

Hiking Opportunity Spectrum: Landscape and Facility Preferences of Wilderness Hikers in Ontario, Canada

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Draft 2 prepared for *Journal of Tourism*: January 11, 2002

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Introduction

Recreational opportunities create the potential to engage in preferred activities, such as hiking, in a preferred setting, such as in remote areas of crown land, in the hope of realizing desired experiences (Driver et al., 1987). The provision of opportunities for desired experiences met by understanding the relationships between the desired experiences and the associated setting attributes (Manfredo et al., 1983) is known as experience-based recreation setting management (Driver et al., 1987). To decide what mix of setting and activity opportunities best serve backcountry users, while efficiently utilizing the resource, the manager needs to know how the user evaluates specific attributes of a setting (Manning, 1999). This is especially important when competing land uses detract the setting and activity opportunities.

In the USA, between 1983 and 1995 hiking had the second highest growth rate of all outdoor recreation activities, comprising 47.8 million people in 1995 (Cordell and Super, 2000). This increasing USA demand affects participation rates in trails in border areas in Canada.

The Voyageur Trail Association (VTA), founded in 1973, is a non-profit group dedicated to the development and operation of a long-distance trail along the north shore of Lake Superior and Lake Huron in Ontario, Canada. Of the proposed 1,100-km length, 445 km is cleared and marked. Of this latter length, 100 km are in two parks, Lake Superior Provincial Park and Pukaskwa National Park (VTA, 2001).

The trail covers very rugged terrain, with large, rocky hills, dense forests, and windswept cliffs. The area is very lightly populated. The trail has very few facilities, with only trail clearance, markings, some campsites and a few bridges. The trail area on crown land outside parks is also used for forest harvesting, creating potential conflicts (McKercher, 1992).

Therefore, crown land and trail managers need to understand the travel motives of the hikers and their acceptance of various landscape modifications.

Methods

The VTA and the Ministry of Natural Resources funded the study. The subject population was the entire membership of the VTA. Each member received a questionnaire on social demographics, trail use, and trail attribute preferences. Trail users were all VTA members who utilized the Voyageur Trail during the February 1992 to January 1993 study period. For each characteristic 5 choices were given: dislike won't use, dislike will use, don't care, prefer, and require. Each choice represented a number from 1 to 5, with 5 indicating the most preference. A response rate of 83% (n=169) was achieved, with 169, 68% (n=98) being trail users.

Results

Social Demographics of the Trail Users

The trail users lived in Canada (87.8%, n=86) or the United States. The users' ages ranged from 18 to 75 with a mean of 46.3 years. The largest age group of the trail users was in the 30 to 39-year old cohort, with 27.8%. Males comprised 66.3% (n=65) of all trail users.

The education level of trail users was high, with 54.6% (n=53) having a university degree. This compares to 11.4% of Canadians with university degrees (Columbo, 1994). The majority of trail users were employed full time (60.8%, n=59) or retired (18.6%, n=18). The yearly household income varied from less than Can. \$30,000 to more than \$100,000, with the most frequent between \$40,000 and \$59,000.

Trail Use Characteristics

The trail users took 583 recreational trips, spending 643 person-days and 102 person-nights on the trail during the study period. The total number of days spent on the trail ranged

from 1 to 32 days, with 1 to 4 days the most frequent. Of all trail users, 50% took more than 4 trail trips in the study period, showing a high level of dedication to this recreational experience. Only 22.5% (n=22) stayed on the trail overnight, with a mean length of stay was 4.6 nights, and a range from 1 to 30 nights.

The trail trips occurred in every month, including the coldest months of winter. The higher use period was during the warm weather from May through October, with 70.8% of all trips. Hiking was the most common mode of travel (83.5%, n=81), with cross-country skiing next in popularity (12.4%, n=12).

The most common trip distance was between 6 and 10 km in length (46.1%, n=46), but varied between 1 and 40 kilometres. Most travelled in a group, with only 8.3% (n=8) alone. Group size varied from 1 to 30, with 2 the most frequent (n=31, 32.3%). The very large groups were on VTA outings.

The travel distance ranged from 1 to 1,300 kilometres with 104.8 km as the mean distance. The long distance members lived in southern Ontario or Michigan.

Conflicts Encountered by Trail Users on Most Recent Trip

The trail users reported low levels of conflicts on the trail, with only 7% (n=7) reporting conflict with recreational users and 3.1% (n=3) encountering conflict with non-recreational users. The recreational conflicts concern littering, mountain bike use, crowding, sign vandalism and in one case the blocking of the trail by a landowner. All of the non-recreational conflicts were with logging activities, typically due to logging blocking the trail with slash or damaging the trail with machinery.

Trail Activities and Preferences

The VTA members engaged in a wide variety of activities, with viewing the natural scenery the most frequent activity (88% participation) (Table 1). VTA trail hikers were interested in scenery and natural landscapes with topographical and biological diversity (Table 2). Water features were highly ranked, not surprisingly given the trail position along lakeshores. Industrial, commercial or residential developments were the least desired attributes (Table 3), but were usually not a problem because of the remoteness of the landscape. However, all-terrain vehicles, motorboats and logging were possible activities not desired.

Facility Preferences

Preferred facilities desired included bridges, signs, information, and toilets (Table 4). The development of side trails helped observe desirable landscape features. The trail users were not in favour of roofed accommodation, high standard trail maintenance, or permanent tent pads. This information shows that these trail users are after a wilderness type of experience with a minimum of facilities. Even wilderness hiking requires some facilities, such parking lots at the trailheads, bridges over rivers, direction signs, and toilets.

Campsite Preferences

The most preferred campsite attributes were level ground, a great view, and near water (Table 6). Large trees, firewood and were also desirable. The least preferred campsite attributes were being in a gravel pit, with hydro lines overhead, with the forest cut nearby, the sounds and sights of logging machinery working, and all-terrain vehicles buzzing around.

Discussion

The trail users preferred views of undisturbed natural scenery, lakes, and streams, bridges over dangerous rivers, and directional signs. They disliked: sounds from logging, sounds from

all-terrain vehicles, views of industrial or commercial development, sights of all-terrain vehicles, sounds from vehicular traffic, sounds from outboard motors or views of residential development.

Campers preferred views of undisturbed natural scenery, access to water suitable for filtration and a campsite at the edge of a lake. They disliked a campsite with sounds from logging, sounds from all-terrain vehicles, location in a gravel pit, seeing all-terrain vehicles, views of industrial or commercial development, evidence of logging on the site, evidence of logging in view from the site, hydro lines crossing the site, evidence of mining activities in view from the site, a gravel pit in view from the site, hydro lines in view from the site, sounds from outboard motors, sounds from vehicular traffic on roads, views of residential development, seeing powered watercraft or a human-made dam in view from the site.

A trail providing opportunities for a range of desired experiences is an optimal strategy for long-distance trails. The Voyageur Trail can provide such a hiking opportunity spectrum, due to range of site attributes along the trail and the conflicting demands of wilderness hiking and commercial forestry. Different sections of the trail could provide unique combinations of biophysical, managerial and social conditions to meet the diverse needs of the different types of users, both hikers and loggers. The two parks could provide the highest quality wilderness setting opportunities with high quality undeveloped protected land without logging. These trail sections could provide experience opportunities most appropriate to the wilderness-oriented users. Other sections of the trail might have moderate levels of resource exploitation, with special zoning to separate hikers and logging. Still other sections might have high levels of resource exploitation. Such a hiking opportunity spectrum would provide for a full range of hiking opportunities, as well as provide allow continuation of commercial forestry.

This research is one of the first in-depth studies in Canada of wilderness hikers' trail, camping, and facility preferences. Given the incompatibility of wilderness hiker preferences and forestry demands, a hiking opportunity spectrum and a zoning system provide an opportunity for both. Presumably the landscape and trail preferences found in this research occur within the rapidly growing hiking population elsewhere in Canada and the USA. Therefore, this study may provide information that is useful to trail managers wherever wilderness hikers travel. Therefore, this study provides a basis for experience-based recreation setting management for long-distance hiking trails in Canada and elsewhere.

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Table 1: Most Frequent Recreation Activities on Most Recent Trail Trip

Activities	Frequency	Percent of People
1. Viewing natural scenery	86	87.8
2. Nature walks	67	68.4
3. Exploring	65	66.3
4. Bird watching	62	63.3
5. Relaxing, resting	50	51.0
6. Day hiking to adjacent areas	45	45.9
7. Photography	39	39.8
8. Picnicking	33	33.7
9. Visiting companions in my party	24	24.5
10. Rock climbing	22	22.4

Table 2: Most Preferred Trail Attributes

Trail Attribute	Mean Preference
1. Views of undisturbed natural scenery	4.22
2. Views of lakes	4.07
3. Views of streams	4.01
4. Views of waterfalls	3.99
5. Access to unique landscape features	3.98
6. Views of gorges	3.97
7. Good places to stop and rest	3.97
8. Views of rock outcrops	3.96
9. Large variety of plants/trees	3.92
10. Large variety of environments	3.91

Table 3: Least Preferred Trail Attributes

Trail Attribute	Mean Preference
1. Sounds from logging (chainsaws, machinery)	1.74
2. Sounds from all-terrain vehicles	1.75
3. Views of industrial or commercial development	1.75
4. Seeing all-terrain vehicles	1.80
5. Sounds from vehicular traffic on roads	1.93
6. Sounds from outboard motors	1.95
7. Views of residential development	1.98
8. Evidence of logging on the trail	2.11
9. Seeing powered watercraft	2.12
10. Evidence of logging in view from the trail	2.16

Table 4: Most Preferred Trail Facilities

Trail Facility	Mean Preference
1. Bridges over rivers that are dangerous to wade	4.24
2. Directional signs at trail intersections	4.02
3. Develop more side trails to unique landscape features	3.98
4. Information board (maps, local area roads, trails) at trailheads	3.87
5. Bridges over creeks where hikers would otherwise get wet feet	3.71
6. Low standard trail (somewhat like a game trail - narrow, grade varies, winding, not the shortest route)	3.70
7. Provision of a fire pit (stone circle)	3.65
8. Interpretive signs explaining natural features or early history	3.57
9. Primitive log construction of bridges	3.49
10. Pit privy provided	3.46

Table 5: Least Preferred Trail Facilities

Trail Facility	Mean Preference
1. Back country lodges (full accommodation and food service)	2.32
2. Fully enclosed huts	2.66
3. High standard trails (wide, steady grades, fairly straight)	2.69
4. No signs	2.74
5. No human waste facility provided	2.81
6. Constructed tent pads (gravel)	2.85
7. No bridges	2.87
8. Partially enclosed shelters	2.91
9. No overnight sleeping facilities provided	2.93
10. No facilities whatsoever	3.07

Table 6: Campsite Preferences Most Preferred

Campsite Attribute	Mean Preference
1. Views of undisturbed natural scenery	4.22
2. Access to water suitable for filtration	4.11
3. Level ground for pitching a tent	4.11
4. At the edge of a lake	4.00
5. At the edge of a stream	3.89
6. Access to unique landscape features	3.78
7. Firewood nearby	3.78
8. Large trees on site	3.78
9. Sites screened from others	3.75
10. Large variety of plants/trees	3.67

Table 7: Campsite Preferences Least Preferred

Campsite Attribute	Mean Preference
1. Sounds from logging (chainsaws, machinery)	1.22
2. Sounds from all-terrain vehicles	1.22
3. Views of industrial or commercial development	1.22
4. Seeing all-terrain vehicles	1.33
5. Site in gravel pit	1.33
6. Evidence of logging on the site	1.44
7. Evidence of logging in view from the site	1.44
8. Hydro lines crossing the site	1.44
