

PARK BOUNDARY CHECKLIST

Conservation Principles and Considerations for Ontario's Living Legacy Boundary Refinement Process

INTRODUCTION

The central purpose of this annotated checklist is to provide an overview of concepts that local naturalist groups and interested citizens could use during the public consultation process on Ontario Living Legacy boundary refinement. This checklist will also be helpful to groups interested in establishing boundaries and gaining a better knowledge of natural areas within their region. The information gathered during the completion of the checklist could be taken to local municipalities for consideration during planning and development discussions.

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Lands for Life and the Partnership for Public Lands

In February 1997, the Ontario government announced the Lands for Life land-use process to determine the management of 39.6 million hectares (99 million acres) of public land. The conservation community recognized that this process would need a coordinated conservation effort to balance strong industry participation. To effect a sound, conservation-science based campaign, the Federation of Ontario Naturalists (FON), the Wildlands League (WL) and World Wildlife Fund (WWF) joined forces and pooled resources and formed the Partnership for Public Lands (PPL).

In the fall of 1997, three regional Round Tables — with representatives from forestry and mining industries, municipalities, hunting and trapping organizations, tourism operators and conservationists — traveled throughout Ontario to facilitate a series of public consultations to better understand public concerns and to solicit opinions for the Lands for Life process. Unfortunately, the Round Table process often polarized the debate, and core issues such as the completion of Ontario's park system, based on ecological representation, were not significantly advanced.

In response to these discussions, the PPL mounted an outreach and public education campaign that included news conferences, e-mail bulletins, fact sheets, media, polling, as well as working with local communities to expose the weaknesses of some proposed ideas. After nearly six months, the government released the Round Tables' report in the fall of 1998. Instead of doubling the amount of protected areas in Ontario, the report recommended the addition of only 1.6% of public lands for protection. Other concepts, such as "floating reserves" or temporary parks, were also proposed.

The PPL responded with a large-scale campaign that included 14,000 responses from the public during the 30-day comment period; in addition,

1,400 scientists from around the world lent their support through an e-mail rally. The PPL released *Planning for Prosperity*, which detailed a solution for the growing conflict over Lands for Life. Almost 8 weeks after the release of *Planning for Prosperity*, and following ongoing input from the Partnership, the government decided that Lands for Life must result in the protection of at least 12% of the planning area.

In March 1999, the government announced the creation of 378 new provincial parks and conservation reserves. In total, 2.4 million hectares (6 million acres) were permanently protected from forestry, hydroelectric development and mining. This was the single largest expansion of the parks system in Ontario, and increased the amount of protected areas in central and northern Ontario from 6% to 12%. This remarkable achievement was accomplished with no reduction in jobs in the forestry sector. In total, Ontario now has over 330 provincial parks (7.2 million hectares), and more than 300 conservation reserves (1.6 million hectares).

While new protected areas were identified in 1999, the exact boundaries for parks and conservation reserves remained to be refined, finalized and regulated. The Partnership has been working with the Ministry of Natural Resources (MNR), the forest industry, environmental groups and citizens to complete the process of regulating the 378 new protected areas.

MNR is responsible for coordinating the regulation process, and expects that it will take until at least 2003 to complete the process for all sites. During the process, the Ministry will consult with local citizens and stakeholders before making final recommendations to cabinet regarding the regulation of the new protected areas. The provincial government now uses the term 'Ontario's Living Legacy' (OLL) when referring to the new protected areas in central and northern Ontario.

Boundary Refinement Process

The general purpose of the boundary refinement process is to assess each of the 378 sites at a detailed local scale, ensuring that the boundaries are located correctly on the ground and that the protected areas protect what they were intended to. The process provides a forum to include detailed local knowledge, as well as further input from PPL, MNR and the forest industry. Ideally, it is also an opportunity to resolve potential conflicting issues arising from the announcement of the 378 sites. Minor boundary adjustments can be made during this process, so that the final protected areas boundaries benefit to the fullest extent possible from local

knowledge. Generally, the scale of boundary modifications made through this process is such that it would not significantly change the size of the protected area, or be noticeable on a provincial map of scale 1:600,000.

The boundary refinement process is an excellent opportunity for conservation and naturalists groups, communities and citizens to make recommendations that will improve these new protected areas. Boundary refinements could be made to better protect significant features such as rare habitats, wildlife and waterways.

Provincial Parks and Conservation Reserves

Provincial parks are at the top of the protected areas hierarchy. Provincial parks are under the control of Ontario Parks and as such have more money and staff dedicated exclusively to regulating parks. The revenue generated from a park goes directly back into the regulation and maintenance of the park system. Provincial parks also have stronger legislation, policies and management plans, such as the Provincial Parks Act. Under the OLL strategy, no forestry, mining or hydro-development can occur in Provincial parks (with the exception of forestry in Algonquin Park) or conservation reserves. Within the parks system, there are six classes of parks, each with slightly different goals and permitted uses (i.e. Natural Environment, Nature Reserve, Wilderness, Waterway, Recreation, Historic).

Conservation reserves (CR), once regulated, become the responsibility of the Ministry of Natural Resources (MNR) district in which they exist. Due to budget and staffing cuts they do not receive the same level of protection as provincial parks. Unlike provincial parks, conservation reserves do not have full management plans, but rather a Statement of Conservation Interest that outlines permitted activities in general terms. Revenue generated from a CR typically goes

into the province's consolidated revenue fund and not specifically into the management of conservation reserves.



Description of Conservation Considerations

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The following section provides a description of the issues contained within the checklist. For more information on these features, contact the PPL staff.

A. Biodiversity Issues

Protection of rare species

The protection of species that are rare or which have been designated provincially or nationally ‘at risk’ are a significant consideration for protected areas design and location. Local knowledge of species at risk and critical habitat areas can be used to better protect wildlife and habitats. Some species have very specific habitat requirements, such as localized over-wintering or breeding / nesting areas, and the inclusion of these areas could improve the value of parks and conservation reserves. In addition, some species, such as pileated woodpeckers or American marten (a member of the weasel family), are considered important indicator species of environmental health. Ensuring that these species and their habitats are protected will likely also benefit many other species.

The status of species at risk is evaluated nationally by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). The current list can be found at www.speciesatrisk.gc.ca or www.cosewic.gc.ca. The status of species at risk is also evaluated on a provincial basis by the Committee on the Status of Species at Risk in Ontario (COSSARO); this list can be found at www.mnr.gov.on.ca/mnr (follow links to ‘species at risk’ and ‘status’). In addition, MNR’s Natural Heritage Information Centre compiles information on the status of rare species, that may not be designated as ‘at risk’ yet. Information on rare species across the province can be found at www.mnr.gov.on.ca/mnr/nhic/nhic.html

Unique or critical habitats

Certain habitat types are locally, regionally or provincially rare and should, wherever possible, be protected. Old-growth areas, such as white and red pine forests, are often selected for inclusion in protected areas. Similarly, many

wetland habitats also merit particular attention, as do the certain particularly sensitive wildlife habitats that are critical to particular wildlife species during all or a part of the year. Nesting, denning or breeding habitats are obviously important, as are the underground, over-wintering habitats of snake species (i.e. hibernacula), as well as resting and feeding areas for migratory species.

Areas of high biodiversity and recognized habitat areas

Local knowledge of wildlife and natural habitats, or new studies, can be used to help improve the design of protected areas to better protect biodiversity in protected areas. Life sciences, which include the study of all living things, are important considerations — as are the protection and inclusion of unique or representative earth science features. Earth science areas could include important geological features, as well as glacially-formed features, such as moraines and eskers (which frequently have interesting flora and fauna associated with them).

Some areas have already been identified as being particularly important for either life science or earth science reasons. Local MNR or Conservation Authority (CA) offices should be able to direct interested persons to Areas of Natural or



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Scientific Interest (ANSIs) in the region, or in some cases to Environmentally Significant/ Sensitive Areas (ESAs).

B. Protected Areas Design

Corridors and connectivity

Linking protected areas one to another through the establishment of 'green' corridors helps to increase the value of parks and conservation reserves for wildlife. This can help create a linked system of protected areas that benefits wildlife more greatly. It can help provide a safe corridor between parks, or between critical habitats. Ideally, a corridor will not only link isolated habitats, but also provide wildlife with shelter, food and water. This is especially important in fragmented landscapes and privately owned land.

Reducing habitat fragmentation

Forestry, roads, trails (as well as agriculture and urbanization) all have an impact on natural habitats. Human impacts typically fragment natural habitats, carving deep into interior forest habitats, creating an 'edge effect' that can have a negative impact on wildlife habitats. Many Ontario species avoid the edge of woods, and will only be found deep within the forest itself. Long, narrow protected areas, or those with irregular edges, will contain more edge habitat. Larger, rounder protected areas frequently benefit native interior species.

The effect of roads provides an example of the impact of habitat fragmentation. With the large network of roads that exists across Ontario, roadless areas are particularly valuable to include in protected areas. Provincial highways, local, regional, and logging roads penetrate deep into Ontario's forests, as do an expanding network of trails. There are relatively few truly roadless areas left. Often, former logging roads become permanent fixtures, used by ATVs, snowmobiles, and off-road vehicles.

The impact of roads and other disturbances (e.g. utility corridors) include:

- fragmentation of plant and animal habitat, isolating genes and weakening species, and disrupting migratory and rearing grounds;
- 'edge' species becoming more dominant at the expense of interior species, and the natural predator-prey balance can become disrupted;
- degradation of rivers and streams from changes in drainage patterns, increased erosion;
- increased likelihood of the establishment of exotic species which typically out-compete native species and result in ecosystem degradation;

- allowance for uncontrolled access related activities (poaching, unregulated camping and fishing, ATV use, snowmobile use), each of which have negative impacts on air quality, wildlife mortality and vegetation health.

C. Aquatic Features

Currently there is not an aquatic classification system in Ontario, so the protection of aquatic areas is typically on a case by case basis. In larger sites, the inclusion of entire head-water areas is preferable. This can be done by looking for height of land areas which mark the boundaries of a watershed. In many cases, the inclusion of entire lakes and rivers within the site is a reasonable solution. Quite often, the proposed OLL boundaries cut half way through a lake or only include one shoreline of a river. In these situations, it is best to ask for the entire lake or both sides of the river (plus shoreline setback / buffer) to be included. This provides protection for the entire water body and is an easily-identifiable boundary in the field for forestry workers and park staff.

The protection of shoreline areas is an important consideration and may require buffers in certain situations. Where forestry operations (or other non-conforming activities) adjoin a water body, a buffer is required to protect aquatic features. Typically, a 100-metre buffer is used, however depending on slope and the specifics of the site, a larger buffer may be needed. Generally, more is better. In some cases, depending on slope or other local conditions, a narrower buffer may be acceptable. The key is to show good cause as to why a boundary should be adjusted for the benefit of the site. (Note: even in areas not protected within a park or conservation reserve, current forestry guidelines do include some provisions for buffers along watercourses.)





D. Park Centered Tourism Opportunities

Benefits of parks to local economies can be considered during the boundary refinement discussions. Parks and protected areas can benefit local economies and communities. Protected areas provide increased opportunities for local businesses ranging from outfitters to restaurants, grocery stores and the hospitality industry. In 1996, accommodation, food, transport, equipment and other related activities for people involved in wildlife viewing generated \$411 million in Ontario. Apart from direct economic benefits, protected areas will also indirectly benefit local economies and communities by helping to reduce pollution levels in air and water. Protected areas can also act as a local educational and recreational resource for communities and bring job opportunities such as eco-tourism or park protection.

E. Other Considerations

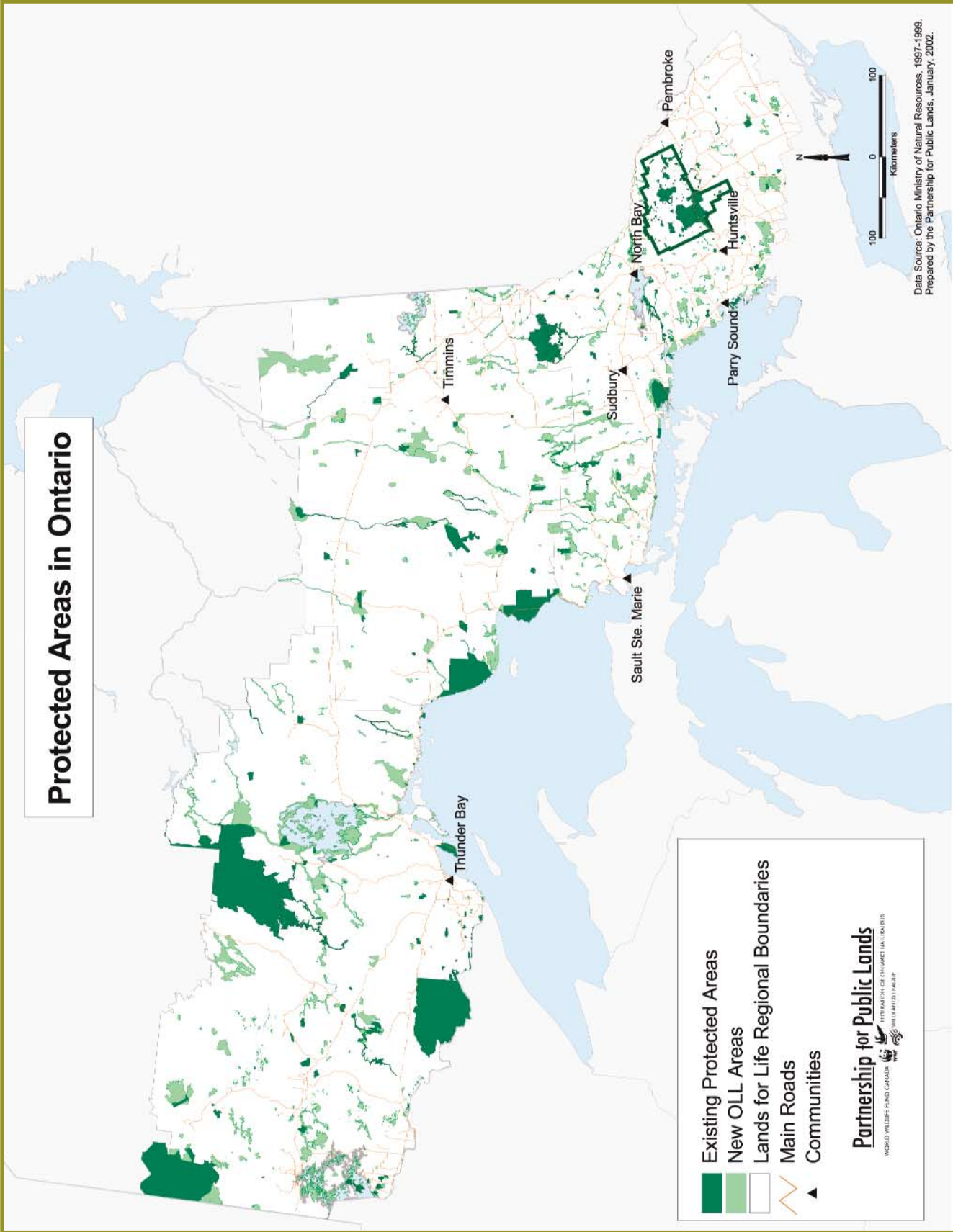
An additional concept discussed sometimes during boundary refinement is that of 'viewsheds.' This relates to visual sight-lines (often from the water) based on local topography. Viewsheds have been brought forward in some cases for consideration in boundary refinement, with the intent that park boundaries are established so that park visitors will not see forestry, industry or other land-use practices that may occur

outside protected areas. Sometimes this argument could be used to increase the size of the protected area, but in some cases industry may use this concept to suggest smaller boundaries (e.g. along steep-sided rivers in waterway parks where the sight-line is interrupted by the steep topography). This consideration is based more on aesthetics than conservation science, but the topic could come up during consultation.

While there are many aspects to consider when providing comments on OLL sites to MNR, it is important to strive for ecologically-sound ideas that will also be workable in the field for forestry or other workers. It is important also to keep in mind that comments or suggestions for minor boundary adjustments will likely be subject to further negotiations. Particularly large expansions can generally not be considered during boundary refinement due to land ownership issues or potential impacts on wood supply.

The basic premise of OLL is to work toward completing representation of Ontario's ecosystems in the form of a protected areas system. It is important to consider the natural features /ecosystems that each site is supposed to be protecting. For example, if the area was selected in order to protect a glacial outwash lowland plain with a hemlock forest, boundary refinement negotiations would likely not support the inclusion of a completely different habitat type. Most OLL sites, though, do protect several features and finding out from MNR what the site in question is protecting will help you to provide the most constructive comments.

Protected Areas in Ontario



Existing Protected Areas
 New OLL Areas
 Lands for Life Regional Boundaries
 Main Roads
 Communities

Partnership for Public Lands
WORLD WILDLIFE FUND CANADA | INSTITUTION FOR CHANGING LAND USES | WILDSPACE PARTNERSHIP

Data Source: Ontario Ministry of Natural Resources, 1997-1999.
 Prepared by the Partnership for Public Lands, January, 2002.

Primer on Landscape Ecology

Interior forest habitat, the edge effect, wildlife corridors, and woodland quantity and quality issues

By *Andy Kenney and Helena Rusak*
(FON staff, Southern Ontario Woodlands Project)

This article summarizes many key concepts of 'landscape ecology' which could be helpful in evaluating the boundaries of new protected areas. While the context and focus of this article is southern Ontario woodlands, where very little original forest cover remains, many of the themes discussed relate to forests and habitat integrity, in general. In particular, the article examines the impact of habitat fragmentation, the 'edge effect,' and the importance of forest interior and corridors for many species of native wildlife. The concepts introduced here in the context of woodlands loss to agriculture and urban development can be adapted to a northern landscape and the impact of forestry, road building, etc.

It seems that all too often we don't value things until they are almost lost. Then, with a wake-up call to action, it becomes suddenly obvious that much had been taken for granted. Such is the case with southern Ontario's woodlands. Important questions are now being asked, such as how much woodland did southern Ontario formerly support? What is left? What are the current trends? A quick evaluation shows that we have not paid sufficient attention to the alarming rate at which we have lost our original woodlands.

In a short 200 years, forest cover has been reduced from 90 percent to as low as five percent in parts of southern Ontario. The heaviest deforestation occurred in the decades following 1850, when 93 percent of upland woodlands were lost. The low point for original woodland cover came around 1920. Since then, more

of the original old-growth forest (i.e., greater than 120 years) has been lost, but total cover has actually increased through replacement woodlands. A mere .07 percent of original old-growth forest remains. A very thin thread, indeed, connecting us to our natural heritage.

For settlers confronting seemingly endless forests, clearing land and burning woods was a challenge to survival. Lumber exports

boomed, and sawmills, railways and canals were opened to process and transport the timber. European markets eagerly consumed straight pine logs — ideal for ship masts. At home, wood was the principal fuel for heating and cooking, and was also used to make potash. Such abrupt interruption in the cycles of growth, decay and regrowth rendered forests species-poor and fragmented. In 1978, government Forest Resources Inventory data showed forest cover averaged about 19 percent in the region south and east



Reprinted from Seasons, Federation of Ontario Naturalists, Summer 2001, pp. 42-45, "Why We Should Do Something: Fragmented, isolated woodlands fail to meet the needs of most species — including humans."

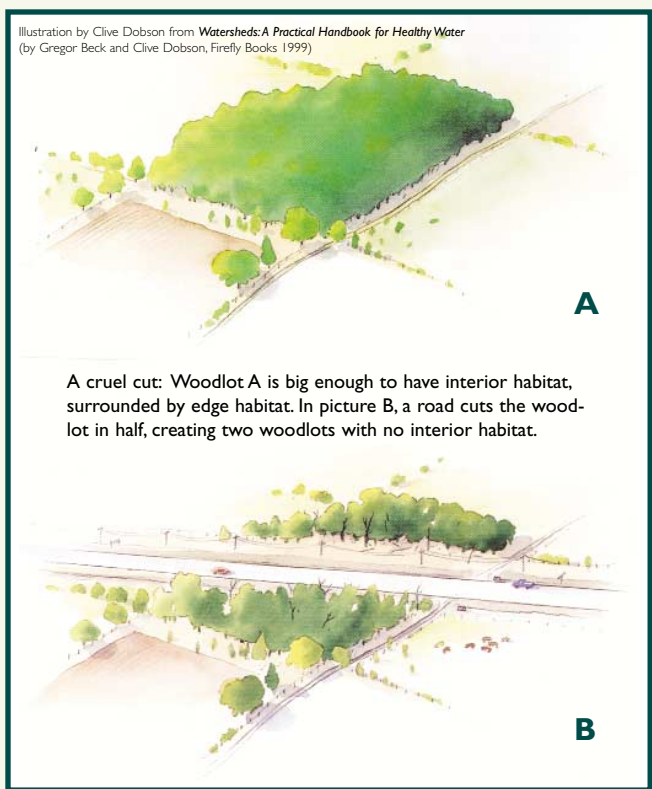
of the Canadian Shield. This forest cover varies significantly — from about five percent in southwestern Ontario's Carolinian zone to about 50 percent in eastern Ontario.

Woodlands health is, of course, more than a game of percentages. The ecological well-being of woodlands depends not just on quantities remaining, but also on quality. Quality of woodlands is judged by such concepts as forest fragmentation, woodlot isolation, interconnectivity, and wildlife habitat. The threat to woodlands has now moved far beyond land being cleared for agriculture. Woodlands quality and quantity continue to be eroded by urban and suburban sprawl, poor forest management and the impact of incompatible land uses in adjacent properties. Too often, the simple underlying problem is a drive to maximize short-term economic return from forest resources.

The trend to increasing forest cover may be good news in some ways, but these absolute figures do not tell the whole story. If we consider how the forest is arranged across the region, we get a much better idea of the forest's condition. Both size and shape of each woodlot patch will determine the type of habitat found there. This deserves careful consideration since some plant and animal species are adapted to open areas, others to woodland interiors, and still others to transitional areas between the two, i.e., edge habitat. A diversity of living things needs a diversity of places to live.

Small woodland patches not only have little habitat overall, but contain a proportionately high amount of edge habitat. Landscape ecologists often equate the edge habitat to an ecological buffer — typically widths of 100 metres (although other widths have been suggested). Consequently, forest habitat must be at least 100 metres from the edge before it can be considered interior. Assuming a buffer of 100 metres, a woodlot measuring 200 metres wide contains no interior habitat, and would not likely support interior wildlife species. Using the 100-metre definition, a circular forest patch would have to be more than seven hectares in size to contain just one hectare of interior habitat.

An aerial photograph or satellite image of southern Ontario shows us that most patches are not, in fact, circles, but are instead squares or long rectangles. Large farm equipment works more efficiently around woodlots with regular boundaries, and a grid network



of roads, railways and transmission lines to tend to trim woodlots to neat rectangles. Woodlots with these very regular boundaries have much more edge habitat than those that are rounder in shape. And even within larger woodland patches, it does not take much to eliminate the interior habitat. The construction of a road running through the centre of large patches with substantial interior habitat effectively creates two patches with no interior. The area lost to the road itself may not be particularly large, but the creation of new edges effectively eliminates the forest interior.

The pattern of woodlands distribution across the landscape is also critical. Wildlife should be able to move freely from one forest to another. This movement allows for interbreeding, creates genetically stronger populations and ensures that suitable habitats can be filled. In a fragmented forest landscape, such as that found in southern Ontario, the large distances between woodlots may prevent this movement, and may be an impediment for migrating wildlife. For this reason, corridors between isolated patches help wildlife by providing routes through which they can travel. These corridors also benefit plants, making seed dispersal and establishment in new areas easier. Linking two small woodlots with no interior habitat does not create new interior habitat, but it does effectively

increase the size of remnant woodlots. While even narrow fencerows can help create linkages between fragments, corridors with widths of 100 to 200 metres are considered more effective.

Species biodiversity typically increases with increasing forest cover, although size and composition of the woodlands determine species living there. Birds serve as a particularly effective barometer of forest health since many of our native species need large expanses of interior habitat. Typically, forest patches 200 hectares or larger support 90 to 100 percent of the forest bird species for that area. Many forest-nesting birds shun edges because of the risk of increased predation, parasitism, desiccation by wind, or insufficient food. Edges are also more susceptible to fire, flood and human disturbance. Diverse woodlands, with a variety of forest types and ages, provide many niches for birds and other wildlife. Much of our current woodland habitat, though, is made up of homogeneous plantations, forests compromised by invasive non-native species, or relatively young, regenerating replacement forest.

And within individual patches, the woodland's health is reflected in the distinctive vertical stratification that is part of a diverse and vibrant forest ecosystem. A healthy forest is made up of a number of different layers, from the moist forest floor to the shrub-rich

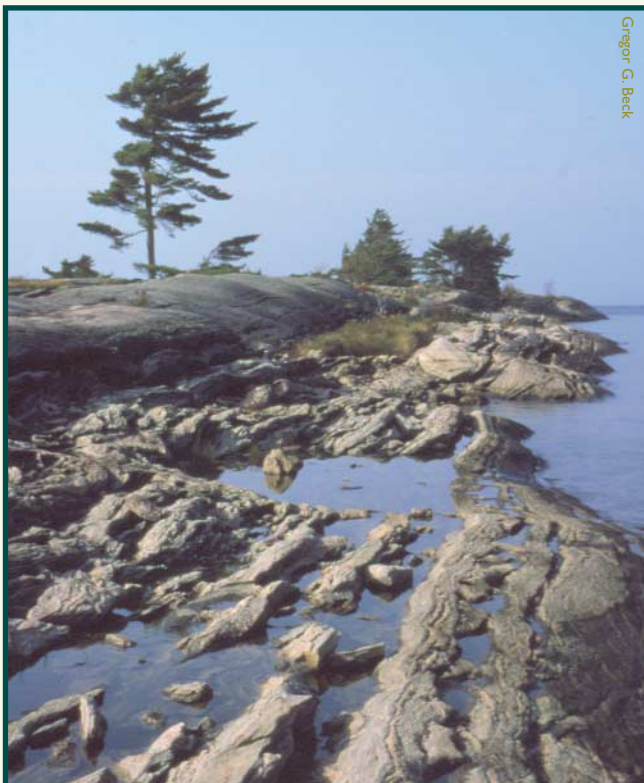
understorey and upwards to the canopy. Many woodland birds and insects live out their entire lives in just one of the forest's strata, and certain habitats within a woodland are particularly critical. For example, about one-quarter of woodland wildlife uses the cavities of standing dead trees for rearing young, roosting, escaping predators and hibernating.

Fortunately, it is possible in some cases to improve the ecological value and function of forest fragments through restoration activities.

The areas between woodlots, wetlands and native prairies are sometimes referred to as the matrix. What goes on in these in-between spaces is also very important. Consider, for example, the increasingly intrusive impact on woodlands as the intervening landscape changes from agricultural to urban. Increased noise affects wildlife. Domestic cats and dogs become a major source of predation. Invasive, non-native vegetation, such as garlic mustard, Norway maple and European buckthorn, become established and out-compete native species. As more land is lost to roads, parking lots and buildings, less rainwater percolates into the ground, changing surface and subsurface water flow patterns. Not only does this affect the amount of moisture available to woodland plants and animals, it can decrease the amount of water in underground aquifers and increase the risk of flash floods downstream.

Fortunately, it is possible in some cases to improve the ecological value and function of forest fragments through restoration activities. By planting, and otherwise improving conditions for natural regeneration, the size and shape of fragments can be enhanced to allow for more interior space, providing critical habitat for native wildlife. Restoration activities can also be planned to build linkages between isolated patches.

How are we doing as stewards of our woodlands? Our stewardship is as fragmented as the forest itself. Our greatest challenge is in connecting our efforts in conserving and enhancing what is already here. Or perhaps an even greater challenge is recognizing that individually and collectively we benefit and rely on healthy woodlands.



Gregory G. Beck

Park Boundary Checklist of Conservation Considerations

Site: _____

Date: _____

How to use the checklist: The checklist provides a list of features to be examined for each site. In order to complete the checklist, make a note of the features on the site that match those listed on the checklist. The information could be derived from personal or local knowledge. Also make note of sites which may require further investigation. The completed checklist will provide information helpful to making comments during OLL boundary discussions. It also provides information that could be taken to local municipal planners for consideration during development consultations.

A. Biodiversity Issues

- Protection of rare species and 'species at risk'
- Unique or critical habitats, for example:
 - old-growth forest
 - wetlandsAreas of high biodiversity and recognized habitat areas, for example:
 - important life science or earth science areas
 - Areas of Natural and Scientific Interest (ANSIs)
 - Environmentally Significant/ Sensitive Areas (ESAs)

B. Protected Areas Design

- Corridors and connectivity
- Ecological buffers
- Reducing habitat fragmentation
 - disturbance concerns (including road impact, utility corridors)

C. Aquatic Features

- Headwater areas
- Watershed issues (including stream and river buffers, slope)
- Shorelines
- Wetlands

D. Park Centered Tourism Opportunities

- Park near a local community
- Park benefits local economy
- Community support for park

E. Other Considerations and Constraints

- Viewsheds
 - Landowner concerns
 - Wood supply impact
 - Feasibility of proposed changes
- _____
- _____
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Partnership for Public Lands

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WILDLANDS LEAGUE



WILDLANDS LEAGUE
A chapter of the Canadian Parks and Wilderness Society

For more information

www.wildontario.org (Partnership for Public Lands)

www.ontarionature.org (Federation of Ontario Naturalists)

www.wildlandsleague.org (Wildlands League,
A Chapter of the Canadian Parks and Wilderness Society)

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Ontario Ministry of Natural Resources / Ontario Parks

www.ontarioslivinglegacy.com

www.mnr.gov.on.ca

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