

Nordic in Nature:
Friluftsliv and Environmental Connectedness

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ABSTRACT

This study explored the question of whether a relationship exists between the Nordic cultural idea of *friluftsliv* and the psychological construct of environmental connectedness. This quantitative study employed a correlational design with existing data from the Swedish Outdoor Recreation in Change national survey. Results indicate that there is a significant and meaningful relationship between nature-based outdoor recreation participation and environmental connectedness even when controlling for other predictor variables. In addition, research findings indicate that age group moderates this relationship with one group exception. It was also found that activity participation by respondents shows a correlation with both environmental connectedness and age group. Implications of this study support a cultural understanding of nature-based outdoor recreation and an awareness of the important role of access to nature as an essential component of nature-based outdoor recreation. Age group differences supported a variety of implications and recommendations for future research. A consideration of how the results may have implications for environmental education and sustainability efforts in Sweden and the U.S. was explored.

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PREFACE

Vaktklumpen, Jämtland, March 2010.

It was a day of skiing in a snowstorm. Heavy snow and strong winds blocked any real view of the mountains. Temperatures were cold. Navigation was a challenge. Spirits, however, were high. The six of us seemed to be energized by the weather and the place. After blurred ascents, and wildly fun runs down the side of the small mountain, we stopped for a picnic: open face sandwiches, blueberry soup, chocolate, and an orange. Despite the challenge of conversation given the wind and snow, I took the opportunity to ask my fellow skiers a question. It was a question I was enjoying posing during my stay in Sweden. I asked the group: “How do you define friluftsliv?” My fellow skiers paused at the question, stammered a bit, and displayed the confusion of people trying to respond to something seemingly obvious yet seldom stated. “Hmm?...” Finally one of my travel mates grabbed the thermos in front of her, waved it and exclaimed: “This...This is friluftsliv!” She explained more specifically that being outdoors, appreciating nature, enjoying the experience, AND stopping to enjoy a picnic complete with a thermos of something warm was friluftsliv. I thought the inclusion of the thermos to be both odd and amusing, but upon a little reflection it made sense to me...active, joyful, outdoor experience of nature was what she was talking about—and the thermos? It seemed to represent the normality of it all, the thermos seemed to represent the idea that friluftsliv was basic, a part of life, nourishing.

We often hear what we want to hear. But after months of studying friluftsliv in Sweden, from collecting scholarly analysis to noting societal organization, all in a deliberate attempt to understand the idea conceptually, I experienced something direct. I heard more than what I simply wanted to hear, I experienced the essence of the idea. That thermos was simple and profound.

CHAPTER ONE INTRODUCTION

Background

From Changing Childhood to Crisis

There are many ways to begin a consideration of the contemporary human relationship with nature, consider three examples. One key example is the perception of a changing childhood in the Western world. There has been concern in education, health, and popular cultural arenas that limited childhood access to and experience of nature has had a detrimental impact on children's development (Kellert, 2005; Louv, 2005; Taylor & Kuo, 2006). Urbanization is another possible starting place for a serious consideration of the human relationship with nature. What does it mean for the average American's relationship with nature given 79% of the U.S. population lives in an urban setting (U.S. Census Bureau, 2002)? What does it mean for the average Swedish citizen's relationship with nature when Sweden is reported to have 84% of its population living urban (Statistics Sweden, 2008)? One of the most pervasive ways in which we have framed consideration of the human relationship with nature, however, has involved reference to crisis, as in the numerous crises threatening global environmental health. Berry (2010) states:

We have disturbed the geologic structure, the chemical composition, and the biological forms of the planet in a disastrous manner with our population explosion and technological power. We have closed down the creativity of the Cenozoic era (the last 65 million years) and are ending a chapter of the

geobiological history of the earth. Earth is now in a state of recession; its basic life systems have become disturbed, toxic, or are extinguished. (p. 396)

The danger of global climate is the most notable of these threats in the first decades of the twenty-first century. Based on the overwhelming reality of contemporary environmental concerns, we often situate our relationship with nature by the threat that people represent to the nonhuman environment, a viewpoint that inherently strengthens the human-nature dichotomy. Not only does this viewpoint reinforce a way of viewing nature as *other*, somehow separating people from the Earth's ecological integrity, but also contributes to the implicit message that human behavior can only contribute to an impoverished and joyless future (Kaplan, 2000). In an effort to reframe the human-nature relationship, Roszak (1992) wrote:

What I say here, I say as one who believes the warnings of the most worried ecologists and endorses the indictment of the angriest among them. I share their outrage and their urgency; I understand why they resort to hyperbole. But we may have reached a point at which the environmental movement must take time to draw up a psychological impact statement. Are dread and desperation the only motivations we have to play upon? What are we connecting with in people that is generous, joyous, freely given, and perhaps heroic? (p.38)

To counter the focus on environmental crisis, Kaplan (2000) presented the Reasonable Person Model to environmental behavior as a way to provide a source of durable motivation, to reduce helplessness, and to generate creative and non-threatening solutions to our environmental problems. Kaplan (2000) promoted the idea that

understanding, exploration, and participation can lead to effective problem solving. In the spirit of Kaplan's ideas aimed at re-conceptualizing the human-nature relationship, the following study has sought to contribute to a better understanding of that very relationship. Specifically, this research explored the relationship between nature-based outdoor recreation and environmental connectedness.

This study used the Swedish outdoor recreational experience of nature as a foundation. The question of how nature-based outdoor recreation participation contributes to an individual's level of environmental connectedness was investigated. This starting point should not be seen as a denial of the need to address human behavior in light of our many environmental concerns, or as a romanticizing of the human relationship with nature. Exploring nature-based outdoor recreation is a positive approach to the consideration of a fundamental human question: *are we a part of nature?* Roszak (1992) challenged:

Is there an alternative to scare tactics and guilt trips that will lend ecological necessity both intelligence and passion? There is. It is concern that arises from shared identity: two lives that become one. Where that identity is experienced deeply, we call it love. More coolly and distinctively felt, it is called compassion. This is the link we must find between ourselves and the planet that gives us life.

(p. 39)

It is proposed here that the "link" Roszak referred to is environmental connectedness.

Community

Aldo Leopold pushed us to consider environmental connectedness as one of community belonging. This emphasis is noted in a 1949 quote from *A Sand County Almanac*: “We abuse land because we regard it as a commodity belonging to us. When we see it as a community to which we belong, we may use it with love and respect” (1966, p. xviii). Leopold’s *Land Ethic* ideas encouraged us to re-conceive our relationship with the natural world emphasizing an essential connectedness (Theimer, 2009). Freyfogle (2003) described this essential connectedness with reference to Leopold’s realization that people do not form a distinct entity from the rest of nature, and they “...were embedded in nature as much as any living thing” (p. 137). Kellert (2010) reflected upon how “Leopold’s land ethic advanced the idea that our conservation objectives must derive from a fundamental moral affinity based on understanding, appreciating, and recognizing the natural world’s beauty, on loving and even spiritually connecting with that world” (p. 374). The philosophical foundation for this environmental connectedness research combined Leopold’s idea of community, Roszak’s consideration about motivation for concern, and the sense of joy resulting from nature-based outdoor recreational experience as expressed in the preface.

Public Discourse

Schultz (2002) noted the conservation literature is “replete with references to being in touch with, connected to, or part of nature, and many other references to oneness, or our relationship to nature” (p. 64). Connectedness and other closely related terms are a substantial element in the scholarly work of conservation psychology and

closely related disciplines. In addition, environmental connectedness has become a part of our public discourse in the first decade of the twenty-first century based, in part, on widespread popular response to Richard Louv's book from 2005, *Last Child in the Woods: Saving our Children from Nature Deficit Disorder*. The grassroots Children and Nature Network (C&NN) and Leave No Child Inside initiatives are two efforts that owe much of their energy and urgency to the response to Louv's book. Another measure of the cultural reach of environmental connectedness can be noted in President Obama's America's Great Outdoors memorandum of April 16, 2010. This was a good example of the spread of the use of connectedness as a cultural term of reference. President Obama noted: "We are losing our connection to the parks, wild places, and open spaces we grew up with and cherish. Children, especially, are spending less time outside running and playing, fishing and hunting, and connecting to the outdoors just down the street or outside of town" (p. 1).

Missing Measures

Despite the growing popular and scholarly use of connectedness terminology, more empirical study is needed. Missing are basic measures, or indicators, from our everyday lives that would help to deepen our understanding of the antecedents of environmental connectedness. Current environmental connectedness research is calling for more study, for example Bustam, Young, and Todd (2003) called for more research into the character of the outdoor recreational experience. Schultz, Shriver, Tabanico, and Khazian (2004) encouraged future research to look at patterns of behavior or lifestyle and to ask if associations with nature are related to everyday behavior. Wells and Lekies

(2006) recommended future research to employ longitudinal data in order to track participation with nature long-term and objectively. Nisbet, Zelinski, and Murphy (2009) stated “it would be useful to have unbiased, empirical information about people’s everyday nature experiences and the sustained benefit of being nature related” (p.735).

Outdoor recreation, as an aspect of daily life, provides an appropriate context to consider patterns of behavior, nature experience, and beliefs about connection to nature. The Nordic cultural concept of friluftsliv provides a unique opportunity for connectedness to nature study given the context of nature-based outdoor recreation. Cordell (2008) noted changes in the outdoor recreation activity-based trends, but overall saw nature-based outdoor recreation as a strong and growing element of American life. This viewpoint gave further impetus to the consideration of the environmental connectedness value of nature-based outdoor recreation. Finally, formal and nonformal educators must not overlook the value of nature-based outdoor recreation participation as a method for quality environmental education. Environmental educators need empirical support for a wide variety of methodologies appropriate for meeting goals and outcomes.

Friluftsliv

Cross-cultural understanding provided potential significance for this study. It was presented that the Swedish cultural history of friluftsliv may be able to inform the practice of environmental education in North America. This turn to Sweden for consideration of the human relationship with nature may be as simple as Saunders’ (2003) call for new understanding and new language: “We need a better understanding of the human-nature experience and a more compelling language to express what we value

and love” (p. 137). English does not have a single word for the expression of nature-based outdoor recreation. This absence supports the need to better understand the compelling idea of friluftsliv.

The cultural significance was strengthened by its intersection with an extensive empirical data set. The Swedish national research initiative, Outdoor Recreation in Change: Landscapes, experiences, planning and development (hereafter referred to as Outdoor Recreation in Change), created a rich empirical opportunity. The assessment of the societal role of nature-based outdoor recreation has been a key part of the on-going Swedish national research program. From the project’s website, the following statement helped frame the significance of this effort:

The intention is to capture nature-based outdoor recreation’s breadth and dynamic in a changing society. In Sweden, there exists good opportunity to engage in active nature-based outdoor recreation in varied environments with a high level of access. But not enough is known about who is engaged in different types of nature-based outdoor recreation and why and to what effects on the individual and on the society. The research program, Outdoor Recreation in Change is therefore designed to provide better knowledge about nature-based outdoor recreation and eco-tourism in Sweden. (Friluftsliv i förändring, 2010, author translation)

The Swedish Institute recently described Sweden as a country deeply rooted in tradition while remaining open to change (*Follow Sweden*, 2010). The Outdoor Recreation in Change program is an excellent example to support such a characterization. The traditions of friluftsliv and access to nature (allemansrätt) are firmly and deeply

rooted in the Swedish identity, yet the Swedish people are highly engaged in the evolving nature of these ideas and the institutions that support them.

Purpose Statement

The purpose of this study was to explore the relationship between the cultural idea of friluftsliv and the psychological idea of affective connectedness to nature, or environmental connectedness. A heightened understanding of friluftsliv distinguished the concept from the common English translation of outdoor recreation. It was shown the defining element of this idea is a meaningful relationship with nature in the outdoor recreational experience. It has been instructive to consider the unique cultural meaning, origins, history, and contemporary application of the idea of friluftsliv. This consideration assisted in an effort to distill essential qualities that may have relevance for a North American environmental education audience; the operationalized definition of friluftsliv as nature-based outdoor recreational participation has allowed for consideration of implications beyond Sweden.

The construct of environmental connectedness was used to explore an individual's affective connection to nature. A review of the relevant literature demonstrated while connectedness to nature is of great theoretical and empirical interest, affective connection has been studied less than the cognitive (Hinds & Sparks, 2008). The literature review supported the contention that the affective learning domain is an appropriate starting point for the consideration of the human relationship with nature (Iozzi, 1989).

Research Questions

The following research questions guided the study:

1. Do regular nature-based outdoor recreation participants have higher levels of environmental connectedness than non-regular nature-based outdoor recreation participants?
2. Is nature-based outdoor recreation participation a significant predictor of environmental connectedness when controlling for the additional predictors of participation as child, support for access, current residence, residence as child/youth, sex, age group, level of schooling, disposable income, and nationality?
3. Do any of the predictors moderate the relationship between participation and environmental connectedness?
4. Is there a significant relationship between the frequency of participation in particular activities type and level of environmental connectedness?

Definition of Terms

The following terms have been used in the manner described here:

Affective learning: This phrase references the learning via emotional response to experience (Krathwohl, Bloom, & Masia, 1973). Eiss and Harbeck (1969) described the affective learning domain as dealing with "...values, attitudes, and interests" (p. 3). The operationalized definition of environmental connectedness was the specific measurement of affective connection to nature using the Connectedness to Nature (CNS) construct validated scale from the Outdoor Recreation in Change survey.

Allemansrätt: The literal translation from the Swedish is “every person’s right.” It is often translated, however, as “universal access rights” and refers to the system of public access to nature on public and private property (Ahlström, 2008). The specific focus on allemansrätt was limited to a Swedish perspective. The operationalized definition for this study was physical access to nature on public and private land.

Environmental Connectedness: This term served as both a general reference to the level of affective connection with nature and a specific reference to a construct based on the work of Frantz, Mayer, Norton, and Rock (2005), Mayer and Frantz (2004), and Mayer, Frantz, Bruehlman-Senecal, and Dolliver (2009). The operationalized definition of environmental connectedness is the specific measurement of affective connection to nature using respondent’s summed and averaged score on a three-item measure of environmental connectedness (EC scale) from the Outdoor Recreation in Change national survey.

Environmental Education: One key goal of this study has been to understand how Nordic ideas of nature-based outdoor recreation may inform North American environmental education. A variety of terms in North American outdoor and environmental formal and non-formal education (environmental education, adventure education, outdoor education, experiential education, place-based education, etc.) are often used interchangeably with an assumption they all belong under the broad heading of outdoor education. This study, however, is deliberately linked to environmental education given that environmental connectedness fits within environmental education goals (Kennedy & Stromme, 2008). The operational definition for environmental

education is: “the study of the relationships and interactions between dynamic natural and human systems” (No Child Left Inside, 2010b).

Friluftsliv: It has been noted that the literal translation of “open air life” as well as the English translation of “outdoor recreation” are not sufficient. A comprehensive review of definitions including origins, history, and contemporary application is provided in chapter 2. This study has used an operationalized definition of friluftsliv as nature-based outdoor recreation participation. Given concerns about the potential awkward use of Swedish terms in an English context, and concerns about use of an English phrase while referencing a Swedish phenomenon, both the terms *friluftsliv* and *nature-based outdoor recreation* have been used throughout this dissertation based on the specific context.

Landscape: Landscape is a relational concept (Bladh, 2004, 2008) referring to specific environments shaped by the interaction of both cultural and natural processes in combination with each other. This study employed an operationalized definition for landscape as the integration of cultural and natural elements of a particular place.

Nordic: Pertaining to Scandinavia. For the purpose of this study, Nordic will refer exclusively to Norway and Sweden. The focus of this study was Swedish friluftsliv; Norwegian history and current Norwegian scholarly work are presented out of respect for the contribution they have provided to a better understanding of the Swedish experience. Danish, Finnish, and Icelandic nature-based outdoor recreation experience was beyond the scope of this effort, but it should be noted that a specific Danish friluftsliv tradition exists (Bentsen, Andkjær, & Ejbye-Ernst, 2009) and a strong tradition of outdoor

recreation in Finland exists as noted in an overview of the work of Metla, the Finnish Forest Research Institute.

Limitations and Delimitations of the Study

Learning Domains

An individual's response to the environment, attitudes and/or behavior, is based on three learning domains: affective, cognitive, and psychomotor (Eiss & Harbeck, 1969; Krathwohl et al., 1973; Stedman, 2002). Understanding the interaction between these learning domains is of great interest to the fields of education and psychology, for example Kals, Schumacher, & Montada (1999) set forward the following question within their research: "Is it possible to differentiate emotional affinity toward nature and cognitive interest in nature empirically?" (p. 184). This is an important question that stretches beyond the scope of the research presented here. A major delimitation of this study is the lack of a comprehensive delineation of the relationship between these learning domains. It may, however, be useful for the study of environmental connectedness to consider the relationship of the affective learning domain to environmental connectedness before turning to a consideration of how the learning domains operate in concert with one another. For example, such an effort to pull the affective and the cognitive together is noted in the following reflection from Hinds and Sparks (2008):

...taken together, affective connection and environmental identity are potentially important explanatory concepts within environmental psychology research.

Exposure to the natural environment may facilitate the development of emotional

bonds and identification with it, which may in turn lead to positive psychological well-being and to the formation of positive attitudes and behaviors towards the natural environment. (p. 110)

Miller (2005) emphasized an overlap between the affective and cognitive learning domains. She described attitudes as “predispositions to respond...that are composed of four interrelated qualities: affective responses, cognitions, behavioral intentions, and behaviors” (p. 2). Similarly, Eiss and Harbeck (1969) presented a useful model illustrating the relationship between cognitive, affective, and psychomotor domains of understanding. Eiss and Harbeck (1969) and Iozzi (1989) stress that affective domain is the gateway to the learning process. Krathwohl (1964) identified five categories of the affective domain, he described the first category as a gateway: “Receiving, including awareness, willingness to receive, and controlled or selected attention” (p. 176). This distinction is key to the research presented here; this current effort has been delimited to an exploration of this “gateway,” specifically stated, the relationship between nature-based outdoor recreation and environmental connectedness.

Nordic in Nature

A noted limitation of this study was its cultural frame. A heightened understanding of the Nordic construct of friluftsliv differentiated the concept from the common English translation of outdoor recreation. The literature has revealed that the distinguishing feature of this idea is the essential element of a meaningful relationship with nature in the outdoor recreational experience. While it is instructive to consider the cultural meaning, origins, history, and contemporary application of the idea of friluftsliv,

an effort to discern essential qualities that may have relevance for a North American audience has been presented, yet may be limited. The empirical results will be limited to a consideration of the Swedish adult public. Implications for the results may be considered in a broader context, however direct generalization will not be possible based on data sources and methods employed. It is, nonetheless, hoped that an operationalized definition of friluftsliv as nature-based outdoor recreational participation will facilitate consideration of implications beyond Sweden.

Secondary Data

A significant limitation in the survey methodology employed in this research was the challenge of using a pre-existing data set. While concerns regarding data quality or data consistency did not exist, secondary access did not allow for researcher participation in deliberate survey design. An example of this specific limitation was the lack of inclusion of pre-existing environmental connectedness scales for use in environmental connectedness analysis. Given the absence, construct development using existing survey items and subsequent reliability and validity testing with existing appropriate scales was necessary.

På Svenska

Another limitation closely related to the above noted concern about survey context, was language. The survey was written in the Swedish language and all analysis for an English-speaking audience required author translation. Translation of cultural ideas was delicate, as will be noted in the chapter 2 exploration of the meaning of friluftsliv. Further, language nuance made direct translations challenging and potentially limited by

interpretive inaccuracies of the researcher. The tag “author translation” has been used in the text for all items directly translated by the author of this research; the only exception to this use of “author translation” is in regard to the Outdoor Recreation in Change survey items.

Assumptions

The stated focus and emphasis upon nature-based outdoor recreation participation engaged in during one’s leisure time is an assumption in the value of leisure. While environmental connectedness may show a relationship to other parts of one’s life, e.g. professional, vocational, or academic aspects, the 2007-2008 Outdoor Recreation in Change survey was explicit in identifying leisure time responses. This frame is consistent with the inherent meaning of friluftsliv (M. Stenseke, personal communication, November 16, 2010). The survey began with a list of reminders for respondents, the very first item on the list read: “The questions concern activities and the experience of nature from your free time. Do not include activities and experiences in conjunction with your work, studies, etc.” (author translation). It was a specific assumption of this research that free time (or leisure) recreational experience in a contemporary Western society is an appropriate context for the study of connectedness to nature.

Connectedness

A key assumption underlying this study is the belief in the inherent value in human connectedness to nature; it was assumed an individual’s belief that they are a part of nature is a positive condition. From the work of Aldo Leopold, referenced as part of the foundation of this study, to the philosophy of deep ecology (Bragg, 1996), a multitude

of examples have provided a long Western history and contemporary viewpoint supporting the value of connectedness to nature.

Environmental Behavior

The link between environmental connection and environmental behavior was not explored empirically, however the assumption that environmentally connected individuals will behave in more environmentally responsible ways underlies this study. The scholarly literature indicated proximity to nature leads to emotional attachment to nature, which in turn leads to the desire to change one's behavior on behalf of nature (Brügge, Glantz, & Sandell, 2007). Research supports the contention that environmental connectedness shows a positive relationship with environmentally responsible behavior (Dutcher, Finley, Luloff, & Johnson, 2007; Nisbet et al., 2009; Nord, Luloff, & Bridger, 1998; Schultz, 2002; Vaske & Kobrin, 2001). In addition, Hinds and Sparks (2008) have claimed: "Research has shown pro-environmental behaviour to be positively associated with the strength of emotional connection towards the natural environment" (p. 109). Two studies (Nord et al., 1998; Teisl & O'Brien, 2003) explored the possibility of links among outdoor recreation participation, environmental concern, and behavior, thus raising the question if environmental connectedness is the possible link between outdoor recreation participation and environmental concern? More empirical work is needed to explore this question and other questions regarding a link between environmental connectedness and environmental behavior. This research did not directly address environmental behavior, yet the assumption was made that because of the possible link

between environmental connectedness and environmental behavior a greater understanding of environmental connectedness is important.

Understanding the Human Relationship with Nature

At the core of this study was the search for a better understanding of the human relationship with nature. This broad idea was explored via the Nordic cultural ideal of *friluftsliv* and a measurement of environmental connectedness. Given the scholarly orientation of the author is based in environmental education, an excerpt from the Norwegian general curriculum (K06), including a reference to *friluftsliv* (as excerpted in Frenning, 2009), is fitting to conclude this first chapter and hint at the implications for this study:

Education must also enkindle a sense of joy in physical activity and nature's grandeur, of living in a beautiful country, in the lines of landscape, and in the changing seasons. It should awaken a sense of awe towards the unexplainable, induce pleasures in outdoor life and nourish the urge to wander off of the beaten track and into uncharted terrain; to use body and sense to discover new places and to explore the world. Outdoor life touches us in the body, mind and soul. Education must corroborate the connection between understanding nature and experiencing nature: familiarity with the elements and the interconnections in our living environment must be accompanied by the recognition of our dependence on other species, our affinity with them, and our joy in wildlife. (p. 1)

CHAPTER TWO LITERATURE REVIEW

“Friluftsliv must be conceptualized as a dynamic, variable and society-related phenomenon, anchored in situated human beings’ bodily practices and experiences; as lived experience and reflection” (Gurholt, 2008, p. 65).

This chapter provides a foundation for understanding friluftsliv and environmental connectedness and their possible relationship to one another. Just as Schultz (2002) presented environmental connectedness as a cultural construct with his view of nature as an essential part of culture (p. 65), this research presented the possibility that better understanding of the Nordic tradition of friluftsliv may help illuminate the idea of nature as an essential part of culture. Does the history and practice of friluftsliv, which links Nordic cultural heritage and nature-based outdoor recreational participation, show a relationship with environmental connectedness? And if a relationship between this cultural idea and environmental connectedness can be established, what are the implications for environmental education practices in other cultural contexts?

This chapter reviewed relevant research and theoretical literature in friluftsliv and environmental connectedness. Its first section provided a detailed consideration of friluftsliv, including definitions, origins, history, contemporary applications, and a discussion of friluftsliv as a counterpoint to negative impacts of modernity. The second section explored theoretical and empirical environmental connectedness literature, especially work that presented potential predictors of environmental connectedness. Next, outdoor recreation literature was reviewed for work relating to nature-based outdoor recreation and environmental connectedness. Finally, key points serving to synthesize friluftsliv and environmental connectedness were reiterated.

Friluftsliv

The intention of the Swedish national research program, Outdoor Recreation in Change: “is to capture friluftsliv’s breadth and dynamic in a changing society,” (Friluftsliv i Förändring, 2010, author translation). This research explored one element of this dynamic. Klas Sandell, Sweden’s foremost friluftsliv scholar, encouraged discussion of the concept’s different dimensions rather than engaging in “endless discussions about what friluftsliv truly is” (2003, p. 10, author translation). This section provided multiple vantage points for understanding friluftsliv as a concept and reviewed its many dimensions in order to clarify this study’s operationalized definition of friluftsliv as nature-based outdoor recreation participation.

Beyond Outdoor Recreation

The direct English translation of the Swedish word friluftsliv of *open air life* is lofty and vague, and does not fully describe the ideas behind the word. Nor does the typical English translation of outdoor recreation capture the meaning. The revised Swedish Outdoor Recreation in Change Program Plan (Friluftsliv i förändring, 2006) says: “In this application even though we use the English phrase ‘outdoor recreation’ our focus is friluftsliv; we believe these terms overlap to a large degree, but that they are not entirely equivalent concepts” (p. 5). Henderson (2001) distinguished the ideas of friluftsliv and outdoor recreation by saying friluftsliv is “outdoor recreation with its heart within the land and linked to a tradition of being and learning with the land” (p. 32). These descriptive definitions illustrate the challenge for native English speakers in

understanding the cultural distinction between outdoor recreation and friluftsliv.

American educator Douglas Hume (2007) thoughtfully concluded English does not have a word that encapsulates the complex idea of friluftsliv “in a single beautiful word” (p. 229).

Swedish human geographer and friluftsliv scholar Marie Stenseke (2010) describes Friluftsliv as “a multifaceted concept” (p. 7, translation by author). This characterization is borne out in a detailed review of friluftsliv definitions and descriptions. Friluftsliv fuses ideas of outdoor recreation, nature experience, philosophy, and lifestyle. Outdoor recreation, as a term, is much simpler in scope than friluftsliv as it almost exclusively references specific activities and does not imply an inherent broader relationship to nature. The following definitions and conceptual descriptions illustrate friluftsliv as much more complex than outdoor recreation. The list is not meant to imply that these are competing definitions; each definition represents a specific context and adds to our overall understanding:

- Nils Faarlund defined friluftsliv as “a Norwegian tradition for seeking the joy of identification with free nature.” Faarlund went on to define free nature “as nature possessing its own original rhythm...the home of our ancestors...humankind’s home through the ages” (as cited in Reed and Rothenberg, 1993, p.156).
- Atle Tellnes (1993) defined friluftsliv as simply “outdoor life” (p. 12).
- Hans Gelter (2000) defined the idea as “a philosophical lifestyle based on experiences of the freedom in nature and spiritual connectedness with the landscape” (p. 78).

- Andrew Cusack (2002) defined friluftsliv as a “non-aggressive, environmentally sensitive approach to being in nature” (p. 22).
- Børge Dahle (2003) wrote: “friluftsliv, first and foremost, is about feeling the joy of being out in nature, alone or with others, feeling pleasure and experiencing harmony with the surroundings” (p. 248).
- The *Friluftsliv i Förändring Program Plan* (2006) defined friluftsliv as being: “outside in natural or cultural landscape for well-being and encounters with nature without demands for competition” (p. 7).
- Roger and Sarah Isberg (2007) defined friluftsliv with the brief phrase “simple life” (p. 10).
- Gunnar Repp (2007) described friluftsliv as “human beings establishing, forming and believing in a friendship with nature” (p. 107).
- Kirsti Gurholt (2008) described Norwegian friluftsliv as “outdoor life” and states that it “is often identified as a simple way of life and as exemplary of green life-philosophy and environmental practices” (p. 55).
- Johan Öhman (2010) stated: “Friluftsliv is an upbringing that in the first hand is about developing a personal relationship to nature from one’s own experiences” (p. 5).
- Marie Stenseke (2010) used the following definition in a study of friluftsliv and conservation in Kosterhavets National Park: “Use of universally accessed (Allemansrätt) nature characterized land and water areas with a recreational purpose and without the influence of competition” (p. 7, author translation).

A number of themes emerge from the preceding ideas, including the physical experience of nature, a personal relationship to nature, and a lifestyle inclusive of nature. In synch with this general conceptual arena, Backman (2008) found his research respondents suggesting the “experience of nature is, or should be, the legitimate way of defining the essence of friluftsliv” (p. 67). This finding was noteworthy given Backman’s respondents were pre-service physical education teachers, a group highly likely to be initiating friluftsliv in their professional formal educational settings.

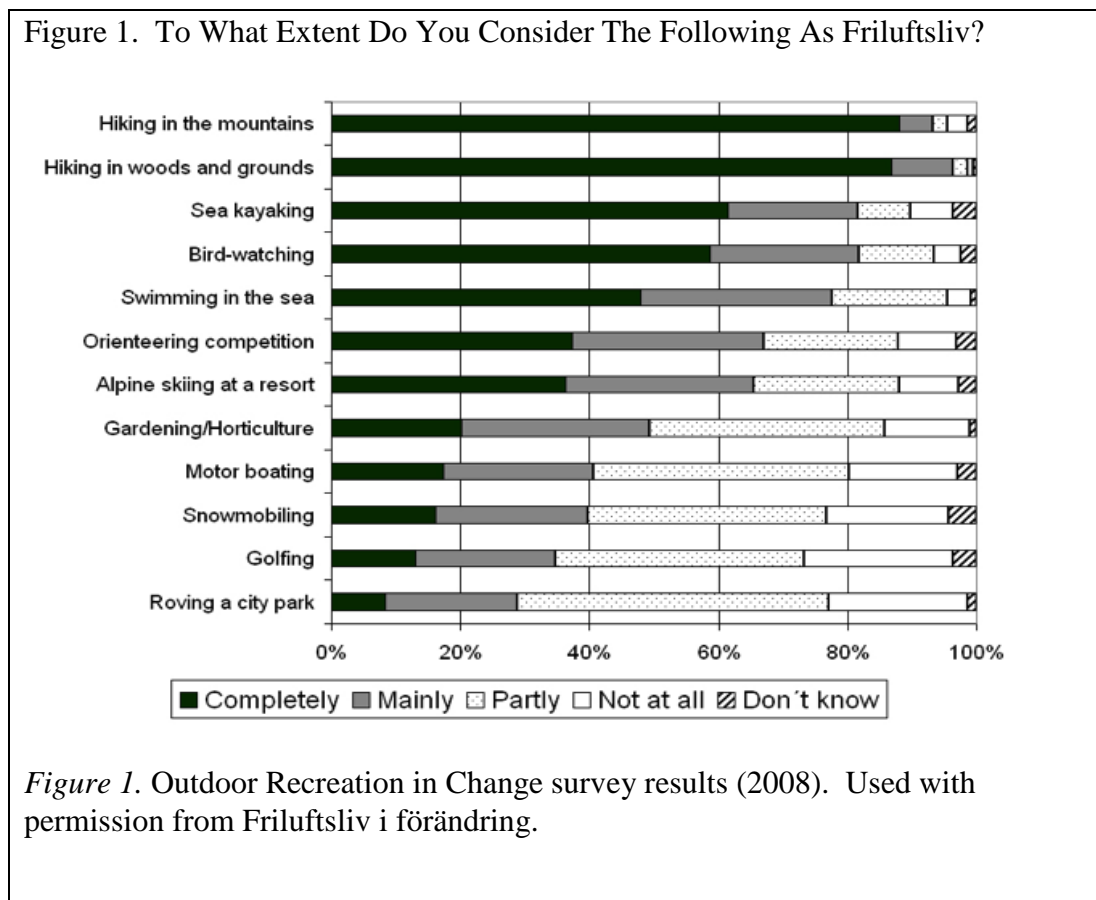
Common Usage

Beyond definitions and descriptions, friluftsliv can be explored through its applications. This next section looks at contemporary Swedish applications and trends in society that illustrate the meaning of friluftsliv. Illustrating how friluftsliv functions throughout Swedish society provides insight to the concept’s meaning including societal perceptions, activity-based public and civic organizational application, overlap with nature-based tourism, and its place in formal and non-formal education.

Public perception.

An interesting example of the application of the concept of friluftsliv is public perception. The Swedish Outdoor Recreation in Change national survey (Romild, 2007) asked questions to develop a contemporary sense of public friluftsliv demographics, perceptions, values, and behaviors. Using this survey to investigate which activities and beliefs constitute friluftsliv provides insight into contemporary Swedish perceptions. Question 30 asked about the degree to which a sample of outdoor recreational activities are viewed as friluftsliv with *hiking in the mountains* and *hiking in woods and grounds*

receiving a *completely* score of 87% and 88% respectively. At the other end of the spectrum, *roving [walking] in a city park* scored only 8% in the completely category, yet scored 77% in qualifying as friluftsliv to some degree (see *Figure 1*). These results seem to illustrate both a breadth and dynamic in the interpretation of friluftsliv within Swedish society, and a strong association between activity and the experience of nature.



Note: The use of the word “competition” in conjunction with orienteering above may be an inaccurate translation. Orienteering competition is a popular sport in Sweden, but community based orienteering events with low to no competition are also popular; use of “orienteering” is a better translation.

Organized activity.

Svenskt Friluftsliv (*Swedish Association for Outdoor Organizations*) serves as an umbrella organization to promote a national outdoor recreation agenda (Svenskt Friluftsliv, 2010). Twenty-two separate organizations are included within this organizational framework to promote outdoor recreation opportunities on various levels throughout Sweden. In a Svenskt Friluftsliv document titled *Outdoor Recreation and Society (Friluftsliv och Samhället)*, friluftsliv is described broadly as: “activities of natural and cultural significance that proceed without negative impact on natural and cultural landscapes” (Svenskt Friluftsliv, 2008, p. 24, author translation). Although this description does not provide a detailed definition, its linking of activity and landscape is instructive. This definition highlights how the term and concept of “landscape” can be used, integratively, to synthesize nature and culture (Bladh, 2008).

Friluftsfrämjandet (*Open air encouragement organization*, author translation), one of Svenskt Friluftsliv’s 22 member organizations, is a leading outdoor recreation organization. It promotes friluftsliv for all ages with a nature and activity-based approach. While outdoor recreational activity is the organization’s focal point, its identity reveals a strong underlying philosophy: “Our longing to be out in nature grows ever stronger, there are deep roots in us as a part of our culture and our legacy. Nature is a recovery place that gives us balance in our often stress-filled and sedentary lives” (Friluftsfrämjandet, 2009, author translation).

Municipal effort.

Another example of popular friluftsliv application helping to clarify meaning can be found in the efforts of municipalities across Sweden to promote friluftsliv as a part of a quality life. For example, Sweden's three largest municipalities provided typical examples. The municipality of Stockholm emphasized its geographic relationship to Lake Malaren, the Baltic Sea, and open areas within the city for walking and exploring. In addition, Stockholm highlighted its many small inner city parks and Ekoparken, a large national city park featuring cultural and natural history (Stockholms Stad, 2010). The City of Göteborg's official website included a friluftsliv page that features statements such as: "To be outside and active promotes good health. Walking in parks, strolling in nature areas or swimming outdoors at local beaches gives you exercise and recreation for free!" (Göteborgs Stad, 2010, author translation). A brochure available at Malmö's premier outdoor recreation park, Torup, described friluftsliv as: "visits and physical activity outdoors to achieve a change of environment and nature experiences without the demand of performance or competition" (brochure, 2009, author translation). The brochure detailed values, opportunity, and access.

To emphasize the role of municipal public institutions in shaping contemporary friluftsliv in Sweden, the federal environmental agency, Narturvårdsverket, awarded a friluftsliv community prize to recognize the efforts and achievements of municipal governments in supporting community-based friluftsliv. The 2010 award was presented to Sundsvall Municipality during the People and Nature conference held in Stockholm (February, 2010). Sundsvall was chosen based on its outdoor recreation partnerships, its

longsighted friluftsliv strategy, and its green space purchases in densely populated urban areas to provide proximate access to nature for nearby residents (Naturvårdsverket, 2010b). Note, Sundsvall is a small city of 50,000 inhabitants and 96,000 in the greater community region (Sundsvalls Kommun, 2011).

Nature-based tourism.

Despite distinctions between friluftsliv and nature-based tourism, the terms are used similarly by the Swedish tourism industry to promote nature-based outdoor recreational activity. For example, guidebooks from the Swedish touring organization, Svenska Turistföreningen (STF), used the term friluftsliv to promote outdoor recreation via destinations for activities throughout Sweden. A specific example is a series of books from publisher Calazo that highlight nature-based outdoor recreational opportunities, books such as: *Friluftsliv: Your Guide Adventure in Winter* (Sundvall & Hjelmstedt, 2006, author translation).

Svenskt Friluftsliv distinguished friluftsliv from nature-based tourism in spatial geographical terms: natural and cultural outdoor recreational participation proximate to one's residence is called friluftsliv, while similar experiences requiring significant travel to access are referred to as nature tourism (p. 24). Another basic definition for nature tourism is "Outdoor activities beyond the everyday setting" (Lundmark, 2009, p. 7, author translation). This perspective reiterated the everyday, or lifestyle, element of friluftsliv, the regular or everyday nature-based outdoor recreational participation, and nature tourism as the away-from-home, organized, and commercial form of nature-based outdoor recreational participation (Fredman, Boman, Lundmark, & Mattson, 2008). The

distance-based distinction between friluftsliv and nature-based tourism is also used within the Swedish Outdoor Recreation in Change Program Plan (2006), yet seems inconsistently applied. The term friluftsliv more regularly referenced both proximate and distance-based outdoor nature-based recreation. When comparing the overlap between friluftsliv and nature-based tourism, friluftsliv seems to be less about specific physical geography and more about relational geography; the term friluftsliv puts an emphasis on the relationship between people and nature regardless of the physical proximity of access.

Sportification.

Just as friluftsliv and nature tourism have overlapping borders, the ideas of sport, lifetime sport, and adventure sport overlap with friluftsliv (Backman, 2010; Emmelin, Fredman, & Sandell, 2005). Backman (2010) explored the distinction between sport and friluftsliv in his study of friluftsliv within Swedish physical education teacher training programs. He noted several of his interview subjects clearly distinguished sport from friluftsliv. Further, Backman referenced Tordsson's distinction between sport's fundamental element of competition as characterized by objectivity and external regulation, while friluftsliv, characterized by the experience of nature, is grounded in "subjectivity and an inner sense of meaning" (p. 68). Another example of this overlap, Sandell (2003) noted a blurring of friluftsliv and sport due to lifestyle sports and multisport competitions.

Similar to nature tourism applications of the term friluftsliv, the sportification of the term has also been identified as a contemporary trend. Dahle (2007) contended that sportification means emphasizing the outdoor adventure activities more than participants'

relationships with nature (p. 29). Gelter (2009) warned this trend has “through commercialization and sportification, developed from an original way of thinking to today’s focus on the outdoor activities *per se*. This focus on activities rather than on the human relationship to nature has resulted in a modern superficial conception of friluftsliv” (p. 5). The primacy of activity over place or environment is a noted trend in North American outdoor recreation as well (Thapa & Graefe, 2003). This trend partially explained why directly translating friluftsliv as outdoor recreation is not appropriate, as the activity meaning must include an inherent relationship with nature. Another aspect of this concern with sportification is the economic exclusivity that friluftsliv can be interpreted as encompassing. Specialized gear and transport-intensive activities can be expensive, potentially creating economic exclusion from participation. Given concerns about sportification and related commercialization of friluftsliv, Faarlund generated a list of what friluftsliv is not based on his review of friluftsliv’s cultural context and Norwegian ideal (as cited in Reed & Rothenberg, 1993). He wrote friluftsliv is not a sport, tourism, scientific excursion, trade show, or outdoor activity as escape (p. 164). The emphasis Faarlund put on everyday experience is an important theme in defining and understanding friluftsliv. The distinction between everyday experience and escape was also apparent in questions posed by the authors of the Swedish Outdoor Recreation in Change national survey (Romild, 2007); the survey poses a long list of questions largely structured to determine everyday aspects of nature based outdoor recreation participation.

Friluftsliv as education.

Educational methods and outcomes provide another avenue for understanding friluftsliv via application. The perception of friluftsliv as belonging within the realm of education is strong in the Swedish friluftsliv tradition. The title of the definitive Swedish text on the history of friluftsliv, *Friluftsliv History: From Rugged Outdoor Life to Ecotourism and Environmental Educational Methodology* (Sandell & Sörlin, 2008, author translation), underscored the important link between historical ideas of friluftsliv and educational practice. Sundberg and Öhman (2008) described friluftsliv pedagogy as both method and goal; friluftsliv as a method to reach desired educational outcomes and as a goal in its own right—the value in the active experience of nature.

Sundberg and Öhman (2008) described friluftsliv's role in formal education as primarily a method for increased health and noted examples going back to 1942. This emphasis on physical health is presented as contemporary method and goal within the contemporary national physical education curricula as well; Sandell and Öhman (2010) pointed out that “In Sweden, as in Norway and Denmark, outdoor recreation is a compulsory element of physical education in nine-year compulsory education” (p. 15).

Other aspects of friluftsliv application in the formal educational setting in Sweden include connectedness to nature and environmental education. Documents from the 1950s describe the value in “friluftsliv days” as providing opportunity for students to get a sense of nature's beauty and emphasizing the student relationship with nature (Sundberg & Öhman, 2008). The environmental education pedagogical perspective on friluftsliv dominated educational application of friluftsliv from the 1970s through the 1990s

(Sundberg & Öhman, 2008). In the 1980 Swedish curricular guidelines (Läroplan för grundskolan, 1980) the first mention of ecological concepts in conjunction with friluftsliv instruction appeared. In 1994 curricular guidelines the environmental educational aspect of friluftsliv was expanded. The 1980 guidelines stated: “During outdoor experiences students will gain understanding for ecological balance” (Sundberg & Öhman, 2008, p. 114, author translation). In 1994, guidelines were updated to include: “students at the end of the ninth grade shall have knowledge about friluftsliv and experience in nature, understand the universal access law and be able to orienteer in unknown nature using a variety of devices to assist” (Sundberg & Öhman, 2008, p. 114, author translation). The noted guidelines underscored the idea of friluftsliv as both method and goal.

Numerous other formal and nonformal friluftsliv educational efforts exist within Sweden. As early as 1957, Friluftsförbundet became actively involved in environmental education with the arrival of Skogsmulle (Sahlström & Johansson, 2006). Skogsmulle is a mythical forest being, a character developed to lead children and families on outdoor adventures based on curiosity and love of nature. The educational outcome of the Skogsmulle program is focused upon the development and support of a child’s sense of wonder in nature (Sahlström & Johansson, 2006). Beyond Skogsmulle, Friluftsförbundet offers other programs including an outdoor approach to preschool, “Ur och Skur” (rain or shine). The description of Ur och Skur includes the following:

Rain and Shine is a unique way to approach school and the preschool environment. The children are outside almost the entire school time. The pedagogy builds on happy awareness and curiosity and teaches children to see the

connection in nature. The program is also built on promoting the use of all of the child's senses. Rain and Shine is based on experience based teaching and friluftsliv to reach the intended outcomes. (Friluftsförbundet, n.d., author translation)

Sandell and Öhman (2010) note that Ur och Skur teaches the importance of including nature in everyday life: "This integration is not simply based on a rational insight of ecological interdependence, but rather a bodily, experienced interconnection established through the habit of working and playing out-of-doors" (p. 10). It should be noted that Ur och Skur bases its goals on the Swedish national curricular guidelines (Westerlund, 2009). In addition to Ur och Skur, Friluftsförbundet has fostered the development of a continued curriculum in the form of "Naturskolor," (nature schools). These freestanding schools, some private and some with local governmental support, have based their pedagogical principles on using direct experience of nature to shape ecological knowledge and engagement with nature and the environment (Öhman, 2010).

Two more important environmental education connections to friluftsliv exist and represent the strong connection between the ideals of friluftsliv, education, and Sweden as a nation. The emphasis on friluftsliv within the organization of the federally supported Outdoor Recreation in Change national research program is one of these connections. One of the 6 thematic project areas within the national study highlights the association between environmental education and friluftsliv, Project Area E is described as having the following role: "to develop strategies and methods for land management integrating outdoor recreation and nature conservation, and for environmental education and nature

guiding, contributing to a wider understanding of how perceived nature values and experience of nature are related in contemporary Sweden” (Outdoor Recreation in Change Program Plan, 2006, p. 2). The other connection worth noting in this context is the recently passed Framtiden’s Friluftsliv (*The Future’s Friluftsliv*) proposition into law. Sverige’s Riksdag (2010), notes ten specific points make up the goal of this law, including: “that friluftsliv shall have a set role in the work of schools” (Kulturutskottets betänkande 2010/11:KrU3 section, bullet point 8, author translation). These federal examples of current support for the connection between friluftsliv and education provide a sense of societal value for the perceived relationship.

Origins and History of Friluftsliv

Underlying contemporary usage of the term friluftsliv is a distinctly Nordic history that supported this effort to clarify meaning. Brief overviews of the Norwegian and Swedish friluftsliv histories and historic analyses are presented; Given the context of this research, historical emphasis is upon the Swedish history. This study does not purport to represent Norwegian friluftsliv comprehensively, however, key events and ideas in Norwegian friluftsliv have had both a historical and contemporary impact on Swedish friluftsliv and are shared to help create a more comprehensive understanding.

A Norwegian ideal.

Norwegian culture has been shaped by the country’s dramatic landscape; in the introduction to *Wisdom in the Open Air*, Reed and Rothenberg (1993) describe Norway as “a country where nature, rather than human settlement, dominates the landscape....Mountains, forests, and the coast are the defining natural

features....Norway's boreal setting means long, dark winters and short, brilliant summers" (p.5). Faarlund (2009) connected history and place by identifying a distinctly Norwegian friluftsliv ideal inspired by simultaneous embrace of Norwegian national romanticism and free nature as a part of Norwegian cultural identity.

Playwright and poet Henrik Ibsen, a key figure in Norwegian national romanticism is credited with coining the term friluftsliv in 1859 with the poem, "On the Heights." Horgen (2009) notes the poem's publication was an important documentation of a cultural historical ideal: "The poem portrays a psychological drama where Ibsen's protagonist experiences a split personality: on the one hand are personal ideals and the expectations of society and the other are instincts and personal needs" (p. 1). Ibsen, a well-known figure during the 19th century global national emergence of a modern Norway, captured the spirit of his people and place (Horgen, 2009). Ibsen's role in developing Norway's national romantic movement in Norway is well documented, and his ideals regarding friluftsliv are very much part of this romantic period (Gurholt, 2008; Horgen, 2009; Leirhaug, 2009; Lykken, 2009). Ibsen is credited with romanticizing the aesthetic nature experience and linking it with Norwegian cultural identity.

Another important example of how person and place has shaped the Norwegian identity vis-à-vis friluftsliv is in the life and works of explorer, Fridtjof Nansen. Nansen is highly regarded in Norway for his pioneering work in neurology, his humanitarian work, and his 1922 Nobel Peace Prize (Repp, 2007, p. 104). His ideas about outdoor adventure, his key role in developing modern Nordic ski sport, and his epic ski adventures connect him to friluftsliv; in 1888 he traversed Greenland on skis and he

attempted to ski to the North Pole in 1895 (Reed & Rothenberg, 1993). Nansen's exemplification of outdoor experience is so strong, says Gunnar Repp (2007), that it is a: "prerequisite to the attainment of a satisfactory understanding of the cultural phenomenon known as friluftsliv to have some understanding of Fridtjof Nansen" (p. 104). Nansen "saw nature as an arena of alternative life experiences focusing upon educational values, experiential learning and adventure education" (Repp, 2007, p. 108). Nansen also recognized joy as an important product of time spent in nature (Repp, 1996). Faarlund (1993) says, "Nansen's writing revealed a sense of cooperation with nature's awesome power, and equally important, a sense of joy in being in nature. And his belief that free nature was our true home was explicit" (p.161).

The roles these two prominent Norwegian historical figures played can be challenged using both feminist theory and a contemporary emphasis on defining friluftsliv as part of a regular experience with nature. Exploring a challenge to these ideas does not deny their significance and has helped to broaden our contemporary understanding of friluftsliv. Gurholt (2008) challenges elements of Norwegian national romantic friluftsliv and defined Norwegian friluftsliv as historically "male education" and asked why contemporary practitioners do little to question and move away from this "long-standing Western discourse" (p. 56). Gurholt (2008) interpreted Faarlund's description of friluftsliv as "analogous to boyhood development; from birth to childhood, puberty and early manhood" (p. 56). Gurholt (2008) also interpreted Ibsen's contribution to friluftsliv history as emphasizing gender distinctions:

“On the Heights” is imbued with a sharp distinction between what is masculine and feminine. The masculine is symbolized by the heights, a breadth of vision, up, out, freedom, god, the individual, and with the high-quality, free, unspoiled, unbinding and *ego-forming* life in a wild nature. The feminine is symbolized by down there, fumbling at home, unfree, bodily nature, the other, the masses and with inferiority, contemptible, domestic life, trivial, fixed, routine-ridden and binding lowland life.” (p. 60)

Just as Gurholt (2008) challenged the traditional perspective of Ibsen in friluftsliv history, she challenged the symbolic role of Nansen as well. She challenged the classic interpretation of Nansen as embodying friluftsliv. Instead, she interpreted Nansen as an early practitioner of the sportification of friluftsliv—the primacy of activity and achievement over experience in nature. She described Nansen’s Arctic exploration as a “virile man’s civilizing triumph over nature” (p. 58). She explored how focusing on Nansen’s adventures as the epitome of friluftsliv contradicts the “simple life” perspective of friluftsliv as accessible and everyday interaction with nature (p. 55).

While it is not the intent of this review to resolve these critical interpretations, using these perspectives to question commonly held ideas about Norwegian friluftsliv, its culture and history, provided a deeper understanding of the concept for contemporary application.

A Swedish Ideal.

Swedish history shares Norway’s connection between the cultural tradition of friluftsliv and contemporary national identity; a key example is a shared sense that nature,

rather than human settlement, dominates the landscape. Prior to the impacts of the modern era on Sweden, the connection between Swedish people and the experience of nature was noted as strong and functional. Isberg and Isberg (2007) describe the late pre-modern period as a time when: “Eight out of ten northerners lived in rural areas. More than half of the population supported themselves through farming, logging, hunting, or fishing. There was a strong sense of belonging to the landscape” (p. 175). Elements of this functional life in nature were a part of the Swedish national romanticism noted in Swedish friluftsliv history (Dahl, 1998; Fredman, Karlsson, Romild, & Sandell, 2008; Sandell, 2006; Sandell & Sörlin, 2008). A societal friluftsliv movement can be traced to the time of transition when industrialization, urbanization, and demographic shifts in late nineteenth century Sweden created a time of societal change. Tordsson (2008) described this romantic period as a time when a national mythology took shape:

Wild, dramatic nature and uncivilized culture became a growing ideal.

Throughout Europe people sought out the folksy, the authentic, the natural.

Compared against the Enlightenment’s rationalism, the Middle Ages’ mystical and organic ideas grew in principle. The landscape came to be viewed as a spiritual whole that should initially be experienced with the emotions. (p. 55, author translation)

Many friluftsliv examples from this industrial and urban transition era can be considered from a review of Swedish History. In 1885 the Swedish Touring Association (STF) was founded and began creating new and organized connections to nature for many Swedes (STF, 2005). An early example of this organized approach was the

Swedish mountain experience for affluent city dwellers (Sandell & Sörlin, 2008). Other organizations and events that developed around the turn of the twentieth century helped to create the contemporary nature-inclusive national identity. Friluftsförbundet was organized in 1892 and originally was called Skidförbundet (*ski encouragement organization*) given an early emphasis on Nordic skiing (Friluftsförbundet, 2010). Getting youth into nature, and into the Swedish mountains via the Swedish railway was another early priority of the organization (Friluftsförbundet, 2010). Sweden's national park system and scouting program, key elements of early organized friluftsliv, were established in 1909 (Sandell & Sörlin, 2008). Sandell and Sörlin (2008) documented many other additional events and trends that helped Sweden romanticize its cultural relationship with nature, while actively preserving and promoting that relationship.

Democratization.

Democratization was another element of Sweden's dawning friluftsliv identity. The first half of the twentieth century was a profound growth period for Swedish workers' rights. A shorter work-week and vacation time provisions gave workers both leisure time and friluftsliv access (Eskilsson, 2008). Workers' free time led to reflection about the meaning and values associated with activity that promoted healthy lifestyle, intellectual development, and democracy (Ahlström, 2008; Sandell & Sörlin, 2008). It seems that nature provided a space for the transcendence of class lines in this Swedish history of friluftsliv:

Frykman and Löfgren traced Swedish bourgeois love for nature to the turn of the century when writers, artists and scholars searched in the landscape and in history

for an identity different from the one suggested by the conservative and martial patriotism of earlier generations....Progressive liberals embraced a cult of the simple, the genuine and the natural....Nature was animated into a symbol for Swedishness and a national fellowship above class boundaries. (Dahl, 1998, p. 282)

From Forsslund to Argaladei.

Sweden, like Norway, had national figures important to the Swedish national friluftsliv identity. For example, Sandell and Sörlin (2008) presented the role that Karl-Erik Forsslund played in the development of a Swedish friluftsliv ideal. Forsslund, described by Sandell and Sörlin (2008) as: “a poet, folk educated, sun-worshipping, nature-loving advocate for country living...he who made short trousers and traditional jacket the uniform for the friluftsliv youth. He was seen as the picture of a young socialist at the turn of the century” (p. 41, author translation). Forsslund presented a radical societal critique with strong associations to nature and friluftsliv (Sandell & Sörlin, 2008). Contemporary organizations seem to have derived inspiration from Forsslund’s ideas of nature engagement. For example, a scouting document from *Friluftsliv* (Isberg & Tordsson, 1981), presented a strong message about human relationships with nature; Isberg and Tordsson asked: “Can our friluftsliv be such a road to a new friendship with nature?...Our friluftsliv must do more than simply keep people healthy and productive” (p. 12, author translation).

Argaladei is another organization with temporal roots in the 1960s and philosophical roots in the friluftsliv tradition. The organization’s motto is: “Friluftsliv, a

lifestyle” (Argaladei, 2009). Argaladei developed as an alternative to the intensifying influence of popular culture and modernity, emphasizing a simple life connected to nature as alternative. Argaladei represents friluftsliv as a response to the loss of meaningful human relationships with nature due to the destructive forces of modernity. The next section explores this theme of friluftsliv as reaction to modernity and provides an important link to the idea of human connectedness with nature.

A Challenge to Modernity

Free Nature.

As noted in the definitions explored earlier in this chapter, Faarlund identified friluftsliv as a “tradition for seeking the joy of identification with free nature” (as cited in Reed & Rothberg, 1993, p.156). Despite Norway’s bold physical landscape features and contemporary eco-tourism emphasis on northern Sweden as one of Europe’s largest wilderness areas (Wall Reinius, 2009), Norwegian and Swedish landscapes are heavily managed for resource production (cows, sheep, reindeer, timber, and other commodities). Faarlund describes “free nature” in part as “nature possessing its own original rhythm” (as cited in Reed & Rothberg, 1993, p.156), yet given enduring cultural elements in Norway and Sweden’s wild places, nature may be better perceived as evolving a culture-based rhythm. One strong example may be noted in the intolerance of many Swedes and Norwegians have for large predators, most notably free-ranging wolf populations (Dahlström, 2003). Wolf control in Norway and Sweden is so culturally restrictive from a North American vantage point that the phrase free nature seems meaningless, which has led to important questions: Is there such a thing as nature unaffected by human culture.

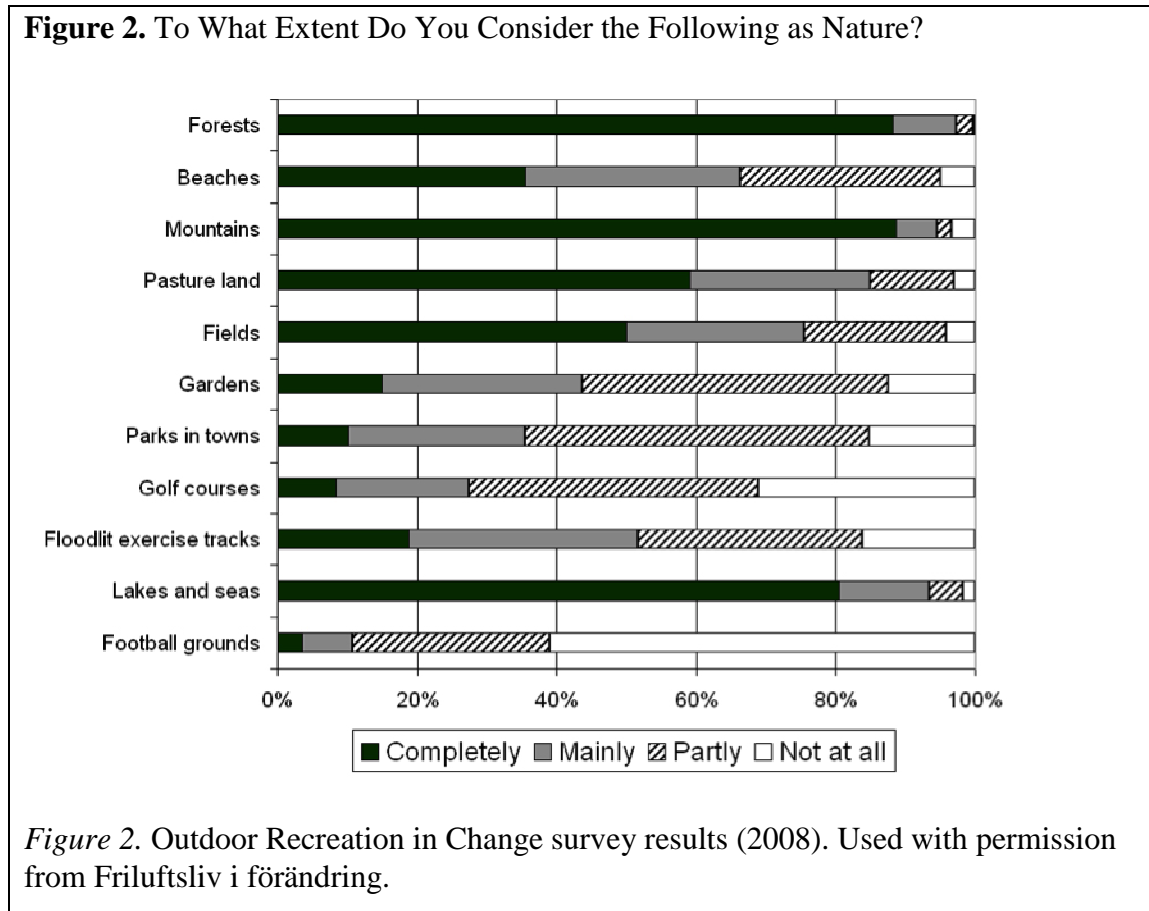
Does the nature/culture dichotomy serve ideals of friluftsliv? According to geographer Steve Hinchliffe (2007):

In our everyday language, we tend to treat nature and society as separate entities. If something is social, then almost by definition it can't be natural. And if something is described as natural then it is unlikely to have much to do with society. So, for example, when we describe a landscape as "natural" we often mean to suggest that it is undeveloped, untouched and that the social or human-world is largely absent. But such a view, attractive and seductive though it can be for some, is often difficult to sustain. (p. 10)

Feldman (2003) encouraged us to think of many of our wild landscapes "as evidence neither of past human abuse nor of triumphant wild nature, but rather as evidence of the tightly intertwined processes of natural and cultural history" (p. 41).

Swedish contemporary public perceptions of how landscapes define nature are relevant to this study, especially when considering participant responses to question 4 on the Outdoor Recreation in Change Survey (see *Figure 2*). Eighty percent of respondents defined *Lakes and Sea*, *Mountains*, and *Forest* as *completely* nature. Landscapes with the least appearance of human impact seemed to be the landscapes most perceived as nature, this perception despite the reality that most of the forest in Sweden is actively managed for production and much of the Swedish mountain region is managed for livestock (reindeer production). Beaches scored low relative to the noted examples of

Lakes and Sea, Mountains, and Forest, yet often represent minimal human impact environments (M. Stenseke, personal communication, 11/15/10).



While understanding nature is important for making sense of the term nature-based outdoor recreation, this study's intent was not to answer the challenging question of *what is nature?*

Friluftsliv as response.

The investigation of the history of friluftsliv easily merges with a critique of modernity and an expanded consideration of the human relationship with nature. The conception of nature from the national romantic period was distinctly separate from culture: “Nature was increasingly taken to exist on those margins, away from the centre of industrial society” (Macnaghten & Urry, 1998, p.13). The Swedish national study, *Outdoor Recreation in Change* (2007), described friluftsliv as an important characteristic of the late industrial society in Sweden. This timing was significant as friluftsliv movements in Sweden and Norway are noted, in part, as reactions to modernity’s impact on society and friluftsliv’s cultural emergence is a response to the disruptive influences of the industrial age (Faarlund as cited in Reed & Rothenberg, 1993; Horgen, 2009; Sandell & Sörlin, 2008). Sandell (2006) presents this conceptual aspect of friluftsliv as: “counterpoint to the modern era’s dominant current” (p. 2, author translation).

Urban response.

A significant aspect of the “modern era’s dominant current” is the demographic shift from rural to urban in Sweden and Norway noted over the past 100+ years. Horgen (2009) presented statistics showing the rising rate of urbanization in Norway from 20% of the population living urban in 1866 to 70% in the year 2000. Falk (1976) noted a similar trend in Sweden beginning in the 1880s. Statistics Sweden (2008) stated the current urban population percentage at 84%. Note, “urban” is a translation from the Swedish word referencing densely populated areas and refers to any community of over 200 inhabitants, while not urban in the typical American understanding of the term, the

importance is recognition of the trend toward more densely populated communities over the past century. Horgen (2009) speculated it was the loss of nature-based lifestyle as a product of urbanization that has led people to seek out outdoor recreation as replacement for the useful aspects of life in nature. Ibsen's first use of the term *friluftsliv* in the poem "On the Heights" may be such a reaction. Ibsen made the call to turn back to the "true home of nature" in response to the harsh reality of the modern city, in part a reaction to negative quality of life changes brought about by the urban industrial age. The role of nature changes when people transition from rural to urban, Cronon (1996) noted:

The dream of an unworked natural landscape is very much the fantasy of people who have never themselves had to work the land to make a living—urban folk for whom food comes from a supermarket or restaurant instead of a field, and for whom the wooden houses in which they live and work apparently have no meaningful connection to the forests in which trees grow and die. Only people whose relation to the land was already alienated could hold up wilderness as a model for human life in nature, for the romantic ideology of wilderness leaves precisely nowhere for human beings actually to make their living from the land.

(p. 80)

To better understand the notion of *friluftsliv* as a response to modernity, one must begin with a broad consideration of the modern Western disconnect between people and the more than human world.

Human disconnect from nature.

In his text *Spell of the Sensuous*, Abram (1996) described a basic disconnect between people and nature. He investigated an indigenous people's place-based worldview and revealed a connection to earth that seems to be lost in the Western world's twenty-first century. Why and how did earth, or nature, get severed from the mainstream of Western philosophical thought? And, what are the ramifications of this disconnect? Abram (1996) would argue it was the early philosophical and religious foundations of the modern Western world. Abram noted early Greek, Hebrew, and Christian traditions that severed the spiritual connection to living places. Consider this quote from Socrates as a statement of the symbolic beginning of the disconnection: "...I'm a lover of learning, and trees and open country won't teach me anything, whereas men in the town do" (Socrates from the *Phaedrus* as cited in Abram, 1996, p. 102). Abram traces this historical disconnect between earth and thought and writes:

European civilization's neglect of the natural world and its needs has clearly been encouraged by a style of awareness that disparages sensorial reality, denigrating the visible and tangible order of things on behalf of some absolute source assumed to exist entirely beyond, or outside of the bodily world. Some historians and philosophers have concluded that the Jewish and Christian traditions, with their otherworldly God, are primarily responsible for civilization's negligent attitude toward the enviroing earth. They cite, as evidence, the Hebraic God's injunction to humankind in Genesis: "Be fertile and increase, fill the earth and master it; and rule the fish of the sea, the birds of the sky, and all the living things

that creep on earth. Other thinkers, however, have turned toward the Greek origins of our philosophical tradition, in the Athens of Socrates and Plato in the quest for the roots of our nature-disdain. A long line of recent philosophers, stretching from Friedrich Nietzsche down to the present, have attempted to demonstrate that Plato's philosophical derogation of the sensible and changing forms of the world—his claim that these are mere simulacra of eternal and pure ideas existing in a nonsensorial realm beyond the apparent world—contributed profoundly to civilization's distrust of bodily and sensorial experience, and our consequent estrangement from the earthly world around us (p. 94).

Further into his analysis, Abram emphasized the importance of Descartes in the development of Western thought to stress how the spilt of people from nature was strengthened. Descartes is a classic example of the philosophical derogation Abram outlined. Descartes presented a profoundly influential philosophy of separation of self and object, a body dualism that secured our minds as separate from the worldliness of our bodies. Consider this explanation of the common use of the term "Cartesian dualism" in Nicol's (2003) review of literature:

The history of western philosophy is based on dualistic thinking...This means that concepts tend to be portrayed in terms of polarities such as good or bad, right or wrong, quantitative or qualitative, subjective or objective and so on. Because this way of thinking is a historically inherited epistemological position it exists as a deeply embedded cultural construct that acts as an invisible mediator of

knowledge. This philosophical position has been termed “Cartesian dualism” (p. 13)

Faarlund (2002) also stressed the example of Descartes’ influence on Enlightenment thinking as instrumental in the modern breakdown of the relationship between people and nature and as the breakthrough of the modern positivist paradigm. Macnaghten and Urray (1998) captured the essential human relationship with nature resulting from the modern positivist, or natural science, paradigm: “Modernity involved the belief that human progress should be measured and evaluated in terms of the domination of nature, rather than through any attempt to transform the relationship between humans and nature” (p. 7).

Mired in modernity.

From the ancient Greeks to the Enlightenment ideals of Descartes to the modern reliance upon scientific rationalism in our educational institutions (e.g. the primacy of quantitative assessment of numeracy and literacy in the U.S.), it could be argued we are still mired in modernity. Roszak (1992) noted the permeation of science in our lives (globally) and claimed: “It is the closest our species has come to a universal culture since the days of the hunter and gatherer” (p. 95). The ultimate outcome of modernity for contemporary environmental educators may be the ever growing disconnect between students and the rest of the natural world (Louv, 2005). Further, there exists an ever growing disconnect with educational systems that do not honor nor facilitate the value in a relationship with nature. This disconnect is evidenced in the United States, in part, by the narrowing of curriculum brought on by the No Child Left Behind Act of 2001 (No

Child Left Inside, 2010a). Such a narrowing leaves little room for nature experience as part of the environmental education learning process.

Constructive postmodern thought.

The notion of friluftsliv as a mechanism to help Western society move past the negative aspects of modernity via celebrating a connection to nature was an underlying theme of the 2009 Ibsen Friluftsliv Conference (Faarlund, 2009; Gelter, 2009; Grimwood & Henderson, 2009). Similar in intent, David Griffin, editor of the State University of New York Series in Constructive Postmodern Thought (Orr, 1992), promoted a revisionary postmodernism that involves a creative synthesis of modern and premodern truths and values. Griffin's ideas emphasized holism, as a "...unity of scientific, ethical, aesthetic, and religious intuitions" (Oelschaeger, 1991, p. 203). Gelter (2009) calls this "transmodernity" in his writing on contemporary friluftsliv:

Transmodernity is conceptualized as a synthesis of modern and post-modern thinking....In Transmodernity the new emerging paradigm is the mix on equal basis of rational and intuitive thinking...a re-emerging interest of spirituality, a global consciousness based on global networks of information technology, a celebration of "glocal" diversity and interconnectedness with greater tolerance....the essence of Transmodernity means being for something, i.e. taking active action towards sustainability and interconnectedness. (p. 12)

An important part of constructive postmodernism has been realizing that conceptualizing the world in dichotomies is not a useful or helpful approach to understanding the world. Constructive postmodernism allows for a relational turn, i.e.

“one that opposes the distinctiveness of nature and society implied in dualistic thinking and favors instead projects that attempt to reveal worlds that are more-than-social but less-than-natural” (Castree, as cited in Grimwood & Henderson, 2009, p. 10). Cronon (1996) and Grimwood and Henderson (2009) urged us to consider that the world is much more complex than purified notions of nature and culture (the modern dichotomy). Consider the previous noted challenge to the national romantic ideal of “free nature.” This consideration of complexity represented constructive postmodernism and does not call for a wholesale rejection of modern thought, but rather supported multiple realities wherein “unparalleled advances” not be lost in a general revulsion against the negative features of the modern world (Griffin as cited in Orr, 1992). Constructive postmodernism calls for a subjective plurality rather than a dichotomy of thought. The very effort to recover pre-modern truths and values to add to the mix of natural science truth in our ongoing effort to seek understanding represents a movement away from the problematic dichotomies of either-or thinking. Grimwood and Henderson (2009) argue that hybrids of relational truths flourish, but have been rendered invisible; the human connection with nature is one of these relational truths. Approaches that encourage the act of acknowledging a willingness to seek truth and understanding in the natural sciences as well as in expressions of cultural understanding may assist in avoiding the problematic dichotomies. And further, approaches that acknowledge the interaction between these worldviews make the effort visible. Berry (2010) captures a possible interaction of these worldviews in his statement:

To recover a situation where humans would be present to the earth in a mutually enhancing manner, I believe we must return to a sense of intimacy with the Earth akin to that experienced by many indigenous peoples of earlier times. This can be done through our new story of the universe, which is now available to us through empirical inquiry into the origin, structure, and sequences of transformations through which the earth has come to its expression at the end of the twentieth century. (p. 397)

Allemansrätt

One final foundational element of friluftsliv is access to nature. Access to nature is an inescapable element of the Nordic relationship with the natural world and a fundamental part of friluftsliv (Sandell & Sörlin, 2008). As Ahlström (2008) wrote: “to just be [in nature] is perhaps one of the most important activities that allemansrätt can offer” (p. 14, author translation). Inherent in the idea of a relationship built on regular experience of nature is the concept of access to nature embodied in the term, allemansrätt:

We in Scandinavia live in an atypical part of Europe. Here anyone can wander about wherever they desire in the forest and field. Here a person can have a fire, travel with a boat, camp and pee in whichever bush one wants to. If we meet the land’s owner we can count on his or her friendliness—even if our hands are full of wild berries and mushrooms. (Tordsson, 2008, p. 50, author translation)

Allemansrätt’s literal translation is “every person’s right.” This concept is often translated in English as “the right of public access” or referred to as “universal access

laws” (Naturvårdsverket, 2010c). Naturvårdsverket (the Swedish equivalent of the U.S. Environmental Protection Agency), provides the basic principle for allemansrätt: “Don’t disturb, don’t destroy.” Naturvårdsverket (2010c) noted that allemansrätt is written into Swedish law (Regeringsformen 2 kap. 18 § and Miljöbalken 7 kap. 1, 2 §§, 2 kap. 2, 3 §§). The right is noted in the foundational individual rights listed in the above noted Regeringsform: “Everyone shall have access to nature according to allemansrätt” (in Ahlström, p. 13, author translation). Interestingly, there is no exact definition of the specific details of allemansrätt. From picking berries, to camping, to picnicing, to hiking, etc., outdoor recreational activities are allowed on most public and private lands as long as basic respect is observed. And, it is common language used most often to promote such “rules,” the noted, “don’t disturb, don’t destroy.” This tradition of basic respect may be why Backman (2010) referred to allemansrätt as “a confidence given to the general public” (p. 24).

National symbol.

Sandell (2007) wrote that allemansrätt was a “critical element of the Nordic tradition of Friluftsliv” (p. 90). And as noted earlier in this chapter, Stenseke (2010) provided a working definition of friluftsliv that featured the phrase “universally accessible and nature characterized land and water areas” (p. 7). This emphasis on the importance of access as a component of friluftsliv is a recurring theme in friluftsliv and one of special significance. As a city of Malmö friluftsliv brochure (2009) stated, “Allemansrätt is completely unique to Sweden. No other place in the world do people have as great a freedom to move about in the forest and country” (author translation).

Dahl (1998) captured the romantic historical embeddedness of allemansrätt, with reference to the every day as well as deeper significance in the following quote from her article, “Wildflowers, Nationalism and the Swedish Law of Commons:” “The Swedish ‘Every Man’s Right’ regulating access to flowers and berries and mobility in the natural landscape in this context comes to stand as a central national symbol” (p. 281). Ingemar Ahlström writing in the preface to his 2008 book *Allt Om Allemansrätten: En Svenskt Kulturarv* (translation: *All About Everyman’s Right: A Swedish Cultural Legacy*) shared Dahl’s contention, and emphasized the national significance of this concept in the following passage:

Allemanrätt is deeply rooted in the Swedish people’s soul and has earned a place as a symbol of what is typically Swedish; a picture of a stable national symbol, a custom and cultural inheritance unique to Sweden. Allemanrätt is a national symbol of equality. It includes everyone regardless of national, ethnic or religious affiliation. (p. 9, author translation)

Human geographer Yi-Fu Tuan’s (1977) has asserted that space is a common symbol of freedom in the Western world, and based on the quote above it would appear that this Swedish history has also embraced the notion of common access to space as freedom. Not surprisingly, allemansrätt has been described as the most democratic land access system of all the industrial nations (Donnelly, 1993). The following passage linked the ideas of freedom and access, from Wägeus: “Universal access is freedom. Freedom to explore in the forest and field. Freedom and the right to feel one’s biological roots, the contact with our origins” (as cited in Sandell, 1995, p. vi).

Unique history.

Sandell (2007) traced the right of public access back to the Middle Ages in Sweden. He speculated that the long history of access to the land has likely shaped the Swedish perspective on land use and described how the long historical legacy is deeply embedded within the Swedish culture. Hammarström and Wästberg (2001) noted a romantic access history dating back to a time when Sweden was not as wealthy as it is today:

It used to be said that the forest was 'the poor man's coat', referring to all that was free for the taking there, the right of people to take and use firewood, berries and edible fungi. The Right of Public Access, that Swedish specialty and pride, is strongly associated with the forest. It expresses our ancient right to roam freely and take what the ground gives: windfall wood, lingonberries and chanterelles. The homeless fled there, where there was always asylum and the chance of survival. (p. 186)

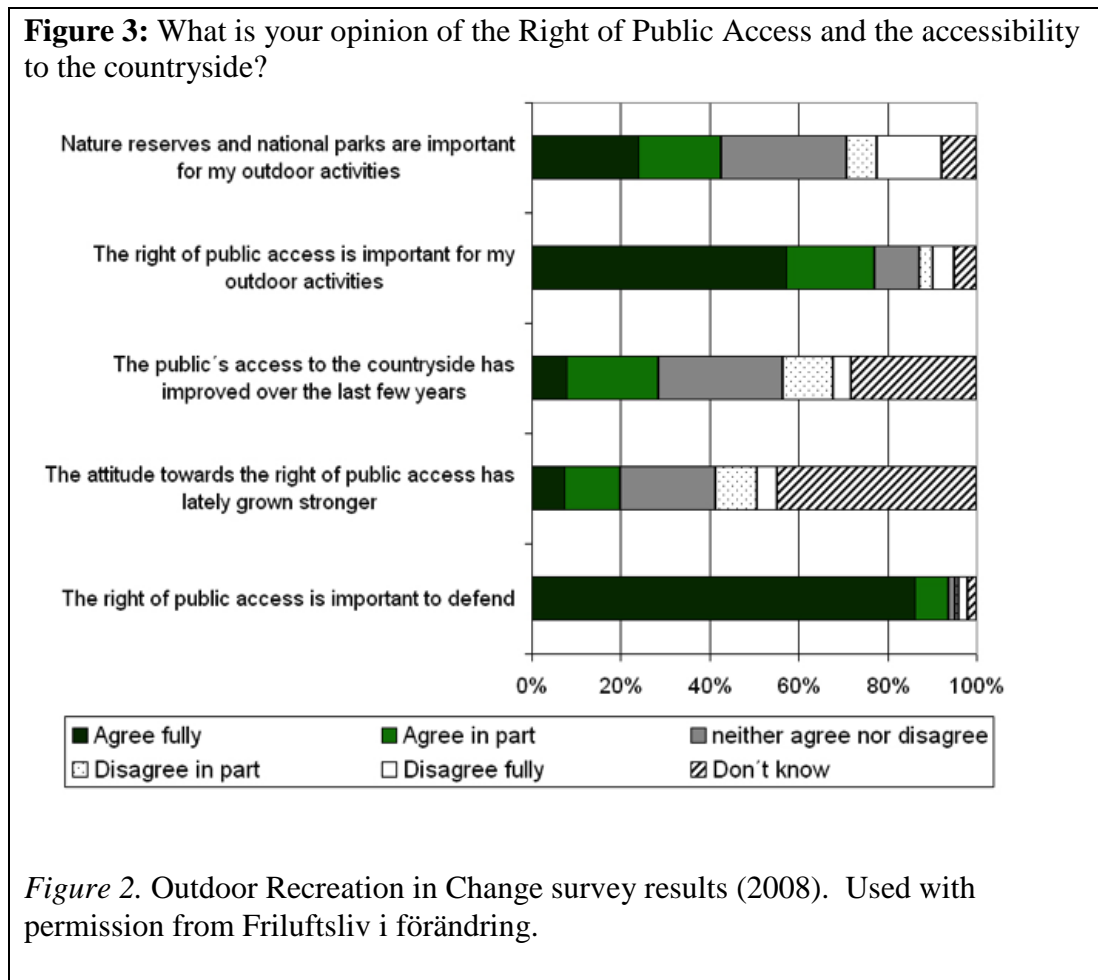
Tordsson (2008) presented the history of access rights as unique in Scandinavia relative to continental Europe. This history may be, in part, a combination of generally lower population density in the far North of Europe and less direct church and crown control over distant lands. Additionally, it may be that the culture of free farmers in much of the Nordic region, farmers outside the influence of feudal landowners, contributed to a vastly different conception of land access than what developed in much of continental Europe. Continental Europe was characterized in large part by feudal society with no free farmers (Emanuelsson, 2009). Bladh (2008) noted the historical strength of the

freeholders in his assessment that during the sixteenth and seventeenth centuries farmers in Värmland (a cultural region of west-central Sweden) were “able to uphold a strong position vis-à-vis the central state in questions regarding the use of land” (p. 226). This argument of a historical legacy seems to reference a collective strength of the people relative to the church or state. Additional dynamics served to broaden this history, real and romantic, into a recognition of a collective right for all Swedish people to benefit from their national landscapes.

Public support.

The Swedish people acknowledge access rights enthusiastically. Two recent surveys confirmed widespread support for existing allemansrätt conditions. Ahlström (2008) reported on a FjällMistra survey from 2004 when 96% of the 12,000 respondents indicated that allemansrätt was important to defend. Similarly, the Outdoor Recreation in Change national survey in 2008 reported that 94% of the 1,792 respondents fully or partly agreed with the statement that allemansrätt is important to defend (see *Figure 3*). Not surprisingly, given the base of public support, governmental support for allemansrätt remains strong in Sweden as well. An Environmental Department press release from July 2010 stressed the current government’s commitment to allemansrätt while underscoring its necessity to friluftsliv: “The goal for nature-based outdoor recreation politics is to support the public’s opportunity to get out into nature and take advantage of friluftsliv. Allemansrätt is the foundation and nature must be accessible for all” (Boden, 2010, p. 1, author translation). This commitment was strengthened in December, 2010 with the passing of the law: The Future’s Friluftsliv (author translation). The law provides a

broad overview of national support for friluftsliv and specifically support to the protection of allemansrätt and the idea that nature must be accessible for all Swedes (Sveriges Riksdag, 2010).



Friluftsliv i förändring: Outdoor Recreation in Change

Efforts of the Swedish national research program Outdoor Recreation in Change allowed for a synthesis of the preceding review of the idea of friluftsliv and its relevance for understanding environmental connectedness. The research program represents a

contemporary effort to comprehensively consider friluftsliv as important element of Swedish society. The dynamic nature of friluftsliv is presented as a given; the central goal of the Outdoor Recreation in Change research “is to study change, and a definite definition would harm the possibility to reveal dynamics” (Stenseke, personal communication, 11/15/10). The noted lack of emphasis on a definitive definition for friluftsliv allows for a broad consideration of friluftsliv based on history and contemporary experience. Note, this is not an argument for definitional relativism in regard to friluftsliv, but rather an argument in favor of a conceptualization based on an inclusive perspective. As noted, the operational definition of friluftsliv for this study was nature-based outdoor recreation participation. The context of the outdoor environment, or nature has been shown to be an integral part of understanding of friluftsliv (Friluftsliv i Förändring, 2006; Gurholt, 2006; Tellnes, 1993) and building on the outdoor context, the idea of nature-based will be used noting the previously presented definitions and descriptions as partial support for this use (Backman, 2008; Malmö Stad, 2009; Faarlund in Reed & Rothenberg, 1993; Friluftsförbundet, 2009; Repp, 2007; Sandell, 1991). It is also argued that the use of the term “participation” speaks to the lifestyle aspect of the concept (Argaladei, 2009, Gurholt, 2009; Tellnes, 1993); and to the idea of activity or experience (Gelter, 2000; Gurholt, 2008; Outdoor Recreation in Change, 2006; Svenskt Friluftsliv, 2008).

The term nature-based outdoor recreation presents complex friluftsliv origins, history, and contemporary use in a simple way; such simplicity is necessary to enable our efforts to measure friluftsliv and consider its relationship to the concept of environmental

connectedness. Friluftsliv as representing human connectedness to nature is a strong and recurring theme in the literature of friluftsliv. In a typical example of this idea, Isberg and Isberg (2007) described friluftsliv, in part, as “eco-life” and described this idea in terms reminiscent of Aldo Leopold: “instead of seeing humans as owners and master over the earth, we can see ourselves as part of an all encompassing sphere. We are related to everything and everyone” (p.170).

Environmental Connectedness

The foundation for this research goes beyond a careful exploration of the Swedish tradition of friluftsliv and has included a review of work designed to explore environmental connectedness in a contemporary scholarly context. This effort drew from the literature of environmental and conservation psychology, cultural geography, and environmental education for a broad investigation of environmental connectedness.

Connectedness Terminology

Numerous terms are presented as reference to connectedness as part of a comprehensive review of relevant terminology, including: connectedness, affinity, biophilia, ecological self, identity, inclusion, relatedness, sensitivity, and sense of place/place attachment. The related yet distinct terminology of environmental connectedness reflected the scholarly interest in this area of inquiry. Not all of the noted constructs identified affective understanding as the essential source of connectedness. Some of the following constructs purported to measure both cognitive and affective dimensions of connectedness relating back to the discussion regarding the interrelatedness of these learning domains. All of the following connectedness studies

contributed to this current effort to better understand environmental connectedness, either directly or via a consideration of possible antecedents to environmental connectedness. Each of the noted connectedness terms will be defined and described. A certain degree of overlap between the terms and concepts will be noted; this overlap supports this broad review of connectedness terminology. Further, a consideration of the relevant empirical work exploring each construct will be presented. Finally, the review of each term may also include research conclusions and/or theoretical implications of study results.

Connectedness.

Schultz (2002) used the term connectedness to describe the measurement of the degree to which people associate themselves with nature, while Mayer and Frantz (2004) define connectedness to nature as one's "affective, experiential sense of oneness with the natural world" (p. 504). As previously noted, it is an operationalized version of the Mayer and Frantz definition of environmental connectedness that was used in this study.

Extensive empirical work supports understanding of the term environmental connectedness (Frantz et al., 2005; Mayer & Frantz, 2004; Mayer et al., 2009; Schultz, 2002; Schultz, Shriver, Tabanico, & Khazian, 2004; Schultz & Tabanico, 2007). Schultz et al. (2004) used the Implicit Associations Test (IAT) to measure the degree to which people associate themselves with nature in their connectedness studies. Results provided a moderate positive relationship between biospheric concerns and implicit connections with nature, and evidence for the usefulness of implicit measures and of the importance of connectedness with nature for understanding environmental attitudes. Schultz and Tabanico (2007) conducted five additional studies of connectedness using the Implicit

Association Test (IAT) and suggested support for the IAT as a useful tool for measuring and testing hypotheses about an individual's connection to nature (p. 1240). Results indicated that implicit self/nature associations are malleable, but that change requires long term or repeated experience. Schultz et al. (2004) encouraged future research to look at patterns of behavior or lifestyle and asked if associations with nature are related to every day behavior. Their research considered whether connectedness varies across cultures. For example, they cited country-level differences in environmental attitudes with Western Europe, and noted the United States tended to be less biospheric and more egoistic in their approach to environmental issues, while respondents from Central and South America tended to be more biospheric. Schultz et al. (2004) also made the link to connectedness as a cultural construct in their view of nature as an essential part of culture.

Mayer and Frantz (2004) defined connectedness to nature as one's "affective, experiential sense of oneness with the natural world" (p. 504). Mayer and Frantz noted that biospheric values and an empathetic response to the natural world are characteristics of this emotional or affective state. Following from the preceding definition, the connectedness to nature scale (CNS) was developed as a measure of an individual's feeling in community with nature (Frantz et al., 2005; Mayer & Frantz, 2004; Mayer et al., 2009). The CNS measures participant sense of oneness with the natural world, sense of kinship with animals and plants, and sense of equality between the self and nature. Mayer and Frantz (2004) reported that the scale was shown to have just one factor, possess high internal reliability ($\alpha = 0.84$), and have a high test-retest reliability ($r = .79$).

In addition, the scale was shown to correlate with biospheric values ($r = .49$) and the New Environmental Paradigm ($r = .35$), a scale that measures attitudes about environmental protection (p. 610). It is both the concise definition and the demonstrated empirical support of Mayer and Frantz's use of the environmental connectedness construct that made the CNS an appropriate measurement tool for the Environmental Connectedness (EC) construct validation (as described in chapter 3).

Affinity.

Kals et al. (1999) defined affinity with nature as emotional bonds with and cognitive interest in nature. This definition stemmed from Maaßen (as cited in Kals et al., 1999) who suggests the idea that time in nature is especially helpful for the development of affinity with nature. Kals et al. (1999) described the construct of affinity with nature using phrases such as "Feeling good, free, safe in nature, and feeling a oneness with nature" (p. 182). Ultimately, Kals et al. (1999) noted that affinity must be understood in terms of contact and sensual experience, thus, linking the affect with experience.

Kals et al. (1999) described three empirical studies that provided support to the idea of direct experience as foundational to emotional affinity toward nature: Langeheien and Lehmann (as reported in Kals et al., 1999) linked nature experience with behaviors to protect nature. Finger (1994) demonstrated that direct experience with nature was more important than value orientations in predicting nature-protective behaviors. Further, Kals et al. (1999) found that 40% of the variance in emotional affinity is linked to four variables of experience with nature, with the most powerful predictor being present frequency of time in nature and the second most powerful being past frequency of time in

nature (p. 191). Kals et al. (1999) had also considered if nature protective willingness and behavior decisions show a relationship with affinity toward nature, interest in nature, and indignation about insufficient nature protection. The results showed that all three items qualify as behavioral predictors, “Together they explain up to 47% of the variance of the criteria” (Kals et al., 1999, p. 191). The support for the link between affect and experience of nature in the work on emotional affinity was critical support for the research proposed in this study.

Inclusion.

In addition to his use of the term ‘connectedness,’ Schultz (2002) used the term inclusion for his overview of the psychology of the human-nature relationship and identified three core components: “connectedness, caring, and commitment” (p. 67). The component of caring was identified as affective and is closely related to the use of the term connectedness in this study. Schultz (2002) described caring as a feeling of intimacy, of closeness and affection for nature (p. 68).

Schultz (2002) presented an overview of the empirical research used to measure various aspects of inclusion including values and moral choices. Two examples from Schultz’s research had special significance to this review, the Inclusion of Nature in Self Scale (INS) and the Implicit Associates Test (IAT). “How interconnected are you with nature?” described the essence of the Inclusion of Nature in Self Scale to measure an individual’s sense of inclusion with nature. INS is a measurement tool that had been modified from an original scale to assess closeness in interpersonal relationships (Schultz, 2002). This single item scale used the placement of two potentially overlapping

circles to create a visual representation of one's sense of "interconnectedness." Despite the limitations of use of a single variable scale, Schultz contended that the scale "has been found to be reliable across time, and to correlate positively with biospheric attitudes, scores on the New Environmental Paradigm (NEP), ecocentrism, and self-reported behavior" (p. 72).

The affective inclusion component of "caring" and Schultz's (2002) question of "How interconnected are you with nature?" make this work relevant for a deeper understanding of connectedness. Further, Schultz's work urged a consideration of "inclusion" or connectedness in regard to the strongly emerging field of education for sustainable development. Schultz (2002) considered various arguments for the path to sustainability but ultimately concluded that "the only sure path to sustainability is through inclusion—individuals must believe that they are a part of nature" (p. 74).

Sensitivity.

Sensitivity is the environmental education link to the environmental psychology constructs of affiliation and connectedness. This link is based largely on the experiential, affective, and cognitive aspects of this idea. Chawla (1998) provided a general definition for sensitivity as "a predisposition to take an interest in learning about the environment, feeling concern for it, and acting to conserve it, on the basis of formative experiences" (p. 19). The environmental education literature traces the construct of environmental sensitivity back to the 1970s. Theimer (2009) identified sensitivity within the work of the United Nation's environmental education initiatives, including the importance of the early development of environmental sensitivity in young learners.

Sward and Marcinkowski (2001) reviewed the relevant environmental education literature for research on environmental sensitivity and highlighted the effort of Tanner and Peterson in the late 1970s and early 1980s and noted:

The results of Tanner and Peterson's seminal studies indicated that there are experiential, affective, and cognitive aspects to the development of sensitivity.

While sensitivity itself is viewed as an affective variable, its development appears to result from an interplay of outdoor experiences, favorable human interactions, and knowledge about the natural environment. (p. 279)

Sward and Marcinkowski (2001) concluded their review of environmental sensitivity literature with a summary noting that a single psychological construct for environmental sensitivity does not exist. They asserted that the research in this area, however, supports a definition relating sensitivity to experiences that predispose an individual to view the natural world from an empathetic perspective (p. 284). Sward and Marcinkowski (2001) further noted that the work of Tanner and Peterson established an area of study now referred to as significant life experience (SLE).

Significant life experience.

SLE has consistently served to establish the variable of experience of natural places as an essential part of the relationship between people and nature. Early SLE investigations found exposure and experience with the outdoors and natural areas as top influences in the environmental sensitivity development of individuals. Tanner identified 78% of respondents indicated "natural areas" as an influence on their choice of conservation work (Chawla, 1998, p. 13). Peterson's 1982 study found 91% of

respondents cited the “outdoors” as the major influence on their attitude toward the environment (Chawla, 1998, p. 14). Palmer (1993) continued the SLE study and found that 91% of her respondents ranked the outdoors as the top influence on practical concern for the environment. Chawla’s own work found that 77% of participants in her SLE interviews described the experience of natural areas as a source of their commitment to environmental protection (Chawla, 1999). It should be noted that the use of Chawla’s results must be interpreted and used carefully as the research did not use a comparison group. For example, the research did not compare the experience of the environmentalists against the experience of non-environmentalist subjects that may have had similar life experiences.

A string of recent studies since 2002 should be further noted in the on-going support for environmental sensitivity, SLE, and experience with nature. Bixler, Floyd, and Hammitt (2002) studied socialization forces contributing to environmental sensitivity for natural environments. Their research involved the use of structured questionnaires with middle and high school students. Respondents reporting childhood play experiences in wild environments had a more positive perception of natural environments, outdoor recreational activities, and future indoor/outdoor occupational environments (p. 795). In another study of high school students, Sivek (2002) studied a select group (participants at an environmental action conference). The surveyed results from these respondents indicated that the top influence on environmental sensitivity was “...time spent outdoors” (Sivek, 2002, p. 155).

Bustam, Young, and Todd (2003) explored recreation's role in the development of sensitivity. Their results further supported the importance of early life experiences. Bustam et al. (2003) used an instrument with sections that measured subject claimed influences on environmental sensitivity and preferred outdoor recreation activities. Further, environmental sensitivity and concern were measured with five Likert scaled items from the New Environmental Paradigm and a nine point environmental sensitivity self-rating (p. 271). Results found that what an individual actually did in the past to be the most important variable in a person's current level of environmental sensitivity. Fifty percent of respondents selected "outdoor experiences as a youth" as one of the three most important influences on their current level of environmental sensitivity, followed by "outdoor experiences as an adult," "parental influence," and "solitude found in nature" all ranked at 42% (p. 272). It is interesting to note that respondents with both high and low environmental sensitivity scores "differed significantly in their preference for participation in outdoor recreation as youths" (p. 274).

Ewert, Place, and Sibthorp (2005) explored early life outdoor experiences and attitude development. Ewert et al. (2005) found empirical support (regression equation beta weights) showing early-life outdoor appreciative experiences as relating positively to eco-centric beliefs ($\beta = .315, p < .05$). Ewert et al. (2005) bridged SLE and place studies and concluded: "Within the context of this study, childhood outdoor recreational experiences may serve as "place markers" by linking the child with a specific natural environment and positive affective feelings, and ultimately formulating more eco-centric attitudes" (p. 235).

Ward Thompson, Aspinall, and Montarzino (2008) presented two independent studies of childhood experience in Great Britain. The studies collected data in the form of questionnaires to compare the amount of time adults spent in nature and the frequency to which they reported such visits as children. Questionnaires also measured respondent attitudes to the attributes of the green space visited. The results indicate that childhood experience, referred to by the researchers as the “childhood factor” (p. 124), may be a very useful predictor of adult green-space visitation. As part of their research discussion, Ward Thompson et al. (2008) noted an interesting conclusion: “the link between childhood visits and subsequent visits as an adult is not symmetrical....in general, not visiting as a child is more predictive of not visiting as an adult than vice versa....lack of a green place experience in childhood may inhibit the desire to visit green places as an adult” (p. 132). This possibility, noted by Ward Thompson et al., is what Nabhan and St. Antoine (1993) refer to as “extinction of experience” (p. 229). Nabhan and St. Antoine (1993) attempted to quantify the degree to which contemporary youth have lost direct experience with the natural world. They asked: “To what extent does a loss of direct nature experience correlate with reduced affinity for nature?” (p. 240). Their work consisted of interviewing 52 children living within a 25-mile radius of two American National Parks. They noted that the survey was biased toward children who live in small communities with considerable exposure to wildlands and farmlands, and they also noted that the children represented O’odham, Yaqui, Anglo, and Hispanic cultural groups. Results of the research, such as a clear majority of the children claiming to have seen more wild animals on TV or in the movies than in the wild, and a clear majority of the

children having never spent more than 30 minutes alone in a wild place, etc. indicated support for the notion of an extinction of experience in nature. The research concluded that: “These trends suggest that the personal, uninhibited, and spontaneous interaction with nature...is seldom taking place today” (p. 240). Further they noted large percentages of children reporting to have never collected natural treasures, such as feathers, bones, insects, or rocks, from their desert surroundings. The idea of an extinction of experience and the specific collection finding behavior is interesting for the research proposed here. Nature interaction such as collecting may represent affective play and such collections may represent emotional affinity in the form of tangible links between person and nature.

SLE studies have provided firm support for the importance of experience in nature as a child in the lifelong development of a relationship with nature. Recent and on-going studies of children’s outdoor play habits and related parental attitudes will likely provide more useful information to understanding the role of childhood experience in nature as significant life experience.

Biophilia.

Biophilia is the belief that people have a biological need to affiliate with the natural world (Wilson, 1984). E. O. Wilson is credited with introducing this idea into the scholarly and public discourse, describing it as “the innately emotional affiliation of human beings to other living organisms” (1993, p. 31). Kellert (2010) similarly provided an assertion that makes a clear link to human biology: “humans possess an inherent biological affinity for the nonhuman world that is instrumental to their health,

productivity, and well being” (p. 375). This biological need is theorized to be an inherited genetic tendency to respond to the natural world in certain ways that confer fitness in an animal effort to survive and thrive (Kellert, 2010). If this hypothesis is valid, then an affinity, or connection, to nature is a fundamental part of who we are (Clayton, 2003). Schultz and Tabanico, (2007) assert that: “This biological predisposition exists at an unconscious level in all people, and manifests itself in our thoughts, feelings, behaviors, and culture” (p. 1241). Paul Shepard’s (1996) description of ecological identity included philosophical support for this idea:

Cognitive taxonomy and artifacts are indeed the tools in the perceptual work by which the whole person is achieved. But the effect of a healthy identity and maturity is realized in attitudes towards the environment, a sense of gratitude more than mastery, participation in a rich community of organisms, a true biophilia or polytheism. The images—animal guides and mediators—are the representations of an outer world that made our own being possible and toward which our maturity has its end: the preservation of the world. The obligation of having evolved in natural communities constitute a kind of phylogenetic felicity in which we acknowledge that the fish, amphibian, mammal, and primate are still alive within us and therefore have a double existence. They are as present as bits of DNA, affirming kinship, and also in the world around us as independent others. The concept of biodiversity as a social value grows from an inner world and creates respect for a mature ecology, that is, ‘climax’ ecosystems with their diverse inhabitants. (p. 56)

Support for the biophilia hypothesis was drawn from the research of Balling and Falk (1982). In an attempt to better understand the possible genetic component of human connection to nature, they looked at current perceptions of the earliest human habitats in Africa. Their research involved visual review of images measured by Likert scale scoring of preferences. Balling and Falk (1982) found limited support for the hypothesis that people innately prefer savanna-like environments; specifically, they found support for the savanna preference with children but noted that this preference drops off with age and experience. Balling and Falk's (1982) work is interesting, yet inconclusive given the limitations they identified, such as the possibility of cognition of a xeric environment having influenced adult preferences.

In Peter Kahn's book, *The Human Relationship with Nature* (1999), the author provided a list of studies that have been conducted to explore a potential genetic predisposition to certain landscapes. Kahn (1999) also considered his own studies of children in Houston and in the Amazon. In his discussion of the Houston child study, Kahn (1999) concluded that the results from this urban impoverished setting provides evidence of nature affiliation that can only speak to pervasive and deeply abiding biophilic characteristics. In addition, Kahn's (1999) Brazilian Amazon study demonstrated environmental sensitivities in a majority of his youth participants. Based on his work, Kahn (1999) concludes that biocentric reasoning resulting in human expressions of affinity for non-human life supports the biophilia hypothesis and helps link the concept of affinity with other affective measures.

Gelter (2000) related ideas of biophilia to friluftsliv in his description of a biology of friluftsliv and made a philosophical case for the consideration of friluftsliv as a biological expression. Gelter (2000) urged us to look back to pre-modern culture and to the “ecological habitat where most of human evolution has taken place” (p. 84). He wrote:

Humans have evolved an integrated part of an ecological system, in close relationships with other organisms and the environment, and our human characters are evolved as an adaptation to these ecological demands and changes. Humans have followed the same rules and processes that have shaped other organisms in nature. Only by understanding these rules and processes that form the life of organisms can we gain insight and understanding of our own developmental nature. (p. 84)

Hinds and Sparks (2008) noted that some advocates of Biophilia contend that the proposed biophilic genetic bond may be weak, thus requiring “the addition of learning, culture and experience of nature to optimize biophilic tendencies” (p. 110). This idea is of great interest in regard to research in environmental connectedness, Hinds and Sparks (2008) wrote:

...it might be expected that affective connection would play an important part in predicting intentions to engage with the natural environments. Moreover, it may also be expected that those people with greater experience of the natural environments may express greater affective connection with it than those of lesser experience (p. 110).

This quote and much of the biophilia literature reviewed appears to be closely linked to the next topic in this review of environmental connectedness literature, place theories. The work of Horwitz, Lindsay, & O'Connor (2001) exploring biodiversity in Australia considered native biodiversity's role in contributing to sense of place and belonging. Hough (1995) and Turner, Nakamura, and Dinetti (2004) promoted the idea that diversity close to home will promote appreciation and understanding of biodiversity and will "suffer with greater separation of humans from nature" (Turner et al., 2004, p. 588).

Place theory.

Human place attachment, a term from environmental psychology, and sense of place, a term from human geography, refer broadly to the positive emotional bond that develops between an individual and the environment (Brown & Raymond, 2006; Ewert et al., 2005; Jorgensen & Stedman, 2001; Stedman, 2002). This bond is based on both cognition and affect (Proshansky, Fabian, & Kaminoff, 1983; Altman & Low, 1992; Proshansky, 1978). Place identity refers to the emotional response regarding specific physical settings while place dependence is functional or activity-based connection related to a site-specific activity.

Geographer E. C. Relph (1976) stated that the places of greatest attachment are those with which we have had the greatest experience. This idea is at the core of many current efforts in education and research. For example, place-based education initiatives are at the forefront of North American environmental education in the first decade of the twentieth century (Chawla, 1998; Chawla & Escalante, 2007; Sobel, 2004; Thomashow,

2002). Thomashow (2002) described the application of place theory to environmental education in his description of “place-based perceptual ecology:”

...learning how to observe, witness, and interpret the ecological patterns of the place where you live....people are best equipped to observe what happens around them—what they can see, hear, smell, taste, and touch. These observations are poignant in their home places, where they are likely to spend lots of time, have many relationships, and be in most touch with the natural world. The home place is where you observe things closely, where you’re most likely to develop significant affiliations. (p. 74)

Ewert et al. (2005) noted Stedman’s (2002) consideration of place attachment and linked it to symbolic meaning, the previously noted place markers describing the link between positive affect and place. Moore and Graefe (1994) explored the idea of experience of place and level of attachment from an outdoor recreation perspective and found support for the length of time one is associated with a recreational trail to have a significant relationship to their level of place identity with the trail. Further, they found support for a model of frequency of trail use having a significant relationship with level of place dependence and ultimately, place identity. Hay (1998) similarly concluded that the length of association to place is an important variable in this experience and level of attachment relationship.

Vaske and Kobrin’s (2001) study of place attachment and environmentally responsible behavior presented three hypotheses with the second hypothesis having direct implications for this study. They hypothesized that as place dependence increases

(functional and/or activity-based connection), place identity (emotional response) will increase. Study results supported this hypothesis, i.e. a significant relationship between place dependence and place identity was observed ($\beta = .88$).

Kyle, Mowen, and Tarrant (2004) presented a review of literature that points to the intersection of significant life experiences and place interaction:

...humans' motivation to engage with natural environments is the product of lifelong socialization processes. Over time, expectations concerning perceived outcomes related to place interaction are learned through personal experience and from significant others. It is our contention that the expectation of positive outcomes acts to draw people to specific settings and over time, attachments to these specific settings evolve. (p. 443)

In addition to their review of relevant literature, Kyle et al. (2004) found that there is a positive relationship between motivation to interact with natural settings and attachment to those settings in their study linking place preferences with meaning. Perhaps the most important interpretation of their data is the result showing emotional attachment to a place increasing congruently with the opportunity to enjoy nature.

This brief review of place theory proposed that nature, or the environment, is perceived in a place or places. A review of literature has shown place theories as a part of environmental connectedness. Activity-based connections to place were shown to increase place identity and place interaction was shown to be a part of the concept of significant life experience.

Environmental identity.

Closely related and often overlapping the sense of place is the idea of environmental identity (Stedman, 2002). Proshansky (1978) defined place identity as the “dimensions of self that define the individual’s personal identity in relation to the physical environment” (p. 155). Clayton (2003) has defined environmental identity in both cognitive and affective terms as “a sense of connection to some part of the non-human natural environment, based on history, emotional attachment and/or similarity, that affects the ways in which we perceive and act towards the world; a belief that the environment is important to us and an important part of who we are” (p. 45). Using this noted definition of environmental identity, Clayton (2003) developed the 24-item Environmental Identity Scale (EID). Findings from the study supported her expectations that the EID scores would correlate positively with ecocentrism ($r = 0.79$) and negatively with apathy ($r = -0.69$) (designed to assess environmental attitudes). Further, expectations that EID scores would correlate highly for the universalism factor (designed to assess environmental values) from the value survey ($r = 0.66$) and to correlate positively ($r = 0.37$) with horizontal collectivism (a measure of how interdependent and similar one sees themselves) were supported. Finally, Clayton (2003) demonstrated a negative correlation ($r = -0.29$) with vertical individualism (designed to determine the extent to which participants think of themselves as independent). Thus, it can be concluded that the EID is useful for evaluating self-identification, but may not capture experiences and emotions related to nature connection (Nisbet et al., 2009).

A key contribution of Clayton's (2003) research, however, was support for a relationship between friluftsliv and environmental connectedness. Specifically, Clayton (2003) noted the importance of the cultural component of one's environmental identity: "It is important to acknowledge that an environmental identity is also at least in part a social identity....An understanding of oneself in a natural environment cannot be fully separated from the social meanings given to nature and to environmental issues, which will vary according to culture, world view, and religion" (p. 53). Clayton supported the above statement with reference to use of the scale and positive outcomes, including good internal reliability (Cronbach's alpha at .90 or higher) and a factor analysis suggesting a single item accounting for most of the variance.

Ecological self.

Bragg (1996) included in her list of "Key Aspects" of deep ecology the concept of "ecological self" as "an emotional resonance with other life-forms; a perception of being similar, related to, or identical with other life forms" (p. 95). The concept of ecological self is a product of the ideas of Deep Ecology and the Deep Ecology movement has strong connections to the Norwegian philosophy and practice of friluftsliv (Faarlund in Reed & Rothenberg, 1993); Arne Naess has been a key figure in the Deep Ecology movement, a Norwegian noted for both his outdoor life and his philosophical contributions. The ideas of Deep Ecology are of relevance in this consideration of the proposed research questions for the very reason that they contribute to understanding environmental connectedness: "Deep ecology can also be considered a 'social movement'...being involved in social change activities: political and environmental

activism, education and the development of life-styles, experiences and spiritual practices that connect people more deeply with the environment” (Bragg, 1996, p. 94). As was noted previously in this review, a consideration of the social forces that help people find connection to nature is important (Clayton, 2003) and relevant to this study.

Nature relatedness.

One of the most recent contributions to the study of the human relationship with nature is the introduction of a new construct, Nature Relatedness (Nisbet et al., 2009). The basic hypothesis presented is: “emotions, values and attitudes and a self concept that includes the natural world, a biospheric orientation—may provide a motivational force toward nature protection and preservation” (p. 736). As part of their literature review, Nisbet et al. (2009) presented their new construct based on their concern for what previous theory and research may have missed in the search for support of the ultimate goal of environmentally responsible behavior.

In the first of two Nature Relatedness studies, Nisbet et al. (2009) created a Nature Relatedness scale (NR). Drawing upon the literature that has been reviewed in this review, Nisbet et al. (2009) used three factors in the scale development. The “Self” factor (affective domain) “represented an internalized identification with nature, reflecting feelings and thoughts about one’s personal connection to nature” (p. 723). The second factor “Perspective” (cognitive domain) reflected an external, nature-related worldview. And the third factor “Experience” (psychomotor domain) represented a physical connection to the natural world. Results from use of the NR found a moderate correlation between the first factor, Self, and the other two ($r = .47$ with Perspective and $r = .58$ with

Experience). A weaker, yet “typical” (Vaske, 2008) correlation ($r = .34$) was found between Perspective and Experience. The second study of the nature relatedness construct was designed to develop and evaluate the scale as a reliable and valid tool for the assessment of an individual’s connection with nature. Results suggest that these goals were met:

Nature relatedness was internally consistent, temporally stable, and correlated with time spent outdoors, in nature, and with measures of environmental attitudes and behaviors....This pattern of relationships supports the links between individuals’ sense of connection to nature and ERB [environmentally responsible behavior]. (p. 731)

This Nature Relatedness review of recent work in human connection with nature, along with the empirical results presented by Nisbet et al. (2009) were especially useful for the proposed study of friluftsliv and environmental connectedness. Further, Nisbet et al. (2009) supported this study in their identification of the need for “unbiased, empirical information about people’s everyday nature experiences and the sustained benefits of being nature related” (p. 735).

Connectedness challenged

Given the importance of the previously described construct of environmental connectedness from Mayer and Frantz’s (2004) work for the research proposed here, a synthesis of the preceding review of connectedness literature must address a number of challenges that emerged from the scholarly review. As noted, it is challenging to differentiate emotional affinity toward nature (affect) and interest in nature (cognition)

empirically: “In the last decade there has been an accelerated flow of findings in multiple disciplines supporting the view of affect as complexly intertwined with cognition in guiding rational behaviour, memory retrieval, decision-making, creativity and more” (Picard et al., 2004, p. 253). Identifying the distinct transition between affective and cognitive understanding is beyond the scope of this research but nonetheless must be considered. Three challenges to the idea of connectedness as affective are addressed and further assist in clarifying use of environmental connectedness in this study.

Despite the success that Mayer and Frantz have reported (Frantz et al., 2005; Mayer & Frantz, 2004; Mayer et al., 2009), the strongest critique of the use of the CNS contended that the scale is not a measure of affective connection, but rather another measure of cognitive understanding (Perrin & Benassi, 2009). The authors analyzed many of the word choices and contended that even words like “feel” are not necessarily in reference to affective responses and may actually represent cognitive assessments, beliefs formed from cognitive responses to affect and experience (a synthesis of the three learning domains). Perrin and Benassi (2009) concluded with the recommendation that CNS should not be used to consider emotional connections to nature, but rather used to evaluate beliefs about an individual’s connection to nature:

...content analysis of CNS items showed that they do not focus on an emotional connection. Instead, the items gauge people’s beliefs about their connection to the natural world. We suggest that when reading items with the word *feel*, participants in Mayer and Frantz’s (2004) and in our studies were using the more cognitive-based definition, as opposed to the more affective-based definition. That is, it would be

difficult to argue that the CNS, which has one strong factor, is a measure of emotional connection to nature when nearly half of the items, which include the word feel, probably reflect the cognitive meaning of the verb. (p. 6)

The empirical work of Vittersø, Chipeniuk, Skår, and Vistad (2004), however, provided a contrasting perspective. In their study of affective response of cross-country skiers to snowmobile encounters, they used a distinctly different interpretation of the line between the affective and the cognitive than the interpretation Perrin and Benassi (2009) employed. Vittersø et al. (2004), looked at affective response variables such as: “relaxing...quiet and peaceful...annoyed...joyful...filled with harmony...total affect measure” (p. 36). From these variables they developed general belief items, such as “snowmobiles make noise,” “snowmobiles destroy landscape aesthetics,” etc. (p. 236), thereby identifying the affective quality of the recreational event of cross-country skiing as the source of the belief items. This directly contrasts with Perrin and Benassi’s (2009) characterization of beliefs as cognitive response to experience.

Further necessary support or clarification of use of the CNS as a measure of affective connection may be found within the idea of experience. Millar and Millar (1996) investigated the effects of direct and indirect experience on the production of affective and cognitive responses. They presented both a hypothesis and research results supporting the idea that direct experience and the affect are uniquely linked:

...attitudes formed through direct experience should produce more affective reactions and make better predictors of affectively driven behaviors...than a cognitively driven behavior. Alternatively, attitude formed through indirect experience attitudes should

produce more cognitive reaction and make better predictors of cognitively driven behaviors...than affectively driven behaviors. (p. 563)

Millar and Millar's (1996) results supported the idea that direct experience produces more affective responses and fewer cognitive responses than indirect experience. In a second study they found attitudes formed through direct experience predicted affective behavior better than cognitive behavior. The previously described research of Nisbet et al. (2009) further supports the idea of an affective response to direct experience. These findings are important to the support for the proposed research presented here. Friluftsliv, or nature-based outdoor recreation participation, is likely to initially result in affective understanding according to Millar and Millar (1996). The work of Millar and Millar seemed to support Iozzi's (1989) previously noted characterization of the affective learning domain as a gateway to environmental connectedness.

Another challenge to the use of the CNS can be found in Nisbet et al.'s (2009) careful review of previous connectedness work. Nisbet et al. (2009) identified their concern:

Mayer and Frantz (2004) published a Connection to Nature scale (CNS), a proposed affective measure of community with nature. The CNS attempts to measure a sense of inclusion or closeness with nature on both an emotional and cognitive level, however it misses the physical aspect of human-nature relationships, a key element of individual sense of connectedness... (p. 719)

This research, the study of the relationship between friluftsliv and environmental connectedness, seemed to address this concern given the inherent physical experience of

friluftsliv. Friluftsliv, or nature-based outdoor recreation participation, addressed the physical, or experiential aspect of connectedness, thus emphasized the theme of linking the affect with direct experience.

One final challenge that was addressed in this review of connectedness terminology is found within Schultz's (2002) exploration of the concept of self. Schultz (2002) saw the notion of connectedness as a psychological idea within the cognitive domain of understanding: "Connectedness refers to the extent to which an individual includes nature within his/her cognitive representations of self" (p. 67). Schultz referenced psychological literature, which explores the construct of self and concludes that: "*self* is a person's thoughts and feelings about who they are, cognitive understandings of identity" (p. 67). Schultz's own description of connectedness as a cognitive representation of self can be challenged, however, by his own work. In *Empathizing With Nature: The Effects of Perspective Taking on Concern for Environmental Issues* (Schultz, 2000), empathy was operationalized to create a measure of biospheric environmental concerns. Given the definition and root of the word empathy meaning "in feeling" and referencing a state of emotional connection with another living thing, to identify this as exclusively a part of a "cognitive representation of self" is far too limiting. In this particular example, methods included the use of pictures of animals being harmed, which would most likely initially elicit an emotional response. Such a response may provide more information about affective connection to nature than cognitive. Schultz wrote: "In addition to producing feelings of empathy, taking perspective may also have temporarily increased the extent to which participants viewed themselves as

interconnected with nature” (p. 403). Therefore, it must be questioned whether the biospheric concerns truly represent cognitive connection in this case or whether the empathetic response is an affective representation of self.

Outdoor Recreation and Environmental Connectedness

Given the basic English translation of friluftsliv as “outdoor recreation” and despite the noted inadequacy of such a translation, a final area of literature investigation worthy of consideration is the scholarly literature of outdoor recreation. While studies in the context of outdoor recreation have previously been presented in this review of literature, additional outdoor recreation research relevant to environmental connectedness is considered in this section. The term “environmental connectedness” is not found in the scholarly literature in conjunction with outdoor recreation, however, related concepts, such as environmental concern and environmental behavior, may provide insight into possible relationships.

The most comprehensive work in this area was the environmental concern, resource stewardship, and recreation participation literature review conducted by Hockett, McClafferty, and McMullin (2004). In this detailed review, Hockett et al. (2004) presented the hypothesis that there is a positive association between involvement in outdoor recreation and environmental concern (p. 5). Exploration of the literature work did not, however, find support for this proposed contention. For example, Dunlap and Heffernan (1975) found a positive relationship between outdoor recreation and environmental concern, but Hockett et al. (2004) noted that the relationship was weak. Follow-up studies to the Dunlap and Heffernan study have been conducted (e.g. Geisler,

Martinson, & Wilkening, 1977; Pinhey & Grimes, 1979; Theodori, Luloff, & Willits, 1998; Van Liere & Noe, 1981) all reported similar negligible results. Teisl and O'Brien (2003) also noted previous weak research findings, but revisited this area of inquiry based on the potential importance, they wrote:

Most of the research occurred in the mid to late 1970s with relatively little research performed since then. A recent study...notes that the weak associations found in earlier studies between environmental concern and behavior and outdoor recreation participation may explain the drop in research efforts. We revisit this issue because it has important policy dimensions; if participating in various outdoor recreation activities significantly impacts environmental concern and behavior, then policies and programs promoting these activities may be effective in furthering environmental agendas. (p. 507)

Substantial relationships between outdoor recreation and environmental attitudes, as noted, do not exist in the literature of outdoor recreation research. The most relevant results for the environmental connectedness research proposed here, however, are two studies that provided evidence that forest recreation has a positive influence on pro-environmental behavior. The first study (Nord, Luloff, & Bridger, 1998) found forest recreation to be associated with pro-environmental behavior:

Associations of forest recreation activities with proenvironmental behavior were much stronger than those with environmental concern....The full model...accounted for 25% of the variance in behavior. Forest recreation activities, entered alone...accounted for 18% of the variance in behavior, with

visit frequency and birdwatching having the largest coefficients. The coefficients for hiking, camping, and hunting were also significant (the latter two being negative), although the associations were modest. (p. 7)

Teisl and O'Brien (2003) went on to investigate this association between an individual's level of environmental interest, opinions, and behavior with participation in different forest recreational activities. The research set out four specific equations in which to consider the basic association including an individual's level of membership or support of environmental groups, an individual's level of interest in forest management, an individual's opinion as to what percentage of United States forests are managed in an environmentally friendly manner, and finally, the individual's likelihood to purchase an environmentally certified and labeled wood product. The results of Teisl and O'Brien's (2003) research demonstrated that there are several forest-based recreational activities (e.g. wildlife watching, nature photography, hiking) that had effects significantly different from the no-recreation cases. These two studies (Nord, Luloff, & Bridger, 1998; Teisl & O'Brien, 2003) have reopened inquiry into the possibility of a link between outdoor recreation participation, environmental concern, and behavior. However, more empirical work is needed.

Tarrant & Green (1999) provided a finding of relevance to environmental connectedness review from their research to investigate the mediation and moderation effects of participation in outdoor recreation activities on attitude-behavior consistency. Tarrant & Green (1999) described attitude-behavior consistency as a reference to whether there is predictive validity between a person's attitude and their subsequent behavior.

The study, a telephone based interview process, collected data and measured it using one of five scales: New Environmental Paradigm (NEP), Environmental Concern (EC), Awareness of Consequences (AC), Forest Values (FV) and Roper Organization scales (examines the role of humans vs. nature in controlling environmental issues and problems). The results included positive environmental attitude measures and also demonstrated support for participation in outdoor recreation activities as a mediating factor in the attitude-behavior relationship. Tarrant and Green (1999) concluded by referencing support from the literature indicating the significant mediating effect of appreciative outdoor recreation participation on attitude behavior consistency. They noted that the very context of outdoor recreation participation places one in direct contact with the natural environment and referenced the literature in noting:

...attitudes that are based on direct experience are more deeply held and more likely to evoke consistent behavioral responses than nonpersonal experiences. In the context of the natural environment, outdoor-recreation participants are more likely to hold strong beliefs about environmental issues than nonparticipants, who may rely on nonpersonal experiences...to form attitudes. (p. 27)

While this quote and the environmental behavior research cited are not directly investigating environmental connectedness, the findings reinforce a central support for direct experience and affective response as noted previously by Miller and Miller (1999).

An additional finding closely aligned with the results of Tarrant & Green (1999) indicating a mediating effect for appreciative outdoor recreational activities in the environmental attitude-behavior relationship is the recent work of Thapa (2010). Thapa

investigated “recreationalists’ environmental attitude-behavior relationship and the impact of outdoor recreation activity orientation...on attitude behavior correspondence” (2010, p. 133). Using the outdoor recreation activity orientation as a mediator, Thapa (2010) found that “outdoor recreation participation did mediate the relationship between environmental attitudes and behaviors for only appreciative and motorized recreationalists” (2010, p. 146).

Synthesis: Friluftsliv and Environmental Connectedness

This chapter has explored the human relationship with nature via literature reviews of friluftsliv and environmental connectedness and related ideas. A brief review of related outdoor recreation literature was also considered. It has been shown that friluftsliv is much more than simply “outdoor recreation.” Exploring the depth of meaning in the concept of friluftsliv provided understanding of a Swedish nature inclusive cultural identity. Ultimately, Friluftsliv has been presented as an expression of the human relationship with nature.

It has also been shown that friluftsliv is an appropriate phenomena for the consideration of environmental connectedness. The concept of environmental connectedness is based upon consideration and exploration of the human relationship with nature. Given the intersection of the ideas of friluftsliv and environmental connectedness in the literature as foundation, the research presented in this study has attempted to provide empirical support for the relationship.

Despite the noted limitations of this study, it is hoped that this foundation of literature provides supports for this research beyond Sweden. It is hoped that use of the

term nature-based outdoor recreation as an operationalized definition for friluftsliv will allow for greater conceptual access to the ideas for North American audiences. The human relationship with nature is a universal, exploring one cultural ideal and its relationship with environmental connectedness may provide inspiration for additional cultural inquiry.

CHAPTER THREE METHODOLOGY

Research Questions

The purpose of this study was to investigate the relationship between nature-based outdoor recreation and environmental connectedness. Research question 1 addressed whether those respondents who participated regularly in nature-based outdoor recreation had higher levels of environmental connectedness than non-regular nature-based outdoor recreation participants. Research question 2 considered whether the relationship between participation and environmental connectedness holds when accounting for the other variables. The variables in question, described later in this chapter, include the following: nature-based outdoor recreation participation as child (participation as child), support for access, current residence, residence as child/youth, sex, age group, level of schooling, disposable income, and nationality. Research question 3 posed the question if any of the predictors moderates the relationship between nature-based outdoor recreation participation and the other noted predictors; “a moderator is a qualitative (e.g. sex, race, class) or quantitative (e.g. level of reward) variable that affects the direction and/or strength of the relation between an independent or predictor variable and a dependent or criterion variable” (Baron & Kenny, 1986, p. 1174). Research question 4 considered whether there was a significant relationship between frequency of participation in particular activities and environmental connectedness.

It was the intent of the research questions presented in this study to contribute to a deeper understanding of the relationship between nature-based outdoor recreation participation and environmental connectedness. It was hoped such understanding may

serve to support an increased cross-cultural understanding of friluftsliv. In addition, it is hoped the results may support the importance of a deeper understanding of environmental connectedness, with implications for environmental education.

Research Design

This quantitative study employed a correlational design with existing data in an effort to consider the relationship between nature-based outdoor recreation participation and environmental connectedness. Existing data came from the Swedish Outdoor Recreation in Change national survey. The national survey was Project A of the broader research program, *Outdoor Recreation in Change: Landscapes, Experiences, Planning and Development*, an interdisciplinary approach to the investigation of nature-based outdoor recreation in Sweden. The survey results have provided a common empirical arena to “form a thorough scientific base of knowledge suitable for further intensified and deepened studies within the program” (Friluftsliv i förändring, 2006, Project A section, para. 3).

Instrument

The research instrument was the Outdoor Recreation in Change national survey created by the Outdoor Recreation in Change program (Romild, 2007). The purpose of the Swedish national survey was “to provide information on outdoor recreation activities, participation and constraints” (Friluftsliv i förändring, 2006, p. 1). The survey consisted of 19 pages and a total of 55 questions. Survey internal reliability was tested during the development of the instrument:

During the summer of 2007 the survey was pre-tested on approximately 20 subjects who completed the survey and after had the chance to present their interpretations of the questions indicating which questions were difficult to complete, etc. We were able to observe that it took 30-60 minutes to complete the survey. After corrections were made, the survey was sent to 50 Swedish citizens chosen from the address registry in Eniro. Test participants were chosen randomly from telephone area code and the first letter of their last name. The final adjustments were made based on the 16 responses to this trial prior to use in the official investigation. (Fredman et al., 2008, p. 10, author translation)

Population and Sample

Once final adjustments were made and reliability tested, 4700 surveys were sent to potential participants from a randomized sampling of the Swedish national personal address register (SPAR), where all registered citizens of Sweden are listed. A total of 1792 Swedes responded to the survey during the time period of October 2007 through January 2008 (Fredman, Karlsson, Romild, & Sandell, 2008), which resulted in a final response rate of 40%. All participants were adults, aged between 18 and 75, and consisted of 55% women and 45% men (Fredman et al., 2008).

Predictor Variables

Survey measurement descriptions and all predictor variables are from the Outdoor Recreation in Change survey (Romild, 2007) and translated from the Swedish by the author; all survey items in Swedish and translations from the Outdoor Recreation in Change survey are initially indicated via the use of italics. The primary predictor variable

of interest was nature-based outdoor recreation participation, which will be referred to as participation. Participation was measured by item 5 from the Swedish Outdoor Recreation in Change national survey: *Approximately how often are you out in nature on weekdays?* Possible survey responses included: *never, seldom, rather often, very often*. The resulting predictor variable was measured using two levels, regular and non-regular. For the purpose of this study, survey responses *rather often* and *very often* were re-coded as regular participation, which served as one level of the participation variable. Responses of *never* and *seldom* were recoded as non-regular participation, which served as the second level of the participation variable. The translation of the phrase, *being out in nature*, may seem too general to serve as an interpretation of the concept of nature-based outdoor recreation participation. However, given the context of the question within a nature-based outdoor recreation survey, along with the survey introduction and stated intent, the phrasing directly represents participation in some form of nature-based outdoor recreation experience. For example, one of the informational items accompanying the survey reminded respondents that the questions in the survey concern free time activities and nature experiences.

An additional concern in the translation of *på vardagarna* as *everyday* was based on the understanding that *vardagarna* is also translated as *weekday*. This concern raised the question of what exactly does everyday mean? Given this study's interest in regular participation vs. special or episodic participation, the measure *på vardagarna* was tested for reliability with the weekend measure of participation, *på helger*. These items were compared for their hypothesized ability to assess regular participation and were tested for

internal consistency or reliability. The results, a Cronbach's Alpha of .79, showed a high level of consistency between these measures and indicated satisfactory reliability. Thus, the weekday measure from the survey served as a measure of everyday.

Other potential predictor variables were considered for their possible role in moderating the relationship between environmental connectedness and participation. These variables have been identified in the research literature as potential predictors or are key demographics and include: participation as child, support for access, current residence, residence as child/youth, sex, age group, level of schooling, disposable income, and nationality. Each of these variables is presented here with survey measurement information.

The variable, nature-based outdoor recreation participation as child, shortened to participation as child, was measured with survey item 6 using the question: *Approximately how often were you out in nature as a child (before you turned 12 years old) during weekdays.* Possible survey responses included: *never, seldom, rather often, very often.* The resulting predictor variable was measured using two levels, regular and non-regular; for the purpose of this study, *rather often* and *very often* were re-coded as regular participation, which served as one level of the participation variable. Responses of *never* and *seldom* were recoded as non-regular participation, which served as the second level of the participation variable. There is a strong research basis for this variable, with studies suggesting childhood experience of nature as a key influence in adult behavior (Chawla, 1999; Corcoran, 1999; Kellert, 2005; Maller et al., 2008; Nabhan & St. Antoine, 1993; Taylor & Kuo, 2006; Ward Thompson et al., 2008).

The variable, support for allemansrätt and access to nature, shortened to support for access, was measured using the survey item 36, specifically the question of whether: *Allemansrätt is important to defend*. The response possibilities include: *agree fully, agree in part, neither agree or disagree, disagree fully, disagree in part, don't know*. The data for this item is ordinal, but treated as interval due to a quantitative difference between categories (Burns & Grove, 2005; Doering & Hubbard, 1979; Knapp, 1990). An overwhelming majority (94%) of the 1792 respondents of the Outdoor Recreation in Change national survey (2008) fully or partly agreed with the noted survey question. This variable was chosen for inclusion based on the strong emphasis of the importance of allemansrätt as a foundational element of friluftsliv (Ahlström, 2008; Sandell, 2007; Sandell & Sörlin, 2008; Stenseke, 2010).

Current residence was measured using the survey item 3a question: *Where do you live today? Check the option that best describes your home area*. Residence child/youth was based on the survey item 8a question: *How did you live when you grew up? (Pick the best alternative of the main type of area and dwelling during youth to 18 years.)*. The responses for both questions included:

1. *In the country with a maximum of a few houses within sight.*
2. *Village or small town in the country consisting mainly of one or two family homes.*
3. *Village or small town in the country with a blend of housing including one, two or multiple family dwellings.*
4. *Densely populated area, section of city or suburb consisting mainly of one or*

two family dwellings.

5. *Densely populated area with a blend of housing including one, two or multiple family dwellings.*
6. *Densely populated area predominantly with multiple family dwellings.*

The data for these two variables were ordinal, but treated as interval due to a quantitative difference between categories (Burns & Grove, 2005; Doering & Hubbard, 1979; Knapp, 1990). Use of residence as a potential predictor is supported in the literature (Kellert, 2005; Maller et al., 2009; Place, 2004; Taylor, Wiley, Kuo, & Sullivan, 1998; Thomashow, 2002).

The remaining potential predictors are demographic variables with measurement data available from the national survey. Literature was not identified to support these variables. Sex was indicated as *male* or *female* by item 1 on the survey. This variable was measured as a dichotomous categorical variable.

Age group was derived from item 2 of the survey: *I was born in the year: _____ using the following categories: 18-30 years old, 31-45 years old, 46-60 years old, 61-75 years old.* The data from the variable was ordinal with four quantifiably different levels; due to the quantitative differences across categories, the data was treated as interval (Burns & Grove, 2005; Doering & Hubbard, 1979; Knapp, 1990).

Level of schooling was measured by item 51 of the survey. Respondent choices included three basic levels: *required schooling (K-9), gymnasium (similar to American high school), university, college or technical training.* The data from the variable was ordinal with three quantifiably different levels; thus due to the quantitative differences

across categories, the data was treated as interval (Burns & Grove, 2005; Doering & Hubbard, 1979; Knapp, 1990).

Disposable income was measured by survey item 52 and based upon respondent level of disposable income available per month: (translated and converted using an approx. 6.5 Swedish Kronor to 1 United States Dollar for the corresponding conversion rates during the survey response period, October 2007 to January 2008, Xe Currency Charts, 2010):

1. *Lower than \$1538.00 month.*
2. *\$1538.00-3077.00 month.*
3. *\$3077.00-4615.00 month*
4. *\$4615.00-6154.00 month*
5. *\$6154.00-7692.00 month*
6. *\$7692.00-9231.00 month*
7. *\$9231.00-10,769.00 month*
8. *More than \$10,769.00 month.*

The data from this item was interval due to the equal and meaningful distance between attributes (Vaske, 2008).

Nationality was measured by item 85 of the survey the question: *I grew up*, with the two response choices of *in Sweden* and *in another country*. The data from this measure was dichotomous categorical.

Criterion Variable

The criterion variable, environmental connectedness (EC) was measured using a composite of three items from the Outdoor Recreation in Change survey. These items were chosen for their theoretical appropriateness based on the literature of environmental connectedness. The items, as translated from the Outdoor Recreation in Change national survey item 7 were:

To be in nature usually makes me feel or experience:

...a heightened sense about the interplay of nature, that everything is connected.

...a feeling that the city is dependent on the surrounding nature.

...a feeling that all people, including myself, are united and a part of nature.

The first and third sub-questions have their roots in both the philosophical and ecological foundation of environmental connectedness as previously presented in chapter 2. The second sub-question is significant based on the idea that *the city* often represents a negative impact of modernity, i.e. urbanization as a part of the separation, or disconnect, from nature experienced throughout the 20th century Western world. It has been noted in the previous review of literature that the Nordic societal trend toward urbanization is intertwined with the history of *friluftsliv*. Thus, it can be posited that perception of the city as a barrier to environmental connectedness is worthy of consideration. This perception is widespread, for example, it can be inferred from the following survey item from the Nature Relatedness Scale: Even in the middle of the city, I notice nature around

me (Nisbet et al., 2009). The use of *even* is used to imply overcoming an obstacle or barrier.

Reliability and Validity

The three items comprising the criterion variable of environmental connectedness were initially tested for internal consistency or reliability. The results, a Cronbach's alpha of .83, showed consistent response and indicated satisfactory reliability (Vaske, 2008). Results of the reliability test indicate that the three items from the Outdoor Recreation in Change all measure the same latent construct, or factor.

An instrument was created for the construct validity testing of the three-item composite to ensure these three items represented a valid measure of environmental connectedness. The instrument featured the Connectedness to Nature Scale (CNS), available from its author (Frantz, 2009, personal communication). The CNS is a measure of one's affective, experiential connection to nature (Mayer & Frantz, 2004). The 14-item scale has been found to be reliable and valid; the scale has a high test-retest consistency, loads on one factor and exhibits high internal consistency (Mayer & Frantz, 2004).

Construct validity testing was then undertaken to determine whether the use of a composite score of the three identified items (EC) from the Outdoor Recreation in Change national survey showed construct validity with the CNS. Given the variety of connectedness related terms in the literature and a variety of scales used to test these terms, additional scales were included in the construct validity testing to more fully explore connectedness and to better answer the question of just what was being measured by the EC composite from the Outdoor Recreation in Change survey. A guide to the

scales used in the construct validity testing is provided in Table 1.

The two additional scales employed in conjunction with the CNS for the creation of the construct validity test instrument were the Nature Relatedness Scale, or NR (Nisbet et al., 2009), and the Inclusion of Nature in the Self Scale, or INS (Schultz, 2002). Nisbet et al. (2009) used three factors in the NR scale development. The Self factor (affective domain) “represents an internalized identification with nature, reflecting feelings and thoughts about one’s personal connection to nature” (p. 723). The second factor, Perspective (cognitive domain), reflects an external, nature-related worldview. And the third factor, Experience (psychomotor domain), represents a physical connection to the natural world. Nisbet et al. (2009) found the scale to be a reliable and valid tool for the assessment of an individual’s connection with nature. The subscale NR-Self was used in the construct validity testing analysis of this research in addition to use of the full NR. Given the claim that the Self is a specific measure of the affective domain (Nisbet et al., 2009), it was hypothesized that NR-Self might show a stronger correlation with the CNS and the EC scale than the full NR shows, thus potentially strengthening the idea that the CNS is largely a measure of affective connection.

The fourth scale used in the construct validity testing, the Inclusion of Nature in the Self Scale (INS) was based on the question: “How interconnected are you with nature?” (Schultz, 2002, p. 72). The INS attempts to measure an individual’s sense of inclusion with nature and is modified from an original scale to assess closeness in interpersonal relationships (Schultz, 2002). This single item scale uses the placement of two potentially overlapping circles to create a visual representation of one’s sense of

interconnectedness with nature. Despite the limitations of use of a single item scale, Shultz (2002) contends that the scale “has been found to be reliable across time, and to correlate positively with biospheric attitudes, scores on the New Environmental Paradigm (NEP), ecocentrism, and self-reported behavior” (p. 72).

Table 1

General Explanation of Connectedness Related Scales Used in Construct Validity Testing

Scale	Name	Explanation	Source
EC	Environmental Connectedness Scale	Scale created from a three item composite of Outdoor Recreation in Change national survey Questions.	Beery (2011)
CNS	Connectedness to Nature Scale	14 item scale developed for environmental connectedness testing.	Mayer & Frantz (2004)
NR	Nature Relatedness Scale	21 item scale designed to measure the connectedness related construct of nature relatedness.	Nisbet et al. (2009)
NR-Self	Nature Relatedness Self	7 item subscale of the NR designed to measure affective components of nature relatedness.	Nisbet et al. (2009)
INS	Inclusion of Nature in the Self Scale	Single item scale designed to measure an individual's sense of inclusion with nature.	Schultz (2002)

Participants for the construct validity testing consisted of 120 law students from the course *International Rights* (HRO 600) at the University of Göteborg, Sweden. This testing was conducted on March 17, 2010. The participants were chosen based on their age (all adults), residence (Sweden), convenience to the researcher, and the perception that the interdisciplinary aspect of law studies would not necessarily carry a pro or con environmental bias or an implied level of respondent nature-based outdoor recreation participation. University of Minnesota Internal Review Board procedure was followed to assure participant anonymity; participants were under no obligation to participate and were given no incentive to do so.

Preliminary Analysis

Using results of the preliminary testing, correlation coefficients were computed among the five environmental connectedness scales. Using the Bonferroni approach to control for Type I error across the 10 correlations, a p value of less than .005 ($.05/10 = .005$) was required for significance. The results of the analysis, displayed in Table 2, showed that 10 out of the 10 correlations are statistically significant and are greater than or equal to .52. According to Vaske (2008), a correlation value of greater than 0.50 is considered to indicate a “substantial relationship” (p. 108). The specific correlation of EC and CNS, $r = .62$, indicates support for construct validity. This support is strengthened by the related scale correlations: EC and NR $r = .57$, EC and NR-Self $r = .59$, EC and INS $r = .52$. These results lend support to the use of the EC construct to explore other questions of environmental connectedness from the Swedish Outdoor Recreation in Change national survey.

Table 2

Correlations Among the Five Environmental Connectedness Scales (N = 102)

	EC	CNS	NR	NR-Self	INS
EC					
CNS	.62*				
NR	.57*	.78*			
NR-Self	.59*	.77*	.94*		
INS	.52*	.72*	.77*	.72*	

* $p < .001$

Data Analysis Procedures

Research question 1 was investigated through the use of an independent samples t test. The test was conducted to evaluate the hypothesis that respondents reporting regular nature-based outdoor recreation participation will have a higher level of environmental connectedness as opposed to respondents indicating non-regular nature-based outdoor recreation participation.

Research question 2 explored the results from question 1. The possibility of other predictor variables influencing the relationship between environmental connectedness and participation was explored using a multiple regression analysis to determine if participation remains a significant predictor of environmental connectedness when incorporating other predictor variables. Question 3 considered the moderating effect of predictor variables on the relationship between participation and environmental connectedness and was investigated using stepwise regression analysis with interaction

terms of each predictor variable and participation. When significant interaction effects were noted in the stepwise regression, *t* tests were conducted to determine if a significant difference in environmental connectedness was apparent. Research question 4 used a factor analysis with an orthogonal varimax rotation to consider the dimensionality of the 44 activity items from survey question 10. The 44 activity items' correlation coefficients were computed between environmental connectedness and the 44 activity items. A multiple regression analysis was also conducted to evaluate how well activity items collectively predict environmental connectedness level.

The specific data analyses are described in detail in chapter 4.

CHAPTER FOUR RESULTS AND DISCUSSION

Quantitative Data Analysis and Results

The purpose of this study was to investigate the relationship between nature-based outdoor recreation participation and level of environmental connectedness. The following research questions guided the study:

1. Do regular nature-based outdoor recreation participants have higher levels of environmental connectedness than non-regular nature-based outdoor recreation participants?
2. Is nature-based outdoor recreation participation a significant predictor of environmental connectedness when controlling for the additional predictors of participation as child, support for access, current residence, residence as child/youth, sex, age group, level of schooling, disposable income, and nationality?
3. Do any of the predictors moderate the relationship between participation and environmental connectedness?
4. Is there a significant relationship between frequency of participation in particular activity type and level of environmental connectedness?

The first research question was investigated using a *t* test to determine if those who participate regularly in nature-based outdoor recreation have higher levels of environmental connectedness when compared to non-regular nature-based outdoor recreation participants. The results of the independent samples *t* test was significant, $t(1365) = 8.19, p < .001$. Respondents reporting regular participation ($M =$

4.35, $SD = .78$) had a higher level of environmental connectedness than those in the non-regular participation group ($M = 3.99$, $SD = .89$). The 95% confidence interval for the difference in means was narrow, ranging from .44 to .27. The eta square index indicated that 4% of the variance of the environmental connectedness variable was accounted for by respondent's level of participation (regular vs. non-regular). This eta square index can be interpreted as a medium effect size (Green & Salkind, 2008).

The second research question used multiple regression to investigate if participation is a significant predictor of environmental connectedness when controlling for the additional predictors of participation as child, support for access, current residence, residence as child/youth, sex, age group, level of schooling, disposable income, and nationality. A multiple regression analysis was conducted to evaluate the relationship between the predictors and the criterion variable of respondent level of environmental connectedness. The R^2 of .12 was statistically significant, $F(10, 1178) = 16.14$, $p < .001$, suggesting that approximately 12% of the variance of the environmental connectedness in the sample can be accounted for by the linear combination of the predictor variables. This R^2 value is identified as a medium effect size (Cohen, 1988). Table 3 reports the unstandardized regression coefficients (b), the standardized regression coefficients (β), the observed t-values (t), p values (p), partial correlations (pr), semi-partial correlations (sr), and the squared semi-partial correlations (sr^2). Five of the eleven predictor variables in the model were statistically significant: participation ($b = .132$, $t(1189) = 4.369$, $p = <.001$); participation as child ($b = .133$, $t(1189) = 3.928$, $p = .001$); support for access ($b = .133$, $t(1189) = 3.785$, $p = <.001$); sex ($b = .179$, $t(1189) = 3.849$, p

$p < .001$); age group ($b = .155$, $t(1189) = 6.432$, $p < .001$). These results suggest that participation remains a significant predictor while taking other predictor variables into account. In addition to participation, participation as child, support for access, sex, and age group are also significant predictors of environmental connectedness. More specifically, descriptive statistics indicated that regular participants of nature-based outdoor recreation as adults and as children, respondents indicating support for universal access to nature laws, women, and older respondents showed greater connectedness to nature than their respective comparison groups.

To determine the relative contribution of each significant predictor variable, the squared semi-partial correlation was calculated (sr^2 on Table 3). The squared semi-partial correlation represents the proportion of total variance of the outcome variance, and in this case, environmental connectedness, that is uniquely associated with any one predictor variable. Cohen (1988) stated that the magnitude of the squared semi-partial correlation can be examined in terms of effect size where .0196 is considered to be small, .13 is considered to be medium, and .26 is considered to be large. As shown in Table 3, according to Cohen's criterion, two of the statistically significant variables, age group = .03 and participation = .02, have small effect sizes. Small effects are often considered to be practically significant. The effect sizes of the other three statistically significant variables are negligible: participation as youth/child = .01, support for access = .01, and sex = .01. According to Cohen's classification, these three variables may not have practical significance.

Table 3

Summary of Regression Analysis for Variables Predicting Respondents' Environmental Connectedness

Variable	<i>B</i>	SE	β	<i>t</i>	<i>p</i>	<i>pr</i>	<i>sr</i>	sr^{2**}
Support for access	.133	.035	.104	3.785	.000*	.110	.103	.01
Nationality	-.040	.090	-.012	-.439	.661	-.013	-.012	.0001
Income	-.019	.021	-.026	-.914	.361	-.027	-.025	.0006
Sex	.179	.047	.108	3.849	.000*	.111	.105	.01
Participation as child/youth	.135	.034	.123	3.928	.000*	.114	.107	.01
Participation	.133	.030	.135	4.369	.000*	.126	.119	.02
Education	-.056	.036	-.047	-1.561	.119	-.045	-.043	.002
Age group	.155	.024	.189	6.432	.000*	.184	.176	.03
Residence	.014	.015	.027	.898	.369	.026	.025	.0006
Residence child	.027	.015	.057	1.835	.067	.053	.050	.003

p* = /< .001 sr^2 = squared semi-partial correlation

These squared semi-partial correlation results, suggesting the importance of age group and participation, are consistent with the standardized partial regression coefficients calculated using the formula $\beta_{pr} = b (\frac{s_x}{s_y})$ (Shavelson, 1996, p. 540). The calculated standardized partial regression coefficients for age group ($\beta_{pr} = .224$) and participation ($\beta_{pr} = .128$), indicate they were stronger predictors than the other three significant variables, participation as child ($\beta_{pr} = .104$), support for access ($\beta_{pr} = .086$), and sex ($\beta_{pr} = .067$). Consequently, the results from these analyses suggested

participation remained a significant predictor of environmental connectedness when controlling for the additional predictors. These results further suggested that age group is an even stronger predictor of environmental connectedness than participation.

In addition to the significant linear combination of predictor variables noted in research question 1, and the role of individual predictors when controlling for other variables as explored in research question 2, research question 3 addresses potential moderating effects of the predictor variable interactions. A stepwise multiple regression analysis was conducted to determine if any of the ten predictor variables (participation as child, support for access, current residence, residence as child/youth, sex, age group, level of schooling, disposable income, and nationality) were moderating the relationship between participation and environmental connectedness. For this analysis the 10 predictor variables, the explanatory variable of participation, and the variables created by interactions of each predictor with participation were used in the stepwise regression. The results demonstrated that the following four variables are significant predictors of environmental connectedness: participation as child, support for access, sex, and the Age group x Participation interaction variable (see Table 4). The significant age group by participation interaction indicates a moderating effect of age on the relationship between participation and environmental connectedness.

Table 4

Stepwise Regression Analysis on Predictor Variables and Interaction Effects

Variables entering Equation	Multiple R	R^2	R^2 change	df	F change
Age group interaction	.29	.08	.082	(1, 1188)	106.5*
Sex	.31	.09	.011	(2, 1187)	14.63*
Support for access	.32	.10	.010	(3, 1186)	13.30*
Residence as youth/child	.34	.11	.009	(4, 1185)	12.63*

* $p < .001$

To examine the interaction between age group and participation, four t tests were conducted to determine which age groups have a significant difference in environmental connectedness between regular and non-regular participation. Using the Bonferroni approach to control for Type I error across the four correlations, a p value of less than .001 ($.05/4 = .00125$) was required for significance. For the youngest age grouping, 18-30 years, no significant difference was observed between regular and non-regular nature-based outdoor recreation participants. The other three age groups: 31-45, 46-60, and 61-75 years did, however, show significant difference in the level of environmental connectedness (see Table 5). With the three older age groups, environmental connectedness was significantly higher for regular nature-based outdoor recreation participants than for the non-regular participants.

Table 5

t Test Analysis on the Nature of the Two-way Interactions

Age group	t	df	Sig.	mean difference
18-30	.181	186	.856	.02694
31-45	3.265	388	.001*	.25546
46-60	5.903	428.849	.000*	.45403
61-75	4.624	172.039	.000*	.37451

* $p \leq .00125$

Research question 4 investigated the question of whether frequency of participation in specific activities predicts environmental connectedness; survey activity items were translated from the Swedish by the author. First, the dimensionality of the 44 items from the friluftsliv activity list (survey question 10) was considered using factor analysis. A principal components factor analysis with an orthogonal varimax rotation was conducted. Even though a number of factors emerged with eigenvalues above 1.00, examination of the factor loadings showed little evidence for qualitatively different factors inasmuch as items that loaded higher on factors (beyond) the first factor also loaded on the first factor or other factors. Factor loadings support the general unidimensionality of responses on the set of 44 items. This suggests that rather than being able to group the activities, they must be considered individually.

Correlation coefficients were then computed between environmental connectedness and the 44 activity items. Using the Bonferroni approach to control for

Type I error across the 44 correlations, a p value of less than .001 ($.05/44 = .001$) was required for significance. The results of the analysis presented in Table 6 showed that 11 of the 44 correlations were statistically significant. Eight items: *walking in the forest and country, pleasure and exercise oriented walking, dog walking, walking with poles, garden work, nature picnic and grilling, plant animal study/bird watching, and meditation/yoga in nature*, all showed a positive correlation with environmental connectedness. Three items: *skateboarding, outdoor pool and waterpark swimming, and waterskiing/wake boarding*, showed a significant negative correlation with environmental connectedness.

Table 6

Activity Correlations with Environmental Connectedness

Activity item	Correlation w/Environmental Connectedness	Activity item	Correlation w/Environmental Connectedness
Walking in forest and country	.175*	Ice skating/back country ice skating	.027
Pleasure and exercise oriented walking	.116*	Motor boating	-.004
Dog walking	.093*	Snowmobiling	.011
Mountain hiking	.047	Paintball	-.023
Non-mountain trail hiking	.074	Geocaching	-.063
Jogging/trail running	-.051	Sunbathing	.072
Walking with poles	.124*	Hunting	.004
Mountain biking	.018	Dog sledding	.013
Road biking	-.014	Jet skiing	-.014

Table 6 continued

Activity item	Correlation w/Environmental Connectedness	Activity item	Correlation w/Environmental Connectedness
Inline skating/roller skiing	-.014	Golf	.001
Skateboarding	-.086*	Rock and mountain climbing	.013
Outdoor swimming lake/sea	.039	Sledding	-.006
Outdoor swimming pool/waterpark	-.086*	Trail horseback riding	-.009
Skin diving snorkeling	-.053	Garden work	.150*
Canoe or kayak paddling	-.022	Nature camping	.021
Sailing wind surfing	-.004	Nature picnic or grill	.113*
Waterskiing wake boarding	-.084*	Plant/animal study birdwatching	.171*
Recreational fishing	.020	Meditation/yoga in nature	.094*
Cross country skiing	.026	Sport flying or gliding	.010
Snowshoeing	-.055	Kiting/hang gliding base jumping	.034
Downhill skiing	-.055	Orienteering	-.021
Snow boarding	-.024	Other	-.016

* $p \leq .001$

To further investigate the role of frequency of specific activities, a multiple regression analysis was conducted using the 44 activity items to predict environmental connectedness (see Table 7). Table 7 reports the unstandardized regression coefficients (b), the standardized regression coefficients (β), the observed t-values (t), p values (p), partial correlations (pr), semi-partial correlations (sr), and the squared semi-partial correlations (sr^2). While the model was not significant $F(43, 193) = 1.03, p = .437$, the

sample multiple correlation coefficient was .43, indicating that approximately 19% of the variance of the environmental connectedness scale can be accounted for by the linear combinations of the activity items. One variable, walking with poles, was significant ($b = .124$, $t(1748) = 2.506$, $p < .05$).

Table 7

Summary of Regression Analysis for 44 Activity Items Predicting Environmental Connectedness

Variable	<i>B</i>	SE	β	<i>t</i>	<i>p</i>	<i>pr</i>	<i>sr</i>	sr^2^{**}
Walking in forest/country	.053	.053	.084	1.00	.318	.072	.065	.005
Other walking	-.032	.051	.050	-.623	.534	-.045	-.040	.002
Walking with dog	.020	.037	.043	.543	.588	.039	.035	.002
Mountain backpacking	.162	.119	.112	1.360	.175	.097	.088	.009
Non-mountain backpacking	-.083	.073	-.089	-.0127	.261	.081	-.073	.007
Trail running	.018	.049	.029	.362	.718	.026	.024	.0007
Walking with poles	.124	.049	.184	2.506	.013*	.178	.163	.032
Mountain biking	-.004	.080	-.004	-.052	.959	-.004	-.003	.00002
Road biking	.060	.040	.120	1.515	.132	.108	.098	.012
Roller skiing/inline skating	-.146	.124	-.096	-1.173	.242	-.084	-.076	.007
Skateboarding	-.352	.209	-.144	-1.681	.094	-.120	-.109	.01
Lake/sea swimming	-.015	.067	-.023	-.221	.825	-.016	-.014	.0003
Pool/waterpark	-.054	.067	-.066	-.803	.423	-.058	-.052	.003
SCUBA/snorkling	.065	.127	.041	.508	.612	.037	.033	.001
Canoeing/kayaking	-.117	.155	-.061	-.754	.452	-.054	-.049	.003

Table 7
continued

Variable	<i>B</i>	SE	β	<i>t</i>	<i>p</i>	<i>pr</i>	<i>sr</i>	<i>sr</i> ^{2**}
Sailing/ windsurfing	-.089	.103	-.066	-.858	.392	-.062	-.056	.004
Waterskiing/ wakeboarding	-.304	.188	-.151	-1.616	.108	-.116	-.105	.013
Fishing	.042	.067	.059	.632	.528	.045	.041	.002
Cross country skiing	.010	.080	.010	.119	.905	.009	.008	.00008
Snowshoeing	.181	.608	.027	.297	.767	.021	.019	.0004
Alpine skiing	-.015	.087	-.015	-.177	.860	-.013	-.011	.0002
Snowboarding	.124	.252	.037	.492	.623	.035	.032	.001
Ice skating	.073	.112	.057	.651	.516	.047	.042	.002
Motorboating	-.014	.075	-.017	-.018	.857	-.013	-.012	.0002
Snowmobiling	.090	.124	.065	.722	.471	.052	.047	.003
Paintball	.415	.287	.108	1.449	.149	.104	.094	.011
Geocaching	-.028	.753	-.002	-.038	.970	-.003	-.002	.000009
Hunting	-.096	.093	-.096	1.035	.302	-.074	-.067	.005
Dogsledding	.514	.446	.090	1.152	.251	.083	.075	.007
Jetski	.364	.371	.084	.980	.328	.070	.064	.005
Golf	-.001	.074	-.001	-.012	.990	-.001	-.001	.000001
Orienteering	-.131	.203	-.050	-.645	.520	-.046	-.042	.002
Mountain climbing	.174	.152	.088	1.138	.256	.082	.074	.007
Sledding	.030	.086	.028	.348	.728	.025	.023	.0006
Horseback riding	-.098	.089	-.081	-1.094	.275	-.079	-.071	.006
Gardening	.031	.044	.056	.723	.470	.052	.047	.003

Table 7
continued

Variable	<i>B</i>	SE	β	<i>t</i>	<i>p</i>	<i>pr</i>	<i>sr</i>	<i>sr</i> ² **
Camping	-.053	.081	-.051	-.655	.513	-.047	-.043	.002
Picnic/grilling	-.105	.076	-.144	-1.385	.168	-.099	-.090	.010
Animal/plant study/bird	.102	.063	.149	1.624	.106	.116	.105	.013
Meditations/ yoga	.104	.093	.084	1.112	.268	.080	.072	.006
Sport flying/ gliding	-.056	.335	-.012	-.167	.867	-.012	-.011	.0001
Other	.047	.049	.070	.962	.337	.069	.062	.005

p* = /< .05*sr*² = squared semi-partial correlation

CHAPTER FIVE IMPLICATIONS AND CONCLUSION

The purpose of this study was to explore the relationship between the cultural idea of friluftsliv and the psychological idea of affective connectedness to nature, or environmental connectedness. It is hoped a greater cultural understanding of friluftsliv will facilitate the distillation of the idea down into essential qualities that may have relevance for a North American environmental education audience. It has been shown while friluftsliv is a culturally complex term, the phrase nature-based outdoor recreation captures an important part of the idea and allows use of friluftsliv ideas in a broader context. Further, the question of whether regular nature-based outdoor recreation participation shows a relationship with environmental connectedness is extremely relevant for environmental educators. Understanding how one's relationship with the natural world is formed and strengthened is key to environmental education efforts. In this final chapter, both the terms friluftsliv and nature-based outdoor recreation are used interchangeably based on the cultural context. It is hoped the dual use of these terms will remind readers both of the cultural significance of friluftsliv and its relevance beyond Sweden.

The importance of this study is multifold. One, it contributes to a growing North American interest in the Nordic cultural idea of friluftsliv (Henderson & Vikander, 2007). Two, this research provides consideration of the importance of friluftsliv to Swedish society can provide perspective for North American reflection and application. Three, this study is important in its contribution to furthering our understanding of

environmental connectedness. Environmental connectedness has been a contemporary topic in the first decade of the twenty-first century in the U. S., from education to popular culture. Despite this attention, it is not clear the term connectedness is uniformly understood and applied. Research, such as the study presented here, may help to clarify meaning for continued study into environmental connectedness and application of the idea into environmental education practice in Sweden and the U.S.

Perhaps the most important aspect of this research, however, is how friluftsliv and environmental connectedness study are advanced by a consideration of their potential intersect. As noted earlier in this dissertation, missing from environmental connectedness study are the basic examples and measures from our everyday lives, patterns of behavior, lifestyle, and experience (Dutcher et al., 2007; Nisbet et al., 2009; Schultz, et al., 2004). This study proposed that nature-based outdoor recreation participation is one of the indicators that may provide a deeper understanding of environmental connectedness, and such understanding is worthy of consideration. This chapter reviews the major findings, first via a review of instrument development. Secondly, each research question will be reviewed highlighting the key outcomes. Next, a synthesis of the research outcomes is then interpreted. Finally, based on the results and interpretations, implications for application and future research are presented and explored.

Discussion

Instrument Development

An important first step in this research was successfully establishing reliability and construct validity for the environmental connectedness scale (EC) as described in

chapter 3. A Cronbach's alpha of .83 indicated satisfactory internal consistency, or reliability, between the 3 items comprising the EC Scale. Construct validity was explored using the EC Scale and 4 additional connectedness and connected related scales identified from the scholarly literature (as noted in Table 1). The strongest correlation noted between EC and the tested connectedness related constructs was with the CNS. As detailed in chapter 3, the correlation was significant and substantial thus affirming construct validity. In addition, the three other tested scales showed construct validity with EC as well. It was previously noted the NR-Self was one of the connectedness related scales used to test for construct validity based on its hypothesized ability to measure the affective dimension of nature relatedness. Results indicated a higher correlation between NR-Self and EC than the correlation between the full NR and EC, thus supporting the claim that EC is measuring affective connectedness to nature. It is interesting to note, however, the NR-Self scale showed an almost identical correlation with CNS ($r = .77$) as the full NR shows with CNS ($r = .78$). Thus, these findings do not resolve the challenging question of affective measurement of environmental connectedness as noted in both chapters 1 and 2.

A possible limitation of this construct validity testing is the lack of assessment of EC for negative correlation with a scale purporting to measure the opposite underlying construct. Additionally, no testing was conducted to explore a lack of correlation with measures that EC should be unrelated to.

Results Interpreted

This section will review the results for each of the questions while also providing

basic interpretation. These interpretations will then be developed more fully in the Implications and Recommendations for Future Research sections.

The results of research question 1 indicated participants engaged in regular nature-based outdoor recreation showed a significantly higher level of environmental connectedness than non-regular nature-based outdoor recreation participants. The amount of the variance of environmental connectedness accounted for by respondent's level of nature-based outdoor recreation participation was 4%. Effect size conventions support the meaningful nature of the 4% statistic indicating a medium effect size of this result (Green & Salkind, 2008). While this percent seems so low as to be practically insignificant, when one considers all of the variables that might make up an individual's environmental connectedness, to identify 4% of the equation is useful. This finding represents a contribution toward a meaningful picture of the predictors of environmental connectedness.

When controlling for the additional identified predictors in research question 2, the relationship between environmental connectedness and participation remained significant. The linear combination of predictor variables (participation as child, support for access, current residence, residence as child/youth, sex, age group, level of schooling, disposable income, and nationality) accounted for 12% of respondent variance in environmental connectedness. These results show that participation remains a significant predictor while taking other predictors into account. In addition to respondents indicating regular nature-based outdoor recreation participation, respondents who were regular participants of nature-based outdoor recreation as children, respondents indicating

support for universal access to nature laws, women, and older respondents all showed greater environmental connectedness levels than their respective comparison groups. When controlling for the relative contribution of each predictor, age group and participation (in that order) emerged as the strongest predictors of environmental connectedness and showed practical significance. This particular finding is important as it underscores the value in nature-based outdoor recreation's relationship with environmental connectedness as additional demographic and literature identified variables are considered. It is important to note that this research was not aimed at model building, instead these efforts represent theory testing, i.e. multiple tests all aimed at exploring the relationship between nature-based outdoor recreation participation and level of environmental connectedness. If model building had been the goal of this testing, additional independent variables, or predictors, would need to be identified and tested.

One of the noted predictor variables addressed in research question 2 requires additional consideration based on the literature of friluftsliv. As previously noted in chapter 2, a full understanding of friluftsliv is not possible without consideration of allemansrätt, the universal access to nature laws in Sweden (Ahlström, 2008; Sandell, 2007; Sandell & Sörlin, 2008). The theoretical foundation of universal access suggests the need for considering the relationship between regular nature-based outdoor recreation participation and support for access. The lack of variability in response to the survey item data used in this analysis (overwhelming support) made the variable, support for access, not statistically meaningful in this investigation. The data did, however, reiterate the adult

public's overwhelming support for access to nature laws and in doing so contributed to the view of allemansrätt as an essential element of friluftsliv as presented in the literature.

Research question 3 explored a potential moderating effect of predictor variables on the relationship between participation and environmental connectedness using a stepwise multiple regression test. The results demonstrated that the variables participation as child, support for access, sex, and Age group x Participation interaction are all significant predictors of environmental connectedness. The stepwise regression revealed a significant moderating effect of age on the relationship between participation and environmental connectedness. The significant age group by participation interaction supported a closer investigation of this relationship. Further analysis consisted of *t* tests used to examine the interaction between age group and participation. It was found that with all but the youngest age group (18-30), the older a regular nature-based outdoor recreation participant, the greater his or her environmental connectedness level.

Based on the age group results of this further analysis, additional empirical exploration was undertaken. Correlation coefficients were computed among the variables participation as child and environmental connectedness using a split file allowing for the participation as child variable to be considered at each specific age grouping. The rationale for this additional analysis was to explore the possible unique nature of the 18-30 age group. Using the Bonferroni approach to control for Type I error across the 4 correlations, a *p* value of less than .0125 ($.05/4 = .0125$) was required for significance. The results of the correlational analysis show that 2 of the 4 correlations were statistically significant and greater than or equal to .14: age group 31-45 ($r = .132, p = /< .0125$) and

age group 46-60 ($r = .141, p = /< .0125$). The correlation for the youngest age group 18-30 ($r = .1, p = /> .0125$) and the oldest age group 61-75 ($r = .107, p = /> .0125$) were not significant. These findings may support the idea of generational differences, however further age group analysis is needed. The cumulative results of question 3 and continued analysis may suggest a generational shift in the relationship between participation in nature-based outdoor recreation and environmental connectedness. This potential generational shift is an important finding and will be addressed directly in both the Implications and Recommendations for Future Research sections of this chapter.

Research question 4 was initially explored using a factor analysis of the 44 activity items used in the Outdoor Recreation in Change survey. The results indicated a unidimensionality of response on the set of the 44 activities, suggesting each activity would need to be considered individually. Additional activity item analysis explored consideration of the relationship between frequency of participation in the 44 activities and level of environmental connectedness. Eight of the activity items showed a significant and positive correlation with environmental connectedness: walking in the forest and country, pleasure and exercise oriented walking, dog walking, walking with poles, garden work, nature picnic and grilling, plant animal study/bird watching, and meditation/yoga in nature. Three of the activity items showed a significant and negative correlation with environmental connectedness: skateboarding, outdoor pool and waterpark swimming and waterskiing/wakeboarding.

To further investigate the role of frequency of specific activities, the relationship between the frequency of activity participation and environmental connectedness was

conducted using a multiple regression analysis. While the model was not significant, the linear combination of the activity items accounted for 19% of the level of variability in environmental connectedness. One activity variable, walking with poles, was significant. This significance offers support to the moderating effect of age; walking with poles was the activity variable with the second strongest correlation with age group based on a separate correlational analysis of age group and activity participation. Four of the 8 positively significant activity items correlated with environmental connectedness are also significantly and positively correlated with age group: walking in the forest and country ($r = .16, p = /< .001$), walking with poles ($r = .19, p = /< .001$), garden work ($r = .26, p = /< .001$), and plant and animal study/bird watching ($r = .16, p = /< .001$). The 3 activity items with a significant and negative correlation with environmental connectedness likewise all show a significant and negative correlation with age group: skateboarding ($r = -.22, p = /< .001$), outdoor pool and waterpark swimming ($r = -.18, p = /< .001$), and waterskiing/wakeboarding ($r = -.11, p = /< .001$). This additional analysis further supported the age group findings.

Support for Previous Research

Experience and Culture

A recurring theme in the review of environmental connectedness literature is the element of time or repeated experience as related to environmental connectedness and associated concepts. Reconsider one of the descriptions of friluftsliv presented in chapter 2: “friluftsliv must be conceptualized as a dynamic, variable and society-related phenomenon, anchored in situated human beings’ bodily practices and experiences; as

lived experience and reflection” (Gurholt, 2009, p. 65). The importance of Gurholt’s characterization of friluftsliv as lived experience is a key result of this study. This research has found that as the age of regular nature-based outdoor recreation participants increases, so does their average level of environmental connectedness. In addition, this research noted that the nature-based outdoor recreational activity showing the strongest relationship to environmental connectedness, walking with poles, had the second highest activity correlation with age group. Similarly, three other activity items shared significant correlations with both environmental connectedness and age group.

Based on the cumulative results presented in chapter 4 and briefly reviewed here, it is presented that patterns of lifestyle and behavior show a relationship with an increasingly environmentally connected individual. These findings support previous work noted in the literature of environmental connectedness and related concepts. Schultz and Tabanico (2007) reported that self/nature associations were malleable, with change requiring long term or repeated experience. Kals et al. (1999) found the first and second most powerful predictors of emotional affinity with nature are current and past frequency of time in nature. The literature of significant life experience emphasizes the variable of time spent outdoors as a significant influence on environmental sensitivity (Chawla, 1998; Sivek, 2002). Place theory has indicated the places of greatest attachment are those with which we have had the greatest experience (Relph, 1976). Length of time associated with and frequency of exposure to a recreational trail was found to have a significant relationship with place dependence and ultimately, place identity (Moore & Graefe, 1994). Hay’s (1998) findings also noted length of association with place shows a

relationship to level of place attachment. Likewise, Vaske and Kobrin (2001) noted that as place dependence increases, place identity increases. Kyle et al. (2004) claim “humans’ motivation to engage with natural environments is the product of lifelong socialization processes” (p. 443). Perhaps the most important interpretation of the Kyle et al. (2004) results is the finding that emotional attachment to a place increases congruently with the opportunity to enjoy nature. While emotional attachment and environmental connectedness have not been shown to have construct validity with one another, both speak to human affiliation with nature. The phrase, *opportunity to enjoy nature*, is not a direct reference to nature-based outdoor recreation, however, based on the friluftsliv literature review supporting this study, the use of this particular phrase is supported. To repeat a quote from Dahle (2003): “Friluftsliv, first and foremost, is about feeling the joy of being out in nature” (p. 248).

Use of the phrase “lifelong socialization processes” (Kyle et al., 2004, p. 243) above helps illustrate the time/experience aspect of the relationship between environmental connectedness and the social elements of affiliation and connectedness. As noted previously in chapter 2, Clayton (2003) emphasizes the importance of the cultural component of one’s environmental identity and frames an environmental identity as, in part, a social identity. An investigation of friluftsliv, largely from a Swedish perspective, has allowed consideration of this idea of social identity. Considering the direct translation of friluftsliv as presented in chapter 1 using the phrase *open air life*, and acknowledging the richness of the many other definitions presented, the theme of the human relationship with nature as an essential part of lifestyle emerges. One sub-theme in the friluftsliv

literature emphasizes the *simple life* theme of a life close to nature (Gurholt, 2008; Isberg, 2007; Sandell, 2004; Svenning, 2004) and this idea is supported by the findings in this research. Research question 4 found that the 8 activities with the highest positive correlation to environmental connectedness (walking in the forest and country, pleasure and exercise oriented walking, dog walking, walking with poles, garden work, nature picnic and grilling, plant animal study/bird watching, and meditation/yoga in nature) all appear to represent close to home, inexpensive, and low technical skill based activities; four of these are simply *walking* activities. The correlations underscore the importance that simple and accessible nature-based outdoor recreation shows a relationship with environmental connectedness.

Implications

This research supports the previously noted work of Schultz et al. (2004) who made the link to connectedness as a cultural construct in their view of nature as an essential part of culture. The Swedish cultural expression of a relationship to nature is unique. The scholarly, philosophic, and popular literature of friluftsliv points to a number of factors contributing to the uniquely Swedish nature-inclusive national identity: the integrative use of the concept of landscape to synthesize nature and culture, the long-term history of allemansrätt and friluftsliv, current public support of universal access laws, and popular contemporary engagement in friluftsliv. It has been presented that friluftsliv is culturally embedded as a part of a nature-inclusive lifestyle, thus from such an understanding two implications emerge. One, the cultural tradition of friluftsliv cannot be transplanted. The idea of nature-based outdoor recreation, however, is an important

part of understanding friluftsliv and there is strong evidence for its vitality in North America (Cordell, 2008). Use of the phrase nature-based outdoor recreation provides broad application of core friluftsliv ideas. Further, a deeper understanding of friluftsliv encourages exploration of North American heritage: What American cultural traditions may be able to inform our understanding of environmental connectedness? In the United States, a country made up of cultural identities from all over the world as well as home to numerous indigenous North American cultures, many important traditions with clear links to environmental connectedness may be identifiable. These traditions may be able to support and encourage greater environmental connectedness in the U.S.

Another important implication of this research is a special consideration of the generational differences in the results. The relationship between the regular nature-based outdoor recreational participation and environmental connectedness does not appear to apply to the youngest age group in this study. Nor does this age group show a significant relationship between participation in nature-based outdoor recreation as a child and environmental connectedness. Do these non-significant results indicate a generational shift? Or are the results a function of a long-term process not evident until well into mid-adulthood? One possible explanation is that the intensification of urbanization in Sweden over recent time has contributed to this potential generational shift. An additional correlational analysis of the relationship between respondents' current residence and environmental connectedness ($r = -.06, p \leq .05$) shows a significant and negative relationship. The finding indicates a more densely populated residential setting correlates with a lower level of environmental connectedness. Does this example, or other possible

generational factors, indicate a reduced experience of nature for young adults? More study is needed and will be addressed in the Recommendations for Future Research section. Studies such as the extinction of experience research indicating a correlation between a loss of direct nature experience and reduced affinity for nature may be instructive (Nablan & St. Antoine, 1993).

Environmental Education

Environmental education represents an important part of the implications given the purpose of this study. The operational definition of environmental education used in this study stressed relationships and interactions between dynamic natural and human systems and this study presented environmental connectedness as one of these relationships. While the results of the first question of this study support the overall findings that regular nature-based outdoor recreation participants show a higher level of environmental connectedness than non-regular participants, the additional findings of questions 2, 3, and 4 must be added for a full picture of the environmental education implications. The findings indicate that environmental education must consider audiences in a more generationally specific manner. The results of the moderating effect of age along with the lack of a significant relationship between Participation as Child and Environmental Connectedness from the 18-30 age grouping suggests that more exploration of youth, nature-based outdoor recreation, and environmental connectedness is needed. Simply involving youth and young adults in nature-based outdoor recreation as a way to foster environmental connectedness is not supported by this research.

The results have identified age group differences, serving as a reminder that more complex considerations and different solutions may be needed to support environmental education for young adult populations and older populations may be able to provide insight into support for environmental connectedness. The notion of support for environmental connectedness implies an understanding of directionality of the relationship between nature-based outdoor recreation and environmental connection for most effective environmental education application. If directionality could be assumed, as in nature-based outdoor recreation contributing to environmental connectedness, then nature-based outdoor recreation would have value as a method in environmental education. Or, if the direction indicated that environmental connectedness supports participation in nature-based outdoor recreation, then other predictors and possible antecedents to environmental connectedness could be investigated. Additional review of directionality will be addressed in the Recommendations for Future Research section of this chapter.

Another implication for environmental educators considering nature-based outdoor recreation as environmental education methodology for adults aged 30 and older is the consideration that must be given to simple and accessible activities given the nature of the eight activities found to have a positive correlation with environmental connectedness. The noted activities (walking in the forest and country, pleasure and exercise oriented walking, dog walking, walking with poles, garden work, nature picnic and grilling, plant animal study/bird watching, and meditation/yoga in nature), have been described as simple, accessible, and low-tech. Four of these noted activities are walking

based. Again, the findings indicate that age group appears to make a difference in potential activity as method. Four of the noted variables also showed a relationship with age group: walking in the forest and country, walking with poles, garden work, and plant animal study/bird watching. Additional investigation that provides an understanding of directionality of the relationship between these activities and environmental connectedness is needed before use of specific activities as environmental education method is fully supported.

Recommendations for Future Research

Generational Study

As just noted, a strong implication of this study is the need to consider the identified generational difference in environmental connectedness. The review of this study has conjectured that young adults may not develop environmental connectedness in the same way as older age groups do, or have in the past. This concern for generational environmental connectedness is a theme of some of the popular culture oriented nature disconnection literature. Themes of access, safety, and electronic distraction dominate the discussion about youth disconnection from nature (Louv, 2005; Zaradic & Pergams, 2007). More research is needed to probe this age group implication. Research is needed that considers the factors that may contribute to the noted generational results of this study. One of the factors needing specific attention is urbanization. Research is needed to determine if the ongoing urbanization, or specific aspects of urbanization, shows negative relationships with environmental connectedness. Longitudinal study of environmental connectedness would provide another way to determine if the age group results of this

study represent a life-long pattern of environmental connectedness, i.e. environmental connectedness as developing in mid adulthood, or if generational differences noted in this study are further supported.

Directionality

It will be important for future research to address the question of directionality. The correlational aspect of this research precludes any discussion of causality; relationships have been presented, but the direction of presented relationships has not been determined. The findings noted here do not fully address whether it is individuals who are environmentally connected that seek out nature-based outdoor recreation or whether nature-based outdoor recreation helps to develop environmental connectedness. Establishing direction of this relationship would have a significant impact on implications for nature-based outdoor recreation and environmental connectedness research, as well as for application of these findings. For example, if it can be established that nature-based outdoor recreation is an antecedent to environmental connectedness, then nature-based outdoor recreation as environmental education method is supported. If however, it can be determined those with higher levels of environmental connectedness are likely to seek out nature-based outdoor recreation participation, other antecedents to environmental connectedness will need to be identified and supported.

Phenomenology

The role of regular nature-based outdoor recreation participation can be explored further via phenomenological study. Missing from the research presented here are the actual voices, the voice of the researcher and the voices of respondents. Quantitative

survey methodology has provided access to a large number of respondents and has allowed for careful consideration of ideas to present possible trends and indicators. Missing, however, from the results here is richness in the data that may be accessible via respondent voices. For example, themes in respondent definitions and descriptions may be able to provide a depth to our understanding of friluftsliv; the very basic question of how one defines friluftsliv may be able to provide insight for analysis. Just as themes derived from the definitions provided in chapter 2 by scholars and organizations provided detail and richness to understanding friluftsliv, voices of ordinary Swedish citizens may further illuminate our understanding. Beyond definitions, the question of if, or how, regular friluftsliv contributes to respondents' levels of environmental connectedness can also be explored. Simply stated, how do respondents describe the contribution of regular nature-based outdoor recreation participation in their lives? Would environmental connectedness be noted and described? Can the question of directionality be addressed via respondent perception of self-motivations? Researching lived experience may be able to highlight these questions. Phenomenology offers the "possibility of plausible insights that bring us in more direct contact with the world" (van Manen, 1997, p. 9).

Access and Sustainability

Given the noted importance of access in the effort to fully understand friluftsliv and the noted popular support for the tradition and practice of access laws (allemansrätt) in Sweden, it might be useful to identify the role of access in U.S. nature-based outdoor recreation. A consideration of access in Sweden raises the important implication of the legality of access to public and private lands in the U.S. where universal access laws do

not exist. In the U.S. access to nature is often based on the relationship between public land availability and geographical proximity. Given the inequitable distribution of public lands across the U.S., it will be important for planning and management to recognize the need for a better understanding of equitable access to public land for nature-based outdoor recreation.

Access to nature in urban areas represents an important consideration of the intersect of environmental connectedness and sustainability. Schultz (2002) noted sustainability is contingent upon individuals believing they are a part of nature. As noted, results of this study promote the idea that environmental connectedness can develop over time and via regular experience. Thus, access to nature, as in nature-based outdoor recreation, to facilitate lifelong regular nature experience, may be an important part of both connectedness and sustainability. Given the noted recent demographic trends, the urban impact on the human relationship with nature must be considered. Chapter 2 detailed how environmental connectedness concerns focus upon the negative impact of modernity's destruction of a meaningful relationship between people and nature. The possibility for urban dwellers to stay environmentally connected may be able to counter these negative aspects of modernity as previously described. Instead of mourning the loss of traditional, functional, and need-based relationships with nature and focusing on the negative aspects of urbanization, the positive sustainability related aspects of increased urbanization might be considered. There is substantial current scholarly work outlining how urban lives around the world are much more sustainable relative to rural-based lifestyles. For example, urban areas allow for increased efficiency in regard to

public utilities, education, human services, commercial opportunity, and transportation (Barley, 2010). A current stark example supporting this positive view of sustainable cities are the statistics comparing residential carbon emissions; for example, the average New York City resident produces just 30% of the carbon emissions of the average American (Dodman, 2009). Thus, the challenge in regard to sustainability and environmental connectedness may be to fully explore how regular nature-based outdoor recreation participation can play a role in greater environmental connectedness in urban environments. Further study must consider urban access to nature and environmental connectedness. Considering the results presented in this study coupled with the review of literature indicates that simple, accessible, and walking-based activities in nature may provide the best support for environmental connectedness in urban environments; more study is needed. If urban access to nature concerns are addressed and coupled with the positive resource use outcomes and other technical measures of sustainability, it may be that nature-based outdoor recreation's relationship with environmental connectedness can play an important role in supporting sustainability efforts.

Environmental Behavior

This study did not address a direct link between environmental connectedness, nature-based outdoor recreation participation, and environmental behavior; environmental connectedness has been shown to have a relationship with environmental behavior (Dutcher et al., 2007; Hinds & Sparks, 2008; Nisbet et al., 2009; Nord, Luloff, & Bridger, 1998; Schultz, 2002; Teisl & O'Brien, 2003; Thapa, 2010; Vaske & Kobrin, 2001). Determining the relationship between regular nature-based outdoor recreation,

environmental connectedness, and environmental behavior is an important direction for the continuation of this research. There are a number of environmental behavior oriented questions included in the Outdoor Recreation in Change national survey that can be analyzed in conjunction with the EC scale. The literature review of friluftsliv helps remind us of the possible link between friluftsliv, environmental connectedness, and environmental behavior, Klas Sandell (1991) describes friluftsliv stating: “Often a linkage is claimed between a close contact with nature and a sense of respect, care and also active environmental engagement” (p.133).

Conclusion

The theoretical framework of this research proposed environmental connectedness is best explored via the affective learning domain. The literature supported the idea that repeated experience over time and in conjunction with cultural meaning may contribute to an individual’s environmental connectedness. The quantitative review of survey data in this study lends further support to both this framework and literature. This study presented the idea that a better understanding of the Swedish nature inclusive national identity may be instructive in regard to these questions of environmental connectedness. It has been presented that the intersect between friluftsliv and environmental connectedness may be able to inspire exploration of other cultural traditions and may also serve to strengthen understanding of the human relationship with nature.

The basic finding of this research is exciting. Nature-based outdoor recreation shows a positive relationship with environmental connectedness. One part of a potentially

complex relationship has been identified. Identifying other predictors of environmental connectedness and establishing the direction of the nature-based outdoor recreation and environmental connectedness relationship will provide further useful understanding. The noted exception to these findings and support for the literature is the unique status of the youngest age group studied. Do the findings of the youngest age group represent a part of a pattern in which environmental connectedness among nature-based outdoor recreation participants develops over the course of early adulthood into a significant relationship? Or, is there evidence of a generational difference indicative of other significant factors worthy of investigation? Exploring this distinction is an important direction for future study.

Another area of great interest is a deeper consideration for how the trend toward greater societal urbanization is important in regard to environmental connectedness. In the literature review of this research, concerns about urbanization were identified as potentially destructive forces of modernity. As the research results were noted and analyzed, urbanization again surfaced in the question of whether the youngest respondents of the Outdoor Recreation in Change survey had levels of environmental connectedness based, in part, on the noted demographic shift toward more urban living. This trend, despite being easy to interpret as negative, may hold promise. If urbanization is shown to have a negative relationship with environmental connectedness, it may be that support of accessible urban nature and support for simple and accessible nature-based outdoor recreation activity may counter the negative relationship. Such support may ultimately contribute to sustainability efforts. This scenario is one of conjecture and

promise, namely, can human adjustment to urban environments occur in ways that do not diminish human connectedness with nature? More directly, how can environmental connectedness be supported in urban environments? Answers to these questions may be a part of a creative response to the needs of sustainability.

Berry (2010) stated: “The most basic issue of our time is human-Earth relations” (p. 396). This study is both an acknowledgement of this “most basic issue” and an effort to contribute to a better understanding. It has been shown that friluftsliv is culturally embedded and that a rich cultural history exists. The translation of friluftsliv to nature-based outdoor recreation, however, allows a core of these ideas to transcend culture and provides understanding that bridges cultural contexts. In the spirit of considering the universal value in a better understanding of friluftsliv consider the reflection of Yusra Moshtat, an Iraqi born Swedish immigrant and environmental professional in Göteborg:

Känslan av att upptäcka den första tussilagon, dricka varm choklad sittande på ett sittunderlag, att som barn bygga en trädkoja, plocka blåbär, leta efter kantareller, höra en porlande bäck, ta en skogs promenad om hösten när löven börjat skifta, bada i en sjö sent en sommarkväll, åka skridskor vintertid när dammen frusit, meta krabbor från bryggan eller kanske bara gå ut och andas. (Moshtat, 2007, p. 18)

The feeling to discover the first coltsfoot in bloom, to drink hot cocoa while sitting outdoors, to build a treefort as a child, to pick blueberries, to search for mushrooms, to hear a gurgling stream, to take a forest walk in the fall when the leaves have begun to change, to swim in a lake late on a summer’s night, to ice-

skate in the winter when the pond has frozen, to net crabs from the dock or perhaps, to just go outside and breathe (author translation).

This quote of memories, emotions, and symbols of impressions of growing up in the Swedish nature by someone who did not have this experience is a fitting conclusion.

Yusra Moshtat captures a beautiful, albeit romantic, essence. Her list of nature-based outdoor recreational experience comes from a Swedish report designed:

“to develop methods in order to increase interest in nature and the environment among immigrants; primarily to encourage immigrants to use nature for relief and recreation, but also to create a deeper understanding for the complex relationship between man and nature in a global perspective.” (Moshtat, 2007, p. 15)

Ms. Moshtat’s ideas about the childhood nature experiences of many of her fellow Swedes encourages reflection. The quote of idyllic Swedish symbols brings together the ideas of culture, nature, and recreation and raises the question of environmental connectedness. Exploring one cultural expression of environmental connectedness is a reminder of the potential value in other cultural expressions of environmental connectedness in an effort to better understand the essential relationship between people and nature.

REFERENCES

- Abram, D. (1996). *The spell of the sensuous*. New York: Vintage Books.
- Ahlström, I. (2008). *Allt om allemnasrätten: En svenskt kulturarv*. Solna: Hilmas Förlag.
- Altman, I., & Low, S. (Eds.). (1992). *Place attachment*. New York: Plenum.
- Argaladei (2009). *Argaladei: Friluftsliv en livsstil*. Retrieved 12/14, 2009, from <http://www.argaladei.nu/>
- Backman, E. (2008). What is valued in *friluftsliv* within PE teacher education? Swedish PE teacher educators' thoughts about *friluftsliv* analysed through the perspective of Pierre Bourdieu. *Sport, Education and Society*, 13(1), 61-76.
- Backman, E. (2010). *Friluftsliv in Swedish physical education—a struggle of values: Educational and sociological perspectives*. (Doctoral dissertation), Educational Sciences in Arts and Professions at Stockholm, University, Sweden. (ISBN 978-7447-034-5).
- Balling, J., & Falk, J. (1982). Development of visual preference for natural environments. *Environment and Behavior*, 14(2), 5-28.
- Barley, S. (2010). City vs. country: The concrete jungle is greene. *New Scientist*, November 8, 2785.
- Baron, R., & Kenny, D. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-1182.
- Bentsen, P., Andkjær, S., & Ejbye-Ernst, N. (2009). *Friluftsliv*. København: Munksgaard.
- Berry, T. (2010). The great work. In M. Nelson, & K. Moore (Eds.), *Moral ground: Ethical action for a planet in peril* (pp. 396-399). San Antonio: Trinity.
- Bixler, R. D., Floyd, M. F., & Hammitt, W. E. (2002). Environmental socialization: Quantitative tests of the childhood play hypothesis. *Environment and Behavior*, 34(6), 795-818.
- Bladh, G. (2004). Skogen som kulturlandskap: Exemplet finnskogen. In G. Olsson, G. Bladh, B. Månsson, & L. Nyberg (Eds.), *Inte bara träd: Hållbart mångbruk av skogslandskapet* (pp. 91-112). Stockholm: Carlsson.

- Bladh, G. (2008). Selma Lagerlöf's Värmland. In M. Jones, & K. Olwig (Eds.), *Nordic landscapes* (pp. 220-250). Minneapolis: University of Minnesota Press.
- Boden, L. (2010). *Nytt mål för friluftspolitiken: Allemansrätten är grunden för friluftslivet*. Retrieved 8/7, 2010, from <http://www.sweden.gov.se/sb/d/13363/a/149542>
- Bragg, E. A. (1996). Towards ecological self: Deep ecology meets constructionist self-theory. *Journal of Environmental Psychology, 16*, 93-108.
- Brookes, A., & Dahle, B. (2007). Preface. In B. Henderson, & N. Vikander (Eds.), *Nature first: Outdoor life the friluftsliv way*. Toronto: Natural Heritage Books.
- Brown, G., & Raymond, C. (2007). The relationship between place attachment and landscape values: Toward mapping place attachment. *Applied Geography, 27*, 89-111.
- Brugge, B., Glantz, M., & Sandell, K. (2002). *Friluftslivets pedagogik: För kunskap, känsla och livskvalitet*. Stockholm: Liber AB.
- Bustam, T., Young, A., & Todd, S. (2003). Environmental sensitivity and youthful participation in outdoor recreation. *Proceedings of the 2003 Northeastern Recreation Research Symposium, 270-275*.
- Chawla, L. (1998). Significant life experiences revisited: A review of research on sources of environmental sensitivity. *The Journal of Environmental Education, 29*(3), 11-21.
- Chawla, L. (1999). Life paths into effective environmental action. *The Journal of Environmental Education, 31*(1), 15-26.
- Chawla, L., & Escalante, M. (2007). *Student gains from place-based education* (Fact Sheet #2). Children, Youth and Environments Center for Research and Design.
- Clayton, S. (2003). Environmental identity: A conceptual and operational definition. In S. Clayton, & S. Opatow (Eds.), *Identity and the natural environment: The psychological significance of nature*, (pp. 45-66). Cambridge, Massachusetts: The MIT Press.
- Clayton, S., & Opatow, S. (Eds.). (2003). *Identity and the natural environment: The psychological significance of nature*. Cambridge, Massachusetts: The MIT Press.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, New Jersey: Lawrence Erlbaum Associates.

- Corcoran, P. (1999). Formative influences in the lives of environmental educators in the United States. *Environmental Education Research*, 5(2), 207-220.
- Cordell, K. (2008). The latest trends in nature-based outdoor recreation. *Forest History Today*, (Spring), 4-10.
- Cronon, W. (1996). The trouble with wilderness; or, getting back to the wrong nature. In W. Cronon (Ed.), *Uncommon ground* (pp. 69-90). New York: W. W. Norton and Company.
- Cusack, A. (2002). The benefit of experiencing risk in addition to friluftsliv. *Pathways: The Ontario Journal of Outdoor Education*, 14(3), 22-24.
- Dahl, G. (1998). Wildflowers, nationalism and the Swedish law of commons. *Worldviews: Environment, culture, religion* 2 (pp. 281). Cambridge, UK: The White Horse Press.
- Dahle, B. (2003). *Norwegian "friluftsliv" - environmental education as a lifelong communal process*. (No. RMRS-P-27) USDA Forest Service.
- Dahle, B. (2007). Norwegian friluftsliv: A lifelong communal process. In B. Henderson, & N. Vikander (Eds.), *Nature first: Outdoor life the friluftsliv way* (pp. 24-36). Toronto: Natural Heritage Books.
- Dahlström, Å. N. (2003). *Negotiating wilderness in a cultural landscape: Predators and Saami reindeer herding in the Laponian world heritage area*. Lund: Studentlitteratur.
- Dodman, D. (2009). Blaming cities for climate change? An analysis of urban greenhouse gas emissions inventories. *Environment and Urbanization*, 21, 185-201.
- Doering, T. R., & Hubbard, R. (1979). Measurement and statistics: The ordinal-interval controversy and geography. *Area*, 11(3), 237-243.
- Donnelly, P. (1993). The right to wander: Issues in the leisure use of the countryside and wilderness areas. *International Review for the Sociology of Sport*, 28, 187-201.
- Dunlap, R., & Heffernan, R. (1975). Outdoor recreation and environmental concern: An empirical examination. *The Journal of Rural Sociology*, 40(1), 18-30.
- Dutcher, D. D., Finley, J. C., Luloff, A. E., & Johnson, J. B. (2007). Connectivity with nature as a measure of environmental values. *Environment and Behavior*, 39(4), 474-493.

- Eiss, A., & Harbeck, M. (1969). *Behavioral objectives in the affective domain*. Washington: National Science Supervisors Association.
- Emanuelsson, U. (2009). *The rural landscapes of Europe: How man shaped European nature*. Värnamo: Formas.
- Emmelin, L., Fredman, P., & Sandell, K. (2005). *Planering och förvaltning för friluftsliv*. (No. 5468) Naturvårdsverket.
- Eskilsson, L. (2008) Fritid och demokratisering. In K. Sandell, & S. Sörlin (Eds.), *Friluftshistoria: Från härdande friluftsliv till ekoturism och miljöpedagogik* (pp. 67-83). Stockholm: Carlssons.
- Ewert, A., Place, G., & Sibthorp, J. (2005). Early-life outdoor experiences and an individual's environmental attitudes. *Leisure Sciences*, 27, 225-239.
- Faarland, N. (1993). A way home. In P. Reed, & D. Rothenberg (Eds.), *Wisdom in the open air* (pp. 155-168). Minneapolis: University of Minnesota Press.
- Faarlund, N. (2009). Challenging modernity by way of the Norwegian friluftsliv tradition. Proceedings from Ibsen Jubilee Friluftsliv Conference. North Trøndelag University College.
- Falk, T. (1976). *Urban Sweden: Changes in the distribution of population*. Stockholm: Ekonomiska forskningsinstitut.
- Feldman, J. (2004). Rewilding the islands: Nature, history, and policy at Apostle Islands National Lakeshore. (Doctoral dissertation, University of Wisconsin, Madison).
- Finger, M. (1994). From knowledge to action? Exploring the relationships between environmental experiences, learning, and behavior. *Journal of Social Issues*, 50, 141-160.
- Follow Sweden* (2010). Retrieved 7-14, 2010, from http://www.thelocal.se/followsweden/?utm_source=email&utm_medium=email&utm_content=161
- Frantz, C., Mayer, F. S., Norton, C., & Rock, M. (2005). There is no "I" in nature: The influence of self awareness on connectedness to nature. *Journal of Environmental Psychology*, 25, 427-436.
- Fredman, P., Boman, M., Lundmark, L., & Matsson, L. (2008). *Friluftslivets ekonomiska värden: En översikt* (No. 5). Östersund: Friluftsliv i förändring.

- Fredman, P., Karlsson, S. E., Romild, U., & Sandell, K. (2008). *Besöka naturen hemma eller borta? Delresultat från en nationell enkät om friluftsliv och naturturism i sverige* (No. 3). Östersund: Friluftsliv i förändring
- Frenning, I. (2009). Friluftsliv in one Norwegian primary school—signs of success. Proceedings from Ibsen Jubilee Friluftsliv Conference. North Trøndelag University College.
- Freyfogle, E. T. (2003). *The land we share*. Washington: Island Press.
- Freyfogle, E. T. (2007). *On private property*. Boston: Beacon.
- Friluftsförbundet (2010). *Friluftsförbundet historia 1892-2010*. Retrieved 01/20, 2010, from <http://www.friluftsförbundet.se/guest/historia>
- Friluftsförbundet. (2009). *Längtan ut: Friluftsförbundet tar med dig ut i naturen* [Brochure]. Hägersten, Sweden: Author.
- Friluftsförbundet. (n.d.) *I Ur och Skur*. Retrieved 08/07/10 from <http://www.friluftsförbundet.se/iurochskur>
- Friluftsliv i förändring (2010). *Om friluftsliv i förändring*. Retrieved 4/ 4, 2010, from <http://www.friluftsforskning.se/omprogrammet.4.6983d52510f51a3d56e8000608.html>
- Friluftsliv i förändring (2006). *Outdoor recreation in change: Landscapes, experiences, and development 2006 program plan*. Retrieved from <http://www.friluftsforskning.se/2.6983d52510f51a3d56e800090.html>
- Geisler, C., Martinson, O., & Wilkening, E. (1977). Outdoor recreation and environmental concern: A restudy. *Rural Sociology*, 42(2), 241-249.
- Gelter, H. (2009). Friluftsliv as slow and peak experiences in the transmodern society. Proceedings from Ibsen Jubilee Friluftsliv Conference. North Trøndelag University College.
- Gelter, H. (2000). Friluftsliv: The Scandinavian philosophy of outdoor life. *Canadian Journal of Environmental Education*, 5(summer), 77.
- Green, S. & Salkind, N.J. (2008). *Using SPSS for Windows and Macintosh* (5th ed.). Upper Saddle River, New Jersey: Pearson, Prentice Hall.

- Grimwood, B., & Henderson, B. (2009). Inviting conversations about 'friluftsliv' and relational geographic thinking. Proceedings from Ibsen Jubilee Friluftsliv Conference. North Trøndelag University College.
- Gurholt, K. P. (2008). Norwegian friluftsliv and ideals of becoming an 'educated man.' *Journal of Adventure Education and Outdoor Learning*, 8(1), 55-70.
- Göteborgs Stad (2010). *Motion och friluftsliv*. Retrieved 10/1, 2010, from http://www.goteborg.se/wps/portal/!ut/p/c0/04_SB8K8xLLM9MSSzPy8xBz9CP0os3gjU-9AJyMvYwN3V2cTA6MQPyd_C88AY39jU_2CbEdFABxi8AI/
- Hammarström, T., & Wästberg, P. (2001). *True north: The grand landscapes of Sweden*. Farsta, Sweden: Bokförlaget Max Ström.
- Hay, R. (1998). Sense of place in developmental context. *Journal of Environmental Psychology*, 18, 5-29.
- Henderson, B. (2001). Lessons from Norway: Language and outdoor life. *Pathways: The Ontario Journal of Outdoor Education*, 13(3), 31-32.
- Henderson, B., & Vikander, N. (Eds.). (2007). *Nature first: Outdoor life the friluftsliv way*. Toronto: Natural Heritage Books.
- Hinchliffe, S. (2007). *Geographies of nature: Societies, environments, ecologies*. London: Sage.
- Hinds, J., & Sparks, P. (2008). Engaging with the natural environment: The role of affective connection and identity. *Journal of Environmental Psychology*, 28, 109-120.
- Hockett, K. S., McClafferty, J. A., & McMullin, S. L. (2004). *Environmental concern, resource stewardship, and recreational participation: A review of the literature* (No. CMI-HDD-04-01). Virginia Tech, College of Natural Resources: Conservation Management Institute.
- Horgen, A. (2009). Henrik Ibsen and 'friluftsliv-outdoor life'. Proceedings from Ibsen Jubilee Friluftsliv Conference. North Trøndelag University College.
- Horwitz, P., Lindsay, M., & O'Connor, M. (2001). Biodiversity, endemism, sense of place, and public health: Inter-relationships for Australian inland aquatic systems. *Ecosystem Health*, 7(4), 253-265.
- Hough, M. (1995). *City form and natural processes*. New York: Routledge.

- Hume, D. (2007). From tomte wisdom to friluftsliv: Scandinavian perspectives of nature. In B. Henderson, & N. Vikander (Eds.), *Nature first: Outdoor life the friluftsliv way* (pp. 221-234). Toronto: Natural Heritage Books.
- Iozzi, L. A. (1989). What research says to the educator. Part one: Environmental education and the affective domain. *Journal of Environmental Education*, 20(3), 3-9.
- Isberg, R., & Isberg, S. (2007). *Simple life: Friluftsliv*. Victoria, BC: Trafford.
- Isberg, R., & Tordsson, B. (1991). *Friluftsliv*. Stockholm: KFUK-KFUMs Scoutförbund.
- Jones, M., & Olwig, K. R. (2008). Introduction. In M. Jones, & K. R. Olwig (Eds.), *Nordic landscapes* (pp. ix-xxix). Minneapolis: University of Minnesota Press.
- Jorgensen, B. S., & Stedman, R. C. (2001). Sense of place as an attitude: Lakeshore owners attitudes toward their properties. *Journal of Environmental Psychology*, 21, 233-248.
- Kahn, P. (1999). *The human relationship with nature*. Cambridge, Massachusetts: MIT Press.
- Kals, E., Schumacher, D., & Montada, L. (1999). Emotional affinity toward nature as a motivational basis to protect nature. *Environment and Behavior*, 31(2), 178-202.
- Kaplan, S. (2000). Human nature and environmentally responsible behavior. *Journal of Social Issues*, 56(3), 491-508.
- Kellert, S. (2005). *Building for life: Designing and understanding the human-nature connection*. Washington: Island Press.
- Kellert, S. (2010). For the love and beauty of nature. In M. Nelson, & K. Moore (Eds.), *Moral ground: Ethical action for a planet in peril* (pp. 373-378). San Antonio: Trinity.
- Kennedy, M.J. and Stromme, D.M. (2008). *A Greenprint for Minnesota: State Plan for environmental education*, (3rd ed.). St. Paul: Minnesota Pollution Control Agency.
- Krathwohl, D. R., Bloom, B. S., & Masia, B. B. (1973). *Taxonomy of educational objectives, the classification of educational goals. handbook II: Affective domain*. New York: David McKay C., Inc.
- 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.

- Leirhaug, P. E. (2009). The role of friluftsliv in Henrik Ibsen's works. Proceedings from Ibsen Jubilee Friluftsliv Conference. North Trøndelag University College.
- Leopold, A. (1949). *A sand county almanac*. Oxford: Oxford University Press.
- Louv, R. (2005). *Last child in the woods: Saving our children from nature-deficit disorder*. Chapel Hill: Algonquin Books.
- Lundmark, L. (2009). *Efterfrågan på naturturism* (No. 11). Retrieved from: <http://www.friluftsforskning.se/publikationer.4.6983d52510f51a3d56e8000638.html>
- Lykken, K. (2005). På vandring med Henrik Ibsen. In K. Lykken (Ed.), *Turglede med konger og kunstnere* (pp. Chapter 18). Arvika: Lykken Konsult.
- Macnaghten, P., & Urry, J. (1998). *Contested natures*. London: Sage.
- Maller, C., Townsend, M., St. Leger, L., Henderson-Wilson, C., Pryor, A., Prosser, L., (2009). Healthy parks, healthy people: The health benefits of contact with nature in a park context. *The George Wright Forum*, 26(2), 51-83.
- Malmö stad fritidsförvaltningen. (2009). *Friluftsliv* [Brochure]. Malmö: Author.
- Mayer, F. S., & Frantz, C. M. (2004). The connectedness to nature scale: A measure of individuals' feeling in community with nature. *Journal of Environmental Psychology*, 24, 503-515.
- Mayer, F. S., Frantz, C. M., Bruehlman-Senecal, E., & Dolliver, K. (2009). Why is nature beneficial? The role of connectedness to nature. *Environment and Behavior*, 41(5), 607-643.
- Millar, M. G., & Millar, K. U. (1996). The effects of direct and indirect experience on affective and cognitive responses and the attitude-behavior relation. *Journal of Experimental Social Psychology*, 32, 561-571.
- Miller, M. (2005). Teaching and learning in the affective domain. In M. Orey (Ed.), *Emerging perspectives on learning, teaching, and technology*. Retrieved from http://projects.coe.uga.edu/eplktt/index.php?title=Teaching_and_technology
- Moore, R. L., & Graefe, A. R. (1994). Attachments to recreation settings: The case of rail-trail users. *Leisure Sciences*, 16, 17-31.
- Moshtat, Y. (2008). *Med andra ögon* (No. 5808). Bromma: Naturvårdsverket.

- Nabhan, G. P., St. Antoine, S. (1993). The loss of floral and faunal story: The extinction of experience. In S. R. Kellert, & E. O. Wilson (Eds.), *The biophilia hypothesis* (pp. 229-250). Washington, D.C.: Island Press.
- Naturvårdsverket (2010a). *En unik möjlighet*. Retrieved 01/12, 2010, from <http://www.naturvardsverket.se/sv/Att-vara-ute-i-naturen/Allemansratten--en-unik-mojlighet/>
- Naturvårdsverket (2010b). *Sundsvall är sveriges friluftskommun 2010*. Retrieved 10/1, 2010, from <http://www.naturvardsverket.se/sv/Nedre-meny/Nyheter/Sveriges-friluftskommun/>
- Naturvårdsverket. (2010c). *Vad är allemansrätten?* Retrieved 6/25, 2010, from <http://www.naturvardsverket.se/sv/Att-vara-ute-i-naturen/Allemansratten--en-unik-mojlighet/Vad-ar-allemansratten/>
- Nicol, R. (2003). Outdoor education: Research topic or universal value? Part three. *Journal of Adventure Education and Outdoor Learning*, 3(1), 11-27.
- Nisbet, E. K., Zelenski, J. M., & Murphy, S. A. (2009). The nature relatedness scale: Linking individuals' connection with nature to environmental concern and behavior. *Environment and Behavior*, 41(5), 715-740.
- No Child Left Inside (2010a). *Narrowing curriculum*. Retrieved 10/1, 2010, from <http://www.cbf.org/Page.aspx?pid=690>
- No Child Left Inside (2010b). *What is environmental education?* Retrieved 10/1, 2010, from <http://www.cbf.org/Page.aspx?pid=946>
- Nord, M., Luloff, A.E., & Bridger, J.C. (1998). The association of forest recreation with environmentalism. *Environment and Behavior*, 30(2), 235-246.
- Obama, B. (2010). *A 21st century strategy for America's great outdoors*. Washington D.C.: The White House.
- Oelschlaeger, M. (1991). *The idea of wilderness*. New Haven: Yale University Press.
- Orr, D., W. (1992). *Ecological literacy*. Albany: State University of New York Press.
- Palmer, J. A. (1993). Development of concern for the environment and formative experiences of educators. *Journal of Environmental Education*, 24(3), 26.

- Perrin, J. L., & Benassi, V. A. (2009). The connectedness to nature scale: A measure of emotional connection to nature? *Journal of Environmental Psychology*, 29(4) 434-440.
- Picard, R. W., Papert, S., Bender, W., Blumberg, B., Breazeal, C., Cavallo, D., et al. (2004). Affective learning: A manifesto. *BT Technology Journal*, 22(4), 253-269.
- Pinhey, T. K., & Grimes, M. D. (1979). Outdoor recreation and environmental concern: A reexamination of the Dunlap-Heffernan thesis. *Leisure Sciences*, 2(1), 1-11.
- Place, G. (2004). Youth recreation leads to adult conservation: Outdoor playtime integral during childhood development. *Parks and Recreation*, ISSN 0031-2215.
- Proshansky, H. M., Fabian, A. K., & Kaminoff, R. (1983). Place-identity: Physical world socialization of the self. *Journal of Environmental Psychology*, 3, 57-83.
- Proshansky, H. M. (1978). The city and self identity. *Environment and Behavior*, 10(2), 147-169.
- Reed, P., (Ed.), & Rothenberg, D., (Ed.). (1993). *Wisdom in the open air: The Norwegian roots of deep ecology*. University of Minnesota Press: Minneapolis.
- Relph, E. (1976). *Place and placelessness*. London: Pion Limited.
- Repp, G. (2007). How modern friluftsliv started: Fridtjof Nansen, instigator and model. In B. Henderson, & N. Vikander (Eds.), *Nature first: Outdoor life the friluftsliv way* (pp. 104-113). Toronto: Natural Heritage Books.
- Romild, U. (2007). *En studie om fritidsaktiviteter och naturupplevelser*. Östersund: Mittuniversitet.
- Roszak, T. (1992). *The voice of the earth*. New York: Simon & Schuster.
- Sahlström, E., & Johansson, Y. (2006). *Skogsmulle ledarhandledning Friluftslivfrämjandet*.
- Sandell, K. (1991). "Ecostrategies" and environmentalism: The case of outdoor life and friluftsliv. *Geografiska Annaler*, 73B(2), 133-141.
- Sandell, K. (2003). Bregreppet friluftsliv: Som en trebent pall. *Argaladei: Friluftsliv--En Livstil*, 1, 10-11.
- Sandell, K. (2006). Access under stress: The right of public access tradition in Sweden. In N. McIntyre, D. Williams & K. McHugh (Eds.), *Multiple dwelling and tourism: Negotiating place, home and identity* (pp. 278). Oxfordshire, UK: CABI.

- Sandell, K. (2007). The right of public access: The landscape perspective of friluftsliv. In B. Henderson, & N. Vikander (Eds.), *Nature first: Outdoor life the friluftsliv way* (pp. 90). Toronto: Natural Heritage Books.
- Sandell, K. (2010). *Outdoors the Nordic way*. Retrieved 6/25, 2010, from http://www.nordicwellbeing.com/web/outdoor/more_outdoors/friluftsliv.php
- Sandell, K., & Öhman, J. (2010). *Educational potentials of encounters with nature: Reflections from a Swedish outdoor perspective*. *Environmental education research*, 16(1), 113-132.
- Sandell, K., & Sörlin, S. (Eds.). (2008). *Friluftshistoria: Från "härdande friluftslif" till ekoturism och miljöpedagogik*. Stockholm: Carlsson.
- Saunders, C. (2003). The emerging field of conservation psychology. *Human Ecology Review*, 10(2), 137-149.
- Schultz, W. (2002). Inclusion with nature: The psychology of human-nature relations. In P. Schmuck, & W. Schultz (Eds.), *Psychology of sustainable development* (pp. 61-75). Boston: Kluwer.
- Schultz, W. P. (2000). Empathizing with nature: The effects of perspective taking on concern for environmental issues. *Journal of Social Issues*, 56(3), 391-406.
- Schultz, W. P., Shriver, C., Tabanico, J. J., & Khazian, A. M. (2004). Implicit connections with nature. *Journal of Environmental Psychology*, 24, 31-42.
- Schultz, W. P., & Tabanico, J. (2007). Self, identity, and the natural environment: Exploring implicit connections with nature. *Journal of Applied Social Psychology*, 37(6), 1219-1247.
- Shavelson, R. (1996). *Statistical reasoning for the behavioral sciences* (3rd ed.). Boston: Allyn and Bacon.
- Sivek, D. J. (2002). Environmental sensitivity among Wisconsin high school students. *Environmental Education Research*, 8(2), 155.
- Sobel, D. (2004). *Place-based education: Connecting classrooms and communities*. Barrington, Massachusetts: The Orion Society.
- Statistics Sweden. (2008). *Statistics for day-time population for localities* (No. 2008:026). Stockholm: Statistiska Centralbyrån.

- Stedman, R. C. (2002). Toward a social psychology of place: Predicting behavior from place-based cognitions, attitude, and identity. *Environment and Behavior*, 34(5), 561-581.
- Stenseke, M. (2010). *Hur beaktades friluftslivet vid bildandet av kosterhavets nationalpark? En fallstudie av svensk praktik i att integrera friluftsliv och naturbevarande* (No. 13). Göteborgs Universitet: Friluftsliv i förändring.
- Stockholms Stad. (2010). *Friluftsliv*. Retrieved 10/1, 2010, from <http://www.stockholm.se/KulturFritid/Friluftsliv/>
- Sundberg, M., & Öhman, J. (2008). Hälsa och livskvalitet. In K. Sandell, & S. Sörlin (Eds.), *Friluftslivshistoria: Från härdande friluftsliv till ekoturism och miljöpedagogik* (pp. 102-119). Stockholm: Carlssons.
- Sundvall, J., & Hjelmstedt, F. (2006). *Friluftsliv i Sverige: Din guide till vinterns äventyr*. Stockholm: Calazo.
- Sundsvall Kommun (2011). Befolkning. Retrieved 01/29, 2011 from: <http://www.sundsvall.se/Kommun-och-politik/Kommunfakta/Befolkning/>
- Svenskt friluftsliv (2010). *Friluftsliv och samhället*. Retrieved 10/3, 2010, from <http://www.svenskfriluftsliv.se/Default.asp?path=13949&pageid=19344>
- Svenning, S. (2004). Friluftsliv: En form av samhällskritik? *Argaladei*, 3, 12-14.
- Svenska Turist Föreningen (2010). *STFs historia*. Retrieved 01/12, 2010, from <http://www.svenskaturistforeningen.se/sv/Kampanjsidor/STF-firar-125-ar/STFs-historia/>
- Sverige's Riksdag (2010). Kulturutskottets betänkande 2010-11:KrU3. Retrieved 01/28, 2011, from <http://www.riksdagen.se/webbnav/?nid=3120&doktyp=betankande&bet=2010/11:KrU3>
- Sward, L. L., & Marcinkowski, T. (2001). Environmental sensitivity: A review of the research, 1980-1998. In H. Hungerford, W. Bluhm, & T. Volk (Eds.), *Essential readings in environmental education*. Champaign, IL: Stipes Publishing L.L.C.
- Tarrant, M. A., & Green, G. T. (1999). Outdoor recreation and the predictive validity of environmental attitudes. *Leisure Sciences*, 21(1), 17-30.

- Taylor, A., & Kuo, F. (2006). Is contact with nature important for healthy child development? State of the evidence. In C. Spencer, & M. Blades (Eds.), *Children and their environments* (pp. 124-140). Cambridge, UK: Cambridge University Press.
- Taylor, A., Wiley, A., Kuo, F., & Sullivan, W. (1998). Growing up in the inner city: Green spaces as places to grow. *Environment and Behavior*, 30(1), 3-27.
- Teisl, M. F., & O'Brien, K. (2003). Who cares and who acts: Outdoor recreationists exhibit different levels of environmental concern and behavior. *Environment and Behavior*, 35, 506-522.
- Tellnes, A. (1993). Friluftsliv: Outdoor nature life as a method to change attitudes. *Journal of Adventure Education and Outdoor Leadership*, 10(3), 12-15.
- Thapa, B. (2010). The mediation effect of outdoor recreation participation on environmental attitude-behavior correspondence. *Journal of Environmental Education*, 41(3), 133-150.
- Thapa, B., & Graefe, A. R. (2003). Forest recreationists and environmentalism. *Journal of Park and Recreation Administration*, 21(1), 75-103.
- Theimer, S. (2009). Fostering "connectedness to nature" through U.S. fish and wildlife service education and outreach programming: A qualitative evaluation. (Master of Environmental Education Thesis, University of Minnesota Duluth).
- Theodori, G., Luloff, A., & Willits, F. (1988). The association of outdoor recreation and environmental concern: Reexamining the Dunlap-Heffernan thesis. *Rural Sociology*, 63(1), 94-108.
- Thomashow, M. (2002). *Bringing the biosphere home: Learning to perceive global environmental change*. Cambridge, Massachusetts: MIT Press.
- Tordsson, B. (2008). Friluftslivets mytologiska rötter. In K. Sandell, & S. Sverker (Eds.), *Friluftshistoria: Från härdande friluftslif till ekoturism och miljöpedagogik* (pp. 47-61). Stockholm: Carlssons.
- Tordsson, B., Isberg, R., & Myren, I. (1984). *Mera ute friluftsliv: Vintervedder, vattenvägar, högfjäll*. Minab/Gotab.
- Tuan, Y. (1977). *Space and place: The perspective of experience*. Minneapolis: University of Minnesota Press.
- Turner, W., Nakamura, T., & Dinetti, M. (2004). Global urbanization and the separation of humans from nature. *Bioscience*, 54(6), 585-590.

- US Census Bureau. (2002). *US census 2000*. U.S. Department of Commerce Economics and Statistics Administration.
- Van Liere, K., & Noe, F. (1981). Outdoor recreation and environmental attitudes: Further examination of the Dunlap-Heffernan thesis. *Rural Sociology*, 46(3), 505-513.
- Van Manen, M. (1998). *Researching lived experience* (2nd ed.). University of Alberta: Athlone Press.
- Vaske, J. J. (2008). *Survey research and analysis: Applications in parks, recreation and human dimensions*. State College, Pennsylvania: Venture.
- Vaske, J. J., & Kobrin, K. C. (2001). Place attachment and environmentally responsible behavior. *Journal of Environmental Education*, 32(4), 16-21.
- Vittersø, J., Chipeniuk, R., Skår, M., & Vistad, O. I. (2004). Recreation conflict is affective: The case of cross-country skiers and snowmobiles. *Leisure Sciences*, 26, 227-243.
- Wall Reinius, S. (2009). Protected attractions: Tourism and wilderness in the Swedish mountain region. (Doctoral dissertation). Human Geography, Stockholm University. (ISBN 978-91-7155-906-7).
- Ward Thompson, C., Aspinall, P., & Montarzino, A. (2008). The childhood factor: Adult visits to green places and the significance of childhood experience. *Environment and Behavior*, 40(1), 111-143.
- Wells, N., & Evans, G. (2003). Nearby nature: A buffer of life stress among rural children. *Environment and Behavior*, 35(3), 311-330.
- Wells, N., & Lekies, K. (2006). Nature and the life course: Pathways from childhood nature experiences to adult environmentalism. *Children, Youth and Environments*, 16(1), 1-24.
- Westerlund, A. (2009). *I ur och skur: Grundbok för friluftsförmedlingens i ur och skur verksamhet*. Friluftsförmedlingens.
- Wilson, E. O. (1984). *Biophilia*. Cambridge, Massachusetts: Harvard University Press.
- XE Currency Charts (2009). USD/SEK. Retrieved 9/24, 2010, from <http://www.xe.com/currencycharts/?from=USD&to=SEK&view=5Y>

Zaradic, P. A. & Pergams, O. (2007). Videophilia: Implications for childhood development and conservation. *The Journal of Developmental Processes*, 2(1), 130-144.

Öhman, J. (2010). *Pedagogiska naturmöten och lärande*. Unpublished manuscript.