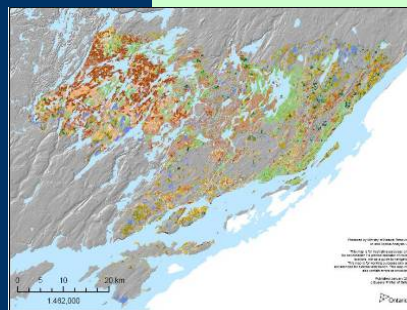# SUSTAINING WHAT WE VALUE

A Natural Heritage System for the Frontenac, Lanark, Leeds & Grenville Area of Eastern Ontario

Part 2: Appendices 2011

**Report of the Sustaining What We Value Scenario Planning Team
August 2011. Part 2: Appendices.**


**Contents**

# APPENDIX A: Detailed Scenario Planning Team Input Tables

## Socio-Political Considerations

**Status Types:**
- Conserved - these areas must always be included within the NHS
- Preferred - if two or more areas contribute equally towards targets, these areas are preferred over others that are available
- Excluded - these areas are never included in the NHS
- Available – all other areas (default)
- Cost – these areas are available for inclusion, but the area included in the NHS will be minimized. A cost multiplier was applied to the area (in hectares) of a particular land use that the Working Group felt should be minimized in the system. This parameter encourages Marxan to search all other possible options to achieve the targets at a lesser cost (see section 3.7.1 in Part 1 for more information on how Marxan works).

Note: some socio-political considerations that were discussed were omitted if none were known to exist in the study area (e.g. crown game preserves). Features that had insufficient data to map their locations also could not have a status assigned in the analysis. These areas were identified as data gaps for consideration in future NHS design and planning exercises.

**To establish the management objectives and the appropriate status, references for all socio-political considerations included:**
- Gray, Paul et al. 2009. OMNR. Ontario's natural heritage areas: their description and relationship to the IUCN Protected Areas Classification System. Available at: http://www.mnr.gov.on.ca/en/Business/ClimateChange/2ColumnSubPage/288505.html
- Organization websites, representatives and local knowledge on the role each feature plays in the local landscape.

## Detailed Socio-Political Considerations Table: Scenario Planning Team Decisions:

| Resource | Feature | Status Assigned | Rationale |
|---|---|---|---|
| Conservation Lands | Provincially Significant Wetlands | CONSERVED | They have the strongest policy protection of any feature (PPS 2005). |
| Conservation Lands | Regionally/locally significant wetlands | AVAILABLE, except in CRCA jurisdiction, all wetlands >0.5 ha to PREFERRED<br><br>Mapping of wetlands deemed regionally or locally significant was not available. | |
| Conservation Lands | Areas of Natural and Scientific Interest | PREFERRED | Protection is not as strong as PSWs (development can proceed if it proves no negative impacts). |

| Resource | Feature | Status Assigned | Rationale |
|---|---|---|---|
| Conservation Lands | Natural Heritage Areas, Features and Systems Designated within Municipal Official Plans | PREFERRED<br><br>**Not implemented – insufficient data** | Likely not the case in this study area that municipalities have many EP areas with no development permitted (to justify conserved status).<br><br>Data GAP – locations of these properties could not be collected from all municipalities in a usable format. |
| Conservation Lands | Municipally Owned Public Lands including Parks and Open Spaces | AVAILABLE | Most municipally owned land can be used for any number of purposes including industrial parks, baseball diamonds etc.<br>Data Gap: no mapping identifying any municipally owned lands with management plans. |
| Conservation Lands | Community Forests (formerly Agreement Forests) | CONSERVED | They are sustainably managed and are being kept for the long-term. |
| Conservation Lands | Conservation Authority Conservation Areas and Properties | CONSERVED | These properties are acquired for long-term conservation purposes. |
| Conservation Lands | Conservation Authority Floodplain Regulated Areas | AVAILABLE | No restriction on clearing or agriculture in floodplains. |
| Conservation Lands | Ducks Unlimited Owned Properties | 1. DU owned properties are CONSERVED<br>2. Properties with DU agreements will not be considered in this process - Omitted | Private properties with landowner agreements should not be a factor in whether a property is included in an NHS. |
| Conservation Lands | Land Trust Properties | CONSERVED | These properties are acquired for long-term conservation purposes. |
| Conservation Lands | Ontario Heritage Trust Properties | CONSERVED if managed for natural heritage values | |
| Conservation Lands | Ontario Nature's Nature Reserves | CONSERVED | These properties are acquired for long-term conservation purposes. |
| Conservation Lands | Nature Conservancy of Canada Properties | CONSERVED | These properties are acquired for long-term conservation purposes. |
| Conservation Lands | Conservation Easements | CONSERVED<br><br>**Not implemented – insufficient data** | These agreements are on title and are public information.<br><br>Data GAP – did not receive locations of these properties. |
| Conservation Lands | Conservation Land Tax Incentive Program | AVAILABLE (no status) | Private properties participating in incentive programs should not be a factor in whether a property is included in an NHS. Due to privacy considerations, no data showing the locations of these properties was obtained for this project. |

| Resource | Feature | Status Assigned | Rationale |
|---|---|---|---|
| Conservation Lands | Managed Forest Tax Incentive Program | AVAILABLE (no status) | Private properties participating in incentive programs should not be a factor in whether a property is included in an NHS. Due to privacy considerations, no data showing the locations of these properties was obtained for this project. |
| Conservation Lands | Forest Stewardship Council Certified Lands | AVAILABLE (no status) | Private properties participating in incentive programs should not be a factor in whether a property is included in an NHS. Due to privacy considerations, no data showing the locations of these properties was obtained for this project. |
| Conservation Lands | St. Lawrence Parks Commission | CONSERVED | |
| Conservation Lands | National Parks | CONSERVED | |
| Conservation Lands | National Wildlife Areas | CONSERVED | |
| Conservation Lands | Provincial Parks | CONSERVED | They are protected by legislation for the long term. |
| Conservation Lands | Wildlife Management Areas (also called Provincial Wildlife Areas) | CONSERVED | They are generally managed for the protection of wildlife habitat. |
| Conservation Lands | Crown Game Preserves | Omitted | None in Study Area |
| Conservation Lands | Fish Sanctuaries | Omitted | None in Study Area |
| Conservation Lands | Crown Lands Outside Parks and Protected Areas Managed by MNR | MNR-managed crown lands are CONSERVED<br><br>All others are PREFERRED (ORC, MTO, etc) | Public lands should be prioritized for inclusion in an NHS |
| Conservation Lands | Migratory Bird Sanctuaries | PREFERRED | Migratory Bird Sanctuaries protect migratory birds against physical disturbance and hunting.  They do not protect habitat. |
| Conservation Lands | Important Bird Areas | PREFERRED | IBA designation in and of itself provides no legislative or policy protections |
| Conservation Lands | Frontenac Arch World Biosphere Reserve | PREFERRED | World Biosphere Reserve designation in and of itself provides no legislative or policy protections. |
| Conservation Lands | Rideau Waterway Canadian Heritage River System | PREFERRED | Canadian Heritage River System designation in and of itself provides no legislative or policy protections. |
| Conservation Lands | National Historic Canals | Federally owned properties with management objectives to protect the natural cover/habitat are CONSERVED; All others are PREFERRED | Federally owned lands adjacent to the waterways are planed for various land uses and objectives<br><br>Data GAP – locations of these properties were not available from |

| Resource | Feature | Status Assigned | Rationale |
|---|---|---|---|
| | | **Not implemented – insufficient data** | Parks Canada. |
| Conservation Lands | National Historic Parks and Sites | Sites that have management objectives to protect natural cover are CONSERVED; all others are AVAILABLE | National Historic Sites are managed for a variety of objectives including protection of biodiversity and habitats. |
| Conservation Lands | University Biological Research Properties | Properties that are managed for their natural values are CONSERVED | University research properties are managed for a variety of purposes to meet specific objectives including protection of biodiversity and wildlife habitat. |
| Conservation Lands | First Nation Reserves | Omitted | No First Nation representative. |
| Agricultural Lands | Specialty Crop Areas | Omitted | None in Study Area (i.e. no official designations by the province as described in the PPS. The SPT noted that there are a variety of specialty crops grown in the area (e.g. berries, orchards, organic farms) but these areas are not mapped) |
| Agricultural Lands | Prime Agricultural Lands | Minimize inclusion of Class 1, 2, and 3 soils with existing agriculture by applying a COST | Good quality agricultural land should also be maintained for local food production, etc. |
| Agricultural Lands | Other Agricultural Areas | AVAILABLE | No additional cost multipliers set for lands under agricultural use where CLI ratings are between 4 to 7. |
| Agricultural Lands | Fencerows/ hedgerows | EXCLUDED | Can be hard to manage as part of an NHS; Include under cultural heritage - due to their contribution to viewscapes, etc. |
| Aggregates | Existing and Licensed Aggregate Pits and Quarries | Split pits and quarries; Minimize the inclusion of existing quarries through a COST; Existing pits are AVAILABLE | Pits have a higher restoration potential |
| Aggregates | Prime Bedrock Deposits | COST applied to unconstrained bedrock resources<br><br>**Not implemented – insufficient data** | Majority of prime aggregate resources are constrained (cannot be extracted)<br><br>Data GAP – no mapping of constraints to prime bedrock resources. |
| Aggregates | Prime Sand and Gravel Deposits | COST applied to unconstrained sand and gravel resources<br><br>**Not implemented – insufficient data** | Majority of prime aggregate resources are constrained (cannot be extracted)<br><br>Data GAP – no mapping of constraints to prime sand and gravel resources. |
| Urban Lands | Existing and Approved Urban Areas | 100% urban impervious areas, are EXCLUDED; All other urban areas are AVAILABLE | All Urban greenspace should be considered for inclusion in the NHS |

| Resource | Feature | Status Assigned | Rationale |
|---|---|---|---|
| Transportation and Transmission Corridors | Roads | COST that increases with road density | Roads fragment habitat; the density of roads found in the NHS should be minimized. |
| Other Development Lands | Existing or Approved Renewable Energy Developments | AVAILABLE | Can't be considered this in this process - the Renewable Energy Act takes precedence over any OP schedules |
| Waterbodies | Open Water (Inland Lakes, Rivers and Great Lakes Nearshore Margins) | CONSERVED<br><br>**Not Implemented – mapping challenges** | Waterbodies are aquatic communities and are not likely to change.<br><br>This was not implemented in the final scenarios – due to the nature of the landscape having many small lakes, the 5 ha hexagons ended up rolling in significant amounts of surrounding land area into conserved status as well, which cannot be justified. |
| Biological Pollution | Invasive Non-Native Plant Species | AVAILABLE | Important data GAP - we need to have more information in order to plan for this better in the future |

## Detailed Target Table

**Note: Feature/Target ID numbers are not sequential; all targets discussed are included.**

| ID | Resource Category | Feature | Mapping Criteria | Assessment Area | Baseline Target | Comments | References |
|----|-------------------|---------|------------------|-----------------|-----------------|----------|------------|
| | | | *Description of the criteria and inventories necessary to map this feature* | *Boundaries to be used for assessing/ distributing the targets* | *Decision made by Working Group on "how much" of each feature should be in the 'Baseline' NHS* | *Supporting notes or background information rated to this value/issue record set* | *List the source(s) used to support the feature and associated targets* |
| 1 | Biodiversity Representation | Wooded Area Types | Treed and Forested areas (including swamps) from EOMF FRI/ ELC Landcover for 6E-11/12 and PVM SOLRIS/ELC for 6E-10<br><br>Additional updates to Wooded Areas completed by Kemptville based on 2008 DRAPE imagery, were incorporated into 6E-11 EOMF FRI and 6E-10 PVM<br><br>FOREST definition is >=60% crown closure | By Ecodistrict and Soil Landscape Combinations | Baseline targets set based on minimum 5% total wooded composition by type. Where composition is currently less than 5% then all of the remaining area is to be included i.e. target set to 100% | Inclusion of a reasonable proportion of each distinct vegetation type. Vegetation classes are a combination of landform type and vegetation. Coarse filter approach assumes that representation of types will capture elements of biodiversity associated with these features.<br><br>1. Unique composition or site represented by less than 5% of the woodland area in the planning area (District Criteria for Significant Woodlands).<br><br>2. Any forest cover type comprising <5% of the forest group to which it belongs (coniferous, deciduous or mixed) should be considered uncommon/ significant (Significant Wildlife Habitat Technical Guide). | 1. OMNR. 2009. Natural Heritage Reference Manual. Draft Second Edition.<br><br>2. Brodribb K., Jahncke R. 2003. Great Lakes Conservation Blueprint Project for Terrestrial Biodiversity: Technical Methodology for Southern Ontario.<br><br>3. OMNR. 2008. Kemptville District Criteria for Identification of Significant Woodlands.<br><br>4. OMNR. 2000. Significant Wildlife Habitat Technical Guide. |

| ID | Resource Category | Feature | Mapping Criteria | Assessment Area | Baseline Target | Comments | References |
|---|---|---|---|---|---|---|---|
| 2a | Biodiversity Representation | Old Growth Forests | 1. For 6E11 EOMF 91 FRI - projects ages for stands with shade tolerant climax species compositions to 2009 where average age is >=90 years<br><br>2. For 6E10 - Assume the Mature Old class in PVM - Predicted Mature 2 - mature 2 layer indicates the presence of old growth stands currently<br><br>Data GAP - Experts felt it was not possible to make reasonable assumptions to ID old growth based on the 6E-11 FRI | By Ecodistrict and Soil Landscape Combinations | 5% of the total forest to consist of old growth forest types<br><br>**Not implemented – insufficient data** | 1. 5% of the forest cover in each subwatershed in mature or old-growth forest (generally trees over 120 years old) (International Joint Commission on the Great Lakes Area of Concern).<br><br>2. Old growth target of 5%, with old growth defined as any stand with an average age greater than 90 years, with at least 3 trees/ha over 120 years and climax species such as White Pine, Hemlock, Sugar Maple or Yellow Birch (RRCA).<br><br>3. 30% of forest area in mature and old-growth condition at the regional scale and over the long term to provide habitat for American Marten and Fisher. | 1. Beneficial Use Impairment Delisting Targets developed by RAP Teams – International Joint Commission on the Great Lakes Area of Concern (Environment Canada).<br><br>2. Hamilton et al. 2005. Natural Heritage Strategy for the Raisin Region Conservation Authority. Land Ethic Group. 39 pages + appendices.<br><br>3. OMNR 2000. A Silvicultural Guide to Managing Southern Ontario Forests. |
| 3 | Biodiversity Representation | Rare Ecosystems | Use the S1, S2 & S3 vegetation communities identified by NHIC and link to the map using the EOMF FRI/ ELC and PVM SOLRIS/ELC<br><br>Data GAP – cannot match S-ranked communities from NHIC with available vegetation type classes | By Ecodistrict and Soil Landscape Combinations | Include rare forest ecosystem types directly identified by other sources.<br><br>Ensure 100% of S1, S2, S3 vegetation communities are included<br><br>**Not implemented – insufficient data** | 1. Consider community types that have been identified as rare/ uncommon (with rank S1,S2,S3). Also, under the Kemptville District Significant Woodlands Criteria, rare forest types are identified as: FOD2-2 Dry Fresh Oak-Hickory Deciduous Forest, FOD4-3 Hackberry Deciduous Forest, FOD7-5 Fresh-Moist Black Maple Lowland Deciduous Forest, FOM1-1 Dry Oak Pitch Pine Forest, SWC2-1 White Pine Mineral Coniferous Swamp, and SWD1-2 Bur Oak Mineral Deciduous Swamp.<br><br>2. NHIC also tracks the status and occurrence of rare vegetation communities (see Appendix M Significant Wildlife Habitat Technical Guide). | 1. OMNR. 2008. Kemptville District Criteria for Identification of Significant Woodlands.<br><br>2. OMNR 2000. Significant Wildlife Habitat Technical Guide |

| ID | Resource Category | Feature | Mapping Criteria | Assessment Area | Baseline Target | Comments | References |
|---|---|---|---|---|---|---|---|
| 4 | Biodiversity Representation | Wetland Types | 1. As per the EOMF FRI/ ELC Landcover Wetland Community Classes for 6E-11<br><br>2. As per the PVM SOLRIS/ELC Wetland Community Classes for 6E-10 | By Ecodistrict and Soil Landscape Combinations | Baseline targets set based on minimum 5% total wetland composition by type. Where composition is currently less than 5% then all of the remaining area is to be included i.e. target set to 100% | 1. The Nature Conservancy considers a vegetation community rare if it represents less than 3% of the remaining natural area in a planning area and/o is found in five or fewer locations (referenced in OMNR 2000).<br><br>2. The Ministry of Natural Resources has identified those wetlands that are provincially significant in the region. Regionally and locally significant wetlands could also be considered (CA's). The Natural Heritage Information Centre also has a list of identified rare communities in the province. | 1. Environment Canada. 2004. How Much Habitat Is Enough, Second Edition.<br><br>2. OMNR 2000. Significant Wildlife Habitat Technical Guide |
| 2 | Ecological Functions | Forest Age Classes | Data GAP - age data varies across study area (lacking in some, and very outdated in others).<br><br>Age class is very dynamic and subject to rapid changes. | By Ecodistrict and Soil Landscape Combinations | **Not implemented – insufficient data** | Inclusion of a range of forest age classes. Coarse filter approach assumes that representation of a variety of forest types and age classes will capture elements of biodiversity associated with these features. | 1. Beneficial Use Impairment Delisting Targets developed by RAP Teams – International Joint Commission on the Great Lakes Area of Concern (Environment Canada).<br><br>2. Hamilton et al. 2005. Natural Heritage Strategy for the Raisin Region Conservation Authority. Land Ethic Group. 39 pages + appendices.<br><br>3. OMNR 2000. A Silvicultural Guide to Managing Southern Ontario Forests. |

| ID | Resource Category | Feature | Mapping Criteria | Assessment Area | Baseline Target | Comments | References |
|---|---|---|---|---|---|---|---|
| 5 | Ecological Functions | Other Habitat Types/ Unique Features | Consistent mapping is available across the entire study area for coastal wetlands only.<br><br>Data GAPS – Mapping of rock barrens is available for 6E-10 only. The RVCA has mapped grasslands across their jurisdiction but does not provide complete coverage for either 6E-11 or 6E-10. NHIC has not yet mapped rare vegetation communities across the Study Area. | By Ecodistrict and Soil Landscape Combinations | 100% of coastal wetlands | We may be able to rely on the existing conservation framework – i.e. ANSI's, Conservation Lands, Environmentally Sensitive Areas - to capture some of these features given the lack of data on many of these features under FRI-ELC/ PVM. | 1. OMNR. 2009. Natural Heritage Reference Manual. Draft Second Edition. |
| 6 | Ecological Functions | Forest Cover | All Forest classes in 6E11+12+5E11 (FRI-ELC) and 6E10+15(PVM SOLRIS/ELC).<br><br>Note that in addition, forested is defined as areas with >=60% crown closure | By Ecodistrict, Soil Landscape combination | A minimum of 30% of the land area of each Ecodistrict/Soil Landscape Combination should be in forest cover. Where cover is less than 30% currently then target is set to 100% for that assessment area. | The 30% forest cover guideline is supported by numerous studies that suggest a threshold response in occurrence, richness or breeding success of forest bird species. Twenty to thirty percent has also been suggested as the threshold below which the influence of the size and spatial arrangement of patches becomes important for some species. Guideline represents a goal to work towards in landscapes where remaining forest habitat is <30% and was not intended to encourage reductions in existing habitat. | 1. Environment Canada. 2004. How Much Habitat Is Enough, Second Edition. |
| 7 | Ecological Functions | Wetland Cover | All wetland classes in 6E11+12+5E11 (FRI-ELC) and 6E10+15 (PVM SOLRIS/ELC). | By Ecodistrict, Soil Landscape combination | 30% of the land area in each assessment unit should be in wetland cover.<br><br>Where the current amount of wetland cover is less than these thresholds, target is set to 100%. | It is unknown how much is needed from a habitat perspective but the Significant Wildlife Habitat Technical Guide suggests a general guideline of 10% of the landscape in suitable habitat before any habitat would be used by most area sensitive species. | 1. Environment Canada. 2004. How Much Habitat Is Enough, Second Edition. |

| ID | Resource Category | Feature | Mapping Criteria | Assessment Area | Baseline Target | Comments | References |
|---|---|---|---|---|---|---|---|
| 8 | Ecological Functions | Forest Patch Size | Patch definition from NHRM 2009 used for this summary- a bisecting opening of 20m or less in width is not considered to divide a forest patch into two separate patches. The area of gaps, indents or holes within patches are not included in the calculation of patch size. | By Ecodistrict, Soil Landscape combination | 100% of the number of patches in each of the 3 top size classes (>200, 100-200, 75-100 ha) by ecodistrict.

Also note that patches must be included as a whole. | A Soil Landscape Unit should have at least one 200 ha forest patch which is a minimum of 500 m in width. This is based on species habitat use (described in How Much Habitat is Enough) as well as the size of an average disturbance event in the pre-settlement forests of southern Ontario (estimated at 2 ha or less) - and the estimation that core habitat areas should be 50-100 times larger than average disturbance to maintain relative equilibrium of habitats in a landscape (Jalava et al. 2002). | 1. Environment Canada. 2004. How Much Habitat Is Enough. Second Edition.

2. Jalava et al. 2002. The Big Picture Project: Developing a Natural Heritage Vision for Canada's southernmost ecological region.

3. Natural Heritage Information Centre. OMNR, Peterborough.

4. OMNR. 2009. Natural Heritage Reference Manual. Draft Second Edition. |
| 9 | Ecological Functions | Proximity of Forest Patches | Same as Forest Patch Size definitions | By Ecodistrict, Soil Landscape combination | No target. Address this indirectly through calibration of MARXAN (i.e. boundary length modifier which ensures 'clumping' of natural areas).

Proximity is also factored into the criteria for delineating core areas and corridors in the final system. | 1. Distance between forest patches and other features (e.g. other forest patches, wetlands) is a maximum of 2km (Environment Canada 2004).

1. Eastern Ontario Woodland Valuation System ranked woodland value for conservation at much smaller gap distances between woodlands (with scoring at <100m, 100-250 m, >250m).

2. Consider proximity to large patches (>200ha and 500m in width), and proximity to identified features (e.g. such as those identified under the Kemptville District Significant Woodlands Criteria - ANSI's, Provincially Significant Wetlands, Significant Woodlands and Fish Habitat).

3. Kemptville District Criteria for Identification of Significant Woodlands uses a distance of 120m to define potential linkages.

4. *The majority (~98%) of the natural areas in this landscape are already connected within 20 m, so this criterion is likely not necessary as a target. | 1. Environment Canada. 2004. How Much Habitat Is Enough. Second Edition.

2. Rowsell, M. 2003. Woodland Valuation System. Version 2.0. Methods & Rationale for Assigning Woodland Value at the Patch Scale for Consideration in Planning and Conservation in Eastern Ontario. Eastern Ontario Model Forest.

3. Brodribb K., Jahncke R. 2003. Great Lakes Conservation Blueprint Project for Terrestrial Biodiversity: Technical Methodology for Southern Ontario.

4. OMNR. 2008. Kemptville District Criteria for Identification of Significant Woodlands. |

| ID | Resource Category | Feature | Mapping Criteria | Assessment Area | Baseline Target | Comments | References |
|---|---|---|---|---|---|---|---|
| 10 | Ecological Functions | Forest Interior | Interior Forest identified at 100 m and 200 m from an Edge<br><br>Edge as per Forest Patch definition | By Ecodistrict, Soil Landscape combination | 10% of total forest cover in interior forest 100 m from edge in discreet patches<br><br>5% of total forest in interior forest 200 m from the edge in discreet patches<br><br>(note: minimum 1 ha interior to contribute and targets also include the edge habitat area) | Existing guideline of >10% of Quaternary watershed in forest cover 100 m from the forest edge and >5% that is 200 m from the forest edge (Environment Canada 2004).<br><br>The "edge" habitat of each patch must also be included in the target because it is necessary to make the interior habitat functional. | 1. Environment Canada. 2004. How Much Habitat Is Enough. Second Edition. |
| 11 | Ecological Functions | Wetland Patch Size | Wetland defined by FRI-ELC and PVM SOLRIS/ELC ELC Community classes: Swamp, Fen, Bog, Marsh. ELC Community Series Data available (but inconsistently across region).<br><br>NOTE: lump marshes and aquatic categories for this target | By Ecodistrict, Soil Landscape combination | In 6E-10: 100% of all wetlands greater than 100 ha in size;<br><br>6E-10: Wetlands less than 100 ha in size: 100% of marshes, fens & bogs that are 50-100 ha in size; & 50% of swamps 50-100 ha<br><br>In 6E11,12, 5E-12 etc - 100% of marshes, bogs & fens greater than 100 ha in size; 50% of swamps greater than 100 ha in size | Wetlands of a variety sizes, types and hydroperiods should be maintained across a landscape. Wetlands in the 10-400 ha range to support area sensitive species. | 1. Environment Canada. 2004. How Much Habitat is Enough. Second Edition.<br><br>2. OMNR 2000. Significant Wildlife Habitat Technical Guide |

*- Sustaining What We Value -*

| ID | Resource Category | Feature | Mapping Criteria | Assessment Area | Baseline Target | Comments | References |
|---|---|---|---|---|---|---|---|
| 12 | Ecological Functions | Wetland Adjacent Upland Cover | Wetland defined by FRI-ELC and PVM SOLRIS/ELC ELC Community classes: Swamp, Fen, Bog, Marsh. ELC Community Series Data available (but inconsistently across region). Upland cover includes Forest classes (coniferous, deciduous, mixed, plantation). | By Ecodistrict, Soil Landscape combination | Include 50% of wetlands with 50-75% of adjacent upland cover

Include 100% of wetlands with 75%-100% of adjacent cover

'Adjacent' is defined as within 120 m. | Minimum guidelines suggested for protection of adjacent lands includes: 100 m for swamp and marsh, 100 m or as determined by hydrogeological study for Fens, and the total catchment area for bogs.

OMNR defines adjacent lands as 120 m surrounding significant wetlands based on impacts to ecological function.

Targets are based on ensuring a certain proportion of wetlands with >= a certain percentage of existing upland cover is included within the NHS. | 1. Environment Canada. 2004. How Much Habitat is Enough Second Edition.

2. OMNR. 2009. Natural Heritage Reference Manual. Draft Second Edition. |
| 13 | Ecological Functions | Proximity of Wetland Patches | Wetland defined by FRI-ELC and PVM SOLRIS/ELC ELC Community classes: Swamp, Fen, Bog, Marsh. ELC Community Series Data available (but inconsistently across region). | By Ecodistrict, Soil Landscape combination | No target. Address this indirectly through calibration of MARXAN (i.e. boundary length modifier which ensures 'clumping' of natural areas).

Proximity is also factored into the criteria for delineating core areas and corridors in the final system. | Maintain groups of wetlands within 500-1000 m of the centre of each to retain metapopulations of wetland organisms over the long term

Apply same principles to this as for Forest Patch Proximity. | 1. OMNR 2000. Significant Wildlife Habitat Technical Guide. |
| 14 | Ecological Functions | Riparian Vegetation | Evaluate natural vegetation (forests, wetlands) adjacent to stream, river, lake. Streams defined by WRIP Virtual Stream Network. Rivers/ Lakes defined by FRI-ELC/ PVM SOLRIS/ELC. | By Ecodistrict, Soil Landscape combination | 1. 30 m (both sides) buffer on all streams
2. Where >=75% of the buffer by stream reach is naturally vegetated then include 100% of these into the system. | 75% of the area of each stream within 30 m by catchment across all orders naturally vegetated to protect aquatic systems from degradation. Minimum riparian width of 30 m in natural vegetation (on each side) to minimize impact to aquatic systems and habitat. | 1. Environment Canada. 2004. How Much Habitat is Enough. Second Edition. |

14

| ID | Resource Category | Feature | Mapping Criteria | Assessment Area | Baseline Target | Comments | References |
|---|---|---|---|---|---|---|---|
| 15 | Ecological Functions | Riparian Vegetation | Evaluate natural vegetation (forests, wetlands) adjacent to stream, river, lake. | By Ecodistrict, Soil Landscape combination | Omitted - too difficult to map in order to meet the intent. | 10% of the length of streams, rivers, lakes should be associated with natural vegetation to at least 300 m. | 1. Neave E., Baldwin D., Nielsen C. 2008. Tiers 2 and 3 Standards – Habitat-based Biodiversity Standards Decision Support Process and Results of Eastern Ontario Pilot Project – Full Technical Report. National Agri-Environmental Standards Initiative Technical Series. Environment Canada. |
| 16 | Ecological Functions | Remoteness/ Distance from roads | Evaluate distance of natural vegetation (forests, wetlands) from roads (defined by ON Road Network) | By Ecodistrict, Soil Landscape combination | 100% of natural cover 2 km from any road | Very few areas are more than 2 km from any road in southern Ontario. These areas have the potential to be less impacted than areas near roads. | 1. Brodribb K., Jahncke R. 2003. Great Lakes Conservation Blueprint Project for Terrestrial Biodiversity: Technical Methodology for Southern Ontario. |
| 17 | Species-specific Habitat | Habitat for Species at Risk | Data GAP - SAR occurrence data is inherently biased and inconsistent throughout the study area (primarily recorded on public land and along roads). | None | No targets. Use as NHS overlay to validate the NHS at the end. | A range of habitat suitability models for SAR are available in the region and could also be utilized to test model predictions on a range of species characteristics<br><br>Species At Risk Habitat models are available from the EOMF however these are first approximations and have yet to be validated. Ecologists recommended that this mapping only be used for validation of the NHS and not to establish targets. | 1. Natural Heritage Information Centre. OMNR, Peterborough.<br><br>2. Baldwin D., Carriere M.A., Coleman K., Neave E., Norlock P., Pulfer T., Standeven K., Thompson S., VanSleeuwen M.V. 2009. Habitat Supply Modeling for Species at Risk in Eastern Ontario. Species at Risk Stewardship Fund Project Report. Prepared by the Eastern Ontario Model Forest. |

| ID | Resource Category | Feature | Mapping Criteria | Assessment Area | Baseline Target | Comments | References |
|---|---|---|---|---|---|---|---|
| 18 | Species-specific Habitat | Habitat to support species with a range of resource needs. | Data GAP - habitats such as: Fish Habitat, Significant Wildlife Habitat (e.g. Nest Sites, Wintering Yards, Migratory Stopover areas, Seasonal Concentration Areas) are not mapped comprehensively across the study area. | None | No targets. Use as NHS overlay to validate the NHS at the end. | A range of habitat suitability models and recommendations for habitat requirements are available in the region. Ecologists recommended that this mapping only be used for validation of the NHS and not to establish targets. | 1. Neave E., Baldwin D., Nielsen C. 2008. Tiers 2 and 3 Standards – Habitat-based Biodiversity Standards Decision Support Process and Results of Eastern Ontario Pilot Project – Full Technical Report. Prepared for the Eastern Ontario Model Forest and Environment Canada. |
| 23 | Watershed Functions | Forest Cover | All Forest classes in 6E11+12+5E11 (FRI-ELC) and 6E10+15 (PVM SOLRIS/ELC). Note that in addition, forested is defined as areas with >=60% crown closure as identified under the SOLRIS 2009 Wooded Areas Updates | By Quaternary Watersheds | 30% of land area in each quaternary watershed in forest cover and 100% where if currently there is less than 30% cover within a quaternary watershed | Same target as above in ecological functions, except it is applied to watersheds. | 1. Environment Canada. 2004. How Much Habitat Is Enough, Second Edition. |
| 24 | Watershed Functions | Wetland Cover | All wetland classes in 6E11+12+5E11 (FRI-ELC) and 6E10+15(PVM SOLRIS/ELC). | By Tertiary and Quaternary Watersheds | 10% wetland habitat in each major watershed with a suggested 6% wetland habitat in each subwatershed to ensure distribution. Where current wetland cover is below these thresholds, target is set to 100% | These values are supported by studies that show that the effects of wetlands in reducing watershed yield, flooding, high flow and sustaining base flows levels off at approximately 10%. It is unknown how much is needed from a habitat perspective but the Significant Wildlife Habitat Technical Guide suggests a general guideline of 10% of the landscape in suitable habitat before any habitat would be used by most area sensitive species. | 1. Environment Canada. 2004. How Much Habitat Is Enough, Second Edition. |

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| ID | Resource Category | Feature | Mapping Criteria | Assessment Area | Baseline Target | Comments | References |
|----|----|----|----|----|----|----|----|
| 25 | Watershed Functions | Largest Natural Patch | Based on contiguous areas of natural cover. Natural cover defined as per Classification 6E11+12+5E11 (FRI-ELC) and 6E10+15 (PVM SOLRIS/ELC).<br><br>Size of natural patches assessed within each assessment unit. | By Quaternary Watersheds | Omitted | Large patches may not necessarily provide additional value from a hydrologic perspective alone. It was recommended by hydrogeologists that this target is not necessary and should be omitted. | 1. Expert opinion |
| 26 | Watershed Functions | Natural Cover in Headwater Catchments | Headwater catchments defined by WRIP ArcHydro packages. | By Headwater Catchments | Include 50% of the total land area within each headwater area in natural cover, of which:<br>1. 30% consists of Wetlands including swamps<br>2. 20% consists of Upland Forest and other areas of natural cover<br><br>Where below these thresholds, target is set to 100% | Water balance calculations would be valuable here to assess rate in infiltration/evapotranspiration/runoff. Understanding how much runoff is generated would give an understanding of how critical this headwater area is in terms of groundwater recharge.<br><br>In the absence of this information, the targets are based on expert opinion. | 1. Expert opinion |

| ID | Resource Category | Feature | Mapping Criteria | Assessment Area | Baseline Target | Comments | References |
|---|---|---|---|---|---|---|---|
| 27 | Watershed Functions | Riparian Functional Zones | Assess natural cover adjacent to all streams, rivers, lakes.<br><br>Note: buffer lengths are measured by stream reach. | By Tertiary Watersheds | 1. 100 m (both sides) buffer on all streams<br><br>2. Where >=75% of the buffer by stream reach is naturally vegetated then include 100% of these into the system | Delineation of spring or seep catchment in the riparian zone would help to define width of riparian zone needed for protection. Spring/seep catchment outside of recognized riparian zone needs protection if spring/seep to continue functioning. | 1. Meyer, P.M., Reynolds, S.K., Canfield, T.J. 2005. Riparian buffer width, vegetative cover, and nitrogen removal effectiveness: A review of current science and regulations. U.S. Environmental Protection Agency, National Risk Management Research Laboratory: Ada, Oklahoma.<br><br>2. Environment Canada. 2004. How Much Habitat Is Enough, Second Edition. |
| 19 | Agricultural / Economic | Maple Syrup Production | Sugar-maple dominated stands defined by:<br>1. For 6E11/12/5E11, where FRI-ELC type indicates sugar maple dominated (Ecosite FOD5 - Dry-Fresh Sugar Maple Deciduous Forest or Ecosite FOD6 - Fresh-Moist Sugar Maple Deciduous Forest) stand with >= 50% Hard Maple composition<br><br>2. For 6E10/15 where PVM ELC indicates sugar maple dominated forest | By Ecodistrict and Soil Landscape Combinations | Include 50% of sugar-maple dominated stands | Mapping of sugar-maple dominated stands was verified by overlaying the general locations of large sugar maple producers-all were captured. | 1. Expert opinion and Local knowledge. |

# Table of Contents

# List of Key Project Abbreviations

| | |
|---|---|
| ARN | Assessment Role Number |
| CA | Conservation Authority |
| CRCA | Cataraqui Region Conservation Authority |
| DEM | Digital Elevation Model |
| DRAPE | Digital Raster Acquisition Project - East |
| EBR | Environmental Bill of Rights |
| ELC | Ecological Land Classification |
| EOMF | Eastern Ontario Model Forest |
| ESA | Endangered Species Act (2007) |
| FABR | Frontenac Arch Biosphere Reserve |
| FRI | Forest Resource Inventory |
| GIS | Geographic Information System |
| ILM | Integrated Landscape Management |
| MMAH | Ministry of Municipal Affairs and Housing |
| MNR | Ministry of Natural Resources |
| MPAC | Municipal Property Assessment Corporation |
| NAESI | National Agri-Environmental Standards Initiative |
| NCC | Nature Conservancy of Canada |
| NGO | Non Governmental Organization |
| NHIC | Natural Heritage Information Centre |
| NHRM | Natural Heritage Reference Manual |
| NHS | Natural Heritage System |
| OBM | Ontario Base Map |
| OGDE | Ontario Geospatial Data Exchange |
| OP | Official Plan |
| PPS | Provincial Policy Statement |
| PSW | Provincially Significant Wetland |
| PVM | Predicted Vegetation Modelling |
| RVCA | Rideau Valley Conservation Authority |
| SLC | Soil Landscapes of Canada |
| SLINP | St Lawrence Islands National Park |
| SOLRIS | Southern Ontario Land Resource Inventory System |
| SAR | Species at Risk |
| SPT | Scenario Planning Team |
| WIA | Woodlot Improvement Area |

# 1.0 BACKGROUND:

The Sustaining What We Value Project is a multi-partner project funded by GeoConnections, a national program administered by Natural Resources Canada. The project involves working with community members, practitioners, and other stakeholders in the communities of South Frontenac, Lanark, and Leeds and Grenville Counties to ensure the protection of the cultural, social, environmental and economic attributes of the area that we all value. The project will utilize the principles of integrated landscape management (see Appendix A) to develop a natural heritage system (NHS) by combining data gathered in previous projects with ecological modelling tools and input from a public engagement process. Among other uses, this NHS will be available as an optional tool to assist in land-use decisions on public and private land, inform recreation routes, and provide a rationale for sustainable economic pursuits.

## 1.1 Project Study Area Description:

The project study area includes MNR Ecodistricts 6E-10 and 6E-11 (see Appendix B for background), as well as the remainder of the United Counties of Leeds and Grenville (see Fig. 1 below). This area includes all or portions of 23 lower and single tier municipalities found in the United Counties of Leeds and Grenville, the County of Lanark, the County of Frontenac, and the City of Ottawa.
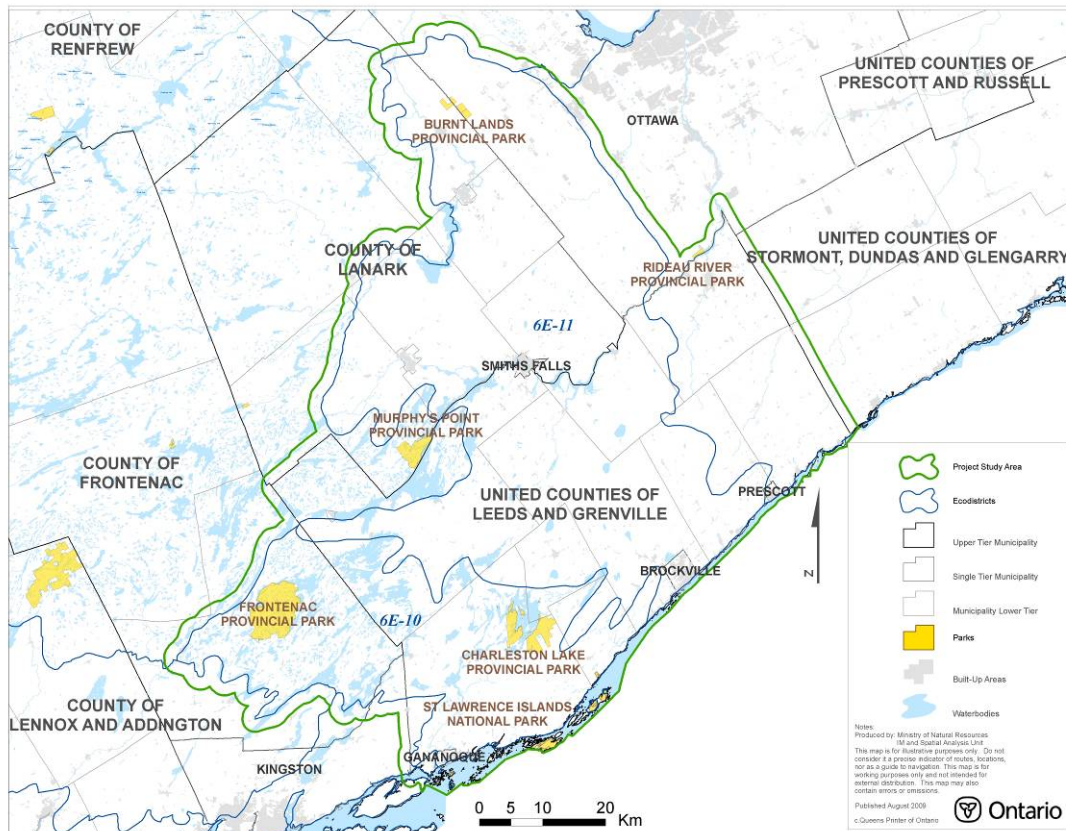


**Figure 1. Location of project study area in southeastern Ontario**

## 2.0 PURPOSE:

This Terms of Reference will guide the development of the NHS by a collaborative of stakeholders representing different interests from within the project study area. This stakeholder collaborative will subsequently be known as the Scenario Planning Team. The project officially commenced in June of 2009 with a general meeting of stakeholders in the Township of Athens, Ontario (see Appendix C for minutes), and is expected to finish in March of 2010. This Terms of Reference was developed using material developed for the two NHS pilot projects in the MNR Natural Spaces Program (2005-2007) as a starting point. This material was reviewed and edited by local stakeholders at the workshop in Athens on June 23$^{rd}$, 2009, and finalized at the second meeting of the Scenario Planning Team on November 2, 2009.

### 2.1 Vision Statement

*A sustainable quality of life for the communities within and adjacent to the study area is supported by a balance of environmental, economic, cultural, and social land uses that includes a system of connected natural areas capable of conserving indigenous biodiversity, ecological functions and species habitats.*

### 2.2 Goal

*To identify, through engagement and agreement of local communities, a healthy natural heritage system (NHS) for the study area that will:*
- *Provide a focus for strategic land restoration to improve land sustainability, land securement, stewardship, and the conservation of biodiversity.*
- *Inform and support sustainable land use planning and resource management decision-making.*
- *Support sustainable economic opportunities.*
- *Support social well-being.*
- *Maintain cultural heritage.*

### 2.3 Objectives:

The objectives of the Sustaining What We Value Project include:

1. Identifying a system of natural heritage features and areas based on the best available science and information, that incorporates local knowledge and interest through engagement with area communities.
2. Protecting identified ecological priorities so that they may continue to provide the health, social, cultural, economic, and environmental benefits that we rely on.
3. Providing products that provide benefit in informing: land use planning and policy decisions, including the option for municipalities to use the NHS in their official plans; priorities for stewardship and restoration projects; priorities for conservation land acquitisitions; and priorities for inventory programs and research projects.
4. Promoting the use of the products developed by the project in support of maintaining a healthy and functional natural heritage system for the benefit and health of the communities and environment.

5. Providing a foundation for future NHS planning as our knowledge and information improve over time.


**2.4 Guiding Principles**

These principles express the fundamental values that will guide the development of a natural heritage system for the landscape.

The process of developing the natural heritage system will:
1. Be value-based
2. Engage stakeholders in its design and development
3. Consider ecological, economic, social, and cultural values
4. Be based on the best-available science and information
5. Be open and transparent in reporting on process, methods, outcomes and results
6. Be dynamic and adaptive
7. Be consistent with the Provincial Policy Statement (Appendix D) and all applicable legislation
8. Consider existing municipal official plans and existing areas of development
9. Recognise the many values of natural and developed areas
10. Consider valuation of ecological goods and services
11. Consider valuation of cultural heritage landscapes[1]


**2.5 System Design Goals**

The system design goals outline the types of features and areas that the natural heritage system will include.

1. The natural heritage system for the study area will consist of a network of natural core areas, regional connections and local linkages, and include:
   a) The diversity of ecological communities and native species
   b) Areas for restoration and recovery including representative and threatened natural areas
   c) Significant natural heritage features as defined in the 2005 Provincial Policy Statement (pg. 15)
   d) Known occurrences of species at risk and their habitats
   e) Protected areas and public lands, and
   f) Surface water and other aquatic habitats, and sensitive groundwater features

2. The natural heritage system respects existing and approved land uses, including but not limited to:
   a) agricultural lands
   b) urban development
   c) tourism and recreational development
   d) resource extraction and mining
   e) transportation and infrastructure
   f) energy production

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[1] Definition of cultural heritage landscape as per the 2005 PPS (pg. 29)

## 3.0 PROJECT GOVERNANCE/STRUCTURE

The Sustaining What We Value Project will consist of two groups:
- Scenario Planning Team
- Integrated Landscape Management (ILM) Steering Committee

The Scenario Planning Team seeks to include a balance of interests from municipalities, conservation authorities, First Nation communities, farmers, landowners, naturalists, hunters and anglers, various local industries (real estate, aggregates, forestry, agriculture, etc…), NGOs, and other conservation organizations.

The Scenario Planning Team commits to engaging in the project, and acquiring background knowledge and education through discussion and presentations of scientific and technical information by experts. The team will work collaboratively toward the identification of objectives and targets to direct the development of scenarios through the use of the Marxan model, a decision-support tool for NHS planning. The Scenario Planning Team will review scenarios, advise as to their modification, and identify agreed-to scenarios as final products of the project.

The ILM Steering Committee will provide an administrative role to meet the requirements of the GeoConnections funding. The ILM Steering Committee will provide the relevant technical and professional advice, data and information, and modelling expertise required by the Scenario Planning Team to help inform decision making. The ILM Steering Committee will lead the external communications for the project.

### 3.1 Scenario Planning Team:

**Role:**

Scenario Planning Team members will:

a. Actively participate in the Scenario Planning Team including learning and knowledge transfer, setting objectives and targets, and supporting the recommendations and opinions of the group as a whole.
b. Assist in obtaining support from their organizations for the project.
c. Actively participate on behalf of their organization.
d. Assist with identification and selection of members, replacements, and new members.
e. Provide for an alternate to attend a meeting if necessary.
f. Provide frequent communication back to home organizations on progress, especially to senior management in their organizations, and solicit input for key decisions.
g. Review and advise on matters relating to the development of the NHS (i.e. issues and concerns, goals and objectives, information needs, etc.).
h. Assist with project communications by seeking to ensure the participation of all interested parties and actively participating in formal public consultation sessions.
i. Assist in the development and implementation of performance measures and indicators that may be used to inform future cycles of NHS planning.

j.  Ensure that staff in their organization(s) receives the final documentation.
k.  Champion the NHS planning process by assisting with the communication and promotion of the results of the project.

**Composition**

The Scenario Planning Team shall consist of a maximum of 20 persons who represent the various interests and perspectives in the area, are local residents or business owners, and have an interest in the management and use of local land and natural resources. Member biographies can be found in Appendix E.

Members are responsible for expressing the views and opinions of the organization/stakeholder sector that they represent and will be a conduit of information back to their respective affiliation. Members are expected to contribute to the group dynamic and act as champions of the NHS process.

The Scenario Planning Team will be composed of the following members:

**Facilitator** – Kerry Coleman

| Participant | Area of Expertise |
|---|---|
| 1. Emily Conger | Non-profit - Algonquin to Adirondacks Conservation Association |
| 2. Dan Ethier | Planner, Municipal Affairs and Housing |
| 3. Karen Fraser | Upper Tier Municipal/GIS |
| 4. Joe Gallivan | Sustainability Coordinator, County of Frontenac |
| 5. Bob Gollinger | Stewardship/Social |
| 6. Linda Hill | Landowner |
| 7. Cyril Holmes | Ontario Federation of Anglers and Hunters |
| 8. Barb Kalivas | Municipal Planner/ Lower Tier |
| 9. Carrie Kasurak | Lanark, Leeds and Grenville Health Unit |
| 10. Jeff Leggo | St. Lawrence Islands National Park |
| 11. Pierre Mercier | Cultural |
| 12. Margot Miller | Area Artist/ Cultural |
| 13. Erin Neave | Eastern Ontario Model Forest |
| 14. Mara Shaw | Conservation Authority |
| 15. Shaun Thompson | Ecologist, Ministry of Natural Resources |
| 16. Dave Walker | Canadian Land Trust Alliance |
| 17. Laurie Wight | Farmer/ Landowner |
| 18. TBD | Development/ Aggregate |
| 19. TBD | Economic |

**Term of Office**

It is desirable, given the degree of information and technical background provided, that the Scenario Planning Team members remain with the project for its full length. This will include approximately 6-8 meetings over a 5-6 month period.

It is anticipated that the Scenario Planning Team will disband at the end of the project and this Terms of Reference will dissolve.

The Scenario Planning Team will review these guidelines as the need arises.

**Selection Process**
Scenario Planning Team members are voluntary representatives of stakeholders within the project area. Membership on the Scenario Planning Team is based on the public input collected at the general meeting of stakeholders held on June 23, 2009 in Athens, as well as a stakeholder analysis of the different local interests that should be represented. The best possible efforts will be made to ensure a reasonable balance of representatives from various interest groups, and people of ranging demographics and geographic interests. These efforts will be fully documented to ensure we can demonstrate that every effort was made to invite key stakeholders.

**Scenario Planning Team Coordinator**
The Scenario Planning Team shall select by consensus one member to be the Scenario Planning Team Coordinator. The coordinator will be selected by the Scenario Planning Team upon acceptance of this Terms of Reference (or when required). A member of the ILM Steering Committee will be selected as an alternate to assist the Scenario Planning Team Coordinator.

The Scenario Planning Team Coordinator and alternate will be:
> Karen Fraser
> Elizabeth Holmes (alternate)

**Role of the Scenario Planning Team Coordinator:**
In addition to the duties of a Scenario Planning Team member, the coordinator and/or alternate will also perform the following duties:
- Ensure adequate notice to members of upcoming meetings and agenda items.
- Distribute meeting agendas and minutes.

**Facilitator**
The Facilitator will be a neutral third party that will assist the Scenario Planning Team in meeting its mandate. The Facilitator will be hired by the ILM Steering Committee to facilitate the NHS planning process.

**Role of the Facilitator**
- Overall conduct of meetings.
- Basic administration & adherence to this Terms of Reference.
- Assist in building consensus.
- Review and advise on matters relating to the development of the Sustaining What We Value Project (i.e. issues and concerns, goals and objectives, information needs, etc.).

**Meetings**
The Scenario Planning Team will meet approximately 6-8 times over a 5-6 month period from October 2009 to March 2010. Additional meetings can be scheduled as required or requested by members.

Meetings will be held at a designated location that is accessible by the Scenario Planning Team members.

Minutes will be kept at each meeting and will be approved by the Scenario Planning Team at each subsequent meeting.

ILM Steering Committee members may attend meetings in the capacity of advisory or resource persons and may provide the committee with data and information on matters related to the Sustaining What We Value Project.

Invitations to attend a meeting may be extended to individuals or representatives from other organizations who are not Scenario Planning Team members but have information of value to the group. The Scenario Planning Team should be notified and agree on the invitation/agenda in advance.

Information for discussion at meetings should be distributed at least one week in advance, so that members have an opportunity to review. Scenario Planning Team members shall poll members of their organizations/constituencies for input prior to meetings so that all interests may be appropriately represented.

Despite diverse representation on the committee, there is a need for understanding that we are working toward a common goal. Scenario Planning Team members will periodically review goals and objectives to ensure that all participants are still engaged and that we are making progress toward these goals and objectives.

Members will have a "living" participant binder that can be passed along in the event of a replacement in the membership.

**Decision-Making and Conflict Resolution**

It is desirable that recommendations of the Scenario Planning Team be arrived at through consensus decision-making. Where consensus cannot be achieved, majority and minority view points will be noted. Where decisions are required in order for the project to continue to move forward and meet its objectives, majority decision will provide direction.

Meetings will require a minimum of 12 members or alternates of the Scenario Planning Team in order to make decisions. If this quorum cannot be met, an alternate meeting date should be selected.

**3.2 ILM Steering Committee:**

**Role:**

The ILM Steering Committee will:

a. Provide background administration of the project as required by GeoConnections.
b. Provide learning opportunities and knowledge transfer.
c. Deliver on the best available science and technology in support of the project.
d. Provide resources for logistics, data collection, update, preparation and modelling.
e. Make available to the Scenario Planning Team pertinent background information and advice including science and technology information to support the project and help identify ecological priorities.
f. Conduct the Marxan analysis using the best available information and the targets recommended by the Scenario Planning Team. In the event of a disagreement, multiple learning scenarios will be run through the Model and presented to the Scenario Planning Team for discussion to see how each potential scenario will help achieve the identified objectives.
g. Provide training for GIS staff on the use of the output layers.
h. Assist with bringing Scenario Planning Team members who miss a meeting up to speed before the next meeting.
i. Lead external project communications through the development of a project website and associated materials.
j. Ensure communications material is shared in a timely and accurate manner.
k. Assist with project communications by seeking to ensure the participation of all interested parties and actively participating in formal public consultation sessions.

**Composition:**
The ILM Steering Committee consists of a variety of partners that have been involved in the formation and launching of the Sustaining What We Value Project.

The project partners include:

| Members: | Organization: |
|---|---|
| Josh Van Wieren, Chris Bellemore | St Lawrence Islands National Park |
| Elizabeth Holmes, Erin Neave | Eastern Ontario Model Forest |
| Don Ross, David Bull | Frontenac Arch Biosphere Reserve |
| Amber Cowie, Anne Bell | Ontario Nature |
| Karen Fraser | United Counties of Leeds and Grenville |
| Kathryn Lindsay | Environment Canada |
| Steve Voros, Silvia Strobl, Joy Sterritt, Elizabeth Spang, Chris Lemieux | Ontario Ministry of Natural Resources |

## 4.0 PROJECT COMMUNICATIONS

### 4.1 Goals and Objectives:

The primary communications goal is to:

- Build a broad-based understanding of the benefits of integrated landscape management planning and encourage public engagement in the process to ensure that the key values within the community are used in decision-making circles.

The objectives that support this goal are to:

- Allow the public to shape the process with their values and participation;
- Build trust and encourage buy-in/participation from target audiences (e.g. municipal planners, decision-makers);
- Engage all audiences in the process and encourage the planning community and stakeholders to use the results;
- Integrate community values (social, cultural, economic, and environmental) into the plan for general knowledge, planning purposes and other interests; and
- Introduce the concept of ecosystem services to ensure that we are attributing some concept of values to the benefits we all derive from a healthy natural environment.

### 4.2 Protocol

- The ILM Steering Committee will lead the external communications for the project, and will provide key messaging for use by the Scenario Planning Team.
- Communications should be 2-way between the Scenario Planning Team and the ILM Steering Committee.
- Public and media communications should be agreed-to by both the Scenario Planning Team and the ILM Steering Committee.
- There should be communications on the progress of the Scenario Planning Team meetings as required.
- The progress reports and final products from the Scenario Planning Team will be available for viewing on a public website in order to keep the broader public engaged and informed.
- Releases to the media will not occur unless there is consensus from both the ILM Steering Committee and the Scenario Planning Team on content, method and timing.

sustaining
what we VALUE

An Integrated Landscape Management Planning Approach for the
Communities of South Frontenac, Lanark, and Leeds and Grenville Counties

## APPENDIX C: Community Values Mapping: Community Comments and News Articles

**Community Values Mapping: Community Comments on Places of Value**

St. Lawrence Park is a jewel of the city, offering a unique natural Canadian Shield waterfront setting that sometimes is quiet enough to actually hear loons calling. It and its surrounding islands deserve to be set aside for non-motorized healthy quiet sailing

Completely unspoiled.

Bull's eye Lake

I have marked Charleston Lake and Charleston Lake Park as a wilderness, scenic, recreational, educational, and biodiverse region. The area is a jewel of Eastern Ontario.

Provincially significant marsh

Nationally significant marsh

Charleston Lake Prov Park is wonderful in providing a non-motorized boating zone, allowing for a more natural wilderness experience.... a unique accessible oasis for visitors wishing to hear and see wildlife.

Important marsh

Overlook

Blue mountain wilderness area

The Brockville Islands are a proud eastern representative group of the Thousand Islands in the Frontenac Arch Biosphere Reserve. They stretch from Molly's Gut in the west to the Three Sisters on the east side of Brockville.

Historic churches

Half moon bay

This beautiful quarry and land is home to the Sovereign, Indigenous, Aboriginal Nation of the Kinekwii who believe they are people of light who can have, if they choose, have

a direct relationship with the Great Spirit and Spirit of Mother Earth and Water

Brockville has an amazing number of beautiful old churches of a wide variety of Christian denominations. Too bad their steeples will be lost in the skyline with a "tall buildings" urban design.

A magical place for connecting to nature and experiencing something larger than ourselves

This is the house my great-grandfather built in 1870, I grew up in, and will return to in a few years. My family has lived on this farm for at least 5 generations.

Rockport Village

Historic cemetery

The dam at Morton controls the flow of water from the Rideau/Cataraqui River watershed to the Gananoque River watershed.  Very cool connection of historical and cultural importance.

Historical importance of location: 19th century religious campground and later early summer recreational area. Union Park, Butternut Bay. Original Victorian architecture preserved.

Old Quarry

Delta Mill -fascinating, beautiful in its structure

Interpretive, spiritual and marsh, scenic all in one place

Springfield House and Escott Town Hall

Historic Chaffey's Lock also great scenery

Historic and very beautiful, great place for visitors and locals

Site of the Old Lyn Mill

Lower town sustainable redevelopment

Lyndhurst Bridge

Marble Rock Dam was the site of confrontation between the dam installers and landowners in the late 1800s.  Great story.

United Church- 150 yr +

Parkway threatened by inappropriate deforestation for new houses lining the ridge and filling in wetlands

La Rue Mills
The Lyn Pit- gravelled to build railroad. Later used to train soldiers for WWII

Historic Bridge

Poole's Resort was one of the original family run resorts along the Canadian shore of the St. Lawrence in the 1000 Islands. At one point, the resort was apparently a temperance hotel.  The volume of tourists, or local residents, supported a Canadian Post

Marble Rock

Halleck Rd one room school

Inappropriate development threatens cultural value of scenic village

Old River Road was the original route along the St. Lawrence River from Gananoque (and beyond) towards Brockville. The 1000 Islands Parkway was build in the 1930s and connected more communities along the river - as it bridged gaps in the dirt roads

Delta Mill

The last moved marker is to designate the 1887 Heritage designated Elgin Red Brick School (S.S. No.5) which is currently being restored and rehabilitated to serve as a Cultural and Genealogical Research Centre.

Shipman Mine-hand dug out of a huge boulder, the miner thought they were striking it rich with gold. Turned out to be "Fool's Gold"

The Kinekwii nation welcomes all, to learn and be one with the great spirit.

Site of Captain Fairs original cabin - an unmarked and unprotected historical site

Poole's Resort Public school - in use from about 1870 to 1965, it served the grade 1 to 8 students of south eastern Ft. of Escott Township for a century.

Helen Quilliam Sanctuary of KFN

Limerick Forest

Blue Mountain - pitch pine, a special sumac the name of which I have forgotten

Important marsh

Wetland and old quarry

Rideau River Migratory Bird Sanctuary

Marsh

Lyn Creek- SAR provides drainage for surrounding lands

Frontenac Provincial Park

Limerick Forest

Important marsh

I like this spot!  Lots of wildlife in protected areas near town

Rare and SAR have been found

Garter Lake

Limerick Forest

Wetland and Duck Pond

Gould Lake conservation area

Rare and SAR have been found

Queens Biology station area

MJWA: 532 hectares of preserved landscape on the edge of what was the Champlain Sea, includes species at risk such as least bittern and butternut

We have 100 acres of land in the former Ft. of Escott Township that is protected by a conservation easement with the local land conservancy. Property was classified by Environment Canada as Ecologically Significant under the Ecogifts Program.

Education centre, native pictographs, trail, marshes important to protect and expand

Darlingside threatened by not being appropriately protected

Through friendship and sharing, we can learn from each other.

Environmental education programming for all ages

Canadian Shield geology, century-old park, and heritage of islands are all of interest.

Opinicon Hotel - great history, scenery, provides employment

Biosphere centre for sustainability = catalyst for sustainable redevelopment of the region

Burnbrae Farms

Farm Land

We rely on Kemptville for food and other household supplies.

Historical Farm

Farm land

Trans Canada Trail great for hiking and its biodiversity

The site of the annual Cataraqui Trail Bike & Hike lunch.  Best homemade lunch in the region and for the Trail!

Kendrick's Park on Lower Beverley Lake is a perfect place for youngsters- sandy beach, excellent play structures, clean washrooms and lots of space to run or play soccer.

Great for canoeing

This section of the Cataraqui Trail is stunningly beautiful!

Nice easy river to canoe & interesting scenery

This portage is important for the historic Gananoque River Paddling Trail that (mostly) connects the St. Lawrence River at Gan to the Rideau Heritage Route at Morton.

Smiths Falls Curling Club is very active with Daytime Curlers [mostly retired and older]. Excellent way to get through winter.

Blue Mountain!  Hike to your heart's content

One of the access points to Cataraqui Trail system (Strathcona - Smiths Falls).  From here and you go west you can see how the landscape changes from on and off the shield. http://www.rideau-info.com/cattrail/

Kingsford lake Dam is an informal access into the northern part of Frontenac Park. Kids of all ages can have great fun in their bathing suits under the torrent of water that flows over the dam.
Sand Lake Public Dock

Walk, skate, cc ski, snowshoe, ice boat, canoe, bike, dog sled

The shallow water, reed beds and islands around Poole's Resort are a great place to kayak.

Rock Dunder - Greatest view in the area - marvellous hiking trails

The Crank on the Gananoque River - stunning Shield, serene

Marsh

Important marsh protect from development

The bike path on the Thousand Islands Parkway is a great asset for those who love to bike, but cannot go off-road-- 40 kilometres of enjoyment.

Serenity now.

Ivy Lea threatened by inappropriate development

CRCA Property- site of old sand pit

Inappropriate monster home development and destruction of natural landscape degrades the scenic value of the entire area especially scenic vistas of local, regional and international value - scenic vistas are not protected as they are along the Niagara Parkway

Lyn Falls tip of the Frontenac Arch

The shore line and 1000 Islands of the FABR are unique and provide for not only scenic and recreational opportunities, but also educational, biodiversity, historical, wilderness and spiritual endeavours.

Old River Road is a beautiful drive in the spring and the fall when the maple leaves are changing colour. The road was photographed by Malak Karsh (brother of famous portrait photographer Yousuf Karsh) and featured as the October photograph for many years

**Community Values Mapping: News Articles from the High School Workshops**

# 'Sustaining What We Value' Project

## Regional collaborative launches website tool

Students at Athens District High School recently got a taste of what challenges municipal officials and professional land-use planners face when they plan for community growth, development and well being on our landscape.

Thirty-two students provided information on what they value as part of a community mapping exercise for the Sustaining What We Value Project, a community led initiative that is working to develop a map for the future in Lanark, Leeds-Grenville Counties and Frontenac Township. The community mapping process involves visiting a website and moving dots onto a map to highlight areas important for social, environmental, cultural and economic reasons. Students were asked to place dots on the map to identify the areas that are important to them, which included areas for recreation, farming, biodiversity and others.

"You will be able to look back at this exercise and see how your input can result in ensuring we have a truly sustainable future in the area in which we live" said Athens Mayor John Conley, who was in attendance speak to the students along with David Bull from the Frontenac Arch Biosphere Reserve and Chris Bellemore

from St. Lawrence Islands National Park. The goal of the visit was to collect feedback from the students on how well the tool works and to get them to contribute to the process.

The mapping project, funded by Environment Canada, is part of a larger exercise where a number of agencies and groups, including the Biosphere, St. Lawrence Islands National Park, The Eastern Ontario Model Forest, Ontario Nature, the United Counties of Leeds and Grenville and the Ontario Ministry of Natural Resources are engaging the public in sustainability planning. A project committee of residents representing the agricultural community, social groups, environmental organizations, municipalities and cultural heritage interests are working through what is known as a natural heritage system process. This process examines how human and natural elements on the landscape can interact in a sustainable manner. This process takes the best landscape level data available and asks the project committee to attempt to balance community needs and make informed decisions.

Chris Bellemore has seen the project evolve from a concept to a series of dif-

ferent user-friendly tools. "The process was designed from the beginning to be user-driven, meaning that the public has the ultimate say in what the final product will look like."

"The success of the Sustaining What We Value Project will come from the amount of public input we receive" explained David Bull. "The more information we gather on what people specifically value in their community, the more informed the decisions will be when it comes to planning the future of their landscape."

The public will be introduced to the project and the website tool at an Open House at the Joshua Bates Centre in Athens on Saturday 29 May. However the website is available now for anyone who would like to learn more about the project or to contribute their thoughts on what they value in their community.

The results of the project are intended to complement existing planning exercises in the area.

To provide your input to the Sustaining What We Value project or to learn more, visit www.sustainingwhatwevalue.ca or visit your local public library.

# Mapping out the future: ADHS students provide input into community mapping exercise for the region

EMC News – Students at Athens District High School (ADHS) recently got a taste of what challenges municipal officials and professional land-use planners face when they plan for community growth, development and well being on our landscape.

Thirty-two students provided information on what they value as part of a community mapping exercise for the Sustaining What We Value Project, a community led initiative that is working to develop a map for the future in the counties of Lanark and Leeds-Grenville, as well as Frontenac Township. The community mapping process involves visiting a website and moving dots onto a map to highlight areas important for social, environmental, cultural and economic reasons.

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### Larger exercise

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To provide your input to the Sustaining What We Value project or to learn more, visit www.sustaining-whatwevalue.ca or visit your local public library.

For additional information, contact Chris Bellemore at 613-923-5261, ext. 115.

# APPENDIX D: Glossary of Natural Heritage Systems Terminology

Source: Ministry of Natural Resources. 2011. A Guide to Designing and Planning Natural Heritage Systems (NHS) in Southern Ontario. Available at:
http://www.forestry.utoronto.ca/imsa/NHSGuide/index.html

The following are definitions of Natural Heritage Systems (NHS) terms.

**Agricultural Uses -** means the growing of crops, including nursery and horticultural crops; raising of livestock; raising of other animals for food, fur or fibre, including poultry and fish; aquaculture; apiaries; agro-forestry; maple syrup production; and associated on-farm buildings and structures, including accommodation for full-time farm labour when the size and nature of the operation requires additional employment. (PPS 2005)

**Areas of Natural and Scientific Interest (ANSI):** areas of land and water containing natural landscapes or features that have been identified as having life science or earth science values related to protection, scientific study or education. (PPS 2005)

**Baseline scenario –** a set of targets with minimum standards based on the best-available science, information, and local knowledge and used as the starting point in a comparison exercise when designing a natural heritage system; a baseline scenario is one of the learning scenarios and acts as a point of reference.

**Biodiversity or Biological Diversity** — the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems. (OBS, 2005)

**Biodiversity Representation** – conservation features that represent unique vegetation communities, the foundation of ecosystems that contribute to the biodiversity of Ontario. The targets set for these conservation features ensure that all native forests, wetlands, grasslands and other vegetation communities are represented appropriately in a natural heritage system. (OMNR 2010)

**Community Type** - A group of similar vegetation stands that share common characteristics of vegetation, structure, and soils (Lee *et al.* 1998).

**Conservation Features** - are the basis of spatial prioritization analysis and each provides spatial and specific representation of high-level goals and NHS objectives. NHS conservation features can be a species, a natural feature (e.g. interior forest, species habitat, vegetation types, etc), an ecosystem, mapped ecological functions or processes, etc. They are defined and developed as part of the solution to a given prioritization problem, once high-level goals have been defined. Conservation features can be developed by a science advisory team or by scientists and stakeholders together. Conservation features within spatial conservation prioritization are sometimes termed criteria and/or indicators.

**Constraints –** A set of parameters that provide direction to the decision-support tool as to how to deal with existing or approved land-use designations identified by a stakeholder group.

**Core Areas -** the building blocks of natural heritage systems. Where natural cover is not predominant, these are areas having a higher percentage density of natural cover than other

parts of the landscape. As such, core areas should be capable of providing and sustaining ecological functions. Core areas could consist of one feature or a collection of features that could include a mix of ecosystem types (e.g., grasslands, alvars, woodlands, wetlands). (Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005 Second Edition)

**Cultural Heritage Feature** - a feature of the landscape which, by itself or together with its associated environment, is unique or representative of past human activities or events. Such a feature may include a site or area of archaeological or historical value and it may include a building or structure of architectural and/or historical importance. (Sustainable Halton)

**Cultural Heritage Landscape** - a defined geographical area of heritage significance which has been modified by human activities and is valued by a community. It involves a grouping(s) of individual heritage features such as structures, spaces, archaeological sites and natural elements, which together form a significant type of heritage form, distinctive from that of its constituent elements or parts. Examples may include, but are not limited to, heritage conservation districts designated under the Ontario Heritage Act; and villages, parks, gardens, battlefields, main streets and neighbourhoods, cemeteries, trail ways and industrial complexes of cultural heritage value. (PPS 2005)

**Development** - the construction, erection or placing of a building or structure of any kind or the making of an addition or alteration to a building or structure that has the effect of increasing the size or usability thereof, and includes such related activities as the creation of new *lots*, site grading and the placing or dumping of fill. (Sustainable Halton)

**Ecodistrict** – a sub-division of Ecoregions, based on more finely resolved abiotic data. Primarily identified by patterns of relief, geology, geomorphology, and substrate parent material.  Seventy ecodistricts have been described for Ontario. (Inventory, Monitoring and Assessment Technical Report: The Ecosystems of Ontario Part 1: Ecozones and Ecoregions)

**Ecological Function** - the natural processes, products or services that living and non-living environments provide or perform within or between species, ecosystems and landscapes. These may include biological, physical and socio-economic interactions. (PPS 2005)
- ecological and evolutionary processes, including gene flow, disturbance, and nutrient cycling" (Noss 1990).

**Ecological Land Classification** – a hierarchical system that classifies ecological units on the basis of bedrock, climate (temperature, precipitation), physiography (soils, slope, aspect) and corresponding vegetation. The ELC hierarchy and associated products are multi-scale and extend from broad provincial level down to very fine-scale vegetation and substrate levels. Ontario's ELC system presently is composed of three upper level nested ecological units: ecozones, ecoregions and ecodistricts and two non-nested finer scale units, ecosites and ecoelements. (ELC Primer, 2007)

**Ecoregions**  – A unique area of land and water nested within an ecozone that is defined by a characteristic range and pattern in climatic variables, including temperature, precipitation, and humidity. The climate within an ecoregion has a profound influence on the vegetation types, substrate formation, and other ecosystem processes, and associated biota that live there. (Inventory, Monitoring and Assessment Technical Report: The Ecosystems of Ontario Part 1: Ecozones and Ecoregions)

**Ecosystem** — a dynamic complex of plants, animals and micro organisms and their non-living environment interacting as a functional unit. The term ecosystem can describe small scale units, such as a drop of water, as well as large scale units, such as the biosphere. (OBS, 2005)

**Ecosystem Services** - the benefits (in terms of sustained or improved human well-being) provided by natural features and functions with strong ecological integrity. It is the human connection to *ecological function*.

**Ecozone** – A very large area of land and water characterized by a distinctive bedrock domain that differs in origin and chemistry from the bedrock domain immediately adjacent to it. The characteristic bedrock domain, in concert with long-term continental climatic patterns, has a major influence on the ecosystem processes and biota occurring there. (Inventory, Monitoring and Assessment Technical Report: The Ecosystems of Ontario Part 1: Ecozones and Ecoregions)

**Endangered Species** — species that are threatened with immediate extinction or extirpation if the factors threatening them continue to operate. Included are species whose numbers have been reduced to a critical level or whose habitats have been so drastically reduced that they are deemed to be in immediate danger of extinction. (OBS, 2005).  According to the PPS, they are "species listed or categorized as an "Endangered Species" on the Ontario Ministry of Natural Resources' official species at risk list, as updated and amended from time to time." (PPS 2005)

**Hydrologic Function -** the functions of the hydrological cycle that include the occurrence, circulation, distribution and chemical and physical properties of water on the surface of the land, in the soil and underlying rocks, and in the atmosphere, and water's interaction with the environment including its relation to living things. (PPS 2005)

**Landscape** - a mosaic where the mix of local ecosystems or land uses is repeated in similar form over a kilometres-wide area (Forman 1995).

**Landscape-scale Analysis** - Landscape-scale conservation and thus analysis is based on the premise that the spatial configuration of a landscape has a profound effect on the ecology and biodiversity found within it.

**Landscape-scale Wildlife Habitat** - conservation features that contribute to ecosystem functions such as the movement of species. Stakeholders set targets for the number and size of patches and for how close together the patches should be in order to sustain healthy plant, animal and fish populations. Coarse scale features, such as patch size and forest interior, ensure that habitats are included for a broad range of species. (OMNR 2010)

**Learning Scenarios** - a set of natural heritage system design options that include the baseline scenario, together with additional scenarios that may have one or more changes to the targets and constraints as requested by a stakeholder group. These scenarios allow the partner group to explore alternative targets or constraints to see the effect on the natural heritage system design.

**Linkage/Corridor** – a linear area intended to provide connectivity (at the regional or site level), supporting a complete range of community and ecosystem processes, enabling plants and smaller animals to move between core areas and other larger areas of habitat over a period of

generations. The terms are used interchangeably for planning purposes but may need to be distinguished for ecological or biological reasons. (Natural Heritage Reference Manual, 2010)

**Marxan** - a freely available conservation planning software that provides decision support to a range of conservation planning problems, including:
- the design of new reserve systems
- reporting on the performance of existing reserve systems
- developing multiple-use zoning plans for natural resource management (The University of Queensland)

**Natural Environment** - the air, land and water, or any combination or part thereof. (Sustainable Halton)

**Natural Heritage** – includes geological features and landforms; associated terrestrial and aquatic ecosystems; their plant species, populations and communities; and all native animal species, their habitats and sustaining environment.  (OMNR, 1992. A natural heritage areas strategy for Ontario. Provincial Parks and Natural Heritage Policy Branch)

**Natural Heritage Features and Areas** - features and areas, including significant wetlands, significant coastal wetlands, fish habitat, significant woodlands south and east of the Canadian Shield, significant valleylands south and east of the Canadian Shield, significant habitat of endangered species and threatened species, significant wildlife habitat, and significant areas of natural and scientific interest, which are important for their environmental and social values as a legacy of the natural landscapes of an area. (PPS 2005)

**Natural Heritage System** – are made up of core conservation lands and waters linked by natural corridors and restored connections; identified as landscape networks for the conservation of biological diversity, natural processes and viable populations of indigenous species and ecosystems (Riley, J., P. Mohr. 1994. The Natural Heritage of Southern Ontario's Settled Landscapes: A review of conservation and restoration ecology for land-use and landscape planning, OMNR).

The 2005 Provincial Policy Statement defines natural heritage systems as:

"…a system made up of natural heritage features and areas, linked by natural corridors which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species and ecosystems.  These systems can include lands that have been restored and areas with the potential to be restored to a natural state".
(PPS 2005).

**Natural Heritage Systems (NHS) Design** – a collaborative engagement process to identify, evaluate and spatially map significant natural heritage species, spaces and functions resulting in a viable Natural Heritage System.

**Natural Heritage Systems (NHS) Planning** – activities that inform and guide the long-term, strategic management and stewardship of landscapes; and that form the basis of diverse planning decisions to conserve our natural heritage in a sustainable manner and to contribute to the quality of life.

**Planning** – (1) to identify goals and objectives to be achieved, (2) to formulate strategies to achieve them (3) to arrange or create the means required, and (4) to implement, direct, and monitor all steps in their proper sequence.

**Preferred Scenario** – the natural heritage system design (and associated ecological targets and socio-political constraints) that is selected through consensus by a diverse partner group.

**Prime Agricultural Area** - areas where prime agricultural lands predominate. This includes: areas of prime agricultural lands and associated Canada Land Inventory Class 4-7 soils; and additional areas where there is a local concentration of farms which exhibit characteristics of ongoing agriculture. (PPS 2005)

**Provincial Policy Statement** – provides direction on matters of provincial interest related to land use planning and development. It recognizes the complex inter-relationships among economic, environmental and social factors in planning and embodies good planning principles. It provides strong, clear policy direction on land use planning to promote strong communities, a clean and healthy environment and a strong economy. It includes policies on key issues that affect our communities, such as: the efficient use and management of land and infrastructure; protection of the environment and resources; and ensuring appropriate opportunities for employment and residential development, including support for a mix of uses. (MMAH website)

**Public & Stakeholder Engagement** – a process where communities, governments, and organizations work together to find solutions to complex problems. (Lenihan 2008)
- a process where individuals, groups, and organizations choose to take an active role in making decisions that affect them. (Reid, 2008)

**Scenario Planning** – a systemic method for thinking about complex and uncertain futures. It involves [stakeholders] taking into consideration a variety of possible futures that include many of the uncertainties in the system rather than to focus on the accurate prediction of a single outcome." (Peterson *et al.* 2002) Scenario planning allows people to step away from entrenched positions to identify positive futures that they can work to create.

**Settled Landscape** - the product of man's activities over time in modifying the landscape for his own purpose, and is an aggregation of man-made features such as a village, farmland, waterways, transportation corridors, and other artefacts. (Sustainable Halton)

**Socio-Political Considerations** - conservation features recognizing the existing land use and management decisions that have already been made. Stakeholders decide together which areas, such as urban greenspace and prime agricultural land, should be included within the natural heritage system to contribute to ecological targets. (OMNR 2010)

**Species at Risk** - any wild plant or animal threatened by, or vulnerable to extirpation in Ontario or extinction. Species at Risk are assigned a designation (i.e. Special Concern, Threatened, Endangered or Extirpated) to represent the degree of imperilment. (OBS, 2005)

**Species-specific Habitat** - conservation features and targets in this category address individual species and their habitat needs. This finer level of detail ensures that species specific habitat requirements are represented in the natural heritage system. (OMNR 2010)

**Stewardship** - An ethic in which humans care for the land as one part of the natural system. To participate in environmental stewardship is to make a personal commitment to the land and to sustain and enhance it for generations to come. (Ontario Stewardship, Ministry of Natural Resources)

**Targets** – the amount or portion of an area or conservation feature or a number of occurrences of a species or habitat to be captured by a NHS. Explicit targets are set based on science and known thresholds. Where there is no science available to suggest a target for a conservation feature, the target can be based on social, expert and/or stakeholder consensus.

**Values** - three different meanings may be implied:
(1) a set of philosophical, ethical, moral and emotional principles that order a society
(2) intrinsic properties associated with particular environments (e.g. 'wetland values')
(3) economic significance (often measured in monetary terms) of a given landscape. (D.J. Rapport et al., Evaluating landscape health: integrating societal goals and biophysical process, 1998)

**Watershed** - an area that is drained by a river and its tributaries. (PPS 2005)

**Watershed Management** - the analysis, protection, development, operation and maintenance of water, water-related features, terrestrial resources and fisheries of a drainage basin. (Sustainable Halton)

**Wetlands** - lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. In either case the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic plants or water tolerant plants. The four major types of wetlands are swamps, marshes, bogs and fens.
Periodically soaked or wet lands being used for agricultural purposes which no longer exhibit wetland characteristics are not considered to be wetlands for the purposes of this definition. (PPS 2005)

**Wildlife habitat** - areas where plants, animals and other organisms live, and find adequate amounts of food, water, shelter and space needed to sustain their populations. Specific wildlife habitats of concern may include areas where species concentrate at a vulnerable point in their annual or life cycle; and areas which are important to migratory or non-migratory species. (PPS 2005)

**Woodlands** - treed areas that provide environmental and economic benefits to both the private landowner and the general public, such as erosion prevention, hydrological and nutrient cycling, provision of clean air and the long-term storage of carbon, provision of wildlife habitat, outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products. Woodlands include treed areas, woodlots or forested areas and vary in their level of significance at the local, Ontario al and provincial levels. (PPS 2005)