The Identification of Candidate Protected Areas for the *Lands for Life* Planning Process by the *Partnership for Public Lands*[*]

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One of the three major stated goals of the Ontario *Lands for Life* land-use planning process is the completion of Ontario's system of parks and protected areas, a project called *Nature's Best* by the Ontario Ministry of Natural Resources (OMNR). The conservation community has taken up this challenge and has directly engaged the planning process in support of the *Nature's Best* goal.

One of the stated goals of the conservation community, specifically the *Partnership for Public Lands*, is the identification, regulation or designation and appropriate management of a completed system of protected areas across the *Lands for Life* planning area.

This goal challenges the three partners – the Federation of Ontario Naturalists (FON), Wildlands League (WL) and World Wildlife Fund Canada (WWF) – to undertake an innovative analysis of the planning area. This analysis aims to identify both broad areas of conservation opportunity and areas of specific, multiple values for protection, recreation, tourism, scientific study and community legacy.

The objective of this work was to identify protected areas, as defined by the International Union for the Conservation of Nature (IUCN). IUCN states that *a protected area is a geographically defined area which is designated or regulated and managed to achieve specific conservation objectives.*

Following the conventions established by the Canadian Forest Accord and WWF's *Endangered Spaces Program*, the permitted uses of protected areas were defined as multiple-use, with the exception of industrial logging, mining and hydro-electric development, and with uses defined through management plans, land-use plans and similar procedures.

Early on in the planning process, the Minster of Natural Resources provided the Partnership with digital access to agency data bases on a wide variety of resources. These data are from many sources and have a wide spectrum of accuracy. At the same time, the decision was made to ground the analysis in resource "themes" that were based on government conservation policies, to the degree possible and defensible.

In general, the selection protocol that was adopted for identifying the general land-use designation "protected area" followed the goals outlined in OMNR's *Nature's Best* documentation, which laid out government policy for the *Lands for Life* planning: *The complete range of natural heritage values is considered and*

[*] This report arises from a poster paper at the 1998 Annual Meeting of the Parks Research Forum of Ontario.

assessed in order to determine which areas most efficiently represent natural diversity.

This same OMNR document lists a number of criteria for designating a protected-areas system. These include representation, diversity, uniqueness, quality, sensitivity, rarity, corridors, landscapes processes and disturbance regimes, and the sustainability of areas. This listing was much broader than the single criterion – representation – that OMNR used in its gap-analysis of currently unprotected landforms and vegetation types in each ecological site district of the planning area. A broader array of criteria, as suggested by *Nature's Best*, was considered in the analysis outlined below.

A method was adopted by the Partnership that could move from these broad concepts to the actual mapping of sites. Four specific and interactive approaches were taken. Each was mapped and presented for discussion and information to Round Tables, and each was used in a cumulative and interactive fashion to design a landscape-scale protected areas system. The four approaches were:

1. Landscape representation (large-scale);
2. Vegetation-landform representation (medium and local scales);
3. Protected-areas system design (interactive mapping); and,
4. Impact assessment and adjustment.

Landscape Representation (broad landscape scale)

At the broad scale of landscape representation, three policy-based values and one efficiency-based value have been analyzed using OMNR data for the first three and OMNR, Environment Canada and Agriculture and Agri-Food Canada data for the last value.

Map data for the following landscape values were quantified for each of the three *Lands for Life* planning areas. These data were portrayed as individual themes and then added together quantitatively to portray their collective and overlapping distribution for each planning area. This was facilitated by gridding all resource maps into 1km X 1km grids, so that each of the following resource characteristics could be numerically added, subtracted or modified on a grid-by-grid basis.

- *Roadless Wilderness Areas*: Using OMNR mapping, areas more than 2 km and 5 km from roads, railways, hydro corridors, pipelines and other disturbance corridors were identified. (Policy basis: condition 106 of the Timber Class Environmental Assessment, 1992.)

- *Old-growth Forests*: Using OMNR Forest Resource Inventory summary data, areas with high proportions of forest ecosystems more than 90 and 120 years old were identified. (Policy basis: condition 103 of the Timber Class Environmental Assessment, 1992.)

- *Wetlands:* Using OMNR Provincial Land Cover Mapping, areas with more than 50% wetland cover, and other areas with wetlands, were identified. (Policy basis: Provincial Policy Statement under the Planning Act, and general government encouragement of wetland protection over the past decade or so.)

- *Landform Heterogeneity*: Using OMNR mapping of ecological site districts, and enduring features based on finer-scale "soil landscape units" (Environment Canada and Agriculture and Agri-Food Canada data), areas with high and moderate occurrences of multiple landforms/site districts within a radius of 18 km were identified. This approach identified landscape areas where efficient representation may be better achieved because multiple landform and site-district representation is possible within identified landscape areas.

Several other secondary, but important, landscape values were added or subtracted quantitatively from these four core landscape themes, in order to reflect other landscape values important in the identification of protected areas at a broad scale.

- *Representation Gaps in the Existing Park and Conservation Reserve System:* An additional conservation value was assigned to areas where there is presently little, no or only partial representation of landscape values for an identified enduring feature or soil landscape unit.

- *Species- and Communities-at-Risk:* Based on OMNR Natural Heritage Information Centre data, an additional conservation value was assigned to areas where rare native species and vegetation communities are documented. This data set is known to be incomplete at present and has been assigned a secondary value in comparing areas.

- *Cutover-Areas*: Based on OMNR forest harvest data, conservation values were lowered in areas that have been documented as cutover since the 1950s. Notwithstanding the immature condition of vegetation communities in such areas, the cutover state does not negate the value of such areas for long-term protected-area designation.

- *Old-growth White and Red Pine Stands:* Based on OMNR site data, an additional conservation value was assigned to areas identified as supporting old-growth white and red pine stands.

These overlapping and, in some areas, coincidental values were integrated as general landscape-scale "smudge" maps to illustrate the location of the best remaining opportunities for landscape-scale representation of natural-heritage values. To aid in the interpretation of these "smudge" maps, the map areas supporting the 20% of each site district with the highest overall landscapes conservation values – from the above analysis – were identified, to locate large, representation landscape areas.

Vegetation-Landform Representation (medium and local scales)

At the finer scales of landform and vegetation representation, two policy-based values and one community-based value have been analyzed, using OMNR data for the first two and community submission for the latter.

The following areas have been identified over many years by OMNR and individuals as candidate protected areas for their representative, unique, distinctive or experiential values.

Present Slate of OMNR Representative-Area Candidates
Based on OMNR data and documentation, these sites were identified as the "core minimum" areas needed to represent the life-science and earth-science diversity of the planning areas, at the mid-scale of vegetation-landform features and within the constraints of a definition of diversity based on Forest Resource Inventory (FRI) classes and Provincial Land Cover mapping (supervised satellite imagery) classes. The methodology used to generate this slate of sites varied from more classical site-district evaluations based on field studies (see below) to completely automated sorting of digital FRI or satellite-image data.

Past OMNR Representative-Area Candidates
Over the past 25 years, many OMNR field studies identified candidate life-science and earth-science representative areas for consideration as part of the protected areas system. Some of these were included in the present slate of OMNR representative areas but many of them were not. With regard to "representation", many of these areas were earlier justified on the basis of representing the diversity of vegetation-landform features based on the site-type classification work of Angus Hills and Paul Maycock. These classifications were significantly more detailed than the classifications used in recent OMNR gap-analysis.

Community Candidates
Based on individual and group presentations to the Round Tables and to others, a large number of candidate protected areas were identified. Again, some of these coincide with areas identified by past and present OMNR studies, but others do not. These data are incomplete and do not reflect site-district or thematic analyses by their nominators. Community candidate sites strongly reinforced the conservation, recreation, scenic and diversity values associated with waterways, both rivers and lakes.

These candidate sites were reviewed in relation to core landscape-representation areas (above) and the slate of present OMNR candidates, augmented by a selection of past and community candidates.

Product: Identified core vegetation-landform representation sites.

Protected-Areas System Design

Several principles of protected-area design were considered in the integration of the above identified conservation values into protected-area system options.

Adequacy: Ecologically adequate representation is considered the international standard in the design of protected-areas systems. Representation at both coarse landscape scales and finer vegetation-landform scales should be achieved. Ecological processes, plant and wildlife population needs, successional patterns, disturbance regimes and landscape connectivity are among the concepts that should be addressed to the degree possible in the design of protected-areas systems.

Efficiency: Appropriate, coincident and neighbouring conservation values add to the overall conservation value of a particular area. The geographic location of a particular area on the landscape influences where maximum representation may occur.

In the design of protected-areas options, the following additional data were considered, which are complementary land-use or ecological values of design importance:

- headwaters position, watershed and valley-corridor position;
- Great Lakes shoreline position; and,
- potential for remote and semi-remote tourism.

Workshops were held by the *Partnership for Public Lands* and its supporters to develop, implement, test and review this selection protocol. Maps were produced outlining the values that were considered and draft candidate maps were produced for public distribution and comment, and for the use of *Lands for Life* Round Tables and OMNR support staff.

Product: Identified, adequate and efficient protected-areas system.

Impact Assessment and Adjustment

Available information and mapping of mineral potential areas, forest productivity values, tourism potential values, and other social and economic values are currently being assessed, to the degree possible, to balance the designed protected-areas system with other values and to determine a realizable protected-areas designation.

Product: Identified, proposed protected-areas system.

Self-education, transparency and consensus building were key elements of the method selected to identify a consensus-oriented, conservation-community mapping of candidate protected areas. The methods used and the mapped results have been widely presented in many forums and through tabloids, magazines, press conferences and other vehicles. A key goal, to apply innovative, creative and ecologically defensible methods to the identification of nature's best remaining natural areas was achieved and delivered to the *Lands for Life* Round Tables over a period of less than three months, from December 1997 to February 1998.

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