Areas	Built-up areas to be excluded from existing natural areas or potential restoration opportunities. SOLRIS product based on 2000 aerial photography.	Study Area (Windsor, Essex County, Pelee Island)	OMNR	2000
Transportation	Buffer of transportation centerlines including streets, railways, and trails which would act as an exclusion area for existing natural areas or potential restoration opportunities.	Study Area (Windsor, Essex County, Pelee Island)	ERCA/various local municipal sources	2008
<b>Data Sources:</b> ERCA - Essex Region Conservation Authority LTVCA - Lower Thames Valley Conservation Authority NCC - Nature Conservancy of Canada OGS - Ontario Geological Survey OMNR - Ontario Ministry of Natural Resources SOLRIS – Southern Ontario Land Resource Information System				

Table 2 – Criteria for Prioritization of Existing Natural Features				
Criteria Group	Feature	Criteria Type	Definition	
Existing Natural Features	1	Wetland	Presence/absence	Select (as per Dan Lebedyk) PSW features.
	1	Terrestrial Natural Feature	Presence/absence	The greatest extent of woodlands/prairies/thickets, CHNS sites, valley lands, or plantations. Includes all features, despite size or type. Excludes wetland areas.
Natural Heritage Designations	2	ANSI	Presence/absence	Areas of Natural and Scientific Interest as defined by the OMNR
	3	ESA <sup>1</sup>	Presence/absence	Environmentally Significant Areas as defined by ERCA
	4	Valleyland <sup>1</sup>	Presence/absence	ERCA significant valley lands
Quantitative Significance	5	Significant Woodland	Presence/absence	Woodlands > 2ha in size. Includes swamps
	6	Interior Forest	Presence/absence	Woodlands containing a 100m interior buffer feature, no matter the size. Includes swamps
	7	NDVI	Presence/absence	200m riparian buffers over a benchmark NDVI value. Clipped to existing natural areas.
Supplemental Criteria within Existing Natural Areas	8	Favourable Physiography	Presence/absence	Select physiography (Sand Plains, Beaches and Shorecliffs, Limestone Plains) as identified by OGS. Clipped to existing natural areas
	9	Floodplain <sup>2</sup>	Presence/absence	Greatest extent of 1:100yr Flood Line OR Max Observed Flood Line. Clipped to existing natural areas.
	10	Public Land	Presence/absence	Parcels that are publically owned (Federal, Provincial, or Local). Clipped to existing natural areas.
	11	NCC Priority Area	Presence/absence	Select NCC priority parcels (any level including already protected areas). Clipped to existing natural areas.
<sup>1</sup> ERCA Region only. Do not have data for LTVCA Region				
<sup>2</sup> Using Max Observed Flood Line for LTVCA as they do not have 1:100yr Flood Line data				

Table 3 – Criteria for Prioritization of Restoration Opportunities				
Criteria Group	Feature	Criteria Type	Buffer Distance (m)	Definition
Restoration Opportunities	Riparian Buffer	Proximity	30	30m buffer of 1st to 3rd order streams. Excludes anthropogenic areas, existing natural areas, and proposed wetland buffers.
	Wetland Buffer	Proximity	240	240m buffer of wetland features. Excludes anthropogenic areas and existing natural areas
	Other Restoration Opportunity	Presence/absence		Areas of restoration opportunities as delineated manually by technician. Excludes anthropogenic areas, existing natural areas, proposed wetland buffers, and proposed riparian buffers
Supplemental Criteria within Restoration Opportunities	Favourable Physiography	Presence/absence		Select physiography (Sand Plains, Beaches and Shorecliffs, Limestone Plains) as identified by OGS. Clipped to restoration opportunities buffer/areas
	Floodplain <sup>1</sup>	Presence/absence		Greatest extent of 1:100yr Flood Line OR Max Observed Flood Line. Clipped to restoration opportunities buffer/areas
	Public Land	Presence/absence		Parcels that are publically owned (Federal, Provincial, or Local). Clipped to restoration opportunities buffer/areas
	NCC Priority Area	Presence/absence		Select NCC priority parcels (any level including already protected areas). Clipped to restoration opportunities buffer/areas

<sup>1</sup> Using Max Observed Flood Line for LTVCA as they do not have 1:100yr Flood Line data

Table 4 – Natural Heritage System GIS Output Datasets				
Output	Feature	Description	Vintage	Source
<b>Primary Outputs</b>				
Existing Natural Feature	Wetland - Open Water	Select <sup>1</sup> PSW wetland features defined as "Open Water"	2010	OMNR
	Wetland - Marsh	Select <sup>1</sup> PSW wetland features defined as "Marsh"	2010	OMNR
	Wetland - Swamp	Select <sub>1</sub> PSW wetland features defined as "Swamp"	2010	OMNR
	Terrestrial – Forest	Upland Woodland <sup>2</sup> of any size. Does not include swamps	2008	ERCA
	Terrestrial - Other	Other natural terrestrial feature of any size (eg thicket or prairie). Includes the greatest extent of Natural Areas, Valleylands, Plantations (all types), and CHNS datasets. Excludes features within wetland and woodland datasets.	2008	ERCA
Restoration Opportunity	Wetland Buffer	Area of restoration opportunity as delineated by a 240m buffer of wetland features. Excludes anthropogenic areas and existing natural areas	2010	ERCA
	Riparian Buffer	Area of restoration opportunity as delineated by a 30m buffer of 1st to 3rd order streams <sup>3</sup> . Excludes anthropogenic areas, existing natural areas, and proposed wetland buffers.	2005	ERCA
	Other	Area of restoration opportunity as delineated manually by aerial photography interpretation. Excludes anthropogenic areas, existing natural areas, proposed wetland buffers, and proposed riparian buffers.	2008	ERCA
<b>Supplementary Outputs</b>				
Supplementary Existing Natural Feature	Plantation	Best available data for plantation projects. These are generally, but not exclusively, ERCA plantations over 5 ac in size (2000-2010 inclusive). Includes older data from 2002 study that was verified by 2008 airphotos. For the purposes of this project, all treed plantations were considered, and included as, woodlands. Plantations identified as tallgrass prairie by Dan Lebedyk (ERCA) were included here, but not included or considered as woodlands.	2010	ERCA
	Tallgrass Prairie	Existing communities of tallgrass prairie. Includes both remnant communities from CNHS data and plantations.	2010	ERCA
	Stream	Natural watercourse centerline or open municipal drain centerline	2005	ERCA
	100ha Woodland Complex	Complex of woodland <sup>4</sup> features whose total area equals or is greater than 100ha. Individual features in the complex must be within 20m of each other (ie gaps allowed) and any portion of a feature within the complex must be 500m in width (ie 250m interior forest present).	various	ERCA/OMNR
	100m Interior Woodland	Area of interior woodland identified as greater than 100m from any edge of an individual woodland feature. No allowance for gaps.	various	ERCA/OMNR
	200m Interior Woodland	Area of interior woodland identified as greater than 200m from any edge of an individual woodland feature. No allowance for gaps.	various	ERCA/OMNR

Table 4 – Natural Heritage System GIS Output Datasets				
Output	Feature	Description	Vintage	Source
<b>Intermediate Outputs</b>				
Exclusion Mask	Anthropogenic	Merge of defined Transportation and Urban Masks		
	Existing Natural Area	The greatest extent of Open Water (as defined by the OMNR Waterbody Segment dataset), Natural Areas, Plantations (all types), Valleylands, Wetland or CHNS datasets.		
	Special Exclusion Mask - Riparian	Riparian Buffer areas identified as not suitable for restoration by aerial photo interpretation		
	Special Exclusion Mask - Wetland	Wetland Buffer areas identified as not suitable for restoration by aerial photo interpretation		
	Special Exclusion Mask - Tallgrass Prairie	Tallgrass Prairie Buffer areas identified as not suitable for restoration by aerial photo interpretation		
	Transportation	Buffered Trails, Roads, and Railways data.	various	Municipalities/ ERCA
	Urban	SOLRIS features identified as "Built-Up Impervious" (vector) or "Extraction" (raster).	2000	OMNR
<sup>1</sup> Select PSW as per Dan Lebedyk (ERCA) <sup>2</sup> Natural areas with tree cover as delineated by aerial photography interpretation. <sup>3</sup> A stream is defined as a natural watercourse centerline or open municipal drain centerline. <sup>4</sup> A woodland is defined as a feature identified as a forest, swamp or treed plantation.				