

IDENTIFYING CRITERIA AND ESTABLISHING PARAMETERS FOR FOREST-BASED ECOTOURISM IN NORTHERN ONTARIO, CANADA¹

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This paper identifies the following criteria as indicators for ecotourism suitability within a Northern Ontario context: naturalness, wildlife, cultural heritage, landscape and community. A methodology is proposed which uses Geographical Information Systems (GIS) to identify ecotourism sites by linking criteria deemed important with actual landscape characteristics of Northern Ontario.

Introduction

Within the context of tourism in general, the ecotourism sector is reported to be the area experiencing the greatest growth over the past decade. Although ecotourism implies a form of tourism which fosters environmentally responsible principles, it appears that the economic benefits that can accrue from this activity have encouraged many nations to deliberately promote ecotourism within their borders. Established ecotourism destination areas are focused predominantly in the developing nations (Boo 1990; Dearden 1989; de Groot 1983; Fennell and Eagles 1990). The magnitude of the ecotourism industry is well illustrated by the reality that over 25 billion dollars are transferred from the northern to the southern hemisphere annually (Whelan 1991). Recently the growth in ecotourism has been broadened to include new destination areas in Australasia (Valentine 1992), and the remote landscapes of the polar regions (Marsh 1992). Expansion has also resulted in opportunities being sought in the less exotic temperate landscapes of the developed world, such as Northern Ontario, Canada. This latter trend has emerged in response to the potential that ecotourism may offer the economies of marginal areas, and also the realization that there may be a declining number of new exotic and rare landscapes available that can be marketed as ecotourism destination areas in the more established regions.

Early ecotourism destinations like Kenya (Olinda 1991), the Galapagos Islands (Kenchington 1989) and Thailand (Dearden and Harron 1992) have suffered extensive impacts as a result of increased numbers of tourists. In light of the above, it is

imperative that only those areas which are suitable for ecotourism be developed and ensure that ecotourism criteria are matched with the resource base characteristics of the region. This paper describes a methodology to identify sites based on determining first the criteria and attributes of ecotourism and second by matching the value range of these criteria to the region's resource base inventory. The problems in defining ecotourism and identifying the linkages between ecotourism and other forms of tourism and related environmental management concepts are discussed in the context of explaining the difficulty in identifying appropriate ecotourism criteria. Next, the elements of ecotourism, suitable to Northern Ontario, are presented along with the criteria and the methodology. A final section addresses the implications of the methodology to resource managers and tourism operators.

Definition and Linkages

Ecotourism is a form of tourism which has been fraught with problems of definition. There is no unifying and generally accepted definition and many terms have been used to describe the same phenomenon. Examples include terms like nature travel (Laarman and Durst 1987), nature-oriented tourism (Durst and Ingram 1988) and special interest tourism (Inskeep 1987; Weiler and Hall 1992). Scace et al. (1992) identify over thirty-five terms that may be linked to ecotourism, such as sustainable tourism and alternative tourism. The dangers inherent in allowing definitions of ecotourism such scope, is that the term can fall prey to indiscriminate use as a catchall phrase for almost anything that links tourism with nature (Farrell and Runyan 1991).

Although there remains a lack of a universally agreed definition, the one most commonly cited is that stated by Hector Ceballos-Lascurain, who first coined the term "ecotourism" a decade ago. He defines ecotourism as "traveling to relatively undisturbed or uncontaminated natural areas with the specific objective of studying, admiring, and enjoying the scenery and its wild plants and animals, as well as any existing cultural manifestations (both past and present) found in these areas" (Ceballos-Lascurain 1987, in Boo 1990). His definition suggests a form of tourism which is little different in effect from much of what has traditionally been regarded as wilderness recreation in North America. It says nothing about resource degradation, nothing about having positive impacts on the flora or fauna, nothing about economic impacts or benefits on local communities, and nothing about the nature of the experience or satisfaction. These ideological and value-laden attributes have been added to subsequent definitions of ecotourism, and have served to obscure rather than define the meaning of ecotourism. The abuse of the term, often for marketing purposes, has watered down its conciseness.

In light of the foregoing, it is necessary to see ecotourism as a dynamic and flexible concept, prone to change given the various settings in which it occurs (e.g. coastal regions, forested landscapes, national parks and protected areas, wildlife reserves, private land) and the range of experience sought by those traveling to such varied landscapes. In order to understand ecotourism, an adaptive approach is needed where it is understood that no one definition is suitable for all settings and that certain elements will have greater value than others given the environment that ecotourism is being promoted.

Ecotourism has been linked to many other types of tourism (e.g. sustainable tourism, alternative tourism) and ideas related to environmental management (e.g. sustainable development). There is a certain amount of similarity between ecotourism and adventure travel, the latter often viewed as a form of ecotourism that involves a higher degree of risk and possibly environmental impact. Ecotourism can be viewed as also fitting within what may be termed a sustainable development framework, addressing principles (e.g. equity, carrying capacity, conservation), planning (e.g. proactive, integrative and long term) and management (e.g. integrative, assigned responsibility). These linkages are discussed in greater detail elsewhere (Boyd and Butler 1993).

In the context of Northern Ontario, ecotourism will be fashioned by a predominantly forested setting with the presence of other

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ecotourism within Northern Ontario, may be defined as "a responsible nature travel experience, that contributes to the conservation of the ecosystem while respecting the integrity of host communities and, where possible, ensuring that activities are complementary, or at least compatible, with existing resource-based uses present at the ecosystem level" (Boyd and Butler 1993; 13).

Northern Ontario as a Setting for Ecotourism

A review of the literature would suggest that the ecotourism population is, for the most part, well educated, affluent and mature. It would also appear to be sympathetic to what may be termed "green" principles, essentially those of sustainable development, small scale rather than large, traditional rather than modern resource development, non-consumptive rather than consumptive use of wildlife except by indigenous peoples, and especially in the areas they are visiting for ecotourism, protection of resources and the landscape, rather than exploitation of these features. These beliefs and attitudes, while held at varying strengths, may work against a perception of Northern Ontario as an area suitable for ecotourism to the global market, and certainly for the market in Canada and North America, which have some knowledge of Northern Ontario and its resource development history. The ecotourism population is also primarily urban in origin, and is attracted to areas which epitomize the opposite to home environment.

In many respects, Northern Ontario appears to have many of the attributes needed for the successful development of ecotourism. It is largely free from urban settlements, it has vast expanses of apparently untouched landscape, it has a rich vegetation cover, considerable wildlife, and an indigenous population which traditionally, and in some locations still does, lived off the land. As well, there has been recreational and tourist use of the area for a considerable time, and thus some basic facilities and infrastructure exist. Finally, there have been established a number of provincial parks, including waterway parks and one National park, which further the recreational-tourist presence and help to safeguard some of the natural features.

However, it should be readily apparent to a careful observer that the ecotourism in Northern Ontario will have to be somewhat different in form from that found, for example, in Latin America, Africa or Asia. While Northern Ontario does have the attributes noted above, in reality many of these factors create difficulties as well as present opportunities to the development of ecotourism. They are discussed briefly here in order to provide a background against which the identification of potential ecotourism sites can be conducted.

The urban settlement which does exist in Northern Ontario holds few attractions for the potential ecotourist. The resource development of Northern Ontario, basically forestry (and pulp/paper production), mining and trapping/hunting, are not activities which are viewed as attractive, or in the extreme cases, even as acceptable, by some ecotourists. The concept of clear cutting of forests, is not generally viewed with sympathy by the ecotourism population. As with other traditional resource activities in Northern Ontario, fur trapping does not rank high in attraction with ecotourists, even when practiced by indigenous peoples. The portrayal of the historic importance and development of this activity should be of interest, but present day trapping, limited though it is, is probably a feature to avoid in the context of ecotourism.

The recreational mix which presently occurs in Northern Ontario lends itself well to ecotourism, indeed some would argue much of it is ecotourism. Major exceptions are sport hunting and sport fishing which contribute significantly to the tourism revenue in the region. Hunting and fishing by indigenous peoples is viewed by some ecotourists as acceptable but within certain limits.

In many other regions which currently serve the ecotourism market, the indigenous population is portrayed and utilized as a major attraction to the visitors. They may be used as guides,

provide accommodation in traditional villages and houses, and produce and sell native artifacts. Above all perhaps, they are "sold" as exotic, primitive, different and desirable, however inaccurate biased or racist that may be. In general such a portrayal of Northern Ontario Indian band members would be unacceptable, inaccurate and possibly conflict with the legal system. Most Indian reserves and settlements in Northern Ontario do not have the exotic appeal or attraction to ecotourists that a Thai hill tribe village might. In many cases they may not be much different from other small northern urban communities.

The physical attributes and scale of the Northern Ontario landscape make the area a prime candidate for ecotourism, but lead at the same time to problems of access and seasonality. Distance between features and the attractions in this area may be vast at times, certainly compared to some tropical eco-tourism destinations, and great variety does not frequently exist within a few miles in Northern Ontario as for example, in Costa Rica. The flora and fauna of Northern Ontario is not comparable in variety, guaranteed visibility or accessibility to many other areas currently used for ecotourism, such as the tropical rain forest or cloud forest.

These points have been noted, not to disparage the appeal of Northern Ontario to ecotourism, but to clarify some of the issues to be faced. Forms of ecotourism already exist in Northern Ontario and can undoubtedly be developed further. What is important, however, is to note that ecotourism in this area, will, by necessity, be different in many aspects, from that found in more traditional areas. The attributes of Northern Ontario must be carefully matched to the attributes and demands of ecotourism, in sympathy with the needs and preferences of the local population.

Elements and Criteria of Ecotourism Suitable for Northern Ontario

Seven key attributes are suggested as having applicability, based on the literature and past experience. Ecotourism should be:

- (1) environmentally and socially responsible,
- (2) focused on elements of the natural environment,
- (3) managed in such a way as to have minimal environmental and social impacts,
- (4) non consumptive,
- (5) capable of providing desired economic benefits to local residents,
- (6) compatible with other resource uses in the area, and
- (7) appropriate in scale for conditions and environment.

A more detailed discussion is available elsewhere (Boyd and Butler 1993).

When defining indicators of ecotourism suitability for Northern Ontario, one major concern ought to be the "naturalness" or "pristineness" of the area under consideration. For that purpose, some recently developed ecological concepts, such as "ecosystem health" or "ecological integrity" (see Regier 1993) may be helpful. These notions are useful in attempts of operationalizing ecosystem management or sustainable resource management. In attempts towards operationalization of these concepts, several aspects need to be considered: (1) any standard for ecological integrity contains some underlying scientific assumptions and cultural biases; (2) the context of application; (3) methodological biases; (4) actual measures used (Steedman and Haider 1993). All these descriptions of ecosystem integrity point to the fact that it is a relative concept. First of all, constant changes in the natural environment make it impossible to define a correct starting point from a historic perspective. Also, only few areas remain that have not been impacted by human uses directly or indirectly, but a number of areas may exist in rather natural states, suggesting a continuum from pristine to more and more developed and altered environments. More important for resource management is the fact that several stable states can be defined along that continuum. The challenge for sustainable resource management in general, and ecotourism management in particular, is to devise strategies for maintaining such an ecological stable state while at the same time permitting tourism use in the area.

It can be argued that in Northern Ontario, only few "pristine" environments exist; also the region has been heavily logged, resource extraction is widespread, with the pervading influence of pollutants, emissions and possible man-induced climatic change on even those areas which have not been exposed to extractive activities. With respect to the area's "naturalness", the forest environment and the aquatic environment are important in terms of ecological integrity. Both are also important for tourism uses, albeit in rather different ways, depending on the type of activity. For instance, in the case of land-based activities, users/ecotourists will move through the forest and consequently be confronted with numerous detailed forest characteristics. Aquatic areas may provide important backdrops mostly in the form of scenery, but

subtle changes in quality may be of comparably lesser significance. Water-based activities, on the other hand, reverses the situation with the forest merely providing the scenic backdrop for an ecotourism experience. The importance of this observation is that regardless of whether emphasis is placed on the forest or aquatic environment, the integrity of the desired setting will be much more apparent, allowing the other setting to be managed to reflect a healthier appearance. Although, "naturalness" is considered a key criterion to identify ecotourism sites, wildlife, cultural heritage, landscape and community are also suitable indicators. Table 1 lists characteristics and measures of the above mentioned criteria, where variation is expressed as absolutes or in the form of a continuum.

Table 1. Characteristics and measures of ecotourism criteria.

Characteristics	Measures	
NATURALNESS		
• Permanent settlement in area	Absent	Present
• Absence of cutting	> 10% red/white pine	>80% deciduous
• Undrained wetlands	Absence of dams	Dam
• Unmodified rivers (1)	Absence of dams	Dam
• Unmodified rivers (2)	Absence of bridges	Bridges
• Absence of intrusive sound	10 Km to near sound	1 Km
WILDLIFE		
• Suitable habitat	ARDA 1 Capability	ARDA 7
• Migration Route	On primary routeway	not on routeway
• Wintering site	Yes	No evidence
• Feeding site	Yes	No evidence
• Nature reserve	Nature reserve	Nat. Reserve zone
	Provincial Park	Provincial Park
CULTURAL HERITAGE		
• Designated Historic Sites	Yes	None
• Historic Parks	Historical Provincial Park	Historical zone Provincial Park
• Historical Routes	Present	Absent
• Indian Reserve	Traditional desired	Modern not desired
LANDSCAPE		
• Significant feature	High relative relief >100 metres	No relief
• Viewpoints	Present	Absent
COMMUNITY		
• Not within site, but close enough to provide base, services and local population for economic benefit	5 Km	Over 20 Km
• Close enough for primary access to site(s)	Access features	No access

Source (Boyd and Butler 1993; 45-46)

Methodology

Geographical Information Systems (GIS) technology is employed in developing a three stage methodology to identify ecotourism sites. Stage one identifies those features of each criteria that can be recorded using GIS. Elements within a region can be recorded as points (e.g. mills, mines), polygons (e.g., areas of clear cut), or as lines (e.g., rivers, logging roads). Distance components involved with criteria are accommodated through placing buffers of a certain distance around features. For example, where noise may be a consideration and deterrent to ecotourism, a buffer of a certain distance (e.g., 10 kilometres) is placed around current extractive activities.

The second stage focuses in particular on determining an area's "naturalness." "Natural" here is defined to mean the present landscape which has adjusted to human interaction and modification, and given that this interaction with and modification of the landscape will vary spatially, it is also argued that there are different degrees of naturalness. An area's degree of naturalness is expressed in terms of the following seven

attributes: presence or absence of permanent settlement, bio-physical (vegetation) characteristics, extent of resource-related activity present, type of access, presence of wildlife, nature of recreational activity, landscape characteristics. An assumption is made here that the naturalness type found in areas is an important factor in determining what areas are best suited to different types of ecotourists and ecotourism experiences.

The methodology proposed in this stage is related to that used in similar research undertaken in Australia on the production of a national wilderness inventory, and on wilderness evaluation (Lesslie and Taylor 1985; Lesslie, Taylor and Maslen 1993; Lesslie, Mackey and Preece 1988). A value range is assigned to the various aspects of each attribute, from which an overall score can be determined. Table 2 shows an itemized list of possible scores for each attribute, a description of the various elements of each attribute and a measure to determine the score. It should be noted that not all attributes have a range from 5 to 1.

Table 2. Attribute list, scores and value range.

PRIMARY CHARACTERISTICS**Presence of Community**

Score	Community Type	Population Size
5	absence of permanent settlement	0
3	unincorporated communities	1-1000
2	small towns	1001-10,000
1	urban settlements (industrial based)	>10,000

Resource-related Activity (forestry)

Score	Resource Type	% of "Area"
5	no presence of forestry activities	100 per cent
3	forestry practices I(cutover area)	<20 % cutover 30-40 yrs
2	forestry practices II	>20 % cutover 20-30 yrs
1	forestry practices III	>20 % cutover 10-20 yrs

Resource-related Activity (mining)

Score	Resource Type	% of "Area"
5	no presence of mining	100 per cent
3	mining practices I	abandoned mines present
1	mining practices II	operational mines present

Vegetation Coverage

Score	Vegetation Type	% of "Area"
5	mixed forest (type 1)	>50 % coniferous >10 % white & red pine
4	mixed forest (type 2)	> 50 % deciduous/coniferous, < 10 % white or red pine
3	dense coniferous forest	> 80 % jack pine, black spruce,
2	sparse coniferous forest burns and cutover i.e. all others except	> 80 % deciduous, > 10 years old
1	poorly vegetated areas, clearcuts, burns	shrub cover, < 10 years old

Access Characteristics

Score	Type	Value Range
5	access area I	areas outside of any buffers around all roads
3	access area II	areas within 2Km buffer around logging roads
2	access area III	areas within 5Km buffer around loose surface roads
1	access area IV	areas within 10 Km buffer around paved/major roads

Wildlife Setting

Score	Type	Value Range
5	wildlife setting I	ARDA class areas 1-2
3	wildlife setting II	ARDA class areas 3-5
1	wildlife setting III	ARDA class areas 6-7

SECONDARY CHARACTERISTICS**Landscape (Relative relief)**

Score	Characteristic	Measure
5	high relative relief	> 25 metres
3	medium relative relief	10-25 metres
1	little relative relief	less than 10 metres

Landscape (Water content)

Score	Characteristic	% of "Area"
5	presence of water	5-20 %
3	presence of water	20-50 %
1	presence of water	0-5% or > 50 %

Source (Boyd and Butler 1994)

The absence of one or more units is used to illustrate the relative importance of a feature being absent or present, and to distinguish between aspects that are favorable to ecotourism and those which are not.

An area's type and degree of naturalness will be determined by the cumulative score it receives for all of the attributes/ biophysical characteristics present for respective areas.

The following scores are suggested for various types of naturalness.

Type of Naturalness	Score Range anticipated/accepted
I	31 to 35
II	21 to 30
III	15 to 20
IV	8 to 14
V	1 to 7

A veto system is employed in classifying areas. A type I area is not possible if a score of 3 is recorded for two or more attributes present within the area. Type II landscapes require that no more than two attributes/characteristics have a score less than three, with at least one attribute scoring a 5. A type III landscape is not possible if a score of lower than 2 is recorded for three or more attributes. A type IV is not possible if an area scores a 1 for more than three attributes.

The third stage of the methodology arranges the naturalness attributes in a hierarchical order, with vegetation cover representing the base layer. Separate overlays of the remaining attributes are added to this base layer in a sequence to generate areas where a mix of attributes are present that are suitable to ecotourism. The following order is suggested: resource-related activities, access, communities, wildlife, and landscape. If, when using this sequence, too few areas are found, the order of the thematic layers may be rearranged. Areas which receive a type I and II classification, which include components of cultural heritage could then be considered as the best option for ecotourism. The next best option areas would be those classed as a type III landscape, with some evidence of cultural features. It is also important that the areas that are identified are of a minimum size sufficient for ecotourism. An area of between 300 and 500 square kilometres is considered as suitable, allowing for several days travel to occur with a diversity of flora and fauna present. In areas where few areas of this size are identified, smaller areas may be considered as suitable for an ecotourism opportunity/experience which are offered as day excursions or with the added attraction of an overnight stay.

Conclusion and Implications

This paper has described a methodology to identify ecotourism sites within Northern Ontario. The nature of the methodology is such that, given the availability of GIS technology, it can be applied in other similar settings. Being able to identify areas by matching the characteristics of an area with those attributes most appropriate for ecotourism has major implications in general to tourism operators and recreation planners. As mentioned earlier, ecotourism by its very nature will have an impact on any environment. Limiting ecotourism, which has within it the potential to become mass tourism on a small scale, to such areas where the region's characteristics are most suited for ecotourism and which can best withstand such use, will to an extent reduce impacts compared to areas which are more fragile in nature.

It should, however, be pointed out that GIS is not a decision-making tool but rather provides information in a form from which decisions can be made. If areas which have high potential for ecotourism are to be developed, it will require co-operation and consultation between agencies, communities, and industry in order to make decisions which are based on the interests of the various groups involved and in line with the characteristics of the area itself. The methodology described in this paper identifies for decision-makers those areas which show the greatest potential and which then may be developed through fostering co-operative partnerships.

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