

The Study of the Economic and Social Benefits of the Nine Ontario's Living Legacy Signature Sites

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Ontario's Living Legacy (OLL) identified nine protected areas for special planning and management attention based on their size, ecological attributes, location and social and economic significance. These sites, known as 'signature sites' consist of a combination of different protected area classifications including parks, conservation reserves, forest reserves and enhanced management areas. The study sites included: the Kawartha Highlands, Killarney, Spanish River Valley, Nagagamisis Central Plateau Complex, Lake Nipigon Basin, Algoma Headwaters, St. Raphael, Woodland Caribou and the Great Lakes Heritage Coast.

In 2000, the Province commissioned a three-year study entitled, *The Economic and Social Benefits of the Nine Ontario Living Legacy Signature Sites*. This paper presents highlights of the economic and demographic trend analysis, the case studies, the recreational survey and the estimation of recreational value associated with eight of the signature sites.

Economic and Demographic Trends Associated with the Signature Site Regions and Communities

Throughout the OLL planning process, there was concern from Northern Ontario communities that industrial land base withdrawals would result in a loss of resource-based economic opportunities in the area. There was also a strong interest in seeing how these signature sites can create new tourism related economic opportunities. Hence, a baseline trend analysis was conducted to assess whether the regions and communities associated with each signature site region would be positively or negatively impacted over time. A total of 118 communities and 11 different signature site regions (one for each signature

site and three for the 2000 km stretch of the Great Lakes Heritage Coast) were profiled for the time period from 1986 to 1996.

The two southerly signature site regions, Kawartha Highlands and Great Lakes Heritage Coast Georgian Bay Region, differ significantly in economic and demographic trends from the other nine more northern regions. These are: Woodland Caribou, St. Raphael, Nipigon Basin, Nagagamisis, Spanish River Valley, Algoma Headwaters, Killarney, Great Lakes Heritage Coast Lake Superior Region and Great Lakes Heritage Coast North Shore and Manitoulin Island and are characterized by stagnant population growth or a small population loss. In contrast, the Kawartha Highlands and Georgian Bay Region of the Great Lakes Heritage Coast are characterized by population growth rates, which typify the provincial population growth rates. The greatest population loss is in the smaller, highly resource-industry dependent communities (e.g., Hearst, Red Lake, Nipigon, Red Rock) while larger regional centers, such as Sudbury, have experienced stagnant or minor population growth.

The northerly signature site regions are characterized by a narrow economic base that is dependent on resource-based industries and the government services sector. The resource industries include the forest products, mining and tourism industries. The tourism industry in and around the signature sites is strongly associated with the natural resource base and includes remote fishing and hunting and highway-based tourism. Most other economic sectors in northern Ontario, such as wholesale and retail trade, transportation, construction and business services industries, are largely dependent on the resource industries and the energy and agricultural industries. Public sector employment and spending across all three tiers of government was found to often provide equal or higher levels of employment and income than the forest products or mining industries in many communities.

Total employment opportunities in the resource extractive industries have, at best, stagnated or declined¹. Furthermore, since Ontario resource extractive companies operate in continental and global markets, they often substitute technology for labour to increase efficiency and remain competitive. Over the long-term, the overall competitiveness of these operations will be challenged and many of them may not be maintaining their competitive edge (Porter and Monitor Company, 1991; Martin and Porter, 2001). The economic sustainability of the majority of northern Ontario communities remains linked to the competitiveness of these resource-based mills.

Population stagnation and decline in most communities is evidence of the lack of economic opportunities in northern Ontario communities. Community leaders and much of the general public in northern Ontario have expressed concern about these trends and are interested in opportunities that can expand the narrow economic base of communities and provide new employment opportunities.

In contrast to the nine northerly signature site regions, the Kawartha Highlands and the Great Lakes Heritage Coast Georgian Bay regions have very little economic dependency on resource extractive industries. Both regions rely heavily on the tourism industry and government services and the Kawartha Highlands region also has a manufacturing base. In many respects, the differing economic characteristics between the nine northerly signature site regions and the two southerly regions is a function of geography. The nine northerly signature site regions and, in general, all of Ontario north of the French River, remain highly dependent on natural resources. South of the French River, areas such as the Kawartha Highlands and Great Lakes Heritage Coast Georgian Bay Region are linked to, and dependent on, the Southern Ontario economy – whether it is for tourism, recreation and/or proximity to other manufacturing areas and consumer markets.

Economic Value Versus Economic Impact

The study undertook both economic valuation and economic impact analysis. In terms of this study, the economic impact analysis was limited to the total economic impact (direct, indirect and induced) associated only with visitor expenditures. This is because the source for investment spending in Ontario parks and signature sites comes from tax revenues, and thus, is a transfer of wealth from one sector of the economy to another, rather than an increase in economic wealth.

In terms of economic valuation, this study examined the value people put on their trip. The trip value may be considerably different than their actual trip expenditures because no negotiated pricing structure (market) exists for the recreational services provided by public lands. For example, since no actual market exists to pay for the use of Crown land, and the price of park use is set by government policy and not reflective of market factors, there is no actual price for determining the value of visitors experiences. Thus the challenge of using economic valuation is to derive credible estimates in contexts, such as

outdoor recreation on public lands, in which there are either no apparent markets or very imperfect markets. As the results from the study will demonstrate, the willingness of users to pay more for a recreational experience beyond the actual costs associated with their trip indicates a ‘consumer surplus’ (or additional benefits received) that more fully reflects the ‘true’ value of these recreational experiences to the signature site visitors.

Kawartha Highlands Signature Site Case Study

Three case studies were undertaken for the project. The key findings for the Kawartha Highlands Case Study are presented below.

The Kawartha Highlands Signature Site (KHSS) was already a major natural recreational playground for tens of thousands of individuals prior to the area being designated a provincial park. Results from the 2003 visitor survey indicated that the one-way travel distance to the KHSS for respondents was approximately 186 km. The KHSS lies just over a two-hour drive from most parts of the Greater Toronto Area and the resource base will continue to feel the pressure of the fastest growing region in Ontario together with an increasingly limited supply of semi-wilderness opportunities within reasonable proximity of southern Ontario.

The user statistics generated through this project indicate that by far the greatest economic benefits and likewise the greatest pressure on the resource will come from cottagers. The estimated number of cottager days (defined as those in or adjacent to the site – slightly over 500) is approximately 183,000 user days or ten times the canoer user day number of approximately 18,000. In turn the next largest user groups are hunters and fishermen at approximately 3,000 and 2,500. The local communities have already become ‘cottager economies’” As investment continues in these properties this will only continue. The populations of the local communities have already adapted their skills to serving a tourist market and can build on this capacity to further increase the benefits as more economic opportunities are presented.

The existing economic impact of these recreational activities is significant. Based on survey results and using the Ministry’s Socio-Economic Impact Model² we have projected the following economic impacts.

Cottagers spent an estimated \$7.5 million in 2003 resulting in direct, indirect and induced value added impact of \$7,372,214, 117 person years of employment and approximately \$4 million in wages and salaries. The current economic impact of other users (canoeists, anglers, etc.) are shown below (Table 1).

Table 1. *Economic impact of park users other than cottagers.*

Activity	# Spent in 2003 (Millions)	Value Added (Indirect/Direct and Induced) (Millions)	Total Gross Sales (Millions)	Person Years of Employment
Canoeists	\$1.18	\$1.1	\$2.8	18.5
Anglers	\$0.23	\$0.23	\$0.6	4.5
Hunters	\$0.17	\$0.17	\$0.41	3.3
Others	\$0.05	\$0.05	\$0.13	0.8

As described throughout the case study, the number of canoers in the Kawartha Highlands already rivals similar densities in established wilderness and natural environment parks such as Algonquin and Killarney. At the same time, results from the visitor survey indicated that there is an extremely high tolerance for encountering other users within the signature site. While many canoeists may not see this congestion as an ideal wilderness environment, it does demonstrate that the Kawartha Highlands provides enough of a wilderness experience to meet other canoeists needs.

In this respect, Ontario Parks and OMNR may want to plan and manage the Kawartha Highlands with different objectives than how parks such as Algonquin, Quetico, Killarney or other wilderness parks have been planned. The Kawartha Highlands could meet the demand of increasing numbers of southern Ontario residents who may be seeking a more modest or 'introductory' wilderness experience – fewer portages, reserved campsites, shorter paddles, smaller lakes. New, urbanized and older Ontarions, as well as young families, often lack the experience and physical skills to undertake arduous wilderness trips but may be inclined to seek a quasi-wilderness experience more fitting their skills. This population is also likely to require more rental, guiding and/or purchase other local goods and services – creating more economic opportunities for local businesses. The establishment of the Kawartha Highlands Provincial Park provides a legal, planning and management opportunity to create objectives and strategies that could lead to enhancing the positive economic and social benefits of the area while ensuring the protection of the resource.

Recreational Use Survey and Economic Valuation

The study was limited to non-winter outdoor recreationists including hikers, hunters, front country campers, cottagers, day users, canoeists, sea kayakers, fishermen, lodge guests and other visitors to the select signature sites. To compare willingness-to-pay (WTP) values for recreation trips of different types and lengths, the marginal value (or per day value) for each type of trip was estimated.

In order to develop a survey instrument that was understandable to the user and provided meaningful data for the project a pilot study was conducted in 2002 in both the Killarney and Spanish River Valley Signature Sites. The pilot study provided over 400 returned surveys and represented the basis of a more refined survey tool in 2003. The main survey was conducted from May 17, 2003 through October 13, 2003. This time period corresponds with the signature sites' peak visitation period. In the case of Killarney Park, these are also the only months in which interior access points are open and staffed.

The sampling rate for each park was based on visitor statistics compiled from the previous two years of the study, including the 2002 pilot survey. A census approach was taken and all visitors were sampled. All cottagers, land use permit (LUP) holders and hunt camps whose property or activity was defined as being within or adjacent to the signature site boundary, were surveyed via a direct mail survey instead of at access points. Direct mail surveys to cottagers, LUP holders and hunt camps were done during the fall and early winter to minimize survey sampling redundancy and ensure complete coverage of these user groups.

Trained staff handed out the survey to approximately 3,000 visitors taking to the Kawartha Highlands, Spanish River and Killarney Park Signature Sites. Visitors received the survey at site access or departure points. The sample was stratified by site to identify any systematic differences of visitors in these categories. The survey was a standard mail back survey, and an internet survey return option was also available. In total, almost 1,800 surveys were returned, providing an overall response rate of 62%.

The surveyed sites for which actual valuation data were obtained are referred to as 'primary valuation sites'. The benefits measures from the primary sites were combined with use data and recreational characteristics from the other

non-primary valuation signature sites to derive benefits measures for these sites as well. This process is referred to as 'benefits transfer'.

Killarney, Kawartha Highlands and the Spanish River Valley were chosen as the three primary valuation sites because they represented the mix of site characteristics and recreational activities found across the nine signature sites selected for this study. Also, given their proximity to the large urban population of southern Ontario, the well-used Killarney and Kawartha Highlands represented a unique opportunity to survey large numbers of visitors in an economical fashion.

The survey data was used in regression models to estimate parameters for calculating monetary values for benefits that accrue to recreational users and determine how trip benefits differ by site and by type of recreational activity. Differences by recreational activity and site characteristics were used to modify benefits calculations for the other signature sites not included in the primary valuation study.

The non-market 'good' valued in this study was one day of outdoor recreation in one of three signature sites. Since economic theory does not offer guidelines on either the form of the utility function, or the measures of the outdoor recreation experience that is important to visitors, this survey collects other user data to check economic theory and lend credibility to the estimates obtained. The survey also included questions to estimate a random utility model and zonal travel cost model.

Survey Results

The following table identifies the costs per person per day for each of the user groups in the three studied signature sites (Table 2).

Cost per person per day is calculated for each user group in each signature site by taking total group cost and dividing it by persons/group and average length of stay.

As the table demonstrates, most of the user groups incurred costs between \$31 and \$57 per day.

Table 2. *Costs of park users groups for three signature sites.*

Signature Site and Group	Costs per Person Per Day ³
Killarney canoers	\$51.85
Killarney hikers	\$56.51
Killarney kayakers	\$84.30
Killarney frontcountry	\$31.93
Killarney rest and relaxation	\$43.14
Spanish anglers	\$42.82
Spanish canoers	\$45.78
Spanish rest and relaxation	\$19.81
Kawartha canoers	\$64.39
Kawartha anglers	\$95.43
Kawartha hunters	\$52.40
Kawartha other	\$31.25
Kawartha cottagers	\$40.79

Kawartha Highlands – User Statistics and Estimation of Economic Benefit

The following table identifies the user statistics for the Kawartha Highlands Signature Site (Table 3). Since this was a primary valuation site, the total value is calculated as total user days multiplied by daily willingness-to-pay (WTP) and costs (expenses) incurred per day. The Kawartha Highlands produces an annual value of approximately \$12.4 million, of which approximately \$10 million is from the cottagers.

Similar tables similar were created for the Killarney and Spanish River Valley Signature Sites as well and the valuation estimates by user groups were used in the benefits transfer exercise for the non-studied sites.

User Group	User Days	WTP Estimates Per Day	Annual Benefits (User Days * Consumer Surplus/Day)	Costs Per Person Per Day (Actual Expenditures)	Annual Costs	Annual Value (Cost + Consumer Surplus)
Canoers	18,380	\$30.22	\$555,444	\$64.39	\$1,183,488	\$1,738,932
Fishermen	2,433	\$28.35	\$68,976	\$95.43	\$232,181	\$301,157
Large game hunters	3,171	\$17.70	\$56,127	\$52.40	\$166,160	\$222,287
Others	2,208	\$16.92	\$37,359	\$31.25	\$69,000	\$106,359
Cottagers	183,240	\$13.79	\$2,526,880	\$40.79	\$7,474,360	\$10,001,239
Total	209,432		\$3,244,785		\$9,125,189	\$12,369,974

Table 3. User statistics for the Kawartha Highlands Signature Site.

Woodland Caribou Signature Site

One of the non-surveyed sites was the Woodland Caribou Signature Site (WCSS). It is a remote area comprised primarily of the existing provincial park together with some small OLL additions. The results of this benefits transfer are presented below (Table 4). The table summarizes user numbers, presents annual costs and annual recreational benefits measures based on similar daily WTP and cost measures from the primary valuation sites, as indicated in the last column of the table. The table demonstrates the overall significance of the remote angling population in the WCSS. The large number of anglers and the high costs associated with the activity account for almost 90% of the value.

Similar analyses and tables were prepared for the Nipigon Basin, St. Raphael, Algoma Headwaters and Nagagamisiss Central Plateau Complex Signature Sites.

Total Value Estimation for all Eight Signature Sites

Table 5 summarizes the annual costs incurred by users and the consumer surplus for each of the signature sites and provides an overall estimation of annual recreation benefits.

As shown above, the eight signature sites produce annual recreation benefits of close to \$36 million. Results indicate that the major driver of high annual recreational benefits is high use. The signature sites with the highest annual economic value – Kawartha Highlands and Killarney – are also the most intensely used and the closest to southern Ontario. The relatively high annual economic value of Woodland Caribou is largely attributable to the park's size, its number of remote fishing operations and the high expenditure pattern associated with this activity.

The estimates above are existing values that reflect the use of these areas prior to the completion of planning exercises for them. Therefore, the values are reflective of pre-OLL use. A study in five, ten or 15 years would be useful to estimate how the designation of these areas has changed the economic values over time.

Table 4. *Woodland Caribou Signature Site user days, consumer surplus, costs and total economic value estimation.*

User Group	Remote Anglers	Moose Hunters	Canoers	Totals
Annual Number of Users	4,715	22	1,045	5,782
Annual User Days	22,442	101	6,796	29,339
Annual Benefits (User Days * Consumer Surplus/Day)	\$636,231	\$1,788	\$235,413	\$873,432
Costs Per Person Per Day (actual expenditures) ³	\$202	\$52	\$43	
Total Costs	\$4,536,426	\$5,292	\$291,005	\$4,832,723
Annual Value (Cost + Consumer Surplus)	\$5,172,657	\$7,080	\$526,418	\$5,706,155
Transfer Site	Market Price + Kawartha	Kawartha	Spanish	

Table 5. *Summary of total value estimation for all eight signature sites.*

Signature Site	Annual Costs Incurred	Annual Consumer Surplus	Annual Recreation Benefits
Algoma Headwaters	\$717,091	\$195,974	\$913,064
Kawartha Highlands	\$9,125,189	\$3,244,785	\$12,369,974
Killarney Provincial Park	\$5,361,289	\$3,264,738	\$8,626,027
Lake Nipigon Basin (angling only)	\$967,103	\$184,275	\$1,151,378
Nagagamisis	\$1,459,526	\$964,403	\$2,423,929
St. Raphael	\$2,122,416	\$273,614	\$2,122,416
Woodland Caribou	\$4,832,723	\$235,413	\$5,706,155
Spanish River Valley	\$1,359,762	\$1,074,519	\$2,434,281
Totals for the 8 Sites	\$25,945,099	\$9,437,721	\$35,747,224

Conclusions and Summary

Where the Crown owns the land, as is the case of Ontario's signature sites, its management should attempt to provide the public with the highest possible net benefits – not simply to recover costs. The maximum net benefit is the resource allocation that provides the greatest difference between total benefits (consumer surplus) and total costs. For government policy makers and economic development officials in communities near protected areas, the identification of a large consumer surplus indicates an area of 'untapped' economic value or potential. This value represents a potential revenue for capture for protected area authorities by charging higher and/or differential user fees. For the private sector and economic development interests, it represents an area of value that could still be captured by offering goods and services that meet visitors needs. Either way the 'surplus value' does demonstrate that the signature sites (and mostly likely other protected areas created through OLL) do have the potential to create more economic benefit for government and local businesses and communities.

Along with identifying the overall economic benefit of the recreational use associated with the signature sites, and demonstrating that the recreationists 'use value' exceeds their expenditure pattern, there are several other benefits of the study. The identification of the consumer surplus associated with the signature sites, together with research conducted on economic opportunities associated with these areas, can demonstrate to local communities and business the 'uncaptured' economic value of existing consumers and suggest possible ways this value could be captured.

The identification of economic values for the various recreational uses is particularly useful to estimate recreation values associated with other protected areas in the province. However, the biggest data gap in undertaking this would be the lack of recreational use numbers in all areas of the province except for operating provincial parks.

The other major gap in the economic valuation of these areas is that the study did not examine the value non-visitors place on the signature sites and all of the OLL areas in total. This issue of 'non-use' value remains a topic of continual interest for Ontario Parks and represents one of the most logical follow-ups from this study if the total economic value of these sites is to be more completely estimated.

In closing, the results of this study demonstrate that the landscapes within *Ontario's Living Legacy* signature sites provide significant and potentially sustainable economic benefits to a diversity of outdoor recreationists and regional economies. As demonstrated by this study, valuing these areas, based on a more complete estimate of the types, quantities and qualities of the benefits they provide, will facilitate decisions to be made such that the productivity of these landscapes are optimized and secured for present and future Ontario residents.

Endnotes

¹It is difficult to conclusively state that total employment in the resource-based industries has been in decline. Even with detailed employed labour force data the resource industries have restructured over time and outsourced business functions that would have previously been undertaken by the company (e.g., logging, trucking, suppliers). As well, other resource-based industries have developed (e.g., OSB, value-added manufacturing). Nevertheless, experience from various communities and corporate restructurings have demonstrated that there is a long-term trend of technology replacing labour.

²The consultants gathered the economic impact data through the user survey and visitor counting and then assembled the data by user groups for input into the Ministry's SEIM model. All economic impact findings are presented at the provincial level.

³The estimated costs per day for remote lodge or outpost angler was based on a survey of price packages of operators in Woodland Caribou, St. Raphael and Algoma Headwaters. This was done as the consultant team made the decision that the angler costs per day captured in the Kawartha Highlands were not reflective of 'remote' fishing operations and instead were more reflective of local/non-outfitted angling opportunities.