
A case study on environmental perspectives of boulderers and access issues at the Niagara Glen Nature Reserve.

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Abstract

Currently, there are concerns about access restrictions to bouldering, a form of rock climbing, and other outdoor activities practiced at the Niagara Glen Nature Reserve located near Niagara Falls, Ontario, Canada. The Niagara Parks Commission is currently in the process of exploring ways to balance protection of the natural area with sustainable recreational use. The purpose of this study was to describe setting perceptions of a husband and wife climbing partnership toward the Niagara Glen using a case study approach. This approach was used to analyze the couple's experiences and reflections using a place-based conceptual lens to highlight interactions with the Niagara Glen over 12 years. Four major themes were identified with respect to setting perception including: 1) Specific rock memories, 2) Community and friendship, 3) Setting location and 4) Environmental degradation. Implications for environmental perspectives and policy are discussed.

Restrictions to access at a number of rock climbing areas in southern Ontario, Canada are due to negative environmental impacts, plant and animal protection, and recreational overuse associated with the recreational activity of rock climbing (Leung & Marion, 2000; McMillan, Nekola, & Larson, 2003; Monz, Smith, & Knickerboxer, 2005; Roth, 2007; Siderelis & Attarian, 2004). The negative impacts to these environments are not only detrimental to the physical landscapes and their ecosystems, but they also impact the experiences and perceptions of all recreation participants (Monz et al., 2005). There is, however, some debate that outdoor recreation activities, such as rock climbing and bouldering, can be sustainable at popular sites if participants are taught proper techniques, such as minimum impact practices (Marion & Reid, 2001). Additionally, some suggest while the environmental impacts at such areas are of high concern, the areas have already been impacted and may avoid spreading problems associated with overuse to other areas by concentrating recreationists at particular sites (Leung & Marion, 2000; Watson, 2000).

The purpose of this study was to explore setting perceptions from two stakeholders who have devoted a large part of their lives and values to the Niagara Glen Nature Reserve through the activity of bouldering. Specifically, this study was guided by two primary research questions: 1) What are the perceptions of boulderers toward the Niagara Glen? 2) How can perceptions of boulderers be used to inform environmental policy? The authors hope to use this exploratory study to guide another study, which will explore the perceptions of boulderers, other user groups, and park managers toward the Niagara Glen.

Potential access restrictions, area closures, and changes in environmental policy at sites like the Niagara Glen are results of a complex intersection of

management strategy, people, fragile environments, and human behaviours (Ritchie, 2002). There has been research conducted on the environmental impacts of rock climbing and bouldering from a variety of perspectives with varying results, some which call for management policy to restrict recreational rock climbing activities along the Niagara Escarpment (McMillan et al., 2003). Other studies have shown that specific styles of climbing along the Niagara Escarpment (such as advanced sport climbing) do not necessarily adversely affect cliff-face vegetation, rather, the sites chosen for this style of climbing have natural characteristics that tend to support less vegetation (Kuntz & Larson, 2006). Measuring the impact of rock climbing activities is still evolving and will affect environmental management policy in the future at sites like the Niagara Glen (Ritchie, 2002).

The focus of this paper, however, is on the human dimensions of boulderers. While there has been research conducted on other outdoor recreation user groups and the environmental impacts of rock climbing activities, there has been very little research conducted on the environmental perspectives of boulderers. More specifically, we are not aware of any research studies that explore the perceptions of boulderers who visit the Niagara Glen. If policymakers wish to more thoroughly understand the different types of meanings people attach to natural resources to aid in decision-making, they may be able to do this more effectively by exploring the environmental perspectives of specific user groups, such as boulderers.

Background and conceptual overview

Bouldering is a form of rock climbing, which involves utilizing large boulders for the purpose of climbing. Bouldering involves taking the simple movements and techniques used in other forms of

rock climbing and challenging oneself with the pure difficulty of movement over rock often fairly close to the ground. The completion of a particular sequence of movement over rock is called a boulder problem. In other forms of climbing, participants must be concerned with placing hardware in the rock for safety and are often limited in movement difficulty due to safety concerns. Bouldering, however, focuses on individual moves of any difficulty often without the fear of serious injury (Long, 2003).

The Niagara Glen has been considered a nature reserve since 1992 and falls under the jurisdiction of the Niagara Parks Commission. The park is on the Niagara River and is home to many limestone and sandstone rock formations and a variety of flora and fauna, some of which are rare and endangered (Ritchie, 2002). The park is a popular tourist and recreation day trip destination close to the city of Niagara Falls in southern Ontario. Bouldering has rapidly grown in popularity at the Niagara Glen since 1996 (Ritchie, 2002). The Niagara Glen has been featured in climbing magazines as a bouldering destination and has attracted international attention (Roth, 2007).

The Niagara Glen is currently being reviewed for possible change to access because of environmental impacts from various user groups. One of the major impacts to the area is trampled vegetation from boulderers accessing climbing sites off the main trails and trampling vegetation at popular areas. In response, the Niagara Parks Commission may limit or restrict access to user groups, such as boulderers, to better preserve the natural area (Ritchie, 2002; Roth, 2007).

Research literature suggests participating in specific activities at particular sites has the potential to create a 'sense of place,' whether it is an attachment to a particular location or a combination of socially constructed elements (Kyle, Graefe, Manning, & Bacon, 2004; Manzo, 2005; Smaldone, Harris, & Sanyal, 2005; Stokowski, 2002). While bouldering can happen alone, it is often a social activity, which small groups take part in together. Meanings attached to places have been researched to explore possible links between the location of an activity and the significance of the location to groups of individuals (Borrie & Birzell, 2001; Bricker & Kerstetter, 2002; Manzo, 2005). It has been suggested that different meanings are brought to settings by different groups depending on the ways they use and perceive the location (Floyd & Johnson, 2002). This can be observed at the Niagara Glen in some of the differing viewpoints and values of boulderers and other user groups. For instance, naturalists value the Glen because of the flora and fauna at the site, boulderers tend to value the physical interaction and challenge of climbing rocks, teenagers often use the site for underage drinking and social interaction, while joggers enjoy the steepness of the trails to maintain their fitness. Overall, the different

uses of the Niagara Glen pose challenges to those faced with environmental policy decisions because of the variety of values, activities, and meanings connected to the site. Nonetheless, these different ways of forging environmental meaning should be taken into consideration to aid in policy change and implementation at a natural area that is open to the public.

The 'sense of place' concept helped to frame the study by addressing the potential for recognizing a variety of environmental meanings. A three-part conceptual framework guided the primary research question and interview protocol. In this study, the 'sense of place' concept was conceptualized through the intersection of: (1) the physical setting, (2) a person's individual social and psychological processes, and (3) the activities or rituals associated with a particular setting (Creswell, 2004; Smaldone et al., 2005). This conceptual framework provided a holistic approach from which to explore the environmental perspectives of a particular user group.

Method

The case study approach was chosen for this study because it explores the specific characteristics of a single case, in order to understand the case within a particular condition or occurrence (Stake, 2005). We immersed ourselves in the Niagara Glen with the participants of the study consistently over a four-month period with the purpose of deeply understanding the story of two individuals within their context. Data collection included collecting background information on the Niagara Glen and the participants, detailed field notes, informal conversational interviews, and formal tape-recorded interviews.

The couple who agreed to participate represents highly specialized and devoted users of the area for over twelve years. The couple consisted of one man and one woman in their mid-40s who have been climbing consistently for over a decade. They visit the Niagara Glen one to three times per week during the fall, winter, and spring seasons. The two participants in the study are advocates for the bouldering community as well as advocates for protection of the park ecosystem. They are involved with helping to manage a regional climbing access coalition, they are well known within the local climbing and bouldering community, and their opinions are respected. The two participants are well-versed in many forms of rock climbing including traditional climbing and sport climbing. Their perspectives were of interest to the researchers because of the depth of their involvement with the site as boulderers and their positions as members of the bouldering community. They are striving to maintain positive relations with park managers whom they have met with formally and informally to discuss access issues. They describe

their community of boulderers as “family” and regard the Niagara Glen as a place for that family to interact. Thus, the Niagara Glen, from their perspectives, represents a setting they have significant emotional attachment to.

Focus group interviews with the participants followed a semi-structured interview protocol with emphasis on memories and the significance of the Niagara Glen as a place to recreate. These discussions allowed the participants to engage with each other and us about the various ways the Niagara Glen had affected their lives over the course of twelve years. Time spent at the site with the participants was more informal and we relied on field observations as a method for data collection. Follow-up member checks of ideas and transcriptions took place with both participants to verify our interpretations.

Analysis elicited descriptive information about the different ways participants attached meaning to the site. Open coding of the transcripts and field notes consisted of ideas and themes noted in the margins, which were then categorized into meaningful clusters. Initial analysis was a combined effort of all three researchers to ensure inter-coder agreement. Data chunks were then more broadly re-organized into themes and patterns. Finally, an overall story of the case was constructed by synthesizing all pieces of data (Corbin, 2008).

Results

Data analysis revealed four main themes and were identified as 1) Specific rock memories, 2) Community and friendship, 3) Location attachment and 4) Environmental degradation. These major themes will be illustrated with data that most clearly represent the ways participants described their experiences at the Niagara Glen. The interpretation that follows illuminates the significance of the ways the four core themes helped to facilitate the environmental perspectives of the participants.

Specific Rock Memories

One of the core themes that emerged from the data analysis process was interpreted through memories that were attributed to specific boulders. Julie and Scott made reference to experiences on specific boulders and boulder problems, and the feelings and memories attached to individual moments on particular climbs. Memories were often enhanced through stories told about particular boulder problems.

Specific boulders seemed to create feelings of nostalgia for Julie and Scott. Thinking about certain areas such as the ‘Danzig Boulder’ brought out emotions linked to the remembrance of the place over time. Julie described the Danzig Boulder in this way:

It’s the cup of coffee in the morning, it’s the place that everybody kinda gets started, it gets ya goin’ and gets you psyched, starts your day off just right, and that’s where everybody goes and meets and gets motivated to have a really good day.... It’s really pretty there, the trees, the boulders, just the scenery all around and it’s very nice.

Similar emotions were described in reference to a bouldering area called the ‘Land Of Oz’ and the ‘Balancing Boulder.’ Julie noted these areas because of their proximity to the river. She stated, “It’s also a meeting place, it’s wide open, there’s exceptional boulder problems there, but you get to see the water while you’re climbing. It’s generally sunny there, it’s very dry...the background scenery is amazing.”

These examples suggest an emotional attachment to specific boulders and areas at the Niagara Glen, which helped to identify Julie and Scott’s feelings that emerged through years of continuous use and experience. Memories of movement and interactions with rock were mentioned throughout the interviews and informal conversations. References to specific boulders were continually described through climbing movement; others were in reference to the specific handholds found on the rock all highlighting interactions with the stone that unfolded in the process of climbing a particular boulder problem. Scott described an example of this interaction on a boulder problem called ‘Pothole.’

It involved some of the same holds I was ... familiar with ... lots of different movement ... challenging me ... just finding the sweet spot ... the right day to do the big move and then the endurance to complete it and it became a good test piece for me.

Julie also described some of her interactions with a boulder problem named ‘One Inch Punch.’ She stated,

You do a one inch punch into your own chest ... when you fall off this thing. It’s considered a classic at the Glen. It is also a very hard climb for anyone who climbs at the Glen and it took me a considerable amount of work over ... a couple of seasons to get this climb. At various times I worked on it ... it changes with the conditions ... it worked all of my weaknesses which I guess is why I really like it so much. I’ve learned a lot on that climb and I’ve learned a lot from watching other people climb it because their movements are different from mine.

Both Julie and Scott have dedicated large amounts of time to climbing these boulder problems and in that process learned about different body movements, types of handholds, and the overall fortitude necessary for climbing particular boulder problems. These experiences spent climbing on particular boulders capture some of the ways they recollect landscape specific and movement specific memories shaping some of the overall meanings they attach to the setting.

Community and friendship

Community was identified as an important theme, enhancing Scott and Julie's experiences at the Glen. Friends who were part of the climbing community they belong to originally introduced Scott and Julie to the Niagara Glen. Julie specifically made reference to experiences climbing with the "Buffalo crew." She stated, "The Buffalo crew ... were quite active ... and we got more familiar with the area by bouldering with them because they had explored the area more, and we still climb with them today."

Community interactions were also identified as important because of the effects they can have on climbing experiences at the site. Julie explained,

When you are around a good group of people who are happy and interested in the same sport as you are and are environmentally conscious as well ... it makes a huge difference. Everybody's got a common interest, which is to be outside and to boulder and to have a lot of fun, and that's what makes the difference.

Scott also made reference to individuals affecting the Glen experience because they were people who were described as, "Not selfish, you know not too much of their own goals and agenda, so it's a good thing to have a good group." These examples provide context for the importance of community to Julie and Scott.

In reference to a question about how experiences in the Niagara Glen differ compared to climbing elsewhere, one of the main differences mentioned was the presence or absence of friends. Julie stated,

It's about climbing and so you're always happy when you're climbing, but when you don't have a lot of your friends with you, you don't have the same group of people with you that you climb with and have a lot of laughs with other places ... [other people] don't necessarily give you the same type of enjoyment because you don't have all your friends, where at the

Glen we have all of our friends ... when we can, we organize trips to go elsewhere so we can have our friends there too and [that] makes the experience more enjoyable.

This statement identifies the importance of community and friends to the overall experience of enjoyment felt by Julie when bouldering. Even though the raw experiences of bouldering appear to powerfully shape her perceptions of the site, her interpretation of the setting was enriched when shared with friends, making the Glen a catalyst for community development.

Throughout the interviews Scott and Julie emphasized friendship. Some of the boulders and areas that were identified as most meaningful were important because of many of the social interactions that unfolded at those locations. The Danzig Boulder was addressed many times as a meeting place, a place where Julie stated,

Everybody goes and meets and gets motivated to have a really good day... that's where a lot of 'out of towners' who are coming to boulder, end up passing through and usually end up meeting other people....at the same spot accidentally and end up having a good day because of that area [the Danzig Boulder].

Scott also made reference to the importance of interactions with friends, and how a significant moment for him was when, "Everyone said, 'Where do you want to meet?' and ... everyone chose the Danzig or the Land of Oz." These areas became significant points of meaning because they were not only places to climb, but were also places where friends could meet and start their day together.

One of the most significant moments for Julie, which demonstrates the importance of community to her at the Niagara Glen was described in this way:

The Glen in itself became significant when you saw a large group of boulderers meeting there and we were all referred to as the 'pad people' and everyone got together to have a beautiful day at the Glen and when you saw all those people together in one place all looking forward to having an amazing day and they all drove from different areas of Ontario ... the United States ... the Glen was significant ... and just seeing all those people come together at one time ... and share in the experiences of everyone else's experiences and then have some of their own.

These examples continue to identify the importance of community in the overall perceptions of these two boulderers toward the Niagara Glen. These perceptions were refined when community interactions increased and meeting places were solidified, thus adding to the importance of specific boulders and areas of the setting.

Finally, Julie and Scott were asked to reflect on their sense of community at the Glen over time. Julie reflected back to her first time top-rope climbing over 20 years ago at another area, and she and Scott became "immediately addicted." When Julie and Scott were introduced to bouldering at the Glen, Julie noted that the type of climbing that bouldering provided combined with the beauty of the natural environment, and the friends she was making provided a richer experience for her compared to her other rock climbing activities. Over time, both Julie and Scott noted their "amazing relationships with others" as something that kept them coming back to the Glen. Now that Julie and Scott have been coming to the Glen for over twelve years they take pride in showing other boulderers around so that they "can feel the same things we have felt." Indeed, Julie and Scott are reliving their years of bouldering experience by sharing it with others.

Setting location

The theme of location emerged from the analysis through memories the location triggered through a variety of specific features related to the physical setting. The importance of the proximity of the Niagara Glen to Scott and Julie's home is highlighted by Scott when he mentions the distance to other climbing destinations; "We're fortunate to have it otherwise we have to drive 6-12 hours." Julie also mentioned many times how important the proximity of the Glen is to where she lives and works.

Along with proximity, Julie and Scott attach meaning to the physical location because of its ability to attract a wide array of visitors. Scott explained,

You meet new people, some with more experience, some just visiting the area on business or school, and they just strike up a conversation... because they are by themselves or they might ask, 'Where am I?' and then that just sort of opens the door to giving somebody a tour or helping them.

These statements begin to outline location meaning of the Niagara Glen as a whole to Scott and Julie, showing how their actions and experiences have led them back to this location in part due to its ability to draw other people to it.

Throughout the data collection, emphasis was placed on the various location features that have shaped the setting from the perspectives of Scott and Julie. The most common features observed were the boulders themselves as mentioned, however, other landscape features such as water, scenery, and views also helped shape their image of the place. The water had an impact on the aesthetics of the location. Julie mentioned being able to hear the water while climbing as one of her reasons for enjoying particular boulders near the river. When discussing the meaningfulness of a particular climbing area Julie said,

The 'Land of Oz' was immediate because you're just awe struck when you get down there, and anybody who's new is awe struck by the water, and the force of the water, and how close you can be to it and just the sounds and feeling of nature.

Descriptions of the scenery also became a common theme whether discussing a specific day, the weather, the views, or the wildlife they encountered. 'Beautiful' became a common word used when talking about different bouldering areas and their surroundings as well as about the site as a whole. When asked to reflect on the Niagara Glen and their feelings toward it aside from climbing, both Scott and Julie were quick to respond with comments about the overall beauty of the area. Scott specifically recalled seeing tulip trees, brown tailed squirrels, scarlet tanager, salamander, and interesting geographic features. Although these landscape features were not the initial reason for his traveling there, they were still a part of the memories he enjoys recollecting. Similarly, Julie stated, "you know [sometimes] we end up getting rained on so we hike around and enjoy it."

The features of the location were discussed as part of the reason for visiting the location as well as part of the subtle enjoyment from being at an ecologically diverse location. Overall, the physical landscape of the Glen has features that Scott and Julie desired for their recreational activity, yet the landscape created ecologically unique memories because of continued exposure to its distinct characteristics.

Environmental degradation

While spending time in the Niagara Glen with Scott and Julie, they made comments about the beauty of the landscape; however, there were also many comments about the garbage and litter that had been left behind in the area by other visitors. Julie commented that, "It makes things a little less enjoyable, or a little more frustrating." She went on to say, "You know that they [other visitors] don't take ... their garbage out, they leave their water bottles around, and they just dump their [drink] containers ...while walking around." Similarly, Scott recalled "Having to

disassemble fire rings, or just smelling fire rings when you're walking in changed your attitude." Fire rings and fires were often found burning in the middle of the trails. The impact of garbage found on and around the trails has certainly negatively impacted the experiences that Scott and Julie have had at the site.

Scott and Julie also mentioned that environmental impacts were often blamed on boulderers. Julie indicated that due to the lack of knowledge about the sport of bouldering, people often assume that garbage and litter found around the Niagara Glen is result of the climbers because, "They think that... climbers are camping down there and that we're leaving garbage or building fire pits." According to Scott and Julie, boulderers do not camp at the Glen, but many people think they do because of the bouldering pads they carry on their backs. Additionally, Julie expressed in a frustrated tone, "There is far more impact from people partying than from climbers!" Scott consistently expressed frustration at boulderers being blamed for other visitors' actions, when he has consistently witnessed environmental degradation caused by non-boulderers. Scott mentioned a specific example of an encounter with a group of men having a fire; he informed them, "It [is] a nature preserve and you shouldn't be having a fire." They responded that they often have fires and had no intentions of changing their actions.

Additionally, both Julie and Scott noted the environmental impacts that are the result of bouldering activities. Scott addressed this issue by consistently informing other boulderers about minimum impact practices. One practice specific to the Niagara Glen is not climbing up and over boulders to avoid fragile vegetation on the top of boulders. Scott has shared this practice and concern with other boulderers often. He sees it as his responsibility to be an advocate for the environment. Another impact that Julie noted was the way climbing pads have harmed vegetation underneath boulders. She stated, "this is a noticeable impact, but climbers are mindful of the environment." Julie suggested that the community of people she boulders with know which areas to go to, and know which areas should be avoided because of fragile vegetation. Additionally, she said that boulderers do have a noticeable impact, but it is controlled and "we balance it out by giving back to the environment." Examples of this include consistently picking up trash left by other user groups, helping lost and injured hikers, and educating others about minimum impact practices. Overall, Julie suggested that she is motivated "to help others work with the environment" and she mentioned if "they don't behave, it [the Glen] will be taken away."

Discussion

Julie and Scott's setting perceptions encompassed many different experiences, memories, and specific environmental features connected to the Niagara Glen. Most of the described experiences created positive perceptions of the area; some specific areas and boulders generating greater emotional attachment. The memories expressed and the intimate experiences that Julie and Scott have with specific boulders are consistent with multidimensional notions of place attachment (Low & Altman, 1992). Their reasons and motivations for visiting the site over years of experience expanded well beyond the activity of bouldering, consistent with other research findings on place motivation and attachment (see Kyle, Mowen, & Tarrant, 2004). It seems plausible that the longer these two participants interact with site, the more ways they will find to feel connected to it.

Julie and Scott's experiences go beyond the specific recreational activity of scaling rocks to include many other elements. Place meanings often involve different dimensions that help to identify what elements add or detract from sentiment associated with a particular site. Some of these dimensions can include aesthetics and recreation, protection and preservation, seasons, access, environmental signals, reverence, and degradation (Bricker & Kerstetter, 2002). Many of these dimensions were described in the memories Julie and Scott attached to particular boulders and areas around the Glen.

Recreation was perhaps the most obvious dimension as it was the focal reason Julie and Scott chose to originally visit the Niagara Glen, and it is an element that maintains their interest. Environmental signals were important to the memories collected by Julie and Scott as the specific characteristics of the environment were obvious and vital aspects of their environmental attachment and added depth to their perceptions of the area. Finally, environmental degradation at the Niagara Glen was a dimension described as an aspect that detracts from Julie and Scott's experiences, thus creating associated memories that are unpleasant.

The social nature of bouldering was another important finding. It has been suggested that outdoor settings can help to promote social growth through shared experiences of challenge (Bricker & Kerstetter, 2002). The recreational experiences that Julie and Scott had together and with others in their bouldering community seem to be intertwined with increased place meaning as a result of the challenge of bouldering. This notion strengthens the idea that community interaction and shared challenge combined with a meaningful environment can create a distinct 'sense of place' in the context of the boulderers in this study.

Additionally, the importance of social leisure involvement has been shown in other studies where recreational activities and the sites chosen for those activities have become dependent on relationships associated with the setting (see Kyle & Chick, 2002). Policymakers may find it useful to more fully explore the social world of boulderers in order to communicate with these recreationists in a way that recognizes the relational nature of bouldering. For instance, some have suggested that building an artificial climbing wall near the Glen may divert some of the climbing attention to another site. However, the findings in this study suggest that groups of boulderers come to the Glen specifically for the sense of community found through a particular style of climbing in an outdoor setting. While it might make sense to try and divert climbers to an artificial wall, it seems unlikely that it would be able to replace the social involvement that boulderers have connected to the Niagara Glen.

Finally, the reflections and memories Julie and Scott associate with the boulders and natural areas at the Glen appear to be much more complex than they would have been if they were unconscious of their surroundings. Our findings suggest that specific experiences with the Glen, through the practice of bouldering, led Julie and Scott to appreciate the intricacies of an outdoor place. In other words, it seems Julie and Scott became more environmentally conscious of their surroundings through the activity of bouldering. Those critical of bouldering suggest, "Hardest to educate are the growing legions of boulderers, many of whom started climbing in gyms and regard the sport as a social activity, not a wilderness experience" (McCarthy, 2003, p. 2). While the social aspect of bouldering was indeed very important to Julie and Scott, these findings also provide evidence for how bouldering can be an activity that brings together an awareness of outdoor aesthetics, nature-based experience, and social interaction. All of these factors were important to facilitating Julie and Scott's caring attitudes toward the Niagara Glen as highlighted through their depth of experience at the Glen and feelings toward wanting to protect the site.

Overall, these findings should reiterate that it is important for policymakers to pay attention to the ways unique characteristics of settings influence different user group perceptions. Stewart (2004) suggests the full context and story of a place and all of its details are necessary to take into consideration when developing place-responsive education. We argue that a similar approach be taken in developing place-responsive environmental policy, protection, and thinking at outdoor sites open to members of the public who engage in a variety of recreational activities. Just as masses of ice played a role in shaping the Glen thousands of years ago, the Glen has now shaped the perceptions of boulderers for well over a decade in ways that most often go unrecognized and unexplored.

When making decisions about future Niagara Glen management strategy, policymakers should not only consider the area's particular ecological integrity and history, but should also include and recognize the unique human perspectives that have been attached to it over time.

References

- Borrie, W.T., & R. Birzell. (2001). Approaches to measuring quality of the wilderness experience. In W.A. Freimund & D.N. Cole (Eds.), *Visitor Use Density and Wilderness Experience Proceedings* (pp. 29-38). Ogden, UT.: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.
- Bricker, K. S., & Kerstetter, D. L. (2002). An interpretation of special place meanings white water recreationists attach to the south fork of the American river. *Tourism Geographies*, 4(4), 396-425.
- Corbin, J. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Thousand Oaks, CA: Sage.
- Creswell, T. (2004). *Place*. Malden, MA: Blackwell.
- Floyd, M. F., & Johnson C. Y. (2002). Coming to terms with environmental justice in outdoor recreation: A conceptual discussion with research implications. *Leisure Sciences*, 24, 59-77.
- Kuntz, K. L., & Larson, D.W. (2006). Influences of microhabitat constraints and rock climbing disturbance on cliff-face vegetation communities. *Conservation Biology*, 20, 821-832.
- Kyle, G., & Chick, G. (2002). The social nature of leisure involvement. *Journal of Leisure Research*, 34(4), 426-448.
- Kyle, G., Graefe, A., Manning, R., & Bacon, J. (2004). Predictions of behavioral loyalty among hikers along the Appalachian trail. *Leisure Sciences*, 26, 99-118.
- Kyle, G. T., Mowen, A. J., & Tarrant, M. (2004). Linking place preferences with place meaning: An examination of the relationship between place motivation and place attachment. *Journal of Environmental Psychology*, 24, 439-454.
- Leung, Y. F., & Marion, J. L. (2000). Recreation impacts and management in wilderness: A state-of-knowledge review. *USDA Forest Service Proceedings*, 15(5), 23-48.

- Long, J. (2003). *How to rock climb*. Guilford, CT: Pequot Press.
- Low, S. M., & Altman, I. (1992). Place attachment: a conceptual inquiry. In I. Altman, & S. M. Low (Eds.), *Place attachment* (pp. 1-12). New York: Plenum Press.
- Manzo, L. (2005). For better or worse: Exploring multiple dimensions of place meaning. *Journal of Environmental Psychology*, 25, 67-86.
- Marion, J. L., & Reid, S. E. (2001). *Development of the U.S. leave no trace program: A historical perspective*. Boulder, CO: Leave No Trace Inc.
- McCarthy, T. (2003). Wearing down the mountains. *Time*, 162(9), 54.
- McMillan, M. A., Nekola, J. C., & Larson, D. W. (2003). Effects of rock climbing on the land snail community of the Niagara Escarpment in southern Ontario, Canada. *Conservation Biology* 17(2), 616-621.
- Monz, C. A., Smith, K. E., & Knickerboxer, L. (2005). Climbers' attitudes toward recreation resource impacts in the Adirondack park. In J. G. Peden, R. M. Schuster, (Eds.). *Proceedings of the 2005 Northeastern Recreation Research Symposium*; 2005 (Gen. Tech. Rep. NE-341, pp. 204-211). Newtown Square, PA: U.S. Forest Service, Northeastern Research Station.
- Ritchie, R. A. (2002). *Niagara Glen trail management system: Executive summary*. Niagara Parks Commission.
- Roth, J. (2007, August). Glen nebula: Big trouble in little Niagara. *Climbing*, 259, 54.
- Siderelis, C., & Attarian, A. (2004). Trip response modeling of rock climbers' reactions to proposed regulations. *Journal of Leisure Research*, 26(1), 73-88.
- Smaldone, D., Harris, C., & Sanyal, N. (2005). An exploration of place as process: The case of Jackson Hole, WY. *Journal of Environmental Psychology*, 25, 397-414.
- Stake, R. (2005). Qualitative case studies. In N. K. Denzin and Y. S. Lincoln (Eds.), *Handbook of qualitative research* (3rd ed., pp. 443-446). Thousand Oaks, CA: Sage.
- Stewart, A. (2004). Decolonising encounters with the Murray river: Building place responsive outdoor education. *Australian Journal of Outdoor Education*, 8(2), 46-55.
- Stokowski, P. A. (2002). Languages of place and discourses of power: Constructing new senses of place. *Journal of Leisure Research*, 34(4), 367-382.
- Watson, A. E. (2000). Wilderness use in the year 2000: Societal changes that influence human relationships with Wilderness. In D. N. Cole, S. F. McCool, W. T. Borrie, & J. O'Loughlin (Eds.), *Wilderness Science in a Time of Change Conference - Volume 3: Wilderness as a Place for Scientific Inquiry* (pp. 53-59). Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.

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