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## Stakeholder views of place meanings along the Niagara Escarpment: an exploratory Q methodological inquiry

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The sentiments people attach to natural environments have been highlighted in place-based research literature to explore the nature and power of person–place relationships. Although person–place relationships have been studied, there is a need for a better understanding of the relationships between the meanings attributed to specific natural settings and the potential of those meanings to translate into pro-environmental behaviours as well as to influence land management decisions. The purpose of this exploratory study is to describe typologies of place meaning for a small group of people who recreate on the Niagara Escarpment in southern Ontario, Canada. Participants performed a Q-sorting procedure followed by Q methodology procedures including (1) correlation of the sorts, (2) principal components analysis of the correlation, (3) factor rotation, and (4) factor interpretation. Results represent a typology of Niagara Escarpment views held by a sample of forest recreationists who live in the Niagara Region of southern Ontario. Implications for practice and future research directions are discussed.

**Keywords:** Q methodology; outdoor recreation; place meanings; Niagara Escarpment

Les sentiments d'amateurs de plein air attachés à des milieux naturels ont été mis en évidence dans la littérature de recherche axée sur le lieu d'explorer la nature et la puissance des relations personne-lieu. Bien que les relations de personne-lieu ont été étudiées, il existe un besoin pour une meilleure compréhension des relations entre les significations attribuées à des milieux naturels et le potentiel d'attribuer ces significations des comportements pro-environnementales ainsi que d'influencer les décisions de gestion de ces milieux naturels. Le but de cette étude exploratoire est de décrire les significations de typologies du lieu par un petit groupe de personnes qui utilise l'escarpement du Niagara dans le sud de l'Ontario, Canada. Les participants ont effectué une procédure de triQ suivie par une procédure de la méthodologie Q qui consiste : (1) d'une corrélation des sortes (2) une analyse en composantes principales de la corrélation (3) d'une rotation des facteurs, et (4) l'interprétation des facteurs. Les résultats représentent une typologie de l'escarpement du Niagara exprimé par un échantillon d'amateurs de plein air qui vivent dans la région de Niagara. Les implications pour les loisirs sont discutées.

**Mots-clés:** méthodologie Q; loisirs de plein air; significations et place; l'escarpement du Niagara

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The sentiments people attach to natural environments have been highlighted in place-based research literature to explore the nature and power of person–place relationships (McIntyre, Moore, & Yuan, 2008; Stedman, 2002; Stokowski, 2002; Williams & Roggenbuck, 1989). Relationships between people and places have been conceptualized as dynamic interactions between thoughts, feelings, behaviours and physical settings (Kyle, Mowen, & Tarrant, 2004; Low & Altman, 1992; Relph, 1976; Tuan, 1977). While the ways people feel in their relationship towards natural environments have been studied in-depth, there is a need for a better understanding of the relationships between the meanings attributed to specific natural settings and the potential of those meanings to translate into sustainable environmental behaviours as well as to play a role in land management and policy decisions (Borrie & Roggenbuck, 1996; Kyle, Graefe, Manning, & Bacon, 2004; Williams & Stewart, 1998).

An abundance of research conducted within the context of outdoor recreation has illuminated stakeholder perspectives towards place attachment and recreation motivations in relation to particular natural resources (see, for instance, Bricker & Kerstetter, 2000; Driver, 1976; Kyle et al., 2004). In a Canadian context, policy implications from the *Survey on the Importance of Nature to Canadians* (Environment Canada, 1999) suggested findings from the survey can help to “contribute to the sustainable management of forest resources by providing information on non-timber uses and values of forests” (p. 45). However, it has been noted that the subjective and personal details people use to describe relationships to specific natural settings often go unexplored in environmental policy and decision-making (McIntyre et al., 2008). While findings from the aforementioned line of research have been helpful in understanding issues such as the strength of place attachment and recreation resource preferences, often the depth, diversity and structure of subjective place meaning perspectives remain unexplored.

Consequently, a more comprehensive understanding about how people derive meaning from specific outdoor recreation resources is necessary if decision-makers wish to engage in collaborative approaches to recreation management that take stakeholder perspectives into consideration in conjunction with scientific expertise (McIntyre et al., 2008). It is also noteworthy that a holistic understanding of the human–environment relationship continues to receive increased attention in natural resources management to complement hypothesis testing approaches to place attachment (Stedman, 2002). Further, Davenport and Anderson (2005) have suggested that the qualitative meanings people assign to places provide an in-depth understanding of human connections to natural environments, which could be used intentionally in land and resource management decisions. The purpose of this exploratory study is to describe typologies of place meaning for a small group of people who recreate on the Niagara Escarpment in southern Ontario, Canada.

### **The Niagara Escarpment: a place of many meanings**

The details of the ways people find meaning in specific natural environments such as forest recreation spaces are still relatively unknown along the Niagara Escarpment. The Niagara Escarpment (referred to herein as the Escarpment) is a narrow ridge of limestone and forest and is the most defining land-based topographical feature in southern Ontario, Canada, and was designated as a United Nations Educational, Scientific and Cultural Organization (UNESCO) International Biosphere Reserve in 1990. The Escarpment extends from the state of New York (USA) into southern Ontario near Niagara Falls and curves north through Tobermory, Ontario, on the Bruce Peninsula and then back south towards the states of Michigan and Wisconsin through the Great Lakes (see Figure 1). In Canada,

the Escarpment is also part of the Ontario Greenbelt, which consists of 1.8 million acres of provincially protected green space. The Escarpment consists of remains of an ancient sea known as the Michigan Basin, which existed in the region over 400 million years ago. Today, the Escarpment contains some of the most rare and endangered plant and animal species in all of Canada and happens to cut through one of the most heavily populated parts of Canada exposing it to numerous pressures from urban and industrial development. The Escarpment is considered an economic, educational and recreational resource for southern Ontarians. Some of the popular recreational activities that take place on the Escarpment include visiting Niagara Falls, hiking the Bruce Trail (the longest marked trail in Canada), bicycling, rock climbing and nature observation (among others). Additionally, the Escarpment helps to moderate the weather through its topography and provides limestone-rich soils, which help to support the internationally recognized Niagara wine region (Kelly & Larson, 2007).

Land use conflict has been a consistent part of the Niagara Escarpment's land management history (McKibbin, Louis, & Shaw, 1987). Concerns about protecting the Escarpment escalated in the 1950s and 1960s with the rise of the aggregate industry, which mainly produces gravel through quarrying the Escarpment, and increased environmental degradation from a variety of other causes (Patano & Sandburg, 2005). Patano and Sandburg suggested that the public's environmental concern for the Escarpment climaxed after Dufferin Aggregates created a "gap" (p. 26) in the landscape that was viewable by the public from the popular highway 401, which runs from the Quebec border to Windsor, Ontario. This manufactured landscape was part of the catalyst that helped to create Niagara Escarpment Planning and Development Act (NEPDA) and the Niagara Escarpment Commission (NEC) in 1973 (Patano & Sandburg, 2005). One of the objectives of the NEPDA is to provide adequate opportunities for outdoor recreation while conserving the natural environment (Government of Ontario, 2009). Today, the NEC is in part responsible for upholding the objectives of the NEPDA through a combination of planners, scientists and provincial commissioners who approve and deny development applications related to the aggregate industry, agriculture and recreational use (among others) (Government of Ontario, 2009).

As a result of the NEPDA and the NEC, green space along the Escarpment receives considerable protection and provides a variety of natural resources for public use (Kelly & Larson, 2007). These spaces are designated on a continuum represented by the NEC's land classification scheme. These designations range from "escarpment natural areas" (the most undisturbed sites with the highest restrictions) to "protected areas" (where some disturbance has occurred) to "escarpment rural areas" that are considered to be some of the most impacted. The aforementioned designations each represent about 30% of the Escarpment. The remaining 10% of the Escarpment is designated as recreation, urban, minor urban and mineral resource extraction sites (McKibbin et al., 1987). Although discussing the full extent of the NEC land classification process is beyond the scope of this article (interested readers will find McKibbin et al., 1987 useful), it is important to emphasize that this study represents an exploratory beginning to understanding what a variety of forested landscapes along the Escarpment mean to a small group of recreationists who reflected on personally significant Escarpment places.

### **Theoretical orientation**

Relationships between people and places are complex and the topic of place continues to be discussed and debated from a variety of different conceptual positions (Smale, 2006).





Figure 1. Map of the Niagara Escarpment.  
Source: Niagara Escarpment Commission (2007).

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Figure 1. (Continued).

The basis of studying place began with the human geography movement in the 1970s with the oft-cited Yi-Fu Tuan (1974, 1977) and Ted Relph (1976) who both emphasized the phenomenological and individual nature of place over more traditional positivistic views prevalent at the time. Overall, the topic of place has developed into an ongoing multifaceted dialogue that focuses on physical environments and the socially constructed meanings that people assign to those environments (Patterson & Williams, 2005). Relatively more recently, leisure researchers have begun to explore place and its implications for shaping leisure experiences, perceptions and meanings (Smale, 2006).

The Niagara Escarpment is rich with the different points of reference by those who spend time in and interact with particular Escarpment environments (Patano & Sandburg, 2005). Although these personal points of reference can certainly be environmentally destructive (as in the case of the Escarpment aggregate industry) or possibly infused with negative types of attachment (see Manzo, 2005), the focus of this study is on what transforms the Niagara Escarpment into places of positive meaning (Tuan, 1974, 1977) through nature-centred involvement. A call to pay more attention to human-centred place meanings was made by Smale (2006) who reminds leisure researchers that much of the contemporary research conducted on place attachment “might address to a degree which places are important, but not *why* or *how* they are important” (p. 379). The focus of this article is on “why” and “how” places become meaningful.

Conceptually, this study followed four tenets of place meaning as described by Davenport and Anderson (2005) and as supported in the research literature on place:

- (1) places manifest the physical characteristics of a setting, activities and experiences in a setting, social phenomena and processes, and individual interpretations;
- (2) people assign meanings to places and derive meaning in their lives from places;
- (3) some place meanings translate into strong emotional bonds that influence attitudes and behaviours within the context of those places; and
- (4) place meanings are maintained, challenged, and negotiated in natural resource management and planning. (p. 627)

Many natural resource researchers have begun to call for a more thorough integration of place meanings into land decisions and management through highlighting the voices of citizens and the ways they assign meaning to places (McIntyre et al., 2008). This integration reflects the notion that, in general, the public wants to be involved in land decisions and ideally want their place-based perspectives integrated into those decisions (McIntyre et al., 2008). Part of the purpose of this study is to understand the nature and complexity of place meaning perspectives in the context of the Niagara Escarpment.

## Method

### *Q methodology*

Q method was the chosen research strategy for this study and is based on the scientific study of human subjectivity (Brown, 1980; Stephenson, 1953). The methodology has prescribed procedures using both qualitative and quantitative techniques as a way to systematically study different points of view. Descriptive characteristics, opinions and specific responses are studied to develop the “Q set” of statements for participant sorting. All sorts are then correlated to all other sorts to show relationships among the individual subjective points of view. This correlation matrix when factor-analysed gives researchers the structure to

describe how the study participants used Q statements to build a model of their own viewpoints (Robbins & Kruger, 2000). As a research orientation, Q method assumes that one's internal frame of reference can be systematically researched (McKeown & Thomas, 1988). In the case of this study, Q method procedures were carried out to describe the aspects and dimensions of place meanings in the context of Niagara Escarpment forest settings.

### *Concourse sample*

In Q method, sampling theory is quite different in comparison to more traditional statistical studies (Brown, 1980; McKeown & Thomas, 1988). What is sampled is stimulus items which can take the form of statements, pictures, smells, sounds or anything else that can be sorted within a personal frame of reference (Brown, 1980). These items are meant to represent all possible reactions, thoughts, opinions, feelings or beliefs about the topic of study. The population of all possible stimulus items is called a *concourse*. Therefore, the concourse sample in a Q study is represented through a set of items strategically sampled from the concourse. These items are typically developed from prior research, a theoretical framework and/or personal interviews with the people whose perspectives are being explored (McKeown & Thomas, 1988).

The conceptual development of a set of stimulus items demands rigorous efforts to capture a wide range of opinions or points of reference about the topic of study (Stephenson, 1953). In this study, statements were developed from Low and Altman's (1992) conceptual overview of place attachment using guidance to form statements from three related studies (see Hutson & Montgomery, 2006; Hutson, Montgomery, & Caneday, 2010; Wilson, 2005), other seminal place-related research literature (see Driver, 1976) and a variety of other related literature on the topic of place (Jorgensen & Stedman, 2001; Kyle, Graefe, & Manning, 2004; Kyle et al., 2004; Mesch & Manor, 1998; Proshansky, 1978; Tuan, 1977; Williams & Roggenbuck, 1989). Low and Altman suggested specific place attachments are results of the interplay between the dimensions of affect, cognition and practice. Low and Altman also suggested the combinations of these dimensions represented various ways of perceiving places as well as highlighting the subjective meanings attached to them. In this study, examples of statements included the following: "Feeling attached to nature" (affect); "Knowing the history of a place" (cognition); and "Practicing activities that allow me to test my endurance" (practice). This sampling of the concourse was identical to a related study, which proved useful to understanding the details of place meanings in another context (see Hutson et al., 2010 for a full discussion). A full list of statements is available in the Appendices.

### *Person sample*

Q method technique assists researchers in describing the ways in which the clusters of opinions held by participants are different. Therefore, there are various strategies within the method for retaining distinct views (factors) of a group of participants who sorted similarly. For the research outcome to be successful, a purposive person sampling procedure is employed, which attempts to garner the sorts of participants who hold diverse views. In this study, there were efforts to find participants who would likely have different, but representative, opinions about place meanings assigned to forest settings along the Niagara Escarpment. A group of 20–40 participants carefully sampled will often represent several groups of people who will express 3–5 very different views (Brown, 1980). Initially,

five acquaintances of the researcher who use forests for recreation along the Escarpment were asked to participate in the study. These participants were asked to recommend others who may have similar and different opinions about forest settings. This snowball method allowed people unknown to the researchers to be included. Participants were contacted by letter to request participation in the study and completed a consent form (approved through the University’s Research Ethics Board) before data collection. Appointments were then set up with the participants at their convenience.

A total of 12 women and 8 men of varied age range agreed to participate. The participants were both novice and experienced forest recreationists and represented a variety of outdoor recreation user groups. Nineteen participants described their ethnicity as white/Caucasian and one participant described her ethnicity as “other”. Participants included university students and employees, government employees, nature centre employees and retirees. Outdoor recreation activities included nature observation, hiking, backpacking, rock climbing, mountain biking, playing with others (reflecting on childhood), taking informal walks and trail running. The perspectives did not appear to be shaped by demographic patterns.

**Procedure**

Data collection began with one of the researchers reading a script that asked participants to recall a forest environment along the Niagara Escarpment that was personally meaningful, significant and embedded in their memory in the context of recreation. Participants were provided with 48 statements on cards. Then, participants were asked to sort the statements into three piles according to (1) ways they are *most* likely to find meaning in forest environments along the Escarpment; (2) ways they are *least* likely to find meaning in forest environments along the Escarpment; and (3) ways they are *neither most likely or least likely* to find meaning in forest environments along the Escarpment on a form board matrix (see Figure 2). Following this, participants were asked to rank order all statements on the form board matrix according to the condition of instruction of “How do you find meaning in a forest environment along the Niagara Escarpment?” Rank ordering is important as it forces participants to compare the statements in terms of how they correspond to their

-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Most unlike										Most like

Figure 2. Form board matrix/factor array.

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personal points of view. The completed form board matrices, which represented individual sorts, constituted the raw data to be analyzed.

Participants were then asked to fill out a questionnaire with demographic information on gender, age range, race/ethnic group, occupation, number of children/grandchildren and years of experience as an active forest recreationist along the Escarpment. The questionnaire included two open-ended questions asking for further explanation of the ways the statements were sorted and in what contexts. These qualitative data were incorporated into the interpretation of the results to both add context to the perspectives and describe noteworthy findings. Although the factors are determined quantitatively, the interpretation of the meaning of the factors in a Q study must include an understanding of the ways that the statements are represented theoretically (Brown, 1980).

*z*-Scores for each statement in each factor were calculated so that theoretical views could be understood as a point of view with observable structure. Often in Q studies, the combinations of statements may leave researchers wondering about types of meaning within a perspective, which is why field notes from the sorting session, post-sort questionnaires or an examination of the demographics of the people whose opinions are represented become helpful during interpretation (Brown, 1980). Participants were asked if they were willing to volunteer to be contacted by email following the procedure to discuss their thoughts on the sorting process and the researchers' interpretation of the points of view.

### Analysis and results

Individual sorts represent a record of participants' points of view. Once the sorts were completed, scores and matrix dimensions were entered into PQmethod 2.11, a statistical program available at [www.qmethod.org](http://www.qmethod.org). Analysis followed common Q methodology procedures including (1) correlation of the sorts, (2) principal components analysis of the correlation, (3) varimax factor rotation and (4) factor interpretation.

This process produced a three-factor solution. A participant's sort defined a factor if the correlation of the sort to the factor was statistically significant, recommended to be between 2 and 2.5 times the value of the standard error formula of  $SE = 1/\sqrt{N}$  (McKeown & Thomas, 1988), where *N* represents the number of stimulus items. Hence, for this study, the equation  $1/\sqrt{48} \times (2.5) = 0.36$  was used to determine the necessary size of a correlation to be considered significant for each loading (Brown, 1980). It was determined that individual loadings at 0.43 and above would be used to determine the sorts that define each of the three factors to achieve the greatest differences among views/factors. Loadings can be positive or negative and represent the extent to which each Q-sort is similar or dissimilar to the composite factor array (McKeown & Thomas, 1988). Some statistically significant individuals are negatively correlated with a factor, which makes the factor bi-polar. This can be observed by sorter 19 on factor 3 (see Table 1), who represents the exact opposite view of the factor. However, her perspective is valuable by giving structural meaning of the arrangement of statements found to represent the view/factor as well as demonstrating some of the tension within that particular point of view. The distribution of the sorts across the factors is demonstrated in Table 1.

The main focus of interpretation is on the positioning of the statements (Brown, 1980). The arrangements of the statements for each factor are in the same structure according to how participants sorted and arranged according to the *z*-scores, converted to scores of -5 to +5 on the array (see Figure 2). This helps to facilitate a comparison of the statements across all three factors. In this study, a score of +5 for a particular statement on a factor

Table 1. Factor matrix.

Sort number	Gender (age)	Years of experience	Loadings <sup>a</sup>		
			Factor 1	Factor 2	Factor 3
1	Female (31–40)	25	<b>0.6040</b>	0.1279	-0.0823
2	Female (41–50)	5	0.3847	-0.1882	-0.3968
3	Male (31–40)	1	<b>0.6517</b>	0.1899	0.2744
4	Female (61–70)	40	<b>0.6914</b>	0.1415	-0.1434
5	Male (31–40)	15	<b>0.6391</b>	0.0570	-0.0868
6	Female (18–30)	1	<b>0.7742</b>	0.2415	0.1664
7	Female (31–40)	35	0.5139	0.4786	-0.4425
8	Female (31–40)	10	<b>0.4411</b>	0.3803	0.1405
9	Male (18–30)	19	0.1508	<b>0.5218</b>	0.2012
10	Female (18–30)	2	<b>0.5645</b>	-0.2947	0.2631
11	Male (18–30)	15	0.0577	0.2922	<b>0.5391</b>
12	Female (18–30)	4	0.2462	0.2476	<b>0.4369</b>
13	Female (18–30)	26	0.0897	<b>0.7400</b>	0.0454
14	Male (18–30)	3	<b>0.7099</b>	0.0509	-0.0433
15	Female (18–30)	8	<b>0.6034</b>	-0.3520	0.1780
16	Female (18–30)	7	0.1814	-0.0491	<b>0.7871</b>
17	Male (18–30)	28	0.0537	0.2733	0.2247
18	Male (18–30)	20	-0.1292	0.6541	0.4391
19	Female (41–50)	40	0.3644	0.0344	<b>-0.5810</b>
20	Male (31–40)	4	0.0275	<b>0.6787</b>	-0.0741
Explained variance (%)			22	13	12
Number of sorts defining a factor			9	3	4

Note: <sup>a</sup>Loadings in bold indicate a defining sort.

suggests that the participant, whose sort helped to define the view, identifies that statement as one that is *most like* how they find meaning on the Escarpment. A score of -5 for a particular statement on a factor suggests that a statement is *most unlike* how she or he finds meaning on the Escarpment. Reconstructing these resultant factor arrays illuminates a statement's array position for each factor, which assists in understanding and interpreting the various characteristics of each perspective (see Appendices).

Interpretive analysis was a combined effort between both researchers. To understand the meaning of each factor, the researchers made note of the highest ranked statements, which carried larger *z*-scores and which were closer to the ends of each factor array (Hutson et al., 2010). Additionally, the researchers noted the positioning of distinguishing statements (statements that appear in different positions between any two factors) and consensus statements (those statements with shared positioning from factor to factor) (Hutson et al., 2010). The calculation that PQmethod uses in determining distinguishing statements, consensus statements and other calculations for factor scores is standard error =  $\sigma \times \text{SQRT}(1 - \text{reliability})$  (for a full discussion on this topic see Brown, 1980). The correlations between factor scores were factors 1 and 2 = 0.1884; factors 1 and 3 = 0.148; and factors 2 and 3 = 0.1463. These correlations demonstrate that the viewpoints are distinct.

The researchers compared ideas from initial analysis and determined the groups of statements that were congruent with individual themes. Themes were developed into core ideas within each of the perspectives (Hutson et al., 2010). Then, comparisons were made within factor interpretation to the qualitative data collected on the follow-up questionnaire.



These qualitative data were used to highlight consistencies and inconsistencies within a factor's structure. In other words, the participant's position in relation to a factor was explored through a process similar to a template data organizing approach (see Crabtree & Miller, 1999) where questionnaire data were compared to a factor's meaning using it as a guiding template for interpretation. Rival and/or alternative explanations within each perspective were also explored. Member checks were conducted with one participant from each of the factors by sending a factor interpretation narrative to the participant by email for comment. Participants agreed with the researchers' interpretation and added no new insights. Finally, the most distinguishing elements of each view were highlighted by combining all pieces of data into narratives (Hutson et al., 2010).

The results represent a typology of viewpoints held by the sample of forest recreationists who live in the Niagara region of southern Ontario and who use the Escarpment for recreational purposes. In the following paragraphs, a profile of the participants is described, followed by the presentation of factors 1–3, that each illuminates the different ways meanings were attributed to Niagara Escarpment settings as well as the nature of those meanings. The statements used in the study drive the narratives and are referenced in Tables 2–4 and

Table 2. Five highest and five lowest ranked statements among *Spirituality Seekers*.

No.	Statement	Array position	z-Score
<i>Most like . . .</i>			
25	Feeling attached to nature	+5	2.058 <sup>a</sup>
46	Encountering my spirituality	+5	1.648 <sup>a</sup>
20	Practicing activities that allow me to see the sights, hear the sounds, experience the smells and touch my surroundings	+4	1.497 <sup>a</sup>
45	Encountering the personality and/or spirit of a place	+4	1.466
4	Feeling psychologically rejuvenated	+4	1.339
<i>Most unlike . . .</i>			
43	Encountering negative memories I associate with a place	-5	-2.516 <sup>a</sup>
15	Practicing activities that involve risk	-5	-1.890 <sup>a</sup>
47	Encountering God	-4	-1.405
18	Practicing activities that make me feel physically exhausted	-4	-1.327 <sup>a</sup>
42	Being a part of the rituals and celebrations of a place	-4	-1.248

Note: <sup>a</sup>Indicates a distinguishing item ( $p < 0.01$ ).

Table 3. Five highest and five lowest ranked statements among *Intensity Seekers*.

No.	Statement	Array position	z-Score
<i>Most like . . .</i>			
36	Experiencing intensity	+5	1.662 <sup>a</sup>
30	Experiencing solitude	+5	1.580
4	Feeling psychologically rejuvenated	+4	1.484
38	Being in a place that feels familiar when I return to it	+4	1.454 <sup>a</sup>
39	Being in a place I have history with	+4	1.406 <sup>a</sup>
<i>Most unlike . . .</i>			
40	Being in a place that has significant cultural and natural history	-5	-1.738 <sup>a</sup>
47	Encountering God	-5	-1.690
22	Feeling attached to a place that I have never been	-4	-1.425 <sup>a</sup>
29	Experiencing a place collectively	-4	-1.281 <sup>a</sup>
31	Experiencing culturally based meaning	-4	-1.276

Note: <sup>a</sup>Indicates a distinguishing item ( $p < 0.01$ ).



Table 4. Five highest and five lowest ranked statements among *Sense of Self Seekers*.

No.	Statement	Array position	z-Score
<i>Most like . . .</i>			
14	Knowing my sense of self is connected to a place	+5	1.884 <sup>a</sup>
16	Practicing activities that result in positive outcomes for myself and others	+5	1.581 <sup>a</sup>
3	Feeling confident, comfortable and safe	+4	1.527 <sup>a</sup>
29	Experiencing a place collectively	+4	1.471 <sup>a</sup>
30	Experiencing solitude	+4	1.337
<i>Most unlike . . .</i>			
13	Knowing the names of flora, fauna and landscape features	-5	-2.007 <sup>a</sup>
47	Encountering God	-5	-1.604
48	Encountering my religious beliefs	-4	-1.508
45	Encountering the personality and spirit of a place	-4	-1.433 <sup>a</sup>
10	Knowing the history of a place	-4	-1.402 <sup>a</sup>

Note: <sup>a</sup>Indicates a distinguishing item ( $p < 0.01$ ).

Appendices 1–3. Qualitative data from the follow-up questionnaire are included from participants that helped to define each factor. Finally, some noteworthy connections to the research literature and rival explanations within the views are also included as part of the narratives.

### *Spirituality Seekers (factor 1)*

The defining feature of this perspective is an emphasis on finding spirituality and attachment to nature in forest settings along the Niagara Escarpment (see Table 2, Appendix 1). Three men and six women helped to define this viewpoint. These individuals ranged in age and years of experience as forest recreationists (see Table 1). Places that participants reflected on included Ball's Falls Conservation area, the end of the Escarpment at Tobermory, the Bruce Trail, the Rockway Gorge Trail near the city of St. Catharines, Decew Falls near the city of St. Catharines, Queenston Heights Park near Niagara Falls, Dundas Valley Conservation Area near the city of Hamilton, the Bruce Peninsula near Georgian Bay, Rattlesnake Point near the city of Burlington and undefined sections of the Escarpment behind Brock University.

Those who subscribe to this view seem to derive personal meaning from finding their spirituality within personally significant Escarpment places. These people are in strongest agreement with distinguishing statements 25, "Feeling attached to nature", and 46, "Encountering my spirituality" (see Table 2). Additionally, the ranking of distinguishing statement 20 (see Table 2) highlights the role of sensory engagement and a need to experience the details of their natural environment of choice such as trees, rocks, plants and water. Indeed, sorter 3 made specific mention of "exposed limestone . . . water rushing . . . colours in [the] Fall". The rankings of distinguishing statements 15 and 18 (see Table 2) on the negative side of the array suggest that these people do not seek risk and exhaustion, which might detract from the spiritual meaning they assign to places along the Escarpment.

One of the participants (sorter 6) offers an alternative perspective within this spiritual view in comparison to the others who helped to define this perspective. She described that her forest place acted as a pathway to other significant place memories. She mentioned,

[The place] brings back memories of being in the mountains and near the ocean [and] western Canada . . . I go to have a nice walk, see some beautiful scenery, and get out of [the city] and feel like we've been transported somewhere else . . . Sometimes it feels like a very spiritual place, where you can let everything go and breathe deep.

Her feelings seem to situate this view in part within a particular Canadian context of place. Her spirituality is not necessarily encountered through direct landscape experiences on the Niagara Escarpment; rather, her point of reference (a small conservation area near her home in the Niagara region) seems to connect her with memories of landscapes of her past and with spiritual views that are more closely aligned with other outdoor settings.

Other participants who subscribed to this perspective attributed spiritual meaning more towards the specific setting they chose to reflect on along the Escarpment. However, sorter 6 represents an alternative perspective within Canadian views of place. The Niagara Escarpment is situated in one of the most densely populated areas of all of Canada (Ministry of Municipal Affairs and Housing, 2004). Sorter 6 demonstrates a sentiment towards a spiritual place connection to other parts of Canada's vast landscapes through her experiences in a small forest setting in a densely populated region. A small section of the Escarpment seems to have acted as a catalyst to a wider spiritual view of place. In a similar vein, these ideas seem consistent with notions of a uniquely Canadian approach to place meaning as described by Henderson and Potter (2001) who suggested much of Canada's identity is inherently tied to the country's vast northern wilderness, even though most do not reside within it. Similarly, sorter 6 exemplifies a local place connection that helps her feel more in tune with places elsewhere in Canada.

### ***Intensity Seekers (factor 2)***

The defining features of this perspective are an emphasis on intensity and familiarity attached to a place, which represents an outlet for person–environment interaction in forest settings along the Niagara Escarpment (see Table 3 and Appendix 2). Two men and one woman helped to define this viewpoint. These individuals ranged in age and years of experience as forest recreationists along the Escarpment (see Table 1). Places that participants chose to reflect on included Webster's Falls near the city of Hamilton, the Niagara Glen in Niagara Falls and an undefined trail near the city of Burlington.

Those who subscribe to this view seem to find meaning in the "spirit" of place by testing themselves in natural environments that brings them feelings of intensity and familiarity (distinguishing statements 36 and 38). This notion is supported by the positioning of statement 45 ("Encountering the personality and/or spirit of a place", +3, 1.402), statement 21 ("Practicing activities that allow for creative expression", +3, 1.397) and statement 18 ("Practicing activities that make me feel physically exhausted", +3, 1.219). Additionally, it appears that the initial person–place relationship is a private affair (statement 30, "Experiencing solitude"). The rankings of distinguishing statements 40 and 22 (see Table 3) on the negative side of the array suggest that these people are not necessarily interested in a place's history, unless they see themselves as being a part of that history (statement 39, "Being in a place I have history with") (see Table 3).

The *Intensity Seekers* seem to want time within their environment of choice to learn and know its significance on a personal and private level. Sorter 9 supports this notion and suggests the forest environment where he finds meaning,

Is important to me as it has allowed me to find solitude in my climbing pursuits, and express my creativity and problem solving . . . I find meaning in my area through physical and creative expression, through experiences with nature, and the interactions with different seasons . . . I find meaning through the experiences I have begun to share with others in this place through seeing them become attached to this location as well.

His feelings towards place also demonstrate an apparent need to eventually share place meaning with others. Sorter 9 seems to want to hold onto a private place for himself at first. Then, it appears he is comfortable and willing to share it with others, but perhaps only in his view of it.

It is worth noting that two of the participants (sorters 9 and 20) helped to define this point of view while reflecting on rock climbing locations. Sorter 9's location is hidden and is only known to him and who he chooses to show it to. Sorter 20 reflected on a popular climbing location (the Niagara Glen), which is currently being reviewed by land managers to potentially limit rock climbing activities. The perspective as a whole may be helpful in understanding different stakeholder perceptions towards rock climbing resources and could help the NEC to further resolve or clarify some of the conflicts connected to viewing the Escarpment as a recreational resource for rock climbing (see Kuntz & Larson, 2006 for recent discussions on this topic).

### *Sense of Self Seekers (factor 3)*

The defining features of this perspective include place meaning, which is dependent on connection to self and others along the Escarpment (see Table 4, Appendix 3). One man and three women helped to define this viewpoint. These individuals ranged in age and years of experience as forest recreationists. Places in which participants chose to reflect include the bottom of Glenridge Hill near Brock University, a swimming hole near Decew Falls in the city of St. Catharines, a cliff face along the Escarpment in the Niagara Region and the Twelve Mile Creek mountain bike trails near the city of St. Catharines.

Distinguishing statements 14, 16 and 29 (see Table 4) suggest Escarpment meaning emerges for these individuals through a shared experience that deepens relationships both at individual and collective levels. Those who subscribe to this view want to be a part of group experiences that create synergy among a particular group in a particular environment. The positioning of statement 30 (see Table 4) suggests those who subscribe to this view want to be alone, yet together in their chosen context/group affiliation in a natural environment. *Sense of Self Seekers* are not interested in notions of God, spirit or religion (see distinguishing statement 45 and statements 47 and 48 on the negative side of the array in Table 4 and Appendix 3) to deepen their nature experiences. Instead, they seek one another (see statement 29, "Experiencing a place collectively"), positive memories (statement 1, "Feeling positive memories come forth", +3, 1.261, Table 4) and feelings of independence (statement 7, "Feeling independent", +3, 1.247) to find meaning in natural environments along the Niagara Escarpment.

Female sorter 16, who had a high loading as a *Sense of Self Seeker*, captures the essence of this perspective by explaining,

My opinions are based on independent feelings – positive feelings – towards the natural surroundings. More importantly, the experiences are based on shared experiences with others that take place in this setting. It is a place where I go not to escape, but to become more in tune with myself and others.

Her setting of choice is an urban trail system popular for mountain bikers near a downtown setting, but has dense forested characteristics once on the trails beneath a canopy of deciduous trees. This section of the Niagara Escarpment forest provides the *Sense of Self Seekers* an environment to enliven their collective and individual Escarpment meaning.

The characteristics of *Sense of Self Seekers* understood within Low and Altman's (1992) conceptual overview of place attachment suggest relationships and one's sense of self can be defining characteristics of Escarpment meaning. This conviction is consistent with those who subscribe to this viewpoint in the emphasis they put on relationships, confidence and independence that is shared between people and places. Moreover, the relationships *Sense of Self Seekers* use as points of reference in natural environments seem dependent on the quality of longer lasting relationships, rather than meeting new people (see statement 34, "Experiencing new people", 0, 0.194, Appendix 3). As sorter 26 suggested, she does not escape life by recreating in the forest, rather she becomes in tune with herself and others through her Escarpment experiences.

### **Common characteristics across factors**

Although the views are distinct in and of themselves, there are important similarities between the three views that warrant further attention. Highly ranked consensus statements (a statement sorted similarly between factors) guide this discussion. For example, statement 4, "Feeling psychologically rejuvenated", was ranked +4, +4 and +1 for factors 1–3, respectively. A sense of psychological empowerment through place meaning-making was important to the participants who helped to define each of the three perspectives. However, psychological rejuvenation appeared to be approached and achieved in different ways defined by the distinguishing characteristics of each perspective.

Furthermore, statement 30, "Experiencing solitude", was ranked +2, +5 and +4 for factors 1–3, respectively. Each of the three perspectives illuminated in this study can further add to the research literature on solitude and privacy in the outdoors perhaps through further considering the subjective place meaning perspectives of stakeholders as potential pathways to an experience of solitude (see Hammitt, 2002 for a recent and ongoing discussion on privacy found in outdoor environments). Finally, statement 47, "Encountering God", was ranked –4, –5 and –5 for factors 1–3, respectively. The spiritual view uncovered in this study adds to the discussion on spirituality in outdoor leisure contexts (see Driver, Dustin, Baltic, Elsner, & Peterson, 1996; Heintzman, 2002, 2003). It is interesting to note that in a related study (see Hutson et al., 2010) a spiritual view emerged that was dependent on notions God, whereas those who subscribed to the spiritual view in this study rejected God as part of their spiritual place experiences. This finding may be helpful to initiate further discussion about possibilities of spiritual experiences in the outdoors that both do and do not involve God beliefs.

### **Discussion**

In the case of this study, we found three different place meaning types with regard to the Niagara Escarpment. Participants expressed personal points of meaning through a Q-sorting procedure which revealed specific Escarpment social perspectives (Tuler, Webler, & Finson, 2005). The first perspective emphasized spiritual place meaning. The second perspective emphasized place meaning with a bias towards intensity and physical expression. The third perspective emphasized a need for expressing one's sense of self while recreating on the Escarpment.

The perspectives illuminated in this study help to frame a more in-depth understanding of some of the different ways people find the Escarpment meaningful as a place for recreation. Distinct differences are present within these perspectives and these differences are helpful in understanding specific place-based tensions that exist along this natural resource. As it stands currently, the NEC tends to represent and manage the Escarpment through a strong preservationist lens (Niagara Escarpment Commission, 2010). However, a discussion about the ways subjective place meanings might be more intentionally used to protect the Escarpment is absent within NEC literature. These findings may be helpful to begin to initiate such a discussion.

For instance, the *Intensity Seekers* offer a quite unique and often contested perspective. While some are critical of outdoor adventure culture, the *Intensity Seekers'* view of the Escarpment illuminates details of place meaning such as creativity, independent and private expression and a purposeful pursuit of intensity, which has been, at times, portrayed negatively as a means to sustainable recreation behaviour (see Ewert, Attarian, Hollenhorst, Russell, & Voight, 2006; Ray, 2009). While a full discussion of this topic is beyond the scope of this article, these findings, however, illuminate a hard-to-define aspect of Escarpment meaning that could help *Intensity Seekers* to be further understood as a viable and sustainable outdoor recreation group.

Additionally, the *Sense of Self Seekers* represent another perspective that warrants further attention. Those who subscribed to this perspective tended to emphasize feelings of turning inwards and to others that helped them most in defining the Escarpment as meaningful. Those who subscribe to the *Sense of Self* perspective may be interested in environmental interests similar to other advocacy groups along the Escarpment such as the Bruce Trail Association and the Federation of Ontario Naturalists who strive to protect the physical environment of the Escarpment (Whitelaw, Eagles, Gibson, & Seasons, 2008). However, the impetus that *Sense of Self Seekers* may need for taking action to protect Escarpment environments may have a more internal and social focus that is representative of the meanings that bring them into closer contact with their sense of self.

Finally, it is worth noting that the *Spirituality Seekers* appear more closely aligned with the preservationist values espoused by the NEC, yet this perspective creates tension when compared to the other perspectives illuminated in this study. *Spirituality Seeker* views tend to be strongly based on spiritual beliefs that are dependent on reverence and preservation of the landscape. Their spiritual view appears to be at odds with the *Sense of Self Seekers* who deemphasize notions of "spirit of place", but instead rely more on personal fulfilment. Further, the *Intensity Seekers* believe in the spirit of a place, but for very different reasons in comparison to the *Spirituality Seekers*. These distinctions between spirit, self and expression suggest the Escarpment is an environment that affords people different ways of developing place meanings within the context of outdoor recreation. If the NEC wants to utilize multiple place perspectives to serve their mission, they perhaps could do more to explore and acknowledge a range of place meaning views and tensions (like those uncovered in this study) in future management planning practices (Hutson et al., 2010).

In this study, using Q method as a framework for understanding place proved successful in its ability to capture multiple views of place meanings consistent with much of the previous research literature that highlights the importance of recognizing place-based themes in outdoor recreation contexts (Kruger, 2006; Williams & Patterson, 1996). While findings from Q method inquiries cannot be generalized to larger populations, they are useful in their ability to deepen understandings about particular phenomena like the nature of place meanings. With the continued push towards a broader focus on the social values and meanings of places for outdoor recreation resource planning (e.g. Cheng, Kruger, &

Daniels, 2003; Davenport & Anderson, 2005; Kruger, 2006), researchers will continue to need to approach the subject of place as a multi-dimensional topic (Low & Altman, 1992; Manzo, 2005; Smaldone, Harris, & Sanyal, 2008). As Q methodology has demonstrated in this study, multi-dimensional views towards place meanings can be systematically explored and analyzed through the various perspectives of stakeholders in specific contexts such as the Niagara Escarpment.

This particular study will continue forward by using the perspectives generated here and our previous work (Hutson et al., 2010) to guide further in-depth interviews with individuals in the study to better understand the nature of personal place meanings that are assigned to the Niagara Escarpment. Additionally, further Q studies will be planned with specific outdoor recreation user groups/stakeholders (i.e. mountain bikers, naturalists, hikers, decision-makers) to explore place meaning perspectives from more specific user-group and stakeholder viewpoints. Our hope is to combine these results with findings from other Niagara Escarpment research projects to continue to promote a place-based outdoor recreation resource planning model along the Escarpment that protects both the natural environment for future generations and the place views of stakeholders. As a research strategy, Q methodology may continue to be helpful in this process.

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## Appendices

Appendix 1. Normalized factor scores for factor 1: *Spirituality Seekers*.

No.	Statement	z-Score	Array position
28	Feeling attached to nature	2.058	+5
46	Encountering my spirituality	1.648	+5
20	Practicing activities that allow me to see the sights, hear the sounds and touch my surroundings	1.497	+4
45	Encountering the personality and/or spirit of a place	1.466	+4
4	Feeling psychologically rejuvenated	1.339	+4
24	Feeling attached to the whole earth	1.312	+3
27	Feeling attached to open space or air	1.217	+3
6	Feeling introspective	1.184	+3
44	Encountering oneness in a place	1.095	+3
26	Feeling attached to the land	1.078	+2
30	Experiencing solitude	0.876	+2
14	Knowing my sense of self is connected to a place	0.869	+2
3	Feeling, confident, comfortable and safe	0.622	+2
23	Feeling attached to the particularities of wildlife, plants and trees	0.615	+2
13	Knowing the names of flora, fauna and landscape features	0.603	+1
7	Feeling independent	0.540	+1
16	Practicing activities that result in positive outcomes for myself and others	0.479	+1
5	Feeling like I can escape from other responsibilities	0.268	+1
1	Feeling positive memories come forth	0.257	+1
8	Knowing how my identity is attached to a place	0.065	+1
22	Feeling attached to a place that I have never been	0.044	0
33	Experiencing relationships I have with other people in a place	0.023	0
25	Feeling attached to a body of water	0.016	0
40	Being in a place that has significant cultural and natural history	-0.050	0
38	Being in a place that feels familiar when I return to it	-0.054	0
39	Being in a place I have history with	-0.074	0
35	Experiencing time with my family	-0.116	0
10	Knowing the history of a place	-0.137	0
17	Practicing activities that make me feel physically rested	-0.197	-1
12	Knowing the symbols that are assigned to a place by other people	-0.353	-1
29	Experiencing a place collectively	-0.423	-1
48	Encountering my religious beliefs	-0.480	-1
2	Feeling my needs are satiated	-0.513	-1
36	Experiencing intensity	-0.522	-1
11	Knowing how to teach and lead others in a place	-0.580	-2
9	Knowing my history/past experiences with a place	-0.617	-2
21	Practicing activities that allow for creative expression	-0.702	-2
41	Being a witness to changes in a place	-0.830	-2
19	Practicing activities that allow me to test my endurance	-0.898	-2
37	Being in a place for a long period of time	-0.959	-3
34	Experiencing new people	-1.016	-3
31	Experiencing culturally based meaning	-1.050	-3
32	Experiencing memories of someone significant	-1.216	-3
42	Being a part of rituals and celebrations of a place	-1.248	-4
18	Practicing activities that make me feel physically exhausted	-1.327	-4
47	Encountering God	-1.405	-4
15	Practicing activities that involve risk	-1.890	-5
43	Encountering negative memories I associate with a place	-2.516	-5

Appendix 2. Normalized factor scores for factor 2: *Intensity Seekers*.

No.	Statement	z-score	Array position
36	Experiencing intensity	1.662	+5
30	Experiencing solitude	1.580	+5
4	Feeling psychologically rejuvenated	1.484	+4
38	Being in a place that feels familiar when I return to it	1.454	+4
39	Being in a place that I have history with	1.406	+4
45	Encountering the personality and/or spirit of a place	1.402	+3
21	Practicing activities that allow for creative expression	1.397	+3
18	Practicing activities that make me feel physically exhausted	1.219	+3
9	Knowing my history/past experiences with a place	1.208	+3
23	Feeling attached to the particularities of wildlife, plants and trees	1.171	+2
7	Feeling independent	0.948	+2
41	Being a witness to changes in a place	0.799	+2
8	Knowing how my identity is attached to a place	0.767	+2
25	Feeling attached to a body of water	0.694	+2
5	Feeling like I can escape from other responsibilities	0.642	+1
15	Practicing activities that involve risk	0.589	+1
6	Feeling introspective	0.573	+1
14	Knowing my sense of self is connected to a place	0.434	+1
19	Practicing activities that allow me to test my endurance	0.333	+1
44	Encountering oneness in a place	0.333	+1
33	Experiencing relationships I have with other people in a place	0.279	0
1	Feeling positive memories come forth	0.256	0
28	Feeling attached to nature	0.180	0
20	Practicing activities that allow me to see the sights, hear the sounds and touch my surroundings	0.173	0
12	Knowing the symbols that are assigned to a place by other people	-0.281	0
37	Being in a place for a long amount of time	-0.434	0
46	Encountering my spirituality	-0.439	0
10	Knowing the history of a place	-0.507	0
43	Encountering negative memories I associate with the place	-0.559	-1
17	Practicing activities that make me feel physically rested	-0.562	-1
26	Feeling attached to the land	-0.584	-1
2	Feeling my needs are satiated	-0.589	-1
27	Feeling attached to the open space or air	-0.635	-1
16	Practicing activities that result in positive outcomes for myself and others	-0.719	-1
13	Knowing the names of flora, fauna and landscape features in a place	-0.843	-2
3	Feeling confident, comfortable and safe	-0.867	-2
32	Experiencing memories of someone significant	-0.872	-2
35	Experiencing time with my family	-0.877	-2
11	Knowing how to teach and lead others in a place	-1.121	-2
48	Encountering my religious beliefs	-1.174	-3
34	Experiencing new people	-1.253	-3
24	Feeling attached to the whole earth	-1.254	-3
42	Being a part of rituals and celebrations of the place	-1.276	-3
31	Experiencing culturally based meaning	-1.281	-4
29	Experiencing a place collectively	-1.425	-4
22	Feeling attached to a place that I have never been	-1.690	-4
47	Encountering God	-1.690	-5
40	Being in a place that has significant cultural and natural history	-1.738	-5

Appendix 3. Normalized factor scores for factor 3: *Sense of Self Seekers*.

No.	Statement	z-Score	Array position
14	Knowing my sense of self is connected to a place	1.884	+5
16	Practicing activities that result in positive outcomes for myself and others	1.581	+5
3	Feeling confident, comfortable and safe	1.527	+4
29	Experiencing a place collectively	1.471	+4
30	Experiencing solitude	1.337	+4
33	Experiencing relationships I have with other people in a place	1.278	+3
1	Feeling positive memories come forth	1.261	+3
7	Feeling independent	1.247	+3
15	Practicing activities that involve risk	0.990	+3
26	Feeling attached to the land	0.976	+2
28	Feeling attached to nature	0.812	+2
8	Knowing how my identity is attached to a place	0.783	+2
42	Being a part of rituals and celebrations of a place	0.745	+2
2	Feeling my needs are satiated	0.740	+2
4	Feeling psychologically rejuvenated	0.687	+1
21	Practicing activities allow for creative expression	0.549	+1
11	Knowing how to teach and lead others in a place	0.485	+1
38	Being in a place that feels familiar when I returned to it	0.453	+1
19	Practicing activities that allow me to test my endurance	0.402	+1
5	Feeling like I can escape from other responsibilities	0.300	+1
27	Feeling attached to the open space or air	0.233	0
34	Experiencing new people	0.194	0
18	Practicing activities that make you feel physically exhausted	0.170	0
44	Encountering oneness and a place	0.137	0
41	Being a witness to changes in a place	-0.029	0
17	Practicing activities that make me feel physically rested	-0.137	0
6	Feeling introspective	-0.181	0
20	Practicing activities allow me to see the sights, hear the sounds and touch my surroundings	-0.184	0
25	Feeling attached to a body of water	-0.246	-1
40	Being in a place that has significant cultural and natural history	-0.279	-1
22	Feeling attached to a place that I have never been	-0.396	-1
32	Experiencing memories of someone significant	-0.400	-1
37	Being in a place for a long amount of time	-0.484	-1
12	Knowing the symbols that are assigned to a place by other people	-0.660	-1
36	Experiencing intensity	-0.769	-2
23	Feeling attached to the particularities of wildlife, plants and trees	-0.788	-2
46	Encountering my spirituality	-0.961	-2
31	Experiencing culturally based meaning	-0.989	-2
35	Experiencing time with my family	-1.029	-2
24	Feeling attached to the whole earth	-1.032	-3
43	Encountering negative memories I associate with the place	-1.151	-3
9	Knowing my history/past experiences with a place	-1.253	-3
39	Being in a place I have history with	-1.319	-3
10	Knowing the history of a place	-1.402	-4
45	Encountering the personality and/spirit of a place	-1.433	-4
48	Encountering my religious beliefs	-1.508	-4
47	Encountering God	-1.604	-5
13	Knowing the names of flora, fauna and landscape features of a place	-2.007	-5