

THE EXAMINATION OF PLACE ATTACHMENT IN
CAMP STAFF AND ITS ASSOCIATION WITH
CONNECTEDNESS TO NATURE OVER THE COURSE
OF A SEVEN DAY CAMP

By

HAILEY B. DOSS

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Thesis Approved:

Dr. Tyler Tapps

Thesis Adviser

Dr. Lowell Caneday

Dr. Tim Passmore

Name: HAILEY B. DOSS

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Abstract: The purpose of this study was to expand on the limited body of knowledge that exists on place attachment (PA) to a site specific area after participating in an activity over a short period of time; and to assess if there is a relationship between increased levels of PA and preexisting levels of connectedness to nature (CN). This study examined PA in camp staff ($n=62$), in relation to Muir Woods, and its association with CN over the course of a seven day camp. A PA Scale (Williams & Vaske, 2003) and CN Scale (Mayer & Frantz, 2004) were administered to participants before and after camp staff training in Muir Woods. A repeated measures ANOVA found a significant increase in camp staff's PA to Muir Woods, in sub-constructs place identity ($p < .01$) and place dependence ($p < .01$), and an insignificant difference in CN ($p < .10$) after experiencing a weeklong activity. Spearman Rho correlations based on place dependence, place identity, and CN indicated that overall there is no relationship between PA and CN ($r = -.123$, $r = -.001$, $r = -.071$, $r = .006$, $r = -.033$, $r = .011$).

TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION.....	1
Statement of the Problem.....	2
Purpose of the Study.....	2-3
Hypothesis.....	3-4
Significance of the Study.....	4
Definition of Terms.....	4-6
Assumptions of the Study.....	6
Limitations of the Study.....	7
II. REVIEW OF LITERATURE.....	8
Theoretical Foundation.....	8
Place Attachment Theory.....	8-10
Place Identity Sub-Construct of Place Attachment.....	10-12
Place Dependence Sub-Construct of Place Attachment.....	12
Connectedness to Nature.....	12-13
Muir Woods.....	14-15
Camp Programming.....	15
Place Attachment Measurement Scale.....	15-16
Connectedness to Nature Scale.....	16-17
III. METHODOLOGY.....	18
Introduction.....	18
Selection of Participants.....	18-19
Research Design.....	19
Instrumentation.....	20
Demographic Data.....	20
Place Attachment Scale.....	20-21
Connectedness to Nature Scale.....	21
Analysis of Data.....	22

Summary	22
IV. FINDINGS.....	23
Introduction.....	23
Data Screening	23-24
Group Demographics	24
Table 4-1: Gender of participants	24
Table 4-2: Descriptive statistics.....	24
Group Familiarity to Muir Woods	25
Table 4-3: Group previous visitation to Muir Woods.....	25
Table 4-4: Group familiarity to history of Muir Woods.....	25
Place Attachment Scale.....	25
Place Identity	25-26
Table 4-5: Means of participant PI, PD, and connectedness to nature	26
Table 4-6: Repeated-measures ANOVA of place identity	26
Place Dependence	26-27
Table 4-7: Repeated measures ANOVA of PD	27
Connectedness to Nature Scale.....	27
Table 4-8: Repeated-measures ANOVA of connectedness to nature	27
Construct Correlation.....	27-28
Table 4-9: Spearman rho correlation coefficients.....	28
Conclusions.....	29-30
V. DISCUSSION	31
Introduction.....	31-32
Discussion	32-33
Limitations	33-35
Additional Recommendations for Further Research.....	35-36
Concluding Comments.....	36-37
REFERENCES	38-43
APPENDICES	44
A. Informed assent letter.....	45-46
B. Institutional board approval	47
C. Demographics Survey.....	48-49
D. Place attachment scale survey.....	50-51
E. Connectedness to nature scale survey.....	52-53

LIST OF TABLES

Table 4-1: Gender of participants	24
Table 4-2: Descriptive statistics.....	24
Table 4-3: Group previous visitation to Muir Woods.....	25
Table 4-4: Group familiarity to history of Muir Woods	25
Table 4-5: Means of participant PI, PD, and connectedness to nature	26
Table 4-6: Repeated-measures ANOVA of place identity	26
Table 4-7: Repeated measures ANOVA of PD	27
Table 4-8: Repeated-measures ANOVA of connectedness to nature	27
Table 4-9: Spearman rho correlation coefficients.....	28

CHAPTER I

INTRODUCTION

Over the past decade, researchers have focused their attention on understanding the attachment individuals develop with specific places or landscapes, as well as investigating the subjective, symbolic, and emotional meanings that are connected to these natural places (Kyle, Graefe, Manning, & Bacon, 2004b; Kyle, Mowen, & Tarrant, 2004c; Lee & Shen, 2012; Williams & Vaske, 2003). These studies emphasize that places are more than a location found in a geographic area; rather, they are changeable and dynamic spaces that have many more personal connotations (Kyle et al., 2004b).

The emergence of these analytical studies parallels the research by academics in the investigation of human-place bonds, otherwise known as place attachment (Kyle et al., 2004b). Place attachment has appeared in a variety of journals across multiple disciplines (Williams & Vaske, 2003). Disciplines ranging from the study of sociology, geography, environmental science, and recreation have all acknowledged the bonds individuals often make with the natural world. These personal ties that a person can have with a place may range from an exact moment in their life, like growing up in their childhood neighborhood, to more publicly shared notions like the national forests representing American heritage (Williams & Vaske, 2003).

Statement of the Problem

Despite the differing degrees of connection, this type of bond often falls under the study of “place attachment” (Williams & Vaske, 2003), with two related sub-constructs “place identity” (Proshansky, Fabian, & Kaminoff, 1983), and “place dependence” (Moore & Graefe, 1994). Currently, there is a large amount of research on this subject matter (Kyle et al., 2004b; Proshansky, 1978; Oh, Lyu, & Hammitt, 2012; Lee & Shen, 2012; Raymond, Brown, & Weber, 2010), however, there is little on place attachment in relation to a short-term continuous activity (Scott & Shafer, 2001). Studies have focused on recreation specialization, which is described as a sporadic involvement in a recreation activity over a continuum of time (Oh et al., 2012). Much of the leisure research, however, is focused strongly on these activities and has ignored the settings in which these experiences of place attachment occurs (Kyle, Bricker, Graefe, & Wickham, 2004a).

Purpose of the Study

It is the goal of this research to expand on the limited body of knowledge that exists on place attachment to a site specific area after participating in an activity over a short period of time (Kyle et al., 2004a; Kaltborn, 1997); and to assess if there is a relationship between increased levels of place attachment and preexisting levels of connectedness to nature. This research will also potentially provide insight into the sub-construct of connectedness to nature in an individual and if there is a positive relationship between connectedness to nature and the susceptibility of an individual to form a new place attachment. Gaining insight into these areas will potentially increase the

understanding of place attachment and connectedness to nature within the field of Leisure.

Hypothesis

There are two distinct questions being asked in this study. First, is there a difference between the place attachments to Muir Woods in camp staff before participating in a seven day activity compared to place attachment after participation? Second, is place attachment associated with connectedness to nature? Using a pretest/posttest convenient sample experimental design, participants will be surveyed on their place attachment to Muir Woods based on the sub-constructs place identity and place dependence identified in William and Roggenbuck's (1989) scale for place attachment.

Q1 Null Hypothesis: There is no significant difference between the measures of place attachment between the pretest surveys, administered prior to camp staff participating in activity, and the posttest surveys, administered after camp staff have participated in a week long activity.

Q1 Alternative Hypothesis: After camp staff participates in a seven day activity in Muir Woods, posttest surveys on place attachment to Muir Woods will measure higher than pretest surveys.

Q2 Null Hypothesis: There is no relationship between place attachment and connectedness to nature.

Q2 Alternative Hypothesis: There will be a relationship between place attachment to Muir Woods and levels of connectedness to nature.

Significance of Study

Historically, several models of place attachment have been proposed, however place dependence and place identity seem to be the two dominating sub-constructs (Williams et al., 1992). In light of recreational purposes, a place could be of value to a person because of the activities the area can help facilitate (Kyle, Graefe, & Manning, 2005). Place dependence places more emphasis on the necessity attached to a certain place for participating in a leisure pursuit; whereas the emotional ties one can have with an area, relates more to place identity (Williams et al., 1992).

Previous studies have also investigated individuals' experiential emotional connections to nature (Perrin & Benassi, 2009) using Mayer and Frantz (2004) Connectedness to Nature Scale (CNS). Despite the numerous amount of research available related to connectedness to nature and place attachment, there is little research that incorporates both into a study. The value in exploring both place attachment and connectedness to nature is to gain dimensional understanding of human-place bonds not yet empirically measured, nor analyzed (Oh et al., 2012).

Definition of Terms

Camp Staff: For the purpose of this study camp staff refers to employees hired by the company Adventures Cross-Country (Adventure, 2012).

Connectedness to Nature: Connectedness to nature describes an individual's experiential emotional connections to nature (Perrin & Benassi, 2009) and their ability to feel interconnected to the natural world (Mayer & Frantz, 2004).

Environmental Ethics: Environmental ethics pertains to the “philosophical stance where ethical consideration is extended to beings beyond humans, such as plants, animals, ecosystems, etc. (Bradley, 2012).

Human-place Bond: Human-place bond is a connection between a person and a place (Raymond, Brown, & Weber, 2010).

Place: A space becomes a place as a result of a relationship between conceptions, physical attributes, and actions (Gustafson, 2001).

Place Attachment: Place attachment is a human-place bond that can be formed through psychological, emotional, and or symbolic processes compromised of place dependence and place identity (Williams et al., 1992).

Place Dependence: Place dependence is often perceived to reflect a setting's functional worth. In light of recreational purposes, a place could be of value to a person because of the activities the area can help facilitate (Kyle et al., 2005). Place dependence puts more importance on the necessity attached to a certain place for participating in a leisure pursuit.

Place Identity: Place identity refers to more of the emotional attachment to a space, how one relates to it and sees themselves within it. This could range from

spiritual relationships with the space, to identifying one's self with the landscape. Some authors have shown that place bonds can be cultivated over time in reaction to an individual's interaction with the environment (Kyle, Mowen, & Tarrant, 2004). Researchers Proshansky, Fabian, and Kaminoff explain that place identity is much like "a potpourri of memories, conceptions, interpretations, ideas, and related feelings about specific physical settings" (1983, p. 60).

Recreation Specialization: Recreation specialization refers to progression or continuum of behaviors, skills, and commitment in relation to a particular activity (Scott & Shafer, 2001).

Seven Day Activity: For the purpose of this study a seven day activity means that an activity occurs for a week consecutively. During this time the individual is immersed with activities relating to camp staff training, while camping in the same area within Muir Woods (Seven day, n.d.).

Assumptions of the Study

1. All participants within the study will respond in good faith, with sincerity and honesty.
2. The researcher assures anonymity of all respondents.
3. The quantitative methods used in this study aid in the complete understanding of the status of place attachment, place identity, place dependence, connectedness to nature, and demographics of the participants for a seven day study.

Limitations of the Study

1. The researcher will only examine Adventures Cross-Country employees 21 years of age and older.
2. The researcher will evaluate employees of Adventures Cross-Country which are hired to lead adventure trips abroad. Consequently, staff has a variety of outdoor based skills.
3. The researcher has only selected one set of camp staff to evaluate for this study.
4. The site used to evaluate place attachment levels in staff is considered “grand scenery” meaning the area is upheld as an inspiring, and aesthetically pleasing. Muir Woods also is part of the American National Park system, which lends to the idea of place identity, a place of national heritage (Williams & Vaske, 2003). This may prove to have higher place attachment in staff rather than selecting an area not as publically known.
5. There is no random selection of participants, therefore the results cannot be generalized to any other specific camp staff, and will be specific to Adventures Cross-Country camp staff training.

CHAPTER II

REVIEW OF LITERATURE

There are many studies available related to place attachment as well as connectedness to nature. These studies vary in focus, purpose, and findings. This chapter gives an overview of research related to this research study, including place attachment, sub-constructs place identity and place dependence, connectedness to nature, and information related to the state park selected for this study.

Theoretical Foundation

Place Attachment Theory

Although research of place attachment is relatively new in relation to other psychological and geographical concepts and theories, place attachment studies have produced a variety of definitions of the concept. Place attachment has been studied across a range of disciplines and has been utilized by numerous professionals and academics (Williams et al., 1992). Altman and Low (1992) might have stated it best when describing place attachment as a “complex and multifaceted concept worthy of systematic analysis” (p. 3).

Tuan (1974), an early researcher on place, described “place” as a center of meaning created by personal experiences. Tuan goes on to discuss how place often is

related to emotional bonds between a person and a specific place. The strength of these bonds may range due to the intensity of emotions related to the place (Bradley, 2012). Earlier research by Tuan (1980) suggested that the intensity of human-place bonds is related to the depth and length of an experience within a setting. An example of this within this study would be camp staff having a bond with Muir Woods, the location in which the study takes place, after experiencing a seven day activity within Muir Woods.

A significant amount of research since Tuan (1974; 1980) has examined these different kinds of connections people make in order to understand them better (Kyle et al., 2005; Kyle et al., 2004c; Lee & Shen, 2012). Sociological, environmental, and recreational disciplines have all acknowledged these bonds people often make with the natural world. As described by Williams and Vaske (2003) these personal ties a person can have with a place “may range from an exact moment in their life, like growing up in their childhood neighborhood, to more publicly shared notions like the national forests representing American heritage” (p. 831). In other words, previous research speaks of an individual having a human-place bond without actually ever visiting the area due to a historical presence and symbolism.

Sense of place is most often related with emotional or affective bonds between a person and a place (Tuan, 1974). This bond may also vary in intensity, such as an immediate positive sensory response, to a long lasting nostalgia that is deeply embedded within an individual (Williams et al., 1992). Despite the different reasons of connection, this type of human-place bond is often referred to in literature as place attachment (Williams & Vaske, 2003).

Although there are several variations and explanations as to the concept sense of place, Williams and Vaske's (2003) concept comprises what most theorists and practitioners use in recreation and parks research (Bradley, 2012). Place attachment as a multidimensional construct in that it incorporates a physical dependence of an individual on a place, as well as the emotional attachment. Commonly, place attachment has been proposed to have two sub-constructs known as place identity and place dependence (Williams et al., 1992).

Place Identity: Sub-construct of Place Attachment

Like place attachment, place identity also has various definitions. Proshansky (1978) describes place identity as "the dimensions of the self that define the individual's personal identity in relation to the physical environment" (p. 155). Later research by Proshansky, Fabian, and Kaminoff (1983) define place identity as a "potpourri of memories, conceptualizations, interpretations, ideas, and related feelings about a specific physical setting" (p. 60). This meaning of place identity can be configured through memories and feelings to how a person perceives an area and its meaning. Researchers Cuba and Hummon (1993) define place identity as the aspect of place attachment that allows an individual to communicate qualities of the self through identification with a place. Despite multiple definitions of place identity, two are predominantly discussed in literature. The first is that society may use place to define a person, and the second is that a person may use a place to define oneself; both are perceived to be equally important within the studies of place attachment (Bradley, 2012).

Place identity is easier to understand than it is to define. Ittelson (1976) described that an individual experiences the environment as an important part of themselves, making place identity an important factor of self-identity. This was echoed by Proshansky (1983) who contemplated at place identity as being a representation of an individual's view and awareness of the world through memories, interpretations, conceptions, and feelings about a specific place and similar settings. Bradley (2012) mentions, Proshansky's (1983) research as the first step toward the direction of stating place identity as being one of many aspects that contributes to a person's self-identity.

Tuan (1974) noted that place identity could occur despite a physical attachment, meaning that a person may develop symbolic or emotional bonds to a place without ever visiting the area. Relph (1976) supported this notion by using as an example the idea of national heritage eliciting an emotional bond to place in an individual, whether an individual has personally experienced the area. Expounding on Relph's (1976) idea, a more complete understanding and example of place identity, can be illustrated by Williams and Vaske (2003); their notion that personal ties with a place may range from an exact moment in their life, like growing up in their childhood neighborhood, to more publicly shared notions like the national forests representing American history.

Although for the purpose of this study, place identity will refer to the psychological sense of self categorization in terms of place, such as an individual seeing a specific area representing a part of them and identifying strongly with it (Williams & Vaske, 2003). For example, a possible outcome for place identity within this study could be a participant believes that the redwoods found in Muir Woods symbolize American

national heritage, and the participant perceives it to be a part of their own heritage. Consequently, the participant sees the redwoods as a representation of self.

Place Dependence: Sub-construct of Place Attachment

Place dependence may be viewed as the most functional aspect of place attachment. Place dependence is often perceived to reflect a setting's functional worth, meaning the value of place depends upon the amount of activities that can be held within it (Kyle et al., 2005). Stokols and Shumaker (1981) defined the concept as a form of place attachment associated with a particular place that satisfies the needs and goals of an individual. In light of recreational purposes, a place could be of value to a person because of the activities the area can help facilitate (Kyle et al., 2005). Place dependence puts more emphasis on the necessity to be attached to a certain place for participating in a leisure pursuit (Williams & Roggenbuck, 1989).

Connectedness to Nature Theory

A concept completely separate from place attachment, and sub-constructs place identity and place dependence, is connectedness to nature. Literature on connectedness to nature has a rich history that can be traced to the late 1800's to great writers and naturalists like Henry David Thoreau and John Muir (Mayer & Frantz, 2004). Thoreau (2000), as a transcendentalist believing in the inherent goodness in nature, suggested that having a connection to nature is a person's passage to an awakening from a lethargic life.

By contrast John Muir's life was an example of how a person should interact and perceive nature in order to feel connectedness to nature (National Park Service, 2012).

Muir's definition of connectedness to nature was that mankind is just one part of an

interconnected natural world, not its master, and that God is revealed through nature (National Park Service, 2012).

Thoreau's and Muir's environmental and naturalist movements in the late 1800's, has led to numerous amounts of research conducted to better understand the concept of connectedness to nature in terms of measurable scales (Mayer & Frantz, 2004; Perrin & Benassi, 2009), and to the roles in which connectedness to nature relates to environmental behavior (Gosling & Williams, 2010). One of the most significant contributions to understanding connectedness to nature was Mayer's and Frantz's (2004) Connectedness to Nature Scale (CNS) which measures an individual's relatedness to nature.

Connectedness to nature describes an individual's experiential emotional connections to nature (Perrin & Bernassi, 2009) and their ability to feel interconnected to the natural world (Mayer & Frantz, 2004); whereas place identity refers to how a person may use a specific area to serve as an identifier as to whom they are, and represent a part of themselves. For example a possible outcome for connectedness to nature and place identity within this study could be participants CNS scores could correlate positively with high place identity scores in relation to Muir Woods.

Despite the amount of research on connectedness to nature, and the progress in understanding and measuring the concept, there is still much to be learned on the subject. Currently, little research investigates connectedness to nature and place attachment within the same study, despite the similarities in the definition of connectedness to nature and place identity (Gosling & Williams, 2010).

Muir Woods

Understanding the history of Muir Woods, and the man for which it was named, is important when investigating place attachment and the sub-constructs place identity and place dependence for this study. An example as to why this is important can be seen in researcher David Smaldone's (2006) study, which evaluated place attachment in relation to two national parks. Within his study, Smaldone (2006) indicates it is important to consider the type of place when assessing meanings. Much like Smaldone's (2006) study, this study will also evaluate place attachment in relation to a national park. As previously mentioned a possible outcome of this study could be a participant identifying with Muir Woods due to its historical value or for symbolic reasons (Williams & Vaske, 2003).

The historical value to Muir Woods lies in the man named John Muir for which the park was named (National Park Service, 2012). John Muir's contribution to literature and society did not stop with just naturalist writings and developing the concept of connectedness to nature; he also was one of the earliest advocates of the national parks idea (National Park Service, 2012). Muir advocated for the protection of the Petrified Forest, the Grand Canyon; and served as the public voice for setting aside the high country around Yosemite Valley as a national park in 1890, as well as Sequoia national parks (National Park Service, 2012).

Due to Muir's exemplary campaigns and attempts to preserve grand scenery within America, William and Elizabeth Kent named a 298 acre redwood forest near San Francisco in his honor. "The couple had purchased the land to preserve its beauty and

peaceful wilderness; and in 1908, they donated it to the federal government to protect it from destruction” (National Park Service, 2012).

Camp Programming

Adventures Cross-Country camp staff will participate in a seven day staff training that occurs in Muir Woods, California summer 2013. During this seven day experience camp staff will camp at Muir Woods where they will take part in training and activities from 7:00 A.M. to 11:30 P.M. During these hours camp staff will prepare and cook all meals, understand and develop leadership, learn and participate in group initiatives, and debrief how to handle emergency situations that may occur on Adventures Cross-Country trips. The goal of camp staff training at Adventures Cross-Country is to give camp staff the knowledge and enhance skills to best lead adventure trips abroad for teens seeking worldly knowledge, service opportunities, and foreign language development (E. Fink, personal communication, April 19, 2013).

Place Attachment Measurement Scale

Researchers Williams and Roggenbuck (1989) made one of the earliest attempts at developing an instrument to specifically elicit place attachment information. Williams and Roggenbuck’s instrument produced moderate levels of generalizability and internal and external validity (Bradley, 2012). Subsequently, more research was executed to tackle the issues of generalizability and validity by building upon the foundation set forth by Williams and Roggenbuck (1989). Moore and Graefe (1994) research investigated the attachments users of rails-to-trails related to their recreation settings. Moore and Graefe

(1994) found that the Williams and Roggenbuck instrument sufficed for generalizability and validity, but remarked further investigation was needed to refine the instrument.

Further studies (Bricker & Kerstetter, 2000; Vaske & Krobin, 2001) have investigated the instrument to find that the model initiated by Williams and Roggenbuck in 1989 proved to be significant in the efforts of researchers pursuit to understand place attachment levels in participants. More recently Williams and Vaske (2003) have used a revised version of William's and Roggenbuck's original scale, measuring the sub-constructs place identity and place dependence. The items on the Place Attachment scale uses a five point Likert scale that requires participants to rate their responses based on the most appropriate and best fit, to their desired response for each question. The Likert ratings use the following ranges: 1 = strongly disagree to 5 = strongly agree. Numerous studies have since utilized the revised edition successfully (Kyle et al., 2004b; Hailu, Boxall, & McFarlane, 2005; Alexandris, Kouthouris, & Meligdis, 2006).

Connectedness to Nature Scale

Early research by Shultz resulted in the foundation for the development of the connectedness to nature scale (CNS). Schultz (2002) used the term inclusion with nature as broad synopsis of the human-place relationship. While Schultz used the term connectedness to describe how people associate themselves with nature from more of a cognitive perspective (Ernest & Theimer, 2011), Mayer and Frantz (2004) defined connectedness to nature "as one's affective, experiential sense of oneness with the natural world" (504). As part of Mayer's and Frantz's (2004) work, they developed a scale to measure one's affective sense of connectedness to nature. The scale is based on the extent

to which people experientially view themselves as equal members of the broader natural world and the sense of kinship a person may feel with the natural world (Ernest & Theimer, 2011; Mayer & Frantz, 2004). The items on the CNS a five point Likert scale that requires participants to rate their responses based on the most appropriate and best fit, to their desired response for each question. The Likert ratings use the following ranges: 1 = strongly disagree to 5 = strongly agree. Based on five studies by Mayer and Frantz (2004) there is strong evidence the CNS is reliable and valid.

CHAPTER III

METHODOLOGY

Introduction

The purpose of this study was to investigate place attachment theory by comparing the place attachment levels of staff to Muir Woods before and after participating in a seven day activity. This study also evaluated whether connectedness to nature correlates with levels of place attachment among participants. Place attachment was measured using a modified version of the place attachment scale developed by Williams and Roggenbuck (1989); which has been designed to measure the sub-constructs of place attachment, place identity and place dependence (Kyle et al., 2004b). In order to assess each individual's connectedness to nature, the Connectedness to Nature Scale (CNS), developed by Mayer and Frantz (2004) was administered. It is the goal of this research to expand on the limited body of knowledge that exists on place attachment levels after participating in an activity over a short period of time; and to assess if there is a relationship between the two concepts place attachment and connectedness to nature.

Selection of Participants

The study utilized a census of the camp staff from Adventures Cross-Country summer 2013, consisting of 60-70 camp staff employees. Camp staff requirements for

Adventures Cross-Country include wilderness first responder certification, American citizen, and a minimum of 21 years of age.

Research Design

For the purpose of this study the researcher administered the Place Attachment Scale (Williams & Vaske, 2003) and Connectedness to Nature Scale (CNS) by Mayer and Frantz (2004) before and after camp staff training program for Adventures Cross-Country. The researcher used a pretest/posttest convenient sample method design for data collection. This method was employed to elicit, specific information; demographic information, levels of place attachment, and levels of connectedness to nature. The researcher employed this quantitative method in attempt to obtain a breadth of information, enabling the researcher to make broad conclusions about future camp staff of Adventures Cross-Country.

IRB approval was acquired before the data collection process began (see Appendix B). The CNS and Place Attachment Scale pretests, and demographic questions was given in person the day prior to the first day of camp staff training. Participants filling out the surveys were asked to read a letter of informed assent; which was included in the first part of the questionnaire (see Appendix A).

The researcher administered the posttest onsite, at Muir Woods, California, once staff training ended that afternoon and prior to participants' departure for various locations. The posttest survey of these two scales was given in person in paper format. There was an allotted time of 20 minutes to complete the survey, which participants returned to a manila envelope placed within a central location.

Instrumentation

The quantitative instrument that the researcher employed is divided into three sections. The first section pertains to demographic information regarding the research participant. The second section is the place attachment section, seeking to attain information related to place attachment, regarding the sub constructs place identity and place dependence. The third and final section of the instrument is the connectedness to nature section. The connectedness to nature section attempts to attain information that allows the researcher to understand whether connectedness to nature scores correlate with place attachment scores.

Demographic Data

Upon administering the pretest, demographic data was be collected (see Appendix C). The researcher used the demographic data to help make appropriate inquiries regarding various demographic variables. The researcher needed this information to accurately investigate any differences that may exist between participants.

Place Attachment Scale

For the purpose of this study an 11 item Place Attachment Scale by Williams and Vaske (2003) was used (see Appendix D). The scale was selected for its ability to measure place attachment through 11 total questions; five questions for the sub-construct place identity, and six questions for the sub-construct place dependence. “The Williams and Vaske model is one that is used throughout currently published research related to place attachment and sense of place constructs and theories” (Bradley, 2012, p. 81). The Williams & Vaske model recently underwent numerous testing procedures to assess

convergent validity, factor validity, and variance components estimates. Confirmatory factor analysis was used to test factor validity. The two-dimensional structure was reported to have a good fit for measurement usage with a reported Cronbach's alpha of 0.83 (Williams & Vaske, 2003).

Williams and Vaske (2003) also used construct validity to analyze how well the measure fits the theory. For example the items on the place attachment scale accurately assess the sub-constructs of place attachment. Williams and Vaske (2003) conducted a study with several samples, to test convergent validity. Reported F ratios for place identity met or exceeded significance levels in each of the four samples ($F \geq 3.57$, $p \leq 0.034$) (Williams & Vaske, 2003).

Connectedness to Nature Scale

The CNS is a measure of participants' "level of feeling emotionally connected to the natural world" (Mayer & Frantz, 2004, p. 503) through fourteen easily administered statements (see Appendix E). Mayer and Frantz (2004) stated that the CNS "demonstrates the internal consistency, unidimensionality, test-retest reliability, and convergent validity of the scale" (p. 505). Previously, five studies by Mayer and Frantz (2004) reported coefficient alpha results for reliability of CNS as: .84; .82; .82; .79; and .79 respectively. These values mean that the CNS reliability measured to be above the required value of .75 to be considered reputable. Mayer and Frantz (2004) also claimed the CNS being reliable and valid based on "the items comprising the scale repeatedly have shown to load on a single factor and exhibit high internal consistency" (p. 512).

Analysis of Data

SPSS 20.0 for windows was used to analyze all data. In the event there was missing data the researcher used the mean scores to fill in missing answers. Place Attachment pretest/posttest data was analyzed using repeated measures ANOVA to see if there is an increase in place attachment to Muir Woods among camp staff after a seven day experience at this site. The researcher utilized a pre-determined alpha level of .05. The pretest and posttest scores on the Connectedness to Nature Scale and Place Attachment Scale data was analyzed using Spearman Rank Correlation to see if there is a relationship between place attachment scores and connectedness to nature scores.

Summary

In review, the researcher administered pretest/posttest surveys to the entire camp staff of Adventures Cross-Country consisting of items pertaining to demographics, place attachment, and connectedness to nature. Using a predetermined alpha level of .05, all data was analyzed using SPSS 20.0 for windows. This study used a repeated measures ANOVA in order to examine pretest/posttest place attachment in camp staff in relation to Muir Woods. This study analyzed pretest/posttest scores on the Connectedness to Nature Scale and Place Attachment Scale using Spearman Rank Correlation to investigate if there is a relationship between the two concepts.

CHAPTER IV

FINDINGS

Introduction

This survey-based study used the Place Attachment Scale by Williams and Vaske (2003) and Connectedness to Nature Scale (Mayer & Frantz, 2004) to examine if there is a difference between the place attachment to Muir Woods in camp staff before participating in a seven day activity compared to place attachment after participation. Secondly, these scales were used to evaluate if there is a relationship between place attachment and connectedness to nature. The alternative hypothesis for this research stated that after camp staff participates in a seven day activity in Muir Woods, posttest surveys on place attachment to Muir Woods would measure higher than pretest surveys. The secondary alternative hypothesis stated that there would be a positive relationship between high place attachment to Muir Woods and high levels of connectedness to nature.

Data Screening

Prior to data analysis, a screening of the data was completed to confirm any missing data was identified. In the event a participant did not fill out a pretest or a posttest survey, their survey was omitted from the data analysis. There were no questions

that were missing throughout the completed surveys, so using the mean was not necessary in the overall analysis.

Group Demographics

There were 62 participants that completed surveys usable for analysis. Fifty percent of the participants were female (N=31), and fifty percent were male (N=31) (refer to table 4-1). The mean age of the participants was twenty-five years of age (M=24.7), with the youngest participants being twenty-one in age and the oldest thirty-two. Eleven percent of participants had completed some college (N=7), 83% had completed a four year degree (N=51), 3% had completed some graduate school (N=2), and 3% had completed graduate school (N=2). Sixty-three percent of participants had never participated in Adventures Rolling Cross Country’s camp staff training in Muir Woods (N=39), 24% had completed 1 camp staff training (N=15), 7% had completed 2 camp staff trainings (N=4), 3% had completed 3 camp staff trainings (N=2), and 3% had completed 4 camp staff trainings (N=2) (refer to table 4-2).

Table 4-1: Gender of participants

	Percent	N
Female	50	31
Male	50	31
Total	100	62

Table 4-2: Descriptive statistics

	N	Mean
Age	62	24.73*
Training	62	1.52**

*in years **number of completed staff trainings

Group Familiarity to Muir Woods

Sixty percent of participants stated they had previously visited Muir Woods (N=37), and 40% claimed they had never visited Muir Woods (N=25) (refer to table 4-3). Participants were asked how familiar they were with the history of Muir Woods. Sixty-one percent stated they were not familiar (N=38), 28% stated they were somewhat familiar (N=17), 10% claimed they were familiar (N=6), and 1% claimed they were extremely familiar with the history of Muir Woods (N=1) (refer to table 4-4).

Table 4-3: Group previous visitation to Muir Woods

	Percent	N
Yes	60	37
No	40	25
Total	100	62

Table 4-4: Group familiarity to history of Muir Woods

	Percent	N
Not familiar	61	38
Somewhat familiar	28	17
Familiar	10	6
Extremely familiar	1	1
Total	100	62

Place Attachment Scale

Place Identity

The Place Attachment Scale measures place attachment through 11 total questions; five questions for the sub-construct place identity, and six questions for the sub-construct place dependence (Williams & Vaske, 2004). Overall, the pretest score for

participants on the sub-construct place identity had a mean of 2.77 with a SD=1.08, and increased to a posttest mean of 3.35 with a SD= .971 (refer to table 4-5). A repeated measures ANOVA illustrated a significant difference in pretest posttest of place identity with a P Value less than .01. This is indicative of a significant increase in place identity in participants in relation to Muir Woods after participating in a weeklong activity (refer to table 4-6).

Table 4-5: Means of participant PI, PD, and connectedness to nature.

	<i>M</i>	<i>SD</i>
Pretest Place Identity	2.77	1.08
Posttest Place Identity	3.35	0.97
Pretest Place Dependence	2.56	1.00
Posttest Place Dependence	2.76	0.99
Pretest Connectedness to Nature	3.76	1.21
Posttest Connectedness to Nature	3.80	1.20

Table 4-6: Repeated-measures ANOVA of PI: tests of within-subjects contrasts

Source	Place Identity	Sum of Squares	<i>df</i>	Mean Sq.	<i>F</i>	<i>p</i> <
Place Identity	Linear	48.983	1	48.983	128.561	< .01*
Error (Place Identity)		112.017	294	.381		

Place Dependence

Overall, the pretest score for participants on the sub-construct place dependence had a mean of 2.56 with a SD=1.00, increased to a posttest mean of 2.76 with a SD=.994 (refer to table 4-5). A repeated measures ANOVA illustrated a significant difference in pretest/ posttest survey of place dependence with a P Value less than .01. This reveals a significant increase in place dependence in participants in relation to Muir Woods after participating in a weeklong activity (refer to table 4-7).

Table 4-7: Repeated measures ANOVA of PD: tests of within-subjects contrasts

Source	Dependence	Sum of Squares	df	Mean sq.	F	p <
Dependence	Linear	6.725	1	6.725	15.744	< .01*
Error(Dependence)		150.775	353	.427		

Connectedness to Nature Scale

The Connectedness to Nature Scale (CNS) questions measures participants' level of connectedness to nature through 13 total questions (Mayer & Frantz, 2004). The CNS scale is based on a Likert scale 1 to 5, 5 being the highest score that can be achieved. Overall, the pretest CNS score for participants had a mean of 3.76 with a SD=1.21, and slightly increased to a posttest mean of 3.80 with a SD= 1.20 (refer to table 4-3). A repeated measures ANOVA illustrated an insignificant difference in pretest/ posttest CNS survey with a P Value of .10. This indicates participants experienced no change in connectedness to nature based on pretest/ posttest means (refer to table 4-8).

Table 4-8: Repeated-measures ANOVA of connectedness to nature: tests of within-subjects contrasts.

Source	Connectedness	Sum of Squares	df	Mean sq.	F	p <
Connectedness	Linear	.668	1	.668	2.645	> .104
Error(Connectedness)		193.332	766	.252		

Construct Correlation

To assess if there is a correlation between place attachment and connectedness to nature Spearman Rho correlations were implemented. There was a weak negative relationship between pretest surveys of place identity and connectedness to nature with a

correlation coefficient of $-.12$, and a significant P Value of $.03$. This indicates that the higher the level of connectedness to nature a participant has the lower their place identity should be (refer to table 4-9).

There was a very weak negative relationship between pretest surveys of place dependence and connectedness to nature with a correlation coefficient of $-.07$, and P Value of $.18$. This data suggests there is a weak negative relationship between the two constructs, but it is not significant (refer to table 4-9).

Posttest surveys of place identity and connectedness to nature displayed a weak negative relationship with a correlation coefficient of $-.03$, and P Value of $.57$. This indicates there is a weak negative relationship between the two constructs, but it is not significant (refer to table 4-9).

Posttest surveys of place dependence and connectedness to nature indicated a weak negative relationship with a correlation coefficient of $-.001$, and a P Value of $.98$. Interpreting this data indicates there is a weak negative relationship between place dependence and connectedness to nature, but it is not a significant relationship (refer to table 4-9).

Table 4-9: Spearman rho correlation coefficients

	<i>R</i>	<i>p</i> -value (2 tailed)	<i>N</i>
Pre Place Id./Place Dep.	.011	.846	295
Pre Place Dep./ Pre Con	-.071	.180	354
Pre Place Id./ Pre Con.	-.123*	.034	295
Post Place Id./Place Dep.	.006	.916	305
Post Place Dep./ Post Con.	-.001	.981	366
Post Place Id./ Post Con.	-.033	.569	305

*significance found

Conclusions

There was significance found in the pretest/ posttest of place attachment in participants within the sub-constructs place identity and place dependence, and there was no significance in connectedness to nature. The Spearman Rho Correlation tests revealed there was a significance found in one area, but the overall comparison of pretest/ posttest of place attachment and connectedness to nature in participants did not show significant differences. The null and alternative hypotheses for this study are stated below:

Q1 Null Hypothesis: There is no significant difference between the measures of place attachment between the pretest surveys, administered prior to camp staff participating in activity, and the posttest surveys, administered after camp staff have participated in a week long activity.

Q1 Alternative Hypothesis: After camp staff participates in a seven day activity in Muir Woods, posttest surveys on place attachment to Muir Woods will measure higher than pretest surveys.

Q2 Null Hypothesis: There is no relationship between place attachment and connectedness to nature.

Q2 Alternative Hypothesis: There will be a positive relationship between high place attachment to Muir Woods and high levels of connectedness to nature.

Based on the results of this research the first null hypothesis would be rejected because overall, both pretest/ posttest of the sub-constructs place identity and place attachment showed a significant difference in camp staff participants. A repeated

measures ANOVA illustrated a significant difference in pretest/ posttest of place identity and place dependence with a P Values less than .01.

After assessing the results from Spearman Rho correlation testing this research fails to reject the second null hypotheses because overall there were no significant correlations between place attachment and connectedness to nature. Although in one area there was a significant inverse relationship found. Pretest surveys of place identity and connectedness to nature illustrated a weak correlation coefficient of $-.12$, and a significant P Value of $.03$.

CHAPTER V

DISCUSSION

Introduction

The purpose of this study was to examine place attachment to a site specific area after participating in an activity over a short period of time; and to assess if there is a relationship between increased levels of place attachment and preexisting levels of connectedness to nature. Using the Place Attachment Scale (PAS) allowed for analysis of levels of place attachment in participants based on the sub-constructs place identity and place dependence (Williams & Vaske, 2004). The PAS has been used in past research in conjunction with recreation specialization, leisure activity involvement, to recreation settings (Bricker & Kerstetter, 2000, Moore & Graefe, 1994, Kyle et al., 2005). Much of the leisure research, however, is focused strongly on these activities and has ignored the settings in which these experiences of place attachment occurs (Kyle et al., 2004a). Little research has studied activities that occur over a continuous amount of time within a site specific area (Moore & Graefe, 1994, Smaldone, 2006). As for the Connectedness to Nature Scale (CNS), it has been used in past research to explore possible relationships between connectedness to nature and conservation behavior, well-being and mindfulness, to environmental education (Gosling & Williams, 2010, Howell, Dopko, Passmore, &

Buro, 2011, Ernst & Theimer, 2011). Despite the numerous amount of research available related to connectedness to nature and place attachment, there is little research that incorporates both into a study.

Discussion

The research objective in this study was to examine entire camp staff from Adventures Rolling Cross Country who participated in camp staff training June 2013. Pre-test/ post-test surveys using the Place Attachment Scale and Connectedness to Nature Scale allowed for data analysis, which measured if there was a difference in place attachment levels to Muir Woods after experiencing a weeklong activity in Muir woods. The research also was able to assess if there is a relationship between place attachment and connectedness to nature. In comparing pre-test/ post-test surveys, data analysis indicated that camp staff experienced significant increase in place attachment, in both sub-constructs place identity and place dependence to Muir Woods after experiencing a weeklong activity in Muir Woods. Data analysis indicated there is no relationship between place attachment and connectedness to nature, except in one area. Correlation coefficient suggested there was a weak, but significant, inverse correlation between pre-test place identity and pre-test connectedness to nature. Data analysis for all other possible correlations found no significant relationship between pre-tests/ post-tests.

The increase in place attachment amongst participants was hypothesized in alternative hypotheses for Question 1. Results in this research reflect similar findings in previous research. Research by Tuan (1980) suggested that the intensity of human-place bonds is related to the depth and length of an experience within a setting. An example of

this within this study would be camp staff developing a bond based off of memories and experiences due to the prolonged amount of time spent within the setting of Muir Woods. This exposure to an area in which different activities take place could account for the increased place attachment of camp staff to Muir Woods.

Perhaps the increase in place dependence may also be reflective of the activities held within the camp staff training week. Place dependence is often perceived to reflect a setting's functional worth, meaning the value of place depends upon the amount of activities that can be held within it (Kyle et al., 2005). Stokols and Shumaker (1981) defined place dependence as a particular place that satisfies the needs and goals of an individual. In light of this study the combination of prolonged time within Muir Woods in combination with the camp staff training activities work together to increase participants place attachment to Muir Woods.

Limitations

Being that the Place Attachment Scale is in survey form, using a five point Likert scale, the information gathered from this research is quantitative. Focused qualitative questions may have served better for the purpose of analyzing and understanding participants' motivations for place dependence within this setting. Such focused qualitative questions that may permit investigation as to what aspects of the week-long experience are perceived to be unique and influential on place attachments within camp staff. This could have potentially given further insight into participant responses and insight into which activities can influence place attachments.

Beyond the idea of expanding upon qualitative data received, the distribution of surveys also presented a limitation to the study. Having the researcher administer post-test surveys immediately after staff training ended measured the short term effects of place attachment levels in camp staff after their week-long experience. Administering the same survey several months later would assess if the effects of such an experience have any long term implications.

Another limitation to this study is that participants' preexisting connectedness to nature levels measured very high. Having such preexisting levels could have skewed the correlation results and consequently given inaccurate information. Because the participants as a whole had a pre-test mean average of 3.76, and post-test mean of 3.80 participants did not have much room for variability in results. In other words, by having already high levels of connectedness to nature camp staff did not leave much room for variability. If participants had low preexisting levels of connectedness to nature research may have given better insight into whether a week-long experience at Muir Woods could increase participants' connectedness to nature. If this study had two groups of participants, group 1 having low preexisting levels of connectedness to nature and group 2 having high preexisting levels, one could better assess if certain pre-existing levels of connectedness to nature are a predictor of increased ability to form place attachments.

A limitation to this study regarding connectedness to nature could be the inverse significant relationship found in pre-test correlation test of place identity and connectedness. This may have occurred due to the high preexisting levels of connectedness to nature. The correlation coefficient of $-.12$ can be interpreted as the

relationship to being very weak. This study determined there was a relationship in this one area, but the study does not investigate the reasons behind this occurrence.

Lastly, with the sample population representing Adventures Cross Country staff, that designates a very specific population of camp staff. The results of this study may offer generalizability of place attachment levels of future Adventures Cross Country camp staff, but these results could not be prescribed to necessarily fit any other particular camp staff training for summer camps.

Additional Recommendations for Further Research

Implicit in this study results is the need for further empirical investigation on place attachment and connectedness to nature; thus, the following recommendations are made.

1. This study was limited to Adventures Cross Country staff during June 2013 camp staff training. Additional research should investigate similar situations with a sample that does not already have high preexisting levels of connectedness to nature. A relationship may exist between place attachment and connectedness to nature, but the sample used for this study could account for neutral and inverse results.
2. Future research in similar pre-test/ post-test design should investigate if pre-test place identity and pre-test connectedness to nature continue to have a significant inverse relationship.
3. If this study were repeated further research should assess what activities take place during camp staff training, and examine if certain activities reflect higher

formation of place attachments in participants. Additional qualitative measures should investigate what participants believe to be influential within this experience.

4. Further investigations should assess if there are consistent relationships in increased place attachments occur over a week-long activity with other recreational pursuits besides than camp staff training.
5. Future research with measuring site specific place attachment after experiencing a week-long activity within the area should investigate if there are any long term implications of such an experience.

Concluding Comments

Participation in a week-long experience in a site specific area and its effects on place attachment is just one facet of place attachment that should be further investigated. By exploring this further in various settings with different population samples may prove to be a worthwhile investigation in the understanding of the effects of time, experience, and activity in combination with a site specific place attachments. The significant findings in increased place attachments of camp staff to Muir Woods supports previous research using the Place Attachment Scale, but future research should more critically assess these findings with longitudinal findings and qualitative investigations. Although this research aimed to only investigate camp staff at camp staff training for Adventures Rolling Cross Country in Muir Woods, more could be done to examine camp staff trainings in other locations. The continued research of place attachment as well as connectedness to nature will expand the knowledge practitioners have in the effects week-long experiences can have on both of these constructs. By examining the different

components that occur within these staff trainings and their influences on the formation of place attachments could advance how our field utilizes such experiences to create awareness for natural resources like Muir Woods, and possibly the long term behaviors that occur from such place attachments.

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APPENDICES

A – INFORMED ASSENT LETTER

B – INSTITUTIONAL BOARD APPROVAL

C – DEMOGRAPHICS SURVEY

D – PLACE ATTACHMENT SCALE SURVEY

E – CONNECTEDNESS TO NATURE SCALE SURVEY

APPENDIX A

Informed Assent Letter

Date: May 2013

Project Title: The examination of place attachment in camp staff and its association with connectedness to nature over the course of a seven day camp.

Principle Student Investigator:

Hailey Doss, MA Student

School of Applied Health and Educational Psychology: Leisure Studies

Oklahoma State University

hailey.doss@okstate.edu

INVITATION

You are invited to participate in a research study that will investigate place attachment and its association with connectedness to nature. The purpose of this study is to investigate if a seven day activity in Muir Woods increases attachment to Muir Woods based on the Place Attachment scale developed by Williams and Vaske (2003); and to assess if there is a relationship between increased levels of place attachment and preexisting levels of connectedness to nature based on the Connectedness to Nature Scale developed by Mayer and Frantz (2004).

WHATS INVOLVED

As a participant, you will be asked to fill out a questionnaire involving demographics, your place attachment based on the sub-constructs place identity and place dependence in relation to Muir Woods, and your overall connectedness to nature. The questionnaire will take approximately 10 minutes to complete. Once all the data has been collected it will be analyzed using SPSS (Statistical Package for the Social Sciences).

POTENTIAL BENEFITS AND RISKS

The benefits of this research will potentially provide insight into the construct of place attachment in an individual and if there is a positive relationship between connectedness to nature and the susceptibility of an individual to form a new place attachment. Gaining insight into these areas will potentially increase the understanding of place attachment and connectedness to nature within the field of Leisure. There are no known or anticipated risks associated with participation in this study

CONFIDENTIALITY

All information you provide will remain confidential. Within the questionnaire you will be asked identifying information, only the researcher will know this information in order to match pre and post surveys correctly to affectively analyze the data. Once data is

analyzed participants' names will be changed to codes to ensure anonymity, for example A1-A70. Results will be compiled and analyzed as average. No individual participant's answers will be identified in the publication of this study. Surveys received will be kept in a confidential area and only Hailey Doss, the researcher, and the faculty advisor will have access to these surveys.

VOLUNTARY PARTICIPATION

Participation in this study is voluntary. If you wish, you may decline to answer any question in the survey. You may withdraw from the study at any time while you are completing the survey, there will be no penalty for such withdrawal.

PUBLICATION OF RESULTS

Results of the research will be available upon completion. Feedback or questions are available by contacting Hailey Doss at hailey.doss@okstate.edu.

CONTACT INFORMATION AND ETHICS CLEARANCE

If you have any questions about the study or require further information, please contact Hailey Doss or the Faculty Advisor. (The rest to be completed after IRB approval has been granted)

Thank you for your participation in this study. Please keep a copy of this form for your records.

APPENDIX B

INSTITUTIONAL BOARD APPROVAL

Oklahoma State University Institutional Review Board

Date: Monday, June 03, 2013
IRB Application No: ED13102
Proposal Title: Place Attachment and Connectedness to Nature among Camp Staf in Muir Woods

Reviewed and Processed as: Exempt

Status Recommended by Reviewer(s): Approved Protocol Expires: 6/2/2014

Principal Investigator(s):

Hailey Doss Tyler Tapps
180 Colvin Center
Stillwater, OK 74078 Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval. Protocol modifications requiring approval may include changes to the title, PI, advisor, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Dawnnet Watkins 219 Cordell North (phone: 405-744-5700, dawnnet.watkins@okstate.edu).

Sincerely,



Shelia Kennison, Chair
Institutional Review Board

APPENDIX C

DEMOGRAPHICS SURVEY

The following information is needed for classification and comparison purposes only. Please indicate the classifications which best describe you by checking the appropriate space. All responses will be kept confidential.

Respondents last name: _____ **Date:** _____

(Your name will be used for verification purposes only)

Gender: _____ Male _____ Female **Age:** _____

Ethnic background:

- _____ Caucasian/White
- _____ African American
- _____ Native American
- _____ Hispanic
- _____ Asian
- _____ Other

Education: (highest level completed)

- _____ High school degree
- _____ Some college
- _____ 4-year college degree
- _____ Some graduate school
- _____ Graduate degree

Have you ever visited Muir Woods? _____ Yes _____ No

If yes, please provide information describing the reason for past visitation and number of times in the space provided.

How familiar are you with Muir Woods?

_____ not familiar _____ somewhat familiar _____ familiar _____ extremely familiar

How familiar are you with the history of Muir Woods?

not familiar somewhat familiar familiar extremely familiar

Have you ever attended Adventures Cross-Country Staff training before?

Yes No

If yes, please list number of times you have attended staff training in the space provided. _____

APPENDIX D

PLACE ATTACHMENT SCALE SURVEY

Please read the descriptions carefully and answer the questions in the order they appear in the questionnaire. Please answer all questions. Do not leave any questions unanswered. This survey should take about 10 minutes to complete. The following statements refer to your perceptions regarding Muir Woods, California. Using the following scale please circle a number from 1 to 5 that best reflects your level of agreement with the following statements. Please mark each statement in the space provided.

Strongly Disagree		Neither Agree or Disagree		Strongly Agree
1	2	3	4	5

Place Identity

1. I feel Muir Woods is a part of me.

1	2	3	4	5
---	---	---	---	---

2. I identify strongly with Muir Woods.

1	2	3	4	5
---	---	---	---	---

3. I am very attached to Muir Woods.

1	2	3	4	5
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4. Visiting Muir Woods says a lot about who I am.

1	2	3	4	5
---	---	---	---	---

5. Muir Woods means a lot to me.

1	2	3	4	5
---	---	---	---	---

Place Dependence

6. Muir Woods is the best place for what I like to do.

1	2	3	4	5
---	---	---	---	---

7. No other place can compare to Muir Woods.

1 2 3 4 5

8. I get more satisfaction out of visiting Muir Woods than any other.

1 2 3 4 5

9. Doing what I do at Muir Woods is more important to me than doing it in any other place.

1 2 3 4 5

10. I wouldn't substitute any other area for doing the types of things I do at Muir Woods.

1 2 3 4 5

11. The things I do at Muir Woods I would enjoy doing just as much at a similar site.

1 2 3 4 5

APPENDIX E

CONNECTEDNESS TO NATURE SCALE SURVEY

Please answer each of these questions in term of the way you feel. There is no right or wrong answers. Using the following scale please circle a number from 1 to 5 that best reflects your level of agreement with the following statements. Please mark each statement in the space provided.

Strongly Disagree		Neither Agree or Disagree		Strongly Agree
1	2	3	4	5

1. I feel a sense of oneness with the natural world around me.

1 2 3 4 5

2. I feel that the natural world is a community to which I belong.

1 2 3 4 5

3. I recognize and appreciate the intelligence of other living organisms.

1 2 3 4 5

4. I don't feel connected to nature.

1 2 3 4 5

5. I can imagine myself as part of the larger cyclical process of living.

1 2 3 4 5

6. I feel a kinship with animals and plants.

1 2 3 4 5

7. I feel as though I belong to the earth just as much as it belongs to me.

1 2 3 4 5

8. I feel deeply aware of how my actions affect the natural world.

VITA

Hailey Brooke Doss

Candidate for the Degree of

Master of Science

Thesis: THE EXAMINATION OF PLACE ATTACHMENT IN CAMP STAFF
AND ITS ASSOCIATION WITH CONNECTEDNESS TO NATURE OVER THE
COURSE OF A SEVEN DAY CAMP

Major Field: Leisure Studies

Biographical:

Education:

Completed the requirements for the Master of Science in Leisure Studies at
Oklahoma State University, Stillwater, Oklahoma in May 2014.

Completed the requirements for the Bachelor of Arts in Art at Roanoke College,
Salem, Virginia in May 2008.

Experience:

Outdoor Trips Coordinator Graduate Teaching Assistant; Aug. 2012– Present
Outdoor Adventure at Oklahoma State University, Stillwater, Oklahoma

Adventures Cross Country Trip Leader; Summer 2012, Summer 2013
Adventures Cross Country, Mill Valley, California

Student Director of Outdoor Adventure; Aug. 2009– May 2012
Outdoor Adventure at Roanoke College, Salem, Virginia

Professional Memberships:

Association of Outdoor Recreation and Education Sept.2013– Present

American Camps Association Oct. 2013– Present

National Recreation and Parks Association Sept. 2013– Present

Rho Phi Lambda, Honor Fraternity for Recreation Mar. 2013– Present