The Pennsylvania State University
The Graduate School
Department of Landscape Architecture

NATURE CONNECTION IN PENNSYLVANIA STATE PARKS:
CASE STUDY EVALUATIONS IN THREE PARKS

A Thesis in
Landscape Architecture
by
Jake Powell

© 2012 Jake Powell

Submitted in Partial Fulfillment
of the Requirements
for the Degree of

Master of Science

August 2012
The thesis of Jake Powell was reviewed and approved* by the following:

Brian Orland  
Distinguished Professor of Landscape Architecture  
Thesis Advisor

Ken Tamminga  
Professor of Landscape Architecture

Andrew Mowen  
Associate Professor of Recreation, Park and Tourism Management

Charles Andrew Cole  
Associate Professor of Landscape Architecture  
Graduate Program Coordinator

*Signatures are on file in the Graduate School
ABSTRACT

The human race is confronting environmental problems unprecedented in magnitude and complexity, and the critical pro-environmental behaviors needed to address those problems are strongly influenced by the importance of nature within our personal consciousness. Ironically, at the same time the need for awareness and engagement in environmental issues increases, opportunities for individuals to intimately interact and forge positive emotional connections with nature are diminishing. This disappearance has intensified pressures on public land agencies to provide places where people can experience this human-nature connection. As these agencies experience increased demands and shrinking budgets, effective design and management strategies must be employed to maximize the potential for visitors to experience this nature-connection.

Research from a diverse array of scientific fields confirms that physical attributes of spaces have the ability to contribute to an emotional connection in people. However, despite the diverse body of research regarding nature attachment, place attachment, and landscape preference, designers charged with creating spaces that go beyond mere attachment to place and facilitate an emotional attachment to nature lack clear feedback from users regarding what experiences are most effective at creating this connection. Traditional research has focused on users responses to landscapes as if the landscape was holistic and unchangeable, while in reality landscape architects are challenged to craft spaces made up of discreet, malleable physical elements that work together to create an experience.

This research aims to bridge the gap between what designers perceive as cogent spaces for facilitating a human-nature connection and what actual users perceive as effective or distracting from creating this connection. In an effort to understand the opinion of users, three data sources were used: questioner feedback from visitors using existing Pennsylvania state parks system landscapes, user mapping exercises, and GIS analysis of the current physical attributes.
compared with the user responses. The results of this research are intended to provide professionals charged with creating, enhancing, or maintaining state parks, user-response-based data. From this data difficult design decisions can be made regarding what elements or spatial compositions would prove most effective in fostering increased connection to the natural environment. This research attempts to bridge the gap between the theoretical research of the social and psychological disciplines that inform “why” deep connections to natural spaces occur and reevaluate “how” the physical spaces actually perform.

**Keywords:**

Nature connection, Pennsylvania State Parks, biophilic design, environmental education
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>LIST OF FIGURES .................................................................</th>
<th>viii</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIST OF TABLES ....................................................................</td>
<td>x</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS ................................................................</td>
<td>xi</td>
</tr>
<tr>
<td>Chapter 1  Introduction ....................................................</td>
<td>1</td>
</tr>
<tr>
<td>Problem statement ..................................................................</td>
<td>1</td>
</tr>
<tr>
<td>Purpose statement ............................................................</td>
<td>3</td>
</tr>
<tr>
<td>Research objectives and questions ......................................</td>
<td>4</td>
</tr>
<tr>
<td>Significance of the study ..................................................</td>
<td>4</td>
</tr>
<tr>
<td>Definition of terms ...........................................................</td>
<td>5</td>
</tr>
<tr>
<td>Chapter 2  Literature Review ...............................................</td>
<td>6</td>
</tr>
<tr>
<td>Introduction .........................................................................</td>
<td>6</td>
</tr>
<tr>
<td>Why is an emotional bond with nature important? ..................</td>
<td>9</td>
</tr>
<tr>
<td>Why do people connect with nature? ....................................</td>
<td>12</td>
</tr>
<tr>
<td>How do people connect with nature? ....................................</td>
<td>14</td>
</tr>
<tr>
<td>How do researchers measure Nature Connection? ....................</td>
<td>20</td>
</tr>
<tr>
<td>Significance ........................................................................</td>
<td>21</td>
</tr>
<tr>
<td>Summary ...............................................................................</td>
<td>22</td>
</tr>
<tr>
<td>Chapter 3  Background ........................................................</td>
<td>24</td>
</tr>
<tr>
<td>The national state park movement .......................................</td>
<td>24</td>
</tr>
<tr>
<td>The history of state parks in Pennsylvania ............................</td>
<td>29</td>
</tr>
<tr>
<td>Poe Valley State Park .......................................................</td>
<td>35</td>
</tr>
<tr>
<td>Physical description .........................................................</td>
<td>35</td>
</tr>
<tr>
<td>History ..............................................................................</td>
<td>36</td>
</tr>
<tr>
<td>Black Moshannon State Park ...............................................</td>
<td>37</td>
</tr>
<tr>
<td>Physical description .........................................................</td>
<td>37</td>
</tr>
<tr>
<td>History .............................................................................</td>
<td>38</td>
</tr>
<tr>
<td>Bald Eagle State Park ........................................................</td>
<td>39</td>
</tr>
<tr>
<td>Physical description .........................................................</td>
<td>39</td>
</tr>
<tr>
<td>History .............................................................................</td>
<td>40</td>
</tr>
<tr>
<td>Chapter 4  Methods .............................................................</td>
<td>42</td>
</tr>
<tr>
<td>Introduction .........................................................................</td>
<td>42</td>
</tr>
<tr>
<td>Methods overview .............................................................</td>
<td>42</td>
</tr>
<tr>
<td>Selection of cases .............................................................</td>
<td>44</td>
</tr>
<tr>
<td>Crafting instruments .........................................................</td>
<td>47</td>
</tr>
<tr>
<td>Questionnaire ......................................................................</td>
<td>49</td>
</tr>
<tr>
<td>Chapter 5</td>
<td>Data Analysis</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------</td>
</tr>
<tr>
<td>Introduction</td>
<td>60</td>
</tr>
<tr>
<td>Sample description</td>
<td>60</td>
</tr>
<tr>
<td>Attributes of each state park perceived as enhancing/distracting from nature connection</td>
<td>64</td>
</tr>
<tr>
<td>Poe Valley State Park</td>
<td>65</td>
</tr>
<tr>
<td>Swimming area</td>
<td>68</td>
</tr>
<tr>
<td>Camping facilities</td>
<td>69</td>
</tr>
<tr>
<td>Quiet places</td>
<td>72</td>
</tr>
<tr>
<td>Forests</td>
<td>73</td>
</tr>
<tr>
<td>Views</td>
<td>73</td>
</tr>
<tr>
<td>Lake</td>
<td>74</td>
</tr>
<tr>
<td>Environmental center</td>
<td>76</td>
</tr>
<tr>
<td>Wildlife</td>
<td>78</td>
</tr>
<tr>
<td>Emotional responses</td>
<td>79</td>
</tr>
<tr>
<td>Recreation</td>
<td>80</td>
</tr>
<tr>
<td>Social environment</td>
<td>81</td>
</tr>
<tr>
<td>Holistic experience</td>
<td>82</td>
</tr>
<tr>
<td>Black Moshannon State Park</td>
<td>83</td>
</tr>
<tr>
<td>Swimming area</td>
<td>85</td>
</tr>
<tr>
<td>Camping facilities</td>
<td>86</td>
</tr>
<tr>
<td>Quiet places</td>
<td>88</td>
</tr>
<tr>
<td>Forests</td>
<td>89</td>
</tr>
<tr>
<td>Views</td>
<td>90</td>
</tr>
<tr>
<td>Lake</td>
<td>91</td>
</tr>
<tr>
<td>Environmental center</td>
<td>93</td>
</tr>
<tr>
<td>Wildlife</td>
<td>94</td>
</tr>
<tr>
<td>Emotional responses</td>
<td>95</td>
</tr>
<tr>
<td>Recreation</td>
<td>96</td>
</tr>
<tr>
<td>Social environment</td>
<td>98</td>
</tr>
<tr>
<td>Holistic experience</td>
<td>99</td>
</tr>
<tr>
<td>Bald Eagle State Park</td>
<td>100</td>
</tr>
<tr>
<td>Swimming area</td>
<td>103</td>
</tr>
<tr>
<td>Camping facilities</td>
<td>104</td>
</tr>
<tr>
<td>Quiet places</td>
<td>108</td>
</tr>
<tr>
<td>Views</td>
<td>108</td>
</tr>
</tbody>
</table>

Map .................................................................................................................. 52
Visitor employed photography ................................................................. 53
Entering the field .......................................................................................... 54
Between-case analysis .............................................................................. 55
Questionnaire analysis ............................................................................. 55
Coding of open ended questions ............................................................ 56
Searching for cross-case patterns ............................................................. 57
Shaping hypothesis .................................................................................. 57
Enfolding literature ................................................................................ 57
Limitations ................................................................................................. 58
LIST OF FIGURES

Figure 3-1: Comparision of park size to year of establishment .............................................. 34
Figure 3-2: Context map of case study parks .......................................................................... 35
Figure 4-1: Multiple case study method flow chart ............................................................... 43
Figure 5-1: Sample marital status by case study park ............................................................ 62
Figure 5-2: Sample income by case study park ................................................................. 63
Figure 5-3: Sample education by case study park ............................................................... 63
Figure 5-4: Sample distance traveled from home by case study park ............................... 64
Figure 5-5: Map of Poe Valley State Park with nature connection locations .................. 65
Figure 5-6: Respondent photographs showing the swimming beach ................................. 68
Figure 5-7: Respondent photographs showing camping areas ............................................. 72
Figure 5-8: Respondent photographs where forest as the subject ..................................... 73
Figure 5-9: Respondent photographs showing expansive views from elevated areas ........ 74
Figure 5-10: Respondent photographs showing the lake ..................................................... 76
Figure 5-11: Respondent photographs showing trails ......................................................... 81
Figure 5-12: Map of Black Moshannon State Park with nature connection locations ....... 83
Figure 5-13: Respondent photographs where forest as the subject ..................................... 89
Figure 5-14: Respondent photographs showing expansive views ....................................... 90
Figure 5-15: Respondent photographs showing expansive views from elevated areas ....... 91
Figure 5-16: Respondent photographs showing expansive views of the water ......... 93
Figure 5-17: VEP photographs showing watercraft at Black Moshannon ......................... 98
Figure 5-18: Map of Bald Eagle State Park with nature connection locations ................. 101
Figure 5-19: Aerial view of Russell P. Letterman Campground ....................................... 105
Figure 5-20: Aerial view of the rustic campground ......................................................... 105
Figure 5-21: Respondent photographs showing the view of the field as seen from site #11..........................................................107

Figure 5-22: Respondent photographs showing the lake .........................................................109

Figure 6-1: Comparison of responses to question 10 by park...............................................117

Figure 6-2: Relative frequency histogram of activities by park .............................................123

Figure 6-3: Mean rankings for elements/experiences in question 11 by park .........................132
LIST OF TABLES

Table 3-1: Comparison table of state parks within 40 mile radius of State College, Pa. .......45
Table 3-2: Comparison table of case study parks ................................................................46
Table 5-1: Aggregate sample demographics........................................................................61
Table 5-2: Sorted aggregated scores from question 11..........................................................64
Table 5-3: Frequency of activities experienced at Poe Valley State Park. .............................66
Table 5-4: Poe Valley sorted mean responses regarding contribution of each element to nature connection. ............................................................................................................67
Table 5-5: Frequency of activities experienced at Black Moshannon State Park ..................84
Table 5-6: Black Moshannon sorted mean responses regarding contribution of each element to nature connection. ..........................................................................................85
Table 5-7: Frequency of activities experienced at Bald Eagle State Park ............................102
Table 5-8: Bald Eagle sorted mean responses regarding contribution of each element to nature connection. ............................................................................................................103
Table 6-1: Comparison table of responses to question 14 ....................................................116
Table 6-2: Responses to question 13 indicating human distraction and noise as primary distractors of nature connection ..........................................................119
Table 6-3: Comparison of camping facilities by case study park ........................................126
ACKNOWLEDGEMENTS

Thank you to Professor Brian Orland for taking time to shepherd me along this process and showing me patience and dedication through the ups and down. A special thanks to Professor Tamminga and Dr. Mowen, your insights and advice proved invaluable in getting this process started and seeing it through. I am eternally indebted to this committee for their willingness to teach, inspire, and make this work more than I thought it could be.

My greatest thanks are reserved for my wonderful wife and children. Thank you for your constant support and willingness to take this adventure with me. You have put up with so much without complaint, and in turn, you have inspired and allowed me to make the most of our time together at Penn State. The words found in these pages fail to capture the many memories we made while getting acquainted with these three wonderful parks. These parks were a part of our family camping trips, lots of sand castles, swimming, hiking, and picnics. I know this past summer will always hold a special place in the collective memory of our family. My greatest hope is that the endearing memories of the natural places we experienced in these state parks planted a seed that fosters your love, appreciation, and affective relationship with nature. I know this experience has inspired me to work toward preserving and creating places that you may share with your future children.
Chapter 1

Introduction

Problem Statement

The psychological disconnect between humans and the natural environment has attracted research from a variety of disciplines. Environmental psychologist Susan Clayton (2010) proposes that if the loss of this emotional, human-nature bond is the root of many socio-environmental problems, reinstating this bond may be the key to a more sustainable relationship with the earth.

Increasing our knowledge of the environment (i.e., our cognitive understanding) is one strategy for addressing human behaviors that inflict harm to the natural environment. However, Clayton (2010) suggests that the emotional, affective relationship we have with the natural environment is a stronger driver of our behavior relative to the environment than our cognitive relationship. If this affective relationship is to be encouraged, what experiences are most likely to positively influence one’s affective relationship to the natural environment? Gobster et al. (2007) argues that the scale at which landscape is perceived is where the greatest opportunity for understanding and appreciation occurs. This “perceptible realm” is the scale at which understanding occurs, and that the perceived aesthetic of the place is the primary indicator of its natural value for visitors (Gobster et al 2007).

Natural areas managed by federal or state agencies provide encounters with the natural environment to millions of people annually (National Park Service 2012, USFS 2012). With an increasing amount of once natural land being developed or access restricted by private
landowners these federal and state managed lands are playing an increasingly prominent role in providing people access to large tracts of nature.

Public landscapes take many forms, spanning a continuum from the highly programmed National Park Service parks, managed by the federal government, to public parks managed by individual municipalities. Pennsylvania state parks represent a middle ground on this continuum (Landrum 2004). They provide a mixture of recreational opportunities, access to natural areas, and cultural preservation, all located in areas intended to be accessible to the general population (Forrey 1984). Parks range in size from less than 3 acres to over 23,400 acres and exist in a variety of demographic locales from urban and suburban regions to the far corners of the state. The State Park’s combination of physical environment, programing, recreation, nature, and social connections make them a place for people to experience positive nature experiences that increase affinitive connections with nature. State parks represent a range of possible design interventions manifesting and making nature accessible through physical design. The location and character of structures, infrastructure, and amenities, whether intentioned or not create the visual and experiential aesthetic of each individual park. Balancing the physical design and program elements with the surrounding wilderness environment changes the experience and perception of nature for state park visitors. Changing the visual and experiential aesthetic may affect visitors’ perception of nature and change the context by which visitors connect with nature.

Landscape architect Elizabeth Meyer (2008) proposes that experiencing landscapes that are aesthetically pleasing is “poly-sensual” and is not simply an act of pleasure, but one of transformation (8). This transformation through experiencing nature may be a vehicle for appreciation and improved individual actions. Regarding these transformations, Gobster et al (2007) explains “aggregated over broader social and societal levels, their potential to change landscapes, regions, ecosystems, and other environmental phenomena can be profound” (964).
Research on the subject of nature connection has not sufficiently acknowledged the potential for designers to positively affect nature connection in areas that blend wilderness experiences with the built landscape. Conversely, research regarding park planning tends to compartmentalize nature connection experiences to specific areas such as nature trails or environmental education centers. This research bridges the gap in the growing body of research on design, nature connection, and parks through an assessment of visitor experiences.

Research from a diverse array of scientific fields indicates that physical attributes of spaces have the ability to contribute to an emotional connection in people. However, despite the diverse body of research regarding nature attachment, place attachment, and landscape preference, designers charged with creating spaces that facilitate an emotional attachment to nature lack clear information based on feedback from users regarding what specific physical elements were most effective at creating this desired connection. Previous research has focused on user’s responses to landscape as if it was holistic and unchangeable, while in reality landscape architects are challenged to craft spaces made up of discreet, malleable physical elements that work in concert to create an experience. I contend that it is critical for landscape architects to go beyond mere design intuition and broad-based attachment and preference studies alone to understand what users perceive as the most important individual properties, elements, and spaces that influence a nature connection.

**Purpose Statement**

The study uses three Pennsylvania State parks as case studies to evaluate what physical and programmatic elements visitors to state parks are experiencing that facilitate or detract from their ability to feel an emotional connection to nature.
Research objectives and questions

The primary objective of this study is to examine in what ways the physical environment within state parks affect human-nature connections. Other objectives contained in the research are:

- Understand how the visitors to these three state parks perceive specific elements of the physical design of the park as either facilitating this connection or detracting from it.
- Provide an evaluation based on visitor feedback regarding how and to whom these three parks are providing certain nature connection experiences.
- Assess the potential role that landscape architects can have on connecting state park visitors to their natural environment.

The primary questions addressed in this study and central issues of concern are:

- How and where do state parks visitors experience an emotional connection to nature during their visit to these parks?
- What existing physical landscape elements are perceived by visitors to be most important in connecting them to nature?
- What physical landscape elements are perceived by visitors to be the most distracting in respect to connecting them to nature?
- How might a landscape architect design public landscapes in order to maximize the potential for visitors to feel a connection to nature?

Significance of the study

The results of this research are intended to provide professionals charged with creating, enhancing, or maintaining state parks guidance as to what elements would prove most effective in
fostering increased connection to the natural environment. This research attempts to identify connections between the theoretical constructs in social and psychology disciplines that inform “why” deep connections to natural environments occur and evaluations of “how” the physical spaces created by designers actually perform.

Within the context of the Pennsylvania State Park system these findings may help to shed light on how people are not only using the landscape, but the dialogue occurring between the environment and the user. This understanding will provide guidance for the further design and management of state parks.

The findings will help designers and managers find opportunities to enhance the nature connection potential of state parks. Increasing the opportunity for the over 38 million annual Pennsylvania State Park patrons to develop an affinity for nature may increase the likelihood that they will seek to adjust their personal behaviors to protect the natural environment toward which they feel a renewed kinship.

**Definition of Terms**

*Connection to Nature:* The relationship between natural systems and human physical and mental well-being; the cumulative experience of interactions with non-human environments (Kellert, 2005).

*Nature:* For the purposes of this research “nature” is defined as “largely free of human activity and influence, or places that contain a combination of human and natural features (Schroeder, 2007: 294)*
Chapter 2

Literature Review

Introduction

Historically, research into the relationship between humans and nature has been uni-directional, focusing on how human attitudes, values, knowledge, and behavior affect the earth. Research on the reciprocal relationship of how the earth affects human attitudes, values, knowledge, and behavior has received significantly less attention (Kellert, 2005). Contemporary research has attempted to address this oversight by focusing research on the complex interaction between the individual and the natural environment. Milton (2002) cautions that due to the complexities of human experience it is very difficult to apply even broad generalizations about how people come to know nature.

The experiential qualities of nature have a profound and potentially significant impact on the way humans perceive their relationship with the environment. Empirical research from psychology has attempted to describe, quantify, and measure the attributes and effects of this relationship. Although empirical research has furthered the understanding and relevance of the topic of how people come to emotionally connect with nature, it seems that there is a limit to what can be measured, and quantitatively analyzed. Appleton (1996) suggests that breaking down the seemingly dualistic nature of science and art may provide insight and understanding to this relationship. The fields of philosophy, poetry, and art have probed the depths of human beings’ relationship with the natural environment without the dualistic scientific traditions that hold humans as a part from nature, rather than a part of nature. By attempting to bridge overlapping
theories, research, and ideas, themes from seemingly different disciplines provide a clearer understanding of why and how this relationship with the natural environment occurs and the possibilities this kind of emotional connection may provide. As Schultz (2002) explains, at the center of all of the debate is the individual and his or her personal perception of their relationship to the natural world.

Conservationists, naturalists, outdoorsmen, and recreationalists alike often speak of being in touch with, connected to, or part of nature. Each term identifies a similar underlying theme, or at least seeks to describe a general phenomenon: a redefinition of an individual’s personal relationship with the natural environment. This complex interaction and its resulting behaviors have been studied across several disciplines ranging from philosophers to social scientists, each viewing why and how this relationship with the natural environment occurs within the constructs of their own discipline. Philosophers talk about it in terms of ethics and morality; sociologists and anthropologists speak of culture, values, and the ways societies interact with nature; conservationists talk about land ethics and the benefits experiences with nature bring (Schultz 2002).

So what do psychologists have to say about this human-nature connection? According to Kinder (2001) the field has done very little. Further criticizing the field, Kinder points out, “Destruction of the natural environment is due to human behavior; so one might, on the face of it expect that psychology with has defined itself as the science of human behavior, would be able to offer a powerful and far-reaching analysis of our relationship with the natural world. If so, one would be sorely disappointed” (44).

Although psychology has been criticized for not looking beyond the internal mental and emotional processes to address the human-nature relationships that are external, traditional psychology has provided a wealth of “broad conclusions” and theories relevant to the study of the human-nature relationship (Clayton & Meyers 2009, 7). Traditional psychology has been a root
stock for several other more contemporary disciplines that have emerged to more completely address the human-nature relationship.

The discipline of environmental psychology has stepped forward to fill the gap in traditional psychology research, by focusing on the effects of the relationship between humans and their physical environment. Initially, the movement focused on the influence the built environment has on individuals. Thanks in part to the environmental movement of the late 20th century, environmental psychologists have devoted more research to the effects the natural environment has on individuals. An outgrowth of environmental psychology termed conservation psychology on the other hand seeks to “not only understand the interdependence between humans and nature but to promote a healthy and sustainable relationship” (Clayton & Meyers 2009, 2).

This discipline of psychology centers human behavior as the primary issue in environmental problems. Therefore, conservation psychologists seek to address environmental problems by studying what influences the human behaviors, so that these behaviors can be changed.

The emerging field of ecopsychology is another outgrowth of environmental psychology. The discipline attempts to separate itself from traditional environmental psychology that as Fisher (2002) criticizes has been “dominated with using traditional cognitive and behavioral methodologies that preserve a fundamental split” between humans and nature (32). Fisher (2002) points out that by using traditional psychological schools of thought that view nature as external from the individual experiential component of the relationship is ignored. Fisher (2002) further explains that the emerging field of ecopsychology looks beyond these dualisms to “walk in the challenging space between the human and the natural” (32). This perspective allows ecopsychologist to see the ‘data’ of human-nature relationship as the “feelings, realities, or meanings born of interaction” (Fisher 2002, 55). Ecopsychology attempts to understand human-nature relations, but focuses primarily on the theoretical and experiential components of the relationship (Schultz 2002). Ecopsychology seeks to heal the split between planet and self, and
consequently as Schultz (2002) criticizes, the field tends to be focused on therapy rather than science. Fisher (2002) counters that ecopsychologist believe that “genuine sanity is grounded in the reality of the natural world; that the ecological crisis signifies a pathological break from this reality; and the route out of our crisis must therefore involve, among other things, a psychological reconciliation with the living earth (13).

Why is an emotional bond with nature important?

Technological advancements have served to separate humans from nature. Without technology we would be fully exposed to the forces of nature. Historically, humans existed intimately with nature as a requirement, the natural environment was the stage upon which they existed both physically and socially. Over the course of human history technology has allowed humans to protect and separate ourselves from the forces of nature (Hinds & Sparks, 2008). Homes, clothes, vehicles, etc. have increased comfort and safety for the human race, but have also distanced it from the natural environment. This fundamental change in our affective relationship with nature has modified how we feel, and come to know about nature (Frantz et al., 2005). Kellert (2002) argues that most people experience nature indirectly or vicariously. This reduced contact was termed the “extinction of experience”, (Pyle 1978), which he claimed leads to a cycle of apathy and lack of concern for ecological issues, the natural environment, and the wildlife within it. For how will people feel compelled to save what they do not know and love?

Changing our relationship with nature has created contrasting views of the human-nature relationship placing humans as a part from nature or a part of nature (Schroeder, 2007). If this emotional and psychological separation from nature is the root of our current environmental crisis, perhaps, as the ecopsychologists suggest, a psychological and emotional reconnection to the natural environment will be the critical step in addressing larger environmental issues.
Schultz (2000) has investigated this assumption empirically, finding that people that see themselves as more connected to nature scored higher on measure of biospheric concern, and lower on egotistic concern in the context of environmental issues.

Establishing a stronger emotional connection with nature has the ability to change our behavior towards the natural environment by adjusting the ways in which we view our relationship with nature (Chawla 2007). Environmental philosopher Sigridur Thorgeirsdottir (2010) argues that experiencing an emotional connection, or metaphysical experience as he terms it with the natural environment creates a new ethical relationship, making us “aware that we as beings are a part of nature” (24). This new relationship may be a pivotal step toward the kind of relationship encouraged by naturalist Aldo Leopold (1949) in his famous “land ethic”. Thorgeirsdottir (2010) further explains that these metaphysical experiences with nature transcend the scientific knowledge that explains the condition of nature and our place in it to “make us aware of how we live with nature due to the fact that we are a part of it” (24).

In order to re-conceptualize the human-nature relationship the experiential component is important. Environmental writers from John Muir and Henry David Thoreau to John Livingston and Rachel Carlson have called for individuals to sit and quietly observe the majesties of nature. They preached that by so doing one would gain a deeper appreciation and recognize the beauty, value and merit that would lead to feeling an emotional connection to nature. They stressed the experiential qualities of this interaction, that the human body must somehow engage and sense the qualities of nature. By so doing, nature would be something we would perceive and feel an emotional response when it is destroyed, degraded, by modern civilization. In 1973 author Paul Shepard wrote that “sufficient ecological data to guide the redirection of society toward environmental harmony has existed for more than thirty years” (Fisher, 2002). What appears to be missing suggests Fisher (2002) is “not the scientific data but the existential sensitivity” (55). Fisher (2002) worries that the general public has become so emotionally detached from nature
that “the reality we care for and feel compelled to talk about may be so poorly recognized by others that it is simply leaving the realm of discussibility.”(30) Sociobiologist Edward Wilson (1984) believed that although increased scientific knowledge had advanced the cause of conservation, joining emotion to the rational analysis would create a “deeper and more enduring” conservation ethic (119).

Influential ecologist Aldo Leopold (1949) explained that “We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect.” This oft quoted ‘land ethic’ has been echoed by ecopschologists (Roszak, 2001; Fisher, 2002) who agree that this feeling of belonging to a broader natural community may be critical for increasing environmental protection. Schultz (2001) argues that the extent to which we include an object in our conception of ‘self’ will determine the value we place on the object. Roszak (2001) argues that by expanding our sense of self to include the natural world, the destruction of the natural environment is experienced as a self-destruction. Empirical research (Mayer and Frantz 2004, Gosling & Williams 2010, Hinds & Sparks 2008) identifies a “moderately strong positive correlation” between individuals who demonstrate a high connection to nature and more positive environmental actions (512).

Changing the way in which we perceive our self and ultimately care about the environment relies on our emotions and knowledge, for these are the foundations upon which we establish our moral relationship with nature. Clayton and Meyers (2009) argue that “In mainstream western discourse, natural things are represented primarily as resources, and science is treated as the main arbiter of truth, the most reliable basis for decisions. Those perspectives which personify nature are marginalized by this emphasis on resources and science” (30). This pervasive western worldview that ratifies the perceived human-nature dichotomy condoned by Fisher (2002) and the ecopsychology discipline underscores many of the environmental challenges that face modern society. Re-conceptualizing our moral relationship with the natural
world may allow individuals and groups interested in nature protection to challenge the economic and scientific arguments by increasing the relevance of the moral relationship with nature.

Enhancing our personal relationship with the natural environment has the potential to change our attitudes, values, and resultant behaviors. Understanding why this affinity or connection occurs sheds light on the steps required by designers to enhance the human-nature relationship.

**Why do people connect with nature?**

Natural environments provide a powerful setting for individuals to recreate, socialize, relax, and contemplate. With a variety of activities and distractions present and available in nature why does bonding or connecting with nature occur? I focus on two general theories that have evolved to explain why people connect with nature, one theory focuses on the biological tendency to be drawn to nature, the second focuses on the social aspects of nature.

Sociobiologist Edward O Wilson proposed that humans have evolved genetically to have a predisposition toward nature and living things, a theory he called ‘biophilia’ (Wilson 1996). Taken literally, biophilia means the love of living things, however, Wilson has proposed that biophilia is a more than simply a fondness toward life. Wilson’s hypothesis refers to not only our responses to life and lifelike processes, but a ‘tendency’ or ‘need’ to ‘focus on’ or ‘affiliate with’ these processes (Wilson 1984, Kellert 1993). Wilson helps to clarify biophilia as: ‘emotional affiliation between human beings and other organisms’, and suggested that it can occupy ‘several emotional spectra: from attraction to aversion, from awe to indifference, from peacefulness to fear-driven anxiety (Wilson 1993, 31). Wilson’s theory has allowed naturalist the ability to argue that not only does nature fulfill an emotional need evolutionarily foundational in all humans, but that the destruction of nature eliminates opportunities for emotional fulfillment (Milton 2002).
Building on the work of Wilson, Heerwagen and Orians (1993) and Appleton (1996) have explored the aesthetic implications using the premise of the biophilia hypothesis. By conceptualizing the natural environment as producer of habitats Heerwagen and Orians (1993) explain that like any other organism, humans seek and select habitats that provide for their physical, social, and psychological needs. The selection of an advantageous habitat would be based on our developed recognition of the sights, sounds, and smells that indicate a proper habitat. Much like Wilson, Heerwagen and Orians argue that evolutionarily, humans who developed the ability to recognize proper habitats would be more likely to survive and pass along their genes. Although we may be distanced in both time and space from our hunter-gatherer ancestors, research supporting the biophilia hypothesis suggests that within the deep recesses of our conscious we continue to perceive, anticipate, and connect with nature on a basic animalistic level.

Psychological research into the relationship between humans and nature provides a dimension to the literature that extends beyond the bio-physical research suggested by Wilson, Kellert, and Appleton. Psychologists have found that humans find a deep personal significance in the natural environment, shaping the ways in which individuals define themselves (Clayton and Meyers, 2009).

Research in natural settings suggest that natural environments provide a variety of psychological, social, and physiological benefits not found within the built environment (Louv 2005, Kaplan & Kaplan 1989, 1993). Natural environments as opposed to the built environment have certain characteristics that appear to provide an optimal level of sensory stimulation. This sensory neutral environment appears to create a powerful opportunity for individual self-reflection (Clayton and Meyers 2009). Kaplan and Kaplan (1989) propose that exposure to natural environments has a restorative function. The recent work by Richard Louv (2008) and his book *Last Child in the Woods* have highlighted the increasing separation from nature experience
by American children and adults. His work regarding “nature-deficit disorder” has popularized
the notion of nature connection and challenged the nation to seek the benefits afforded by
interactions with the natural environment.

**How do people connect with nature?**

The connection to nature researched and explained by scientists and philosophers alike is
a complex personal process that involves emotion as well as knowledge that is ultimately
mediated by the social constructs of the individual. This process is mainly experiential, although
the fundamental process is governed by cognitive and biotic undercurrents and mediated by
socio-cultural constructs.

Schultz’s (2000) empirical studies of nature connection recognized that people’s
connection to nature was not static but could be increased though experiencing natural
environments and engaging in activities that increased people’s connection to nature. Schroeder
(2007) argues parallel to environmental psychologists that connecting to nature relies upon the
experiential qualities perceived by the individual, and must be understood in the actual
environments where the experience takes place. In order for the experience to modify behavior
the experience must affect the emotion and knowledge of the individual.

Efforts to understand ways in which knowledge and emotion develop in humans in
relation to their total environment were pioneered in psychology by Gibson and Neisser (1979),
and further advanced by the work of Ingold (2000). These psychologists recognized a
fundamental flaw in traditional psychology that relied solely upon highly controlled laboratory
experiments. Gibson and Neisser as well as Lewin and Rogers argued that by isolating stimuli in
a laboratory setting, psychologists were ignoring the interdependent senses that perceive and are
affected by the total environment (Canter, 1977; Milton, 2002). Their work argued that in order
to fully appreciate the experience of the subject, research must realize that experience is a product of multiple senses and requires the entire individual to understand. (Milton, 2002) This led researchers to begin describing information acquired from the environment as ‘affordances’, or possibilities the environment could provide for the individual. From this foundational departure, Gibson and Neisser described perception as a process of information pickup. This information pickup is the way that an individual experiences and discovers their environment. The new model focused on picking up information, rather than assigning meaning to it.

In Gibson and Neisser’s model, the perceiver anticipates receiving specific information; these anticipations direct their attention, which alerts them to particular affordances (Milton, 2002). Milton (2002) provides an example of how this process might be manifest in a hiker:

“The walker anticipates a resting place; the child anticipates something that will provide extra height. They notice that the bench affords these things because their anticipations have prepared them to pick up this information. The information received modifies the perceiver’s knowledge and affects future anticipations. The next time the walker decides to pass this way, he will know about the bench; he will be better tuned to his environment and will be able to plan his rest from the start.” (43)

In this model, anticipation or perception acts as the foundation of knowledge, enabling us to move and interact within our environment (Milton, 2002). Gibson and Neisser argue that this process is the same in any environment, whether on a hike or in a city, that this model describes how all perceiving organisms live and engage their environment. Neisser acknowledged that in order to begin this process of perception we must have the innate ability to anticipate information, alluding to the idea that we have evolved genetically to anticipate and perceive our environment.

Wilson’s theory of “biophilia” may provide some explanation for the innate ability Neisser acknowledged, and provide some explanation why natural environments are a natural laboratory for Neisser’s model of perception. Wilson has suggested that perhaps the process of
natural selection has developed this genetic pre-disposition toward nature and living things. Biophilia does not claim that affinity to nature can be transferred through genetics, acknowledging that behavior and emotions are not heritable (Clayton and Myers, 2009). It does claim that our tendency to respond to these external stimuli is rooted in genetics, and that as our species has evolved genotypes that promote a keen perception toward nature would have proven desirable and thus passed down through the genes of the fittest members (Wilson, 1984; Wilson, 1994). Using Wilson’s hypothesis, genes that promoted adaptive responses to natural stimuli would have come to dominate the gene pools if these responses allowed individuals to find appropriate resources such as food, shelter, or avoid threats (Clayton and Myers, 2009).

Contemporary experiential research has shown that individuals have strong affinity and conversely fears of natural elements, even in modern contexts where likelihood of injury or death from things like snakes or spiders is much less common.

Critics of Wilson’s biophilia hypothesis have argued that proposing that innate responses to the environment govern our perceptions ignores the constructionist worldview that knowledge and emotions are a product of our social constructs. These critics have cited the fact that affection and aversion to natural elements vary across individuals and cultures. For example some may feel at home in forest setting while other may feel afraid, or that areas where snakes exist does not definitely produce people with a fear of snakes (Milton, 2002). Wilson has defended his theory explaining that while biophilia does not cause people to have a particular emotional response, it does predispose us to learn or resist learning these emotional responses (Kellert 1993:31). Critics also point to the fact that Wilson’s hypothesis is largely descriptive and cannot be tested directly (White et al, 2010).

Anthropologists interested in how experience generates knowledge of the world relied upon the same constructionist worldview for which Wilson’s model was criticized as their principal analytical model. This constructionist model assumes that knowledge consists of
mental representations or ‘constructs’ that are transmitted through social interaction. These constructs are pieces that constitute the complex framework through which we form ideas, beliefs, and perceive and interpret the world. These constructs are transmitted through formal education, scientific theories, religion or political views, stories, history, and moral codes (Milton, 2002). Although this constructionist worldview has been pivotal for much of the research conducted by anthropologists and psychologists, it finds many limitations when addressing the individual’s relationship with the natural environment (Milton, 2002). By focusing only upon social interaction, requiring individual constructs to be based upon what is relayed to individuals by others, as Milton (2002) laments, denies the role of the environment altogether. Within the constructionist models the environment cannot transmit information, for information without social mediation is not accounted for. This assumption denies the fact that humans have the ability to pick up information from the environment, just as other non-human animals do. Milton (2002) has challenged anthropologists to re-conceptualize the natural environment as a source of information just as the social environment is a source of information.

Clayton and Myers (2009) suggest that if it was advantageous to form affinity toward landscapes, humans should be attracted to landscapes that provide basic needs: food, water, and shelter. Research pioneered by Kaplan, and Kaplan (1989) suggests that people do prefer landscapes with water, vegetation that appears fertile, and some research claims that savanna landscapes are preferred. Contemporary research has contested the idea of a savanna landscape preference and studies have shown alternative landscape types to also be preferred (Han, 2007). Although research has identified variability within landscape preferences, some basic physical characteristics of the natural environment appear to transverse cultural and geographic boundaries.

Common among regional specific research is the preference of three physical characteristics: openness, complexity, and water. Openness refers to the availability for people to
see and be seen (Kaplan 1989). People prefer landscapes that provide prospect and refuge (Appleton 1996). Prospect refers to the ability for people to see a distance away and avoid a potential ambush from a predator. Refuge refers to the availability for an individual to find protection from the elements or a predator (Kellert, 2005). White et al’s (2010) research demonstrates that water has a strong psychological influence on human’s perception of how restorative and preferred the landscape might be. White et al’s (2010) use of photographs with controlled amounts of ratio of green space, built environment, and water showed the respondents most rated scenes with large bodies of water (2/3) and (1/3) greenery as most preferred and restorative.

Heerwagen and Orians’ (1993) research highlights the role that landscape aesthetics plays in the ways that humans interact and feel an attraction or aversion toward nature. Heerwagen and Orians explain that the English word aesthetic is derived from the Greek verb “aisthanomai”, which means to perceive, thus a landscape aesthetic actually refers to the perception of the landscape. From the foundation of experiential perception Heerwagen and Orians (1993) explain the process of exploring a landscape as a process requiring three stages. Stage one is begins at the encounter with the landscape, within this stage the subject decides whether to explore the landscape or move on. Responses during this stage are highly affective and almost instantaneous (Heerwagen and Orians 1993). If the response during stage one is positive, the subject moves to stage two. Stage two consists of information gathering, exploration, and relies heavily upon cognition. Stage three revolves around the decision to remain in the environment and engage in activities the previous stages have informed the subject are able to be performed. Heerwagen and Orians (1993) proposed key components that influence how we will react during these stages as: resource availability, shelter and predator protection, hazard cues, way finding and movement, and contextual factors. These factors inform the experience and ultimately the ways which humans interact with the natural environment.
Philosophers have criticized western civilizations in particular for trivializing the processes of nature in lieu of its aesthetic properties. As Cheryl Foster (2000) explains, the adherence to a nature that focuses on aesthetic or human needs can “indicate a tendency toward engaging in a trivial aesthetic appreciation of nature because such an appreciation stresses surface or ambient sense qualities at the expense of an integration of those qualities with knowledge of their historical and scientific contexts.” (77) Foster (2000) further expresses the concerns of environmental philosophers who believe that a culture that limits its view of nature to “merely the perceived aesthetic qualities without linking them to the historic and cultural context disconnects nature from the narrative of time and space limit our ability to understand and appreciate natural environments” (77).

Perspectives from the often overlapping disciplines of phenomenological psychology and Gestalt psychology help to understand the experiential nature of this human-nature relationship. These disciplines use qualitative and descriptive measures to interpret and understand how people “experience things, situations, and meanings that they encounter in the course of their lives (Shroeder, 2007:295). This approach places the investigator in the experience in order to assess the essential qualities and patterns that characterize the phenomena (Schroeder, 2007). As opposed to traditional psychological techniques criticized by environmental psychologists as reductionistic, phenomenological and gestalt psychology attempt to understand an individual’s experience with respect to the holistic view of a place, as a sum of the environmental parts as they relate to each other and the larger context (Schroeder, 2007). Phenomenologist Seamon (1987) described the phenomenological essence of place as a “psycho-social-environmental whole larger than the sum of its parts” (20). This phenomenological approach aids in capturing the holistic properties of an experience with nature.
How do researchers measure nature connection?

Inclusion to Nature in Self Scale (INS) developed by Schultz (2001) was created to measure the extent to which an individual felt nature was within his or her cognitive representation of self. The INS consists of a pair of circles, one labeled ‘me’ and the other labeled ‘nature’. This pair of circles is arranged seven different ways, ranging from barely touching to completely overlapped. Respondents are asked to choose the pair of circles that best represents their sense of connection with the natural world. Although simple, Schultz et al. (2004) recognized that the scale is a single item test thus not allowing for testing of reliability. Furthermore the test requires subjects to form an abstract representation of their relationship with nature, complicating the ability for some to accurately report their relationship.

The Connectedness to Nature Scale (CNS) developed by Mayer and Frantz was created to measure the link between connection to the environment and eco-friendly behavior. The CNS uses a 14 item scale that measures the degree to which one feels a connection with the natural world (Mayer & Frantz, 2004; Frantz et al, 2005). This scale has been criticized for being limited to the emotional and cognitive aspects without acknowledging the physical aspect of the human-nature connection (Nisbet et al, 2009; Perrin & Benassi, 2009).

New Environmental Paradigm (NEP) developed by Dunlap (Dunlap et al., 2000; Dunlap & Van Liere, 1978) consists of a 15 item self-report that measures individuals ‘primitive beliefs’ regarding their relationship with the natural environment. The NEP was created to measure individual’s core beliefs which would influence specific attitudes and beliefs regarding environmental issues. The measurement has been criticized by Mayer and Frantz (2004) and Nisbet et al (2009) for two principal reasons, first, the content of the questions measures cognitive beliefs, not affective experience, and secondly, the structure of the questions regarding human-
nature interactions tend to measure individuals' beliefs about humans, not the subjects' relationship with nature.

The Nature Relatedness Scale (NRS) developed by Nisbet et al. (2009: 719) uses a self-reporting questionnaire to “measure the affective, cognitive, and physical relationships individuals have with the natural world.” The NRS provides statements (e.g. “Humans have the right to use natural resources any way we want”) which are similar to the NEP which also is criticized for measuring beliefs about humans, not the respondent’s relationship with nature.

Each of these measurement devices attempts to quantify either the individuals’ affective relationship with nature, or correlate this relationship to the individuals’ attitudes and behaviors toward the natural environment. Although each measure has limitations in its focus and breadth of measurement, research using these measures provides quantitative evidence that connection to nature develops through experience, and influences behaviors.

**Significance**

There is significant research pointing to the fact that affective experiences with nature have significant correlations with pro-environmental behavior (Hinds & Sparks, 2008). Thus influencing the experiential qualities of the individual has the potential to modify critical environmental behaviors.

The psychological disciplines provide valuable research regarding the internal human responses to the experience of the built and natural environments and should be utilized by designers of these environments (Heerwagen & Orians, 1993). Unfortunately, the research is scant when addressing sites such as state parks where a nature focused hybrid landscape exists. This hybrid landscape provides access to the natural environment; however, the experiential
qualities of the environment are mediated by the physical form, structures, and materials of the site as well as the programmatic elements experienced by visitors. State Parks may be powerful vehicles for nature connection by virtue of blending passive and active recreation, proximity and access, adequate positive familial and social networks, safety, comfort, within the larger context of nature. Landscapes such as state parks were rarely addressed in the literature in this review.

While drawing from these seemingly disparate disciplines adds depth to the science of the topic, and relevance to the depth, still the questions remain: what is to be done, who is to do it, and how shall it happen? I propose that the profession of landscape architecture is keenly adapted by virtue of its historic roots, contemporary training, and pallet of materials to modify, plan, and influence the existing structure of state parks to inspire a greater sense of connection to nature.

Summary

Literature from both the empirical scientific realms and the philosophical realms establish the importance for human beings to have a relationship with nature born of experience. Perhaps more important is the idea that by repairing society’s general disconnect with nature, fundamental attitudes, values, beliefs, and ultimately behaviors toward the natural environment will improve toward greater interest in conservation, restoration, and a sustainable future.

This review shows that concepts, theories, and research regarding how this connection benefits humans and nature, and the need for this human-nature connection are well founded and garner intense research from a vast array of disciplines. However, little research exists regarding how natural environments that blend wilderness nature, human access, and recreation, such as within a state park, influence this nature connection. These landscapes offer immense possibilities for people to experience nature to have a meaningful experience that allows them to connect with nature.
The literature also fails to acknowledge the role and potential for the design professions as modifiers of the physical environment, and consequently the experience of the users. Although research regarding the potential for highly designed spaces to provide a narrative of nature is becoming prevalent in mainstream landscape architecture research, little is written concerning the potential for consciously revealing nature in the subtle design schemes traditionally occurring within natural areas to increase the potential for visitors to experience a connection to nature. By understanding the experiential qualities these parks provide for visitors, a greater understanding of what designers might be able to adjust to enhance their nature connection experience may pay dividends for our environmental future.
Chapter 3

Background

This chapter provides background information regarding the historic development of state parks at a national and state level as well as a historic sketch of each case study park. This background provides a contextual foundation regarding how each case study park evolved into what they are today. The historic values, traditions, and motives explored in this chapter are manifest in the physical and programmatic environment of the current park system, and will continue to influence the future of state parks in Pennsylvania.

The National State Park Movement

The United States of America is a land of parks. Although the idea did not originate on this continent, this country has been instrumental in promoting the idea that people should have access to open areas for their health and benefit (Wirth 1980). Parks, in their myriad of forms, have been a vehicle for the preservation of landscapes and cultural heritage, and have become an imbedded component of our national character. At the grandest of scales are the National Parks, over 125 thousand square miles of land, containing the most important natural and cultural landscape treasures in the nation (Landrum 2004). At the other end of the scale, countless small parks provided by local and regional governments provide close-to-home recreational amenities, green spaces, and public gathering areas. In the middle of this continuum lie the state parks, with “over twenty thousand square miles of scenic landscapes and cultural treasures” (Landrum 2004, 4). State Parks are well suited in both form and function to fill the gap between the playground
type parks found at the neighborhood or regional scale and the backcountry recreation provided by the remote and often inaccessible National Parks.

The clearest beginning of a “state parks movement” was the concerted effort to preserve places such as Niagara Falls, the California Redwoods, and the San Jacinto Battleground undertaken during the mid-19th century by conservationists and activists such as John Muir, Fredrick Law Olmstead, and Theodore Roosevelt. However, these site specific efforts focused on preservation for preservation sake was not enough to engender a national scale state parks movement (Landrum 2004).

Although the preservation and sharing of common spaces was a practice imported among the earliest colonists, the development of the National Park Service Organic Act of 1915 was the first federally recognized effort to preserve natural and cultural features important to the nation (Landrum 2004). As national parks continued to grow in popularity, director Steven T. Mather became overwhelmed with applications for areas from across the nation to be considered for National Park designation. The new director had been charged to only accept areas with “scenery of supreme and distinctive quality or some natural features so extraordinary or unique as to be of national interest and importance” (Landrum 2004, 78). Only two of the original 16 proposals were deemed by congress as worthy of enactment. Mather found he turned away many proposals containing spectacular landscapes worthy of merit and protection, but not considered of national interest or importance. Mather’s response to the dilemma was to promote another level of park program administered at the state level (Tilden 1962). In January 1921 the first National Conference on [State] Parks was held, bringing together some two hundred delegates from across the nation. The conference resulted in the first national scale, unified effort to establish a system of parks managed by each individual state (Tilden 1962, Landrum 2004). Although the conference was championed by a federal representative, Steven Mather, the conference called for attendees to spark a state level, grass roots support for the establishment of state parks and the
governmental agencies to facilitate them. Although the conference created a unified vision at a national level, the state park movement was ultimately a product of individual state level efforts that coalesced into a truly national movement.

The mobility provided by the automobile fundamentally changed the viability, popularity, and future of the state and National parks. While preservation of unique natural or cultural areas was often the original objective of a state park designation, the widespread development of the automobile transformed the state parks into destinations, creating an economic benefit to the surrounding areas (Landrum 2004).

The combination of preservation as well as the promise of tourism made the establishment of state parks a popular platform for politicians as well as citizenry. The growing popularity of parks as well as encouragement from the annual National Conference on State Parks participants helped to establish state parks and resultant state level programs (Tilden 1963). In 1925 an inventory was conducted to assess the growth of state parks, 36 states reported one or more state parks, three other states had state forests supporting recreational uses. All together 39 states contained 578 state parks (2,663,271 acres) and 156 state forests (1,699,900 acres) (Landrum 2004). Although this grassroots effort advanced the state park movement, the engagement of the federal government during the great depression would prove to be a catalyst to the eventual explosion of state parks across the nation.

Franklin D. Roosevelt’s response to the economic difficulties of the great depression addressed two of his major concerns, the unemployment of the nation’s youth and the sad condition of the nation’s natural resources (Landrum 2004). One of the results of this response was the establishment of the Civilian Conservation Corps (CCC) established March 27, 1933(Landrum 2004). The CCC’s work covered a broad spectrum, the initial act that created the corps called for the “forestation of lands, prevention of forest fires, floods and soil erosion, plan pest and disease control, construction, maintenance, or repairs of paths, trails, and fire lanes in the
national parks and forests” (Landrum 2004, 129). The National Park Service was given responsibility for both work both in the National Parks and State Parks and forest land. In order for states to have CCC camps established and receive federal funding for projects the state had to have state owned lands on which to work and agree to maintain the new infrastructure once the project was complete (Landrum 2004). For those states that had designated state lands for state forests and state parks, these federal projects made substantial contributions to these landscapes. Of the estimated $467 million dollars allocated to the National Park Service for CCC camps during the CCC era some $335 million was spent on local and state parks (Wirth, 1980). At programs end in 1942 the CCC had built or improved 405 state parks in 43 states. Although the nature of the camps varied, some camps built complete state parks, while the majority of camps were employed to reforest areas, control erosion, and build trails, camping facilities, dams to create recreational lakes, visitor use facilities such as visitor centers, lodges, cabins, and bathhouses. The CCC was also instrumental in building the infrastructure that connected many of the parks to the outside world by building bridges, roads, telephone and power lines, paths, and water lines. The National Park Service supervised an average of 345 CCC camps a year during the Corps nine year lifespan and the improvements and legacy left in the national and state parks are still evident today (Wirth, 1980).

Much of the legacy is evident in the distinctive architecture and use of local stone and timber. The works of architects such as Albert H. Good’s 1938 publication entitled Park and Recreation Structures provided a vernacular for the built environment that is mimicked in structures even today (Wirth, 1980). As early as 1935, National Parks Director Arno Cammerer credited the CCC with advancing the state parks by 50 years (Landrum 2004). Tilden (1963) went further to claim that without the impetus of the CCC some states would have had little recreation acreage in the present century. Although perhaps overly optimistic, the contributions of
the CCC during its short lifespan in new parks, physical improvements, and the state park culture in the American people through this program were substantial and lasting (Landrum 2004).

The advent of World War II had mixed effects on the state parks system, overall usage of parks declined as the country focused its financial resources on the war effort. Limited gasoline and rubber allocations limited travel, manpower shortages limited the maintenance and management of the parks causing some parks to close until after the war. Following World War II the unified nature of the parks that arose as the National Park Service administered the CCC’s federal programs began to deteriorate. As the nation accepted a more carefree and prosperous lifestyle, the call for the nation to provide more outdoor recreation reached a crescendo. State parks were viewed as a remedy for this “crisis” and another wave of state park expansion ensued (Landrum 2004).

In addition to increased demand for state parks, the variety and availability of new recreational vehicles and uses forced state parks to further modify their programing and design. For example the development of the snowmobile, the continual development and popularity of the RV, the rollerblade, and the mountain bike changed the requirements of the physical structure of trails and camping areas to accommodate these new uses. Some state parks ventured into semi-public relationships with golf courses, ski resorts, gift shops, marinas, and hotel resorts. The post war era was defined by the individualistic nature of the each state park and each state park system, as the state park system grew out of the National Park System’s shadow a new future for state parks began to emerge (Landrum 2004).

State Park systems continue to be as varied as the fifty states that they represent. Although their transition has been the product of grassroots preservation, federal intervention, and public investment, state parks continue to maintain a critical role in providing meaningful outdoor recreation experiences in landscapes that people care deeply about.
However, many historic issues remain unresolved. Even at the close of the first conference on state parks in 1923 attendees left with enthusiasm, but without a clear definition of what a state park should be. Many saw state parks as a noncommercial open air resting places for urban citizens. Others agreed with Colonel Richard Lieber, a park advocate and champion of the Indiana state parks system, who saw parks as preserves of the great landscapes of each state. He said “state parks are meant to be the show window of a state…” to which he added, “…but more than that, state parks are a dedication of the soul of the land. Without vision, a land would die. Without inspiration, we remain disconnected from the immortal order of things. Our state parks preserve the sources of our inspiration” (Tilden 1963, 9). Many state parks systems were created, evolved, and remain astride of these two seemingly binary situations. Tilden (1963) proposes that what we typically call a state park may in fact be better defined as a state recreation park. Parks throughout the country span the continuum from what the ever poetic Leiber described as “not merely picnicking places. They are rich storehouses of memories and reveries. They are bearers of wonderful tales of him who will listen, a solace to the aged and an inspiration to the young” (Tilden 1963, 8).

The history of State Parks in Pennsylvania

The roots of the state parks in Pennsylvania are deeply tied in the destruction of the forests in the mid-19th century. The booming lumber industry benefited greatly from the expansive forests and unrestricted logging laws of Pennsylvania, with revenues growing from $1 million in 1840 to $29 million in 1870 (Forrey 1984). Behind this resource extraction rush came devastating wildfires and soil erosion, with areas of northern Pennsylvania becoming known as the “Pennsylvania Desert” (Forrey 1984).
In response to this devastation the Pennsylvania Forestry Association was organized in 1886 with Dr. Joseph T. Rothrock as its first president. The association urged the state to establish a State Division of Forestry that could acquire damaged lands, control wildfires, and reforest the damaged forests. The state created a Division of Forestry within the Department of Agriculture in 1897 and appointed Dr. Rothrock as the new division head. He set about to accomplish the goals of the forestry association and by 1900 the commonwealth had targeted tax delinquent areas and acquired over 110,000 acres of forest. The maximum price paid by the commonwealth was $2 with a low of $.50 and an average cost of $1.35 per acre (Forrey 1984).

In 1901 the legislature created a Department of Forestry independent of the Department of Agriculture in order managed the now 324,000 acres of land acquired by the state. It was also in 1901 that Dr. Rothrock announced the establishment of camps within the forest reserves that would be free to the public and were especially dedicated for those with breathing problems to live out in the open fresh air. Subsequent state recreational areas were established at Mont Alto, Caledonia, and Promised Land in Pike County (Cupper 1993).

As uses of these forest recreation areas increased, the damage inflicted by haphazard camping and improper care of campfires became a concern. In 1914 alone, 135 forest fires resulting in over 373,251 acres of forest damaged were traced to hunters and campers. In an effort to control these wildfire problems, in 1920 the Department of Forestry adopted the successful efforts of Oregon and Washington in clearing a few acres of brush, constructing a loop road off of the highway, and installing benches, tables, and fireplaces (Forrey 1984). The move towards preparing dedicated camping areas was popular with the public and reduced wildfires from campers and hunters (Cupper 1993). From these humble beginnings began the efforts of the Department of Forestry to accommodate the growing interest of the citizens to access the wilderness of Pennsylvania.
Much like the national state parks movement, the Civilian Conservation Corps was instrumental in transitioning the fledgling camping areas into real destinations. Pennsylvania benefited greatly from the work of the CCC; by 1934 the CCC had over 104 camps in Pennsylvania, second only to California (Cupper, 1993). By the end of 1934 the CCC reported the completion of over 130 buildings, 488 acres of clearings established, 28 water improvements, and 633 other facility improvements (Forrey 1984). The work of the CCC established important groundwork for the future growth of the state parks in Pennsylvania.

The years during and after World War II resulted in the acquisition of several new parks and the first document related to a comprehensive plan for the state park system. Maurice K. Goddard was sworn into office January 17th 1955 as the Secretary of Forests and Waters and a new era of state park expansion began in the state of Pennsylvania. Perhaps Goddard’s greatest tool was not only his training as a forester, but the authorization of the Oil and Gas Lease Fund Act which earmarked royalties from oil and gas taken from state owned land to be spent for conservation or recreation development (Cupper 1993). This provided an effective funding mechanism to grow the state parks system. Goddard also established the ambitious goal of establishing a park within 25 miles of every resident of the commonwealth, the financial backing of the Oil and Gas Lease Fund Act was critical to accomplishing this goal (Cupper 1993). In the first three years of his tenure construction was started on 13 new parks and a set of standards and general criteria for new state park sites were designated (Forrey 1984).

_Water:_ Water is of prime importance, the center of attraction at the most heavily used parks is a body of water. The water must be free of contamination, preferably located in a forested watershed that uses intelligent conservation practices. The quality of the water must be matched by the quantity in order to avoid stagnant pools in dry periods. Water temperature should allow for comfortable bathing.
Location: Parks are for people; therefore they should be located near centers of great population concentration. The goal of a park within 25 miles of every resident was established.

Topography: Parks should take advantage of the varied topography and utilize the mountains, forests, streams, and rivers for their recreational value. Level areas for parking, roads, and facilities for picnicking, camping, and launching boats must also be located.

Subsurface Conditions: Subsurface characteristics should inform the location and suitability of structures through the use of test holes and soil analysis.

Availability: Parks must provide sufficient acreage without excessive cost and accommodate 25,000 people per day.

Scenic Beauty and Historical Interest: A beautiful vista is a desirable feature for a park; also an area of historic significance is also preferred.

As if this historic expansion was not enough, the ambitious Goddard pressed for a statewide $70 million bond to would provide money specifically for forestry, conservation, parks, water quality, and pollution control (Cupper 1993). Of the $70 million, $40 million was designated for the Department of Forests and Waters to acquire and develop recreational properties in critical urban counties (Forrey, 1984). The proposition passed in 1964.

With this era of expansion in parks came an expansion in visitors. Visitor numbers increased from 8 million in 1955 to 24 million in 1961. The fever of state parks remained throughout the decade with more property acquired and developed each year. Goddard continued to seek for additional funding sources and eventually championed another bond issue referendum he called Project 500. The proposal would spend $500 million dollars on environmental related projects; $125 million would be allocated to develop state recreational lands purchased with Project 70 funds. The referendum passed in 1967 and formally became the Land and Water Conservation and Reclamation Act (Cupper 1993).
With additional revenue the development of state parks continued. Amidst all the funding Goddard was occasionally confronted with the issue of charging visitors to use the park. Goddard was firmly opposed to the proposition and argued that the tradition of free access made the parks available to the greatest number of people. Goddard explained “The economic and social benefits of the present system are so far reaching that the Commonwealth can afford this small subsidy… You don’t put parking meters in shopping plazas, because you want people to come. We want people to come to use our parks too” (Cupper 1993, 43). A law barring entrance fees was signed by Governor Thornburgh in 1983 (PA Parks and Forests Foundation, 2012).

The end of the Goddard era marked the end of Pennsylvania’s massive State Park expansion. Improvements and small additions continued within the state park system but the not at the scale of the previous decades. The economic downturn and high energy prices of the early 1970’s caused a sharp downturn in visitors to parks and forced the parks to increase fees, privatize selected marinas and ski hills, as well as contract with concessionaires to operate concessions and swimming facilities at numerous parks (Forrey, 1984). The following decades have seen far less development in the Pennsylvania State Park system, but a more focused effort to understand and plan for the future of the state parks in Pennsylvania.

The Pennsylvania Bureau of State Parks is currently housed in the Division of Conservation and Natural Resources. The mission statement of the bureau states:

“The primary purpose of state parks is to provide opportunities for enjoying healthful outdoor recreation and to serve as outdoor classrooms for environmental education. In meeting these purposes, the conservation of the natural, scenic, aesthetic, and historical values of the parks should be given first consideration. Stewardship responsibilities should be carried out in a way that protects the natural outdoor experience for the enjoyment of current and future generations.” (Bailey 1996)

Pennsylvania’s state park system is among the most respected and admired systems in the nation, receiving the top honor as the 2009-2011 National Gold Metal for Excellence in Park and
Recreation Management by the American Academy for Park and Recreation Administration and the National Recreation and Park Association (PADCNR 2012).

Through the vision of a few and the hard work and support of many the Pennsylvania State Park system continues to provide the people of the state opportunities to experience the outdoors while preserving and protecting the natural landscape.

Figure 3-1: Comparison of park sizes to year of establishment
Poe Valley State Park

Physical Description

Poe Valley State Park (See fig 3-2) is a 640 acre park located in Centre County, Pennsylvania (PADCNR, 2011). Poe Valley ranks 65th in size compared to the other 120 Pennsylvania State Parks (PASDA 2011, PADCNR 2011). The nearest township, Coburn (population 236) is physically separated from the park by a large ridge (Census.gov, 2012). The park is surrounded on all sides by the 195,000 acre Bald Eagle State Forest. The park is accessed
either from the Siglersville/Millheim pike, a gravel road accessed either from US 322 (10 miles) or from the Penns Creek Road 1.5 miles north of Coburn (7 miles). The park is accessed from a single two lane entrance road and the remainder of the park is serviced via a loop road with on street parking. This loop road also provides access to the camping facility loop road (See appendix B).

The dominant feature of the park is the 25 acre Poe Lake, a reservoir of the Big Poe Creek, constructed by the CCC for recreational purposes. The current park has a swimming beach with concessions, boat rental, showers, and restrooms, 45 site camping facility with a modern restroom facility, and 3 miles of interior trails, two of which provide access to the regional Mid-state trail network.

History

Poe Valley State Park was named for Big Poe Creek, the river that flows through the valley (PADNR 2011). Prior to the acquisition and subsequent creation of the original 120,000 acre Bald Eagle State Forest at the turn of the 20th century from logging companies, the area which is now Poe Valley State Park was typical of most state forest lands, extensively logged and abandoned.

The State park came into existence through the worked performed by the Civilian Conservation Corps camp S-63-Pa from 1934 to 1936 (PA CCC 2011, Cupper 1993, Markum 2012). The Corps primary contribution was the creation of the stone and earthen dam which was started in October of 1935 and completed in 1937. The dam was created at the suggestion of the camp engineer, Amos Bennett, who eventually designed the structure under the supervision of the state engineer. The CCC also updated the Siglersville/Millheim pike that provides primary access to the park as well as built Big Poe Road that access nearby Poe Paddy State Park. The CCC
built the access road into the park that originally ran along the southern shoreline of the lake where the concession area now sits (Markum 2012).

During the construction of the dam negotiations between the CCC and the State resulted in plans to construct facilities to allow for a recreational park to be completed in conjunction with the dam. The original proposal for the park was conceived by K.F. Bottorf an Assistant Conservationist (Markum 2012). Several concerns arose during the construction of the dam regarding the types of uses to be allowed at the park. Department of forestry officials worried about whether the park's size, remote location and proximity to previously established parks would allow it to be financially viable. In response to these concerns the state recommended tent and picnic sites, a bathhouse, and two latrines and discouraged the idea of permanent cabins. The CCC crews eventually completed the bath house, latrines, picnic sites, and a swimming dock. The park was officially opened in 1936 upon completion of the construction of these facilities.

The CCC crew’s camp was located north of the park and was considered active until 1941 (PA CCC, 2011). The camp structures now acts as a private hunting camp. All that currently remains of the CCC’s work is the stonework of the overflow, the rocks at the breast of the dam and the stone stairs that accessed the original bathhouse.

**Black Moshannon State Park**

**Physical Description**

The 3,394 acre Black Moshannon State Park is located in the 43,000 acre Moshannon State Forest, creating a remote and wild setting (PADCNR 2011). The park is located in Centre County, nine miles east of Phillipsburg, Pennsylvania. The northern end of the park is traversed by State Road 504 with additional southern access from Beaver Road (See appendix C).
The park is home to the 250 acre Black Moshannon Lake and surrounding wetland/bog complex. The park was named “Black” Moshannon because of the dark tint given to the water as it picks up tannins through interacting with moss and wetland plants (PADCNR 2011). The park also provides a network of over 20 miles of trails traversing the park, two of which link to Moshannon State Forest trails (Bailey 1998). The park currently provides 74 tent and RV camping sites with two modern restrooms in a single facility and 14 rustic cabins located apart from the camping area (PADCNR 2011). The park facilities include a visitor’s center, an environmental education center, a contracted concession/camp store, and a swimming beach with associated showers and restrooms.

**History**

The historic roots of Black Moshannon have always related to the presence of water and the abundance of natural resources in the area. The Seneca Indians inhabited the area and relied upon the seeps, springs, and ponds for fish. European settlers moved into the area after the Philadelphia-Erie Pike (now state route 504) was completed in 1821. The first establishment was a Tavern called the Antes house located near the present day swimming beach (PADCNR 2011).

The waters of Black Moshannon were dammed to allow logging companies to transfer lumber from the surrounding forests downstream to Williamsport. In one year the lumber mills located on the shores of Black Moshannon floated more lumber downstream to Williamsport than any single logger in Pennsylvania (PADCNR 2011). The loggers left a barren landscape rife with wildfires and soil erosion. The State of Pennsylvania purchased the lands in 1898 and created the Moshannon State Forest in an effort to manage erosion and promote reforestation.

Black Moshannon State Park is another product of the Civilian Conservation Corps era of park building. The park housed the Beaver Mills camp S-71-PA, one of the first CCC camps in
Pennsylvania (PADCNR 2011). Construction on the park began in 1933 and continued until the park was completed in 1937 (Forrey 1993). The CCC built access and fire roads, cleared land for the camping facilities, the log cabins, concessions, pavilions, a shower house and dressing room, trails, and replanted thousands of red pines within the park boundaries (PA CCC Archive 2011, PA DCNR 2011). The CCC also constructed a dam at the site of the previous mill dam to increase the water level and improve the recreational nature of the Black Moshannon Lake (PADCNR 2011).

The park was already a popular area for local visitors during the construction phases, CCC records indicate that as many as 6,000 people visited the park in one day during the summer of 1934, three years prior to its official opening. The park was officially opened in 1937.

**Bald Eagle State Park**

**Physical Description**

Bald Eagle State Park consists of 5,900 acres of forests, reverting farm fields, wetlands and the Joseph Foster Sayers reservoir (PADCNR, 2011). The park is surrounded by a mixture of privately owned land as well as land leased from the Army Corps of Engineers by the Pennsylvania Game Commission.

The centerpiece of the park and principle reason for its existence is the 1,730 acre Joseph Foster Sayers reservoir (PADCNR 2011). The reservoir was created by the Joseph Foster Sayers dam completed in 1964 by the US Army Corps of Engineers. The state allows unlimited horsepower motorized boating and 7 separate boat launches and a marina facility managed by private operators and the Pennsylvania State Park Bureau. The reservoir splits the park into a western and eastern side. The western side is more developed than the east claiming the main
entrance, park offices, marina, 6 launches, the Russell P. Letterman Campground, and the Nature Inn. The eastern side is split by the town of Howard and has one launch and a rustic campground accessed via a single road (See appendix D).

The park has 11 miles of trails, with 5 miles traversing the area around the Letterman campground, nature inn, and beach area. The remaining trails provide access to the outer edges of the park and the lakeshore near the rustic campgrounds.

**History**

The area, forests, and creek surrounding Bald Eagle State Park were named in honor of the American Indian chief Woapalanne which means “Bald Eagle” (PADCNR 2011). The area was traversed by a portion of the warriors’ path, now State Route 150 (Bailey 1998). Bald Eagle Creek that runs through the park was once a branch of the Pennsylvania Canal, which was replaced by a railroad connection linking the Curtin Ironworks, located just west of the park to municipal centers throughout Pennsylvania. The Iron furnaces required wood for the smelting process, and the forests in and around the Bald Eagle valley suffered from severe deforestation. The denuded lowlands and plateaus were quickly converted into farmland following the demise of the iron furnaces at the end of the 19th century. The area remained active farmland until congress approved the construction of the Foster Sayers Dam in 1954. The dam construction began in the spring of 1964 and was managed by the Army Corps of Engineers as a flood protection for the western branch of the Susquehanna River. The dam was completed in 1969 and the associated recreational facilities constructed by the corps were completed in 1971 (PADCNR Bald Eagle Natural Resource Management Plan 2011). The corps administers the dam, surrounding land, agricultural leases, rights of way, and support facilities. The Pennsylvania Bureau of State Parks leases the 5,900 acres that constitute the park from the Army
Corps. The bureau is responsible for all maintaining the land for recreational purposes and all capital improvements must be approved by the corps (PADCNR Bald Eagle Natural Resource Management Plan 2011).

Bald Eagle State Park officially opened to the public July 4th, 1971 (PADCNR 2011). The original facilities included six boat launches and associated picnic facilities (PADCNR Bald Eagle Natural Resource Management Plan 2011). By 1975 the park constructed 35 tent sites in the rustic campground, a new visitor’s office, maintenance building, marina center, and two picnic areas. The beach area with associated bathhouse, concessions, pavilions, and parking were completed in 1980 and another 35 camping sites added to the rustic camping facilities in 1984. The Russell P. Letterman campground was completed in 1993 and the existing “forestry building” was converted into the environmental education center in 2000 (PADCNR Bald Eagle Natural Resource Management Plan 2011). The most recent addition to the park was the Nature Inn, completed in 2010. The Inn is a LEED Gold, 16 room hotel intended to create yet another alternative for visitors to stay and play at the park (PADCNR 2011).
Chapter 4

Methods

Introduction

The three case study state parks vary in their historical roots, physical size, programmatic makeup, and visitation characteristics. Using three parks with varying physical and programmatic characteristics allows a cross sectional snapshot of visitor’s nature connection experiences within mid-size to large state parks in central Pennsylvania. This cross section also provides insight into how the physical and programmatic character of these parks in aggregate affects visitor’s nature connection experience. Additionally, comparing how differences in the physical design of spaces, facilities, and programs, common to all three state parks affect the nature connection experiences of visitors provides insight into how differences in the physical environment is affecting individuals nature connection experience.

Methods overview

Mark Francis FASLA (2001) argues that case studies have a well-established history in the practice, education, and research within many disciplines, including landscape architecture. Francis (2001) calls for case studies to “occupy a central role in landscape architecture practice, education, and research” (27) in order to “expand the research base in landscape architecture.” (16) This research uses Francis’s call and methodology as a foundation for inquiry into the ways in which the physical and programmatic environment affects visitors’ ability to connect to nature.
Eisenhardt (1989) provides seven steps useful in further organizing the case study inquiry process:

1. Selection of cases
2. Crafting instruments
3. Entering field
4. Analyzing with in-case data
5. Searching for cross-case patterns
6. Shaping hypothesis
7. Enfolding literature

Fig 4-1: Multiple Case Study Method Flow Chart (Eisenhardt 1989 adapted by Dimond 2011)
Selection of cases

Three individual case study parks were selected in an effort to identify specific physical and programmatic variables that affect visitor’s nature connection experiences. Selecting parks with similar amenities allows for comparisons of visitor experience between the parks. Variety in the physical and programmatic form of these amenities created a more robust data set from which to draw conclusions and allow for design recommendations to be applicable to a wider range of state parks. This thesis draws upon data from three case studies of state parks within central Pennsylvania.

The case study parks were selected from 117 parks operated by the Pennsylvania state parks bureau based on their size, similar amenities, and recommendations from managers within the Pennsylvania State parks bureau. In order to allow for on-site research to be conducted at frequent intervals throughout the summer of 2011 only state parks within a 50 mile radius of the researcher’s residence in State College, PA were considered. The 19 state parks within this 40 mile radius were compared in four ways: size, programs, amenities, and visitation.
Table 3-1: Comparison table of State Parks within 40 mile radius of State College, Pa

<table>
<thead>
<tr>
<th>Name</th>
<th>Date Founded</th>
<th>Park Area (Ac.)</th>
<th>% forested Cover</th>
<th>% water cover</th>
<th>Prominent Water body</th>
<th>Water body size (ac.)</th>
<th>Hiking Trails (mi)</th>
<th>Env. Ed Program</th>
<th>Watershed Ed Program</th>
<th>Swimming Beach</th>
<th>Camping Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand Bridge</td>
<td>1978</td>
<td>2.6</td>
<td>75%</td>
<td>0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>McCall's Dam</td>
<td>1933</td>
<td>6.5</td>
<td>100%</td>
<td>0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hyner View</td>
<td>1965</td>
<td>12.8</td>
<td>79%</td>
<td>0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poe Paddy</td>
<td>1938</td>
<td>25.0</td>
<td>96%</td>
<td>3%</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Penn-Roosevelt</td>
<td>1983</td>
<td>42.0</td>
<td>91%</td>
<td>8%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ravensburg</td>
<td>1933</td>
<td>90.5</td>
<td>93%</td>
<td>0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Fowlers Hollow</td>
<td>1936</td>
<td>102.4</td>
<td>100%</td>
<td>0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Reeds Gap</td>
<td>1938</td>
<td>224.0</td>
<td>98%</td>
<td>0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Whipple Dam</td>
<td>1928</td>
<td>249.5</td>
<td>89%</td>
<td>8%</td>
<td>Whipple Lake</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>S.B. Elliot</td>
<td>1933</td>
<td>331.9</td>
<td>61%</td>
<td>0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Greenwood Furnace</td>
<td>1924</td>
<td>423.2</td>
<td>87%</td>
<td>1%</td>
<td>Greenwood Lake</td>
<td>6</td>
<td>27</td>
<td></td>
<td></td>
<td></td>
<td>X X X</td>
</tr>
<tr>
<td>Trough Creek</td>
<td>1936</td>
<td>458.5</td>
<td>97%</td>
<td>2%</td>
<td>Raystown Lake</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X X</td>
</tr>
<tr>
<td>R.B. Winter</td>
<td>1933</td>
<td>627.4</td>
<td>95%</td>
<td>1%</td>
<td>Halfway Lake</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X X X</td>
</tr>
<tr>
<td>Poe Valley</td>
<td>1937</td>
<td>707.8</td>
<td>96%</td>
<td>3%</td>
<td>Poe Lake</td>
<td>25</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>X X</td>
</tr>
<tr>
<td>Canoe Creek</td>
<td>1979</td>
<td>933.2</td>
<td>47%</td>
<td>18%</td>
<td>Canoe Lake</td>
<td>155</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td>X X</td>
</tr>
<tr>
<td>Kettle Creek</td>
<td>1954</td>
<td>2082.4</td>
<td>72%</td>
<td>12%</td>
<td>Kettle Creek Reservoir</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X X</td>
</tr>
<tr>
<td>Black Moshannon</td>
<td>1937</td>
<td>3395.4</td>
<td>78%</td>
<td>6%</td>
<td>Black Moshannon</td>
<td>250</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td>X X X</td>
</tr>
<tr>
<td>Bald Eagle</td>
<td>1971</td>
<td>5685.5</td>
<td>59%</td>
<td>31%</td>
<td>Sayers Reservoir</td>
<td>1730</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td>X X X</td>
</tr>
<tr>
<td>Prince Gallitzin</td>
<td>1965</td>
<td>7147.8</td>
<td>67%</td>
<td>24%</td>
<td>Glendale Lake</td>
<td>1635</td>
<td>32.5</td>
<td></td>
<td></td>
<td></td>
<td>X X</td>
</tr>
</tbody>
</table>

Note: Case study parks are indicated by grey color.

When the 19 parks were grouped according to park acreage the largest park was 7,147 acres (Prince Gallitzin State Park) and the smallest park was 2.6 acres (Sand Bridge State Park).

Small parks were considered as parks between 2.6 acres and 1,000 acres, midsized parks were
considered between 1,000 acres and 5,000 acres, and large parks were considered between 5,000 and 23,452 acres. One park from each of these categories was selected, Poe Valley was considered as a small park with acreage of 707 acres. Black Moshannon State Park was considered as a mid-sized park with acreage of 3,395 acres. Bald Eagle was the third largest park with an area of 5,685 acres (See table 3.2).

Visitation was of particular concern when considering the smaller parks, some of which lack the facilities to attract enough users to allow for comparative numbers of questionnaire respondents. Poe Valley State park had a particularly low estimated visitor number but the park manager assured that the park had a constant population of weekday and weekend visitors.

The existence of amenities typically found in parks of this size was compared to assure that visitor experiences regarding different amenities could be compared. All selected parks have swimming beaches, camping facilities, and trail networks. The only exception is Poe Valley which does not have an environmental education center. Prior to a remodel in 2008 the park had an environmental education center and the research team thought it would be interesting to assess whether the loss of this amenity would be perceived by visitors.

Table 3-2: Comparison table of case study parks

<table>
<thead>
<tr>
<th>Name</th>
<th>Date Founded</th>
<th>Park Area (Ac.)</th>
<th>% forested Cover</th>
<th>% water cover</th>
<th># of Visitors (2010)</th>
<th>Prominent Water body</th>
<th>Water body size (ac.)</th>
<th>Hiking Trails (mi)</th>
<th>Env. Ed Program</th>
<th>Watershed Ed Program</th>
<th>Swimming Beach</th>
<th>Camping Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poe Valley</td>
<td>1937</td>
<td>707</td>
<td>96%</td>
<td>3%</td>
<td>609</td>
<td>Poe Lake</td>
<td>25</td>
<td>3</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Black Moshannon</td>
<td>1937</td>
<td>3395</td>
<td>78%</td>
<td>6%</td>
<td>106984</td>
<td>Black Moshannon</td>
<td>250</td>
<td>16</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Bald Eagle</td>
<td>1971</td>
<td>5685</td>
<td>59%</td>
<td>31%</td>
<td>148869</td>
<td>Sayers Reservoir</td>
<td>1730</td>
<td>11</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
Crafting Instruments

The study draws information from two primary sources; first the physical characteristics of each park were analyzed using data collected through the researcher’s on-site observation, mapping, and analysis of geo-spatial data sources. Second, the effects of the physical environment of visitors experience were analyzed using qualitative and quantitative responses provided by visitors in the questionnaire portion of the survey, spatial data provided by the mapping responses and visitor employed photography. Multiple data sources were selected in order to provide a “triangulation” of data and further validate the study’s findings.

On site observation entailed an inventory of the parks physical characteristics through the use of physically mapping features such as landmarks, educational signage, vistas, overlooks, and facilities, using a handheld GPS unit and recording these observations with a digital camera and a field notebook. Geo-spatial data sources were used to establish baseline conditions and map physical features such as roads, trails, water features, and existing facilities. Data layers were acquired from the Pennsylvania Spatial Data Access (PASDA) database as well as the Pennsylvania Bureau of State Parks.

The central questions of this study depend upon the experience of the user in relation to the physical environment and programmatic structure of the park. In order to bridge the gap between what is experienced as important to park visitor’s experience of nature and what a designer/researcher perceives as important, research instruments were crafted to elicit responses from those who are actually using and experiencing each of the case study parks. Three interrelated survey instruments, a self-report paper and pencil questionnaire, a mapping exercise, and a visitor employed photography exercise were developed in an effort to understand how the properties of the park were affecting their nature connection experience.
Borrowing commonly accepted methods described in recreation research the study instruments were administered by the researcher by intercepted and invited visitors using the three case study parks to participate in the survey portion of the research (More 1980, Laven Manning & Krymkowski, 2005, Kyle et al. 2005). Three of these instruments were administered by the researcher between the months of July to October, 2011. The summer months were selected because they represent the peak of state park use and maximized the number of possible respondents. The research team established a sampling plan to survey visitors on different days of the week (i.e. either weekday or weekend) and a different locations throughout the park (i.e. overnight campgrounds and day use areas). After meeting with park staff and managers, recommendations pertaining to preferred and restricted sampling locations and times as well as specific questionnaire questions were noted and the sampling plan and questionnaire questions were modified accordingly. Prior to surveying visitors, all survey instruments as well as the survey sampling plan were reviewed and approved by the Pennsylvania State Parks Bureau, and each individual case study park manager. The approved survey instruments were also submitted and approved by the Internal Review Boards for The Pennsylvania State University (IRB #37411). Accordingly, only adults over the age of 18 were allowed to participate in the survey.

Of the 198 visitors invited, 161 agreed to participate for an overall response rate of 81%. This response rate is similar to response rates for surveys of Pennsylvania State parks conducted by the Department of Conservation and Natural Resources (DCNR) (PA Rec Plan 2010: 25) Response rates varied among parks with Bald Eagle State Park having the highest (84%) and Poe Valley with the lowest (77%).

In order to administer the survey portion of the study the researcher approached visitors in approved locations within the park and invited visitors to participate in the survey using variations on the following basic introduction:
“Hi, I am a graduate student in the Department of Landscape Architecture at Penn State University. I am doing research regarding visitor’s experiences within State Parks. As a component of this research I am asking visitors to complete a short paper questionnaire. Are you willing to participate in a short 10-15 minute survey?”

If the visitor agreed to participate, the researcher described the overall purpose of the questionnaire and provided a general overview of what questions were included in the questionnaire. The researcher then provided the visitor a clipboard containing an implied consent form, a pen, and the paper questionnaire containing questions 1-15 (See Appendix A), and the map required for the mapping exercise (See Appendix A). The researcher then left the visitor to complete the questionnaire and agreed upon a time to return, usually 30-45 minutes to allow the visitor to complete the questionnaire without feeling rushed. The researcher explained that if any terms or questions were unclear to skip them and when the researcher returned the questions could be answered. Each questionnaire was labeled with a unique survey identification number consisting of a prefix assigned to each park and a unique number assigned to each respondent.

When the researcher returned to retrieve the questionnaire respondents were invited to participate further in the study by taking a provided disposable camera with them during the remainder of their stay and photograph places, scenes, objects, or experiences that helped them connect to nature while in or around the park.

Each component of the survey portion of the research will be discussed in detail below.

**Questionnaire**

The first survey instrument introduced to the visitor was a paper questionnaire distributed as described above by the researcher. Questions used for this research were inspired by and adapted from existing questionnaires, surveys, and post occupancy evaluations (PA Outdoor
Recreation Plan 2009, Henderson 2006, and Brace 2004). The questionnaire was designed to acquire data intent on answering the following seven basic questions (See Appendix A):

1. How does the survey’s sample demographics compare with previously conducted Pennsylvania State Park surveys? In order to facilitate this comparison demographic questions were modeled after the 2008 Pennsylvania State Park Visitor Study.

2. What are visitor’s basic expectations for connecting with nature while at the particular case study parks and if and in what ways these expectations are being met? This was achieved by creating a series of questions (10a-10c) that asked the visitor to rate whether they strongly agreed or strongly disagreed with a series of statements using a standard five level Likert scale. The statements asked whether the visitor felt it was important to feel an emotional connection to nature while at the park, whether this was the primary location where they feel this connection, and if connecting with nature was a reason for attending the park. Two additional questions (10d and 10e) using the same scale asked whether the facilities and programs offered at the park helped them feel a connection to nature.

3. Which specific physical and programmatic elements strongly contribute or detract from visitor’s ability to connect with nature? The questionnaire addressed this question by providing a list of 12 physical elements and 6 experiences (questions 11a-11r see appendix A) commonly found in state parks or typically encountered in natural settings, or identified in the literature review as particularly important for nature connection. The visitor was asked to rate whether these items either strongly detracted from their feeling of connectedness to nature or strongly contributed to their feeling of connectedness to nature on a five level Likert scale. An additional category was provided in this section that allowed respondents to indicate that they did not experience the item in order to avoid forcing responses regarding items that the visitor had not experienced. In addition
to the 18 items developed by the research team an additional 3 areas identified as “other” were provided and respondents were invited to write in and rate any additional elements that they felt added to or detracted from your ability to bond with nature. These areas were provided in order to capture any additional experiences visitors may be having while in the parks.

4. What specific attributes of the experiences and physical elements are facilitating a stronger nature connection? This question was addressed by providing space for the respondent to describe in writing the attributes in the park that aided in them feeling a connection to nature (Question 12).

5. What specific attributes of the experiences and physical elements are detracting from visitor’s creating a stronger nature connection? This question was addressed by providing space for the respondent to describe in writing the attributes in the park that specifically detracted from them feeling a connection to nature (Question 13).

6. Do visitors feel that the park provides appropriate opportunities to experience a connection with nature? This question was addressed by asking the respondent to indicate whether they thought the park provided opportunities that were appropriate or not appropriate for experiencing an emotional connection to nature by checking a box either “yes” or “no”(Question 14). This question was followed by two additional question that asked if the park was seen as providing opportunities inappropriate for creating a nature connection, what physical (Question 14a) and programs or activities (Question 14b) could be added or removed from the park to help them feel a greater connection to nature.

7. Are there other ways that visitors are experiencing this nature connection within the park that may have not been identified previously in the literature or by the research team?
This question was addressed by asking the visitor if there were any other ways they typically connect with nature while at the park (Question 15).

Map

The mapping exercise covered in question 16 was the final component of the questionnaire asked of visitors. Maps of each case study park were created using ArcGIS software using an aerial photograph (2006 PASDA) as a base layer, a layer showing state, local, and state park roads (PASDA) and a layer showing state park trails (PA DCNR). Maps were printed on 8-1/2 x 11” paper with instructions (question 16a) to “Please think of the place that you felt most connected to nature while in or around the park today. Place a dot where this area is located on the map provided.” Question 16b asked respondents to, “Please explain what characteristics of this place lead you to choose this location” (See appendix A). The maps were then attached to each of the questionnaires.

Maps were printed at scales that varied between 1:10,000 to 1:25,000. In cases where the entire park was too large to fit on one page, several pages encompassing the entire park were attached to the questionnaire (two pages were used at Black Moshannon State Park and three were used at Bald Eagle State Park). The investigator oriented the visitor to the provided map by identifying landmarks at the park (main access roads, park entrances, and park offices) as well as identifying the current location of the visitor on the map. The investigator verbally explained the procedure detailed in writing in question 16 and asked if the respondent had any questions about the mapping exercise. Questions were answered by the investigator and an appointment was made for the investigator to return and pick up the questionnaire, clipboard, and pen.

Resultant locations identified by a dot or “X” were translated into a digital format by visually matching each dot relative to the aerial photograph printed on the map to the same digital
base map in GIS. A point was created for each respondent and assigned an identifier that matched the questionnaire identifier. Using the same identifier facilitated linking the unique spatial locations derived from the mapping exercise responses to their corresponding survey responses located in a central tabular database using the “join” function in ArcMap GIS.

**Visitor Employed Photography (VEP)**

The visitor employed photography (VEP) portion of the survey was an attempt to transcend the questionnaire and mapping portions of the survey which rely on recalling experiential information and describing it in text. VEP has been used in similar research to capture and analyze the experiential and perceptual dimensions of landscape (Beckley et al 2007, Tunstall, 2004).

In this study visitors were only invited to participate in the photography portion of the survey upon completion of the questionnaire so all photographs could be associated with a completed survey. This also minimized the number of cameras that needed to be purchased by ensuring that only questionnaire respondents received cameras.

If the visitor agreed to participate they were provided a 27 exposure disposable camera and instructed to photograph scenes, objects, or experiences that they felt a connection with nature. The cameras were given a unique ID and a sticker reminding the respondent of the instructions prior to being given to the respondents. The camera ID was recorded on a log and the returned survey to assure each image was attributed to the proper respondent.

Cameras were returned to the either state park main offices, concession stands, or to state park staff. The cameras were stored in containers provided to each state park and gathered periodically for film development. Film was processed and reformatted into a digital version.
Overall participation varied among the three parks with a high of 7 respondents at Poe Valley and a low of 5 respondents at both Black Moshannon and Bald Eagle. A total of 20 cameras were distributed and 17 cameras were recovered. From the recovered cameras 151 images were developed, an average of 8.8 exposures per camera.

Images were loaded into Atlas ti, the same program used to analyze the open ended questionnaire responses. Images were analyzed using the same codes as the questionnaire responses to maintain coherency throughout the data analysis. Photos were assigned a single overall focus by viewing each photograph and assessing what the image focused on or what the investigator interpreted as the most dominant theme in the image. A code was then assigned to each photograph and recorded in the software.

**Entering the field**

Each of the three case study sites were visited initially in the spring of 2011. The purpose of the visit was to meet with each park manager and discuss locations for questionnaire distribution and establish areas off-limits to the research. Conversations with park staff throughout the study provided insights into visitor use patterns.

During the summer and fall of 2011 the investigator spent portions of 12 days in each case study park distributing questionnaires, mapping, photographing and recording the location of key elements with a handheld GPS unit.

Spending over 50 hours documenting the physical and social environment of each park allowed for a more in depth understanding of the parks as well as the ability to converse with visitors about the park. This understanding also aided when analyzing references to locations in the open answer section of the questionnaire.
Analyzing with between-case data

A description of each case study state park is provided in chapter 3. The history of each state park is provided in an effort to situate the current physical form, programming, and presence of each park within its historic context. A narrative description of each park is also provided in chapter 3 along with a site inventory and analysis for each park. The site inventory and analysis describes the physical attributes of each park including, topographic features, land cover types and ratios, circulation (vehicular, pedestrian), as well as location of landmarks, educational signage, and park facilities.

The knowledge developed from the site analysis portion provides a framework upon which to analyze the qualitative questionnaire responses and mapping results, as well as the qualitative open ended questionnaire responses and VEP results. The story that unfolds by melding both qualitative and quantitative data results in a clearer picture of how visitors are experiencing and connecting to the natural environment at each state park. This narrative is related in chapter 5.

Questionnaire Analysis

Results for the questionnaire were entered into a central spreadsheet and organized by each case study park. Responses to question 8 “What activities are you participating in today at this park?” were analyzed in aggregate and by park according to their relative frequency. Questions 10 requested respondents to rate on a five point scale whether they strongly agreed to strongly disagreed with a list of 5 statements. The results were assigned a value between 1 (strongly disagree) to 5 (strongly agree) and reported in aggregate as well as by case study. Responses to question 11 were assigned a value 1 (strongly detracted from my feelings of
connectedness to nature) to 5 (strongly contributed to my feeling of connectedness to nature). An additional column was provided for respondents that did not experience listed element. Responses in this category were assigned an “n” in order to avoid skewing the mean scores.

**Coding of open ended questions**

Written responses were transcribed from the questionnaires into an electronic format and grouped by question (12-16) and by park. Each question from each park was loaded into the qualitative analysis software “Atlas ti”. The software was utilized as an organizational tool to manage, rapidly index, and sort the responses and associated analysis codes. Responses were analyzed using “open coding,” or the process of “naming and categorizing of phenomena through close examination of data” (Strauss & Corbin 1990: 62) procedures as described by Ohta (2001), Henderson (2006). As recommended by Strauss & Corbin (1990: 72) as an effective generative analysis technique responses were carefully examined using “line-by-line analysis.” Using this procedure, phenomenon, incidents, events or ideas identified in sentences were labeled using a list of 55 codes or themes generated from the data. From this initial list, redundancies or codes that had fewer than three instances were combined or eliminated to establish a list of 37 codes in order to further clarify the data. All responses were reviewed again to assure that all codes were used throughout the data.

After comparing and analyzing the relationships between the codes they were organized into a series of 11 higher order categories that reflected the larger idea or relationship between the categories. These categories were then organized into a hierarchical structure in order to understand the data as a whole (Ohta 2001). Results were then organized by park and resultant numerical data and responses were generated.
Searching for between-case patterns

Analyzing the data from each park and searching for how differences in the physical and programmatic landscape of each park was manifest through different visitor experiences, preferences, perceptions, and use patterns provides a clearer picture of the complex interplay between physical design elements as mediators of the human-nature experience.

Between case patterns begin to emerge when comparing the physical layout, amenities, and programmatic focus with the visitor feedback from the study instruments through the use of graphs, tables, frequency histograms, and diagrams.

Shaping hypothesis

This research deviates slightly from the pattern proposed by Eisenhardt (1989) in that results of the study are used to inform design guidelines rather than hypothesis and theory construction. Proposed guidelines are constructed based upon patterns that emerge both within the data from each individual case study park as well as the patterns inherent in the cross case analysis. These observations inform the design and management guidelines found in chapter 7. These guidelines are meant to aid designers and managers responsible for the design and management of state parks ideas which will maximize the nature connection experience of visitors.

Enfolding literature

Trends observed from the data are compared with existing literature regarding designing for nature connection, state park design guidelines, and biophilic design. The study seeks to
verify hypotheses through cross referencing information available in the current body of knowledge regarding nature connection in wilderness areas.

**Limitations**

This study acknowledges certain limitations to the research due to funding, time, and the overall scope of the research. A limitation in the number and quality of questionnaire responses, respondent mapping accuracy, and GIS data sources all present limitations to the scope and transferability of certain aspects of the research.

Initial sampling plans developed by the research team and state park staff identified several areas within each park where a variety of visitors could be approached. After attempting to contact park visitors at several of the remote sites and meeting very few or no visitors the researcher focused on areas where many park visitors frequently congregate. Visitors were found to be more willing to participate in the questionnaire portion of the study if they were not engaged in some form of active recreation. Response rates from areas where visitors were engaged in passive recreation were much higher. Thus areas where more people were willing to be approached by the investigator received a higher degree of focus than initially anticipated in the sampling plan. This decision was made due to time and resource limitations and the need to maximize the time spent in each park. The study acknowledges that the majority of respondents were contacted near low activity areas such as the swimming beaches, concession areas, and especially campgrounds. Campground respondents actually provided responses covering a variety of recreational activities and park locations. This is due to the campgrounds temporarily housing a cross section of visitors who experience a wide range of activities and areas of the park in a single location.
The study also acknowledges user group bias due to the seasonal nature of the data collection timeframe. Data collection occurred only during the peak months of state park operation. This was done in order to maximize the limited time and resources available for data collection. However, additional visitor groups that use the parks in winter e.g. snowmobilers, cross country skiers, and hunters were not part of the sample. The research protocol established by the administration of Bald Eagle State Park also did not allow the sampling of visitors around the newly constructed Nature Inn.
Chapter 5

Data Analysis

Introduction

This chapter reports demographics of the sample as well as data from four sources: first, responses to questions 8-11 provided in the visitor questionnaire, second, open ended questionnaire responses from questions 12-16, third, results from the mapping exercise, and finally, results from the visitor employed photography responses (See appendix A).

Sample Description

Responses to basic demographic questions (questions 1-8) indicate the research sample demographic is similar to sample demographics in the 2008 state wide Pennsylvania State Park visitor survey (PA Rec Plan 2009 p.4).

Of the 160 questionnaire respondents the average age of the adult sample was 50 years old (N=153). The sample contains slightly more females (51%) than males and respondents were predominately white (98.8%) and married (76%) with incomes below $80,000 (62.2%). The majority of visitors (57.2%) reported educational attainment of at least a bachelor degree (Table 5-1).
Table 5-1: Aggregate sample demographics

<table>
<thead>
<tr>
<th>Variable</th>
<th>% or mean</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>49.0%</td>
<td>77</td>
</tr>
<tr>
<td>Female</td>
<td>51.0%</td>
<td>83</td>
</tr>
<tr>
<td>Race/Ethnic Background</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian/White</td>
<td>98.8%</td>
<td>158</td>
</tr>
<tr>
<td>African American/Black</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>Native American</td>
<td>0.6%</td>
<td>1</td>
</tr>
<tr>
<td>Latino/Chicano/Hispanic</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>Asian</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>Native Hawaiian/Pacific Islander</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>Non Response</td>
<td>0.6%</td>
<td>1</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>76.0%</td>
<td>122</td>
</tr>
<tr>
<td>Living with partner</td>
<td>8.0%</td>
<td>13</td>
</tr>
<tr>
<td>Divorced/Separated</td>
<td>5.6%</td>
<td>9</td>
</tr>
<tr>
<td>Never married</td>
<td>6.4%</td>
<td>10</td>
</tr>
<tr>
<td>Widowed</td>
<td>2.0%</td>
<td>3</td>
</tr>
<tr>
<td>Non Response</td>
<td>2.0%</td>
<td>3</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$10,000 or less</td>
<td>0.6%</td>
<td>1</td>
</tr>
<tr>
<td>$10,001-20,000</td>
<td>3.0%</td>
<td>5</td>
</tr>
<tr>
<td>$20,001-40,000</td>
<td>21.8%</td>
<td>35</td>
</tr>
<tr>
<td>$40,001-60,000</td>
<td>21.6%</td>
<td>35</td>
</tr>
<tr>
<td>$60,001-80,000</td>
<td>15.5%</td>
<td>25</td>
</tr>
<tr>
<td>$80,001-100,000</td>
<td>9.1%</td>
<td>14</td>
</tr>
<tr>
<td>$100,001-120,000</td>
<td>10.3%</td>
<td>16</td>
</tr>
<tr>
<td>$120,001-140,000</td>
<td>4.9%</td>
<td>8</td>
</tr>
<tr>
<td>140,000+</td>
<td>6.4%</td>
<td>10</td>
</tr>
<tr>
<td>Non Response</td>
<td>6.8%</td>
<td>11</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade School</td>
<td>0.6%</td>
<td>1</td>
</tr>
<tr>
<td>High School Graduate</td>
<td>30.9%</td>
<td>50</td>
</tr>
<tr>
<td>Technical School</td>
<td>7.5%</td>
<td>12</td>
</tr>
<tr>
<td>Some College</td>
<td>18.2%</td>
<td>29</td>
</tr>
<tr>
<td>Bachelor's Degree</td>
<td>27.9%</td>
<td>44</td>
</tr>
<tr>
<td>Graduate Degree</td>
<td>12.5%</td>
<td>20</td>
</tr>
<tr>
<td>Non Response</td>
<td>2.5%</td>
<td>4</td>
</tr>
<tr>
<td>Distance from the park to home</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-25 Miles</td>
<td>23.4%</td>
<td>37</td>
</tr>
<tr>
<td>26-50 Miles</td>
<td>19.8%</td>
<td>32</td>
</tr>
<tr>
<td>51-100 Miles</td>
<td>26.4%</td>
<td>43</td>
</tr>
<tr>
<td>100+ Miles</td>
<td>27.9%</td>
<td>44</td>
</tr>
<tr>
<td>Non Response</td>
<td>2.4%</td>
<td>4</td>
</tr>
</tbody>
</table>
Variations between samples from each park are demonstrated in figures 5-1 thru 5-4. Respondents at Black Moshannon reported slightly higher incomes and education (42.9% over $80,001 and 53.1% with education levels greater than “some college”) compared with Black Moshannon (28.3%, 34%) and Poe Valley (20.7%, 41%) (See figure 5-3 & 5-4). Respondents at Bald Eagle reported traveling the greatest distances, 75.5% reporting traveling a distance of 50 or miles from their home compared to Poe Valley (44.8%) and Black Moshannon (42.9%) (See fig 5-4). Samples in all 3 parks were predominantly white Caucasian (see table 5-1).

Figure 5-1: Sample marital status by case study park
Figure 5-2: Sample income by case study park

Figure 5-3: Sample education by each case study park
Figure 5-4: Sample distance travelled from home to each case study park

Attributes of each case study park perceived as enhancing or distracting from nature connection

Table 5-2: Sorted aggregate means from question 11 (see appendix A)

<table>
<thead>
<tr>
<th>Physical element or experience*</th>
<th>Mean Score</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to Quiet Places</td>
<td>4.33</td>
<td>144</td>
</tr>
<tr>
<td>Views of the water</td>
<td>4.33</td>
<td>154</td>
</tr>
<tr>
<td>Access to the water</td>
<td>4.25</td>
<td>154</td>
</tr>
<tr>
<td>Overlooks or vistas</td>
<td>4.21</td>
<td>105</td>
</tr>
<tr>
<td>Camping facilities</td>
<td>4.20</td>
<td>142</td>
</tr>
<tr>
<td>Encounters with wildlife</td>
<td>4.14</td>
<td>142</td>
</tr>
<tr>
<td>Hiking Trails</td>
<td>4.09</td>
<td>121</td>
</tr>
<tr>
<td>Fishing areas</td>
<td>3.94</td>
<td>98</td>
</tr>
<tr>
<td>Fishing</td>
<td>3.92</td>
<td>92</td>
</tr>
<tr>
<td>Canoeing</td>
<td>3.78</td>
<td>84</td>
</tr>
<tr>
<td>Interacting with State Park Staff</td>
<td>3.67</td>
<td>127</td>
</tr>
<tr>
<td>Environmental Education Centers</td>
<td>3.63</td>
<td>91</td>
</tr>
<tr>
<td>Biking Trails</td>
<td>3.55</td>
<td>78</td>
</tr>
<tr>
<td>Visitor Centers</td>
<td>3.55</td>
<td>111</td>
</tr>
<tr>
<td>Interacting with other people</td>
<td>3.53</td>
<td>147</td>
</tr>
<tr>
<td>Interpretive Signage</td>
<td>3.49</td>
<td>115</td>
</tr>
<tr>
<td>Areas to watch people</td>
<td>3.17</td>
<td>128</td>
</tr>
<tr>
<td>Motor Boating</td>
<td>3.04</td>
<td>77</td>
</tr>
</tbody>
</table>

*Experiences are colored white
Most visitors to Poe Valley State Park agreed (mean of 4.39/5.0) with the statement ‘it is important to feel an emotional connection with the natural environment while at this park’, the highest mean response to this question of any of the parks. Visitors attending the park also agreed (mean of 3.87/5.0) that the reason they attended the park was to feel closer to nature.

![Map of Poe Valley State Park with nature connection locations from the mapping exercise.](image)

The primary social and recreational foci at Poe Valley State Park are the camping facilities and the swimming beach. Frequency histograms generated from question 8 regarding “what activities are you participating in today” show that and “relaxing/hanging out” (14.9%)
“Swimming” (13.1%) and picnicking (11.8%) are the primary activities (See table 5-3).

Discussion with park staff at Poe Valley in addition to site observations during the summer of 2011 confirm that the majority of visitors congregate in the camping area, swimming beach, and associated concession and picnic areas. Visitors also rated these two areas as important to their nature connection experience (4.33/5.0, see table 5-4) and indicated them on the mapping exercise (see fig 5-5).

Table 5-3: Frequency of activities experienced at Poe Valley State Park

<table>
<thead>
<tr>
<th>Activity</th>
<th>Frequency (n=58)</th>
<th>Relative Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relaxing/Hanging Out</td>
<td>33</td>
<td>14.9%</td>
</tr>
<tr>
<td>Swimming</td>
<td>29</td>
<td>13.1%</td>
</tr>
<tr>
<td>Picnicking</td>
<td>26</td>
<td>11.8%</td>
</tr>
<tr>
<td>Walking</td>
<td>21</td>
<td>9.5%</td>
</tr>
<tr>
<td>Overnight Camping</td>
<td>20</td>
<td>9.0%</td>
</tr>
<tr>
<td>Family/Group Activities</td>
<td>14</td>
<td>6.3%</td>
</tr>
<tr>
<td>Fishing</td>
<td>11</td>
<td>5.0%</td>
</tr>
<tr>
<td>Beach Use</td>
<td>10</td>
<td>4.5%</td>
</tr>
<tr>
<td>Nature Observation/Study</td>
<td>9</td>
<td>4.1%</td>
</tr>
<tr>
<td>Sightseeing</td>
<td>7</td>
<td>3.2%</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>3.2%</td>
</tr>
<tr>
<td>Hiking</td>
<td>6</td>
<td>2.7%</td>
</tr>
<tr>
<td>Picnicking</td>
<td>5</td>
<td>2.3%</td>
</tr>
<tr>
<td>Non-Motorized boat</td>
<td>5</td>
<td>2.3%</td>
</tr>
<tr>
<td>Day Use Camping</td>
<td>5</td>
<td>2.3%</td>
</tr>
<tr>
<td>RV Camping</td>
<td>4</td>
<td>1.8%</td>
</tr>
<tr>
<td>Biking (Mtn. &amp; Rd)</td>
<td>3</td>
<td>1.4%</td>
</tr>
<tr>
<td>Visiting Historic sites</td>
<td>2</td>
<td>0.9%</td>
</tr>
<tr>
<td>Running</td>
<td>1</td>
<td>0.5%</td>
</tr>
<tr>
<td>Hunting</td>
<td>1</td>
<td>0.5%</td>
</tr>
<tr>
<td>ATV</td>
<td>1</td>
<td>0.5%</td>
</tr>
<tr>
<td>In line Skating</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>X-country Skiing</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Motor Boating</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Disc Golf</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Attending S.P. Recreation programs</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Ball Sports</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Birding</td>
<td>0</td>
<td>0.0%</td>
</tr>
</tbody>
</table>
Question 11 asked visitors to rate 18 items on a 5 point scale from “Did not experience (0) to “Strongly contributed to my feeling of connectedness to nature” (5). When the mean scores from Poe Valley are sorted from highest mean to lowest (See table 5-4) the top 5 items all relate to relaxation, swimming, or picnicking.

Table 5-4: Poe Valley sorted mean responses regarding contribution of each element to nature connection (question 11, Appendix A)

<table>
<thead>
<tr>
<th>Physical element or experience*</th>
<th>Mean Score (max of 5)</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camping facilities</td>
<td>4.33</td>
<td>51</td>
</tr>
<tr>
<td>Views of the water</td>
<td>4.30</td>
<td>58</td>
</tr>
<tr>
<td>Overlooks or vistas</td>
<td>4.26</td>
<td>39</td>
</tr>
<tr>
<td>Access to Quiet Places</td>
<td>4.24</td>
<td>54</td>
</tr>
<tr>
<td>Access to the water</td>
<td>4.22</td>
<td>58</td>
</tr>
<tr>
<td>Encounters with wildlife</td>
<td>4.08</td>
<td>54</td>
</tr>
<tr>
<td>Fishing areas</td>
<td>3.97</td>
<td>37</td>
</tr>
<tr>
<td>Hiking Trails</td>
<td>3.94</td>
<td>40</td>
</tr>
<tr>
<td>Fishing</td>
<td>3.91</td>
<td>38</td>
</tr>
<tr>
<td>Canoeing</td>
<td>3.88</td>
<td>31</td>
</tr>
<tr>
<td>Interacting with State Park Staff</td>
<td>3.78</td>
<td>46</td>
</tr>
<tr>
<td>Visitor Centers</td>
<td>3.57</td>
<td>41</td>
</tr>
<tr>
<td>Interacting with other people</td>
<td>3.56</td>
<td>53</td>
</tr>
<tr>
<td>Interpretive Signage</td>
<td>3.53</td>
<td>44</td>
</tr>
<tr>
<td>Environmental Education Centers</td>
<td>3.48</td>
<td>27</td>
</tr>
<tr>
<td>Biking Trails</td>
<td>3.41</td>
<td>24</td>
</tr>
<tr>
<td>Areas to watch people</td>
<td>3.38</td>
<td>52</td>
</tr>
<tr>
<td>Motor Boating</td>
<td>2.83</td>
<td>24</td>
</tr>
</tbody>
</table>

*Experiences are colored white
Swimming Area

The swimming area at Poe Valley allows for 8 out of the top ten aggregate rated activities in table 5-4 (views of the water, access to the water, overlooks or vistas, encounters with wildlife, hiking trails, fishing areas, fishing, and canoeing). The only elements not experienced in this space are “access to quiet areas” and “camping facilities”. Respondents who described the beach area explained the combination of scenic views, wildlife (at a distance), relaxation, and social interaction:

* Watching fish jump, birds dive. Enjoying the water while surrounded by mountains.
* The quiet nature of the entire area.
* Beautiful view of trees and lake
* My favorite spot is on the beach because of the views of the water and mountain

The importance of these two spaces can also be seen from the mapping exercise. Nineteen percent (9 out of 47) of respondents identified the swimming beach as the place where they felt a connection to nature occur (See fig 5-5). Ten images (14%) from the VEP exercise also showed the beach as the primary focus of the photograph.

![Swimming Area](image)

Fig 5-6: Respondent photographs showing the swimming beach (respondent #12 & 13)

The results from all three of the data sources indicate that the swimming beach at Poe Valley is perceived as important for visitor’s connection with nature.
Camping Facilities

Ordered mean scores from the activity histogram show that “Camping facilities” is the 5th most frequently experienced activity at Poe Valley (table 5-3). However, ordered mean scores from question 11 (table 5-4) asking respondents to rank 18 elements indicate “camping facilities” as having the highest mean score of all elements listed. Results from the mapping exercise show that 32% (15 out of 47) of the total locations respondents identified as places where they felt a connection to nature occur at camping sites. The camping facilities at Poe Valley provide immersion in a wooded environment while also providing for human comforts such as modern toilets and showers that visitors indicated as helping them to relax and appreciate nature.

Responses describing the physical attributes of the camping area describe the woods, wildlife, and associated sensory and emotional responses.

*Camping and activities associated with water makes me feel connected with nature.*
*I love overnight camping; sleeping outdoors and cooking by fire make me feel deeply connected to nature.*
*(from our campsite) I can (and do) see chipmunks, robins, see the woods, feel the breeze, hear the waterfall, and watch the clouds racing by. It is peaceful.*
*dense forest and wildlife truly represent what I think of when I think about camping.*

The recently renovated camping facilities at Poe Valley are small in comparison to the other case study parks with 45 tent/RV camp sites (see Table 6-3). Camping facilities at Poe Valley are situated below the breast of the dam and out of sight of the major recreational venues including the lake, swimming beach, parking, visitor’s center, concessions and rental docks, and fishing areas (see Figure 5-5). The site is accessed from a single loop road that provides one-way access to all the camping sites. Physical separation in addition to the grade change between the of the camping facilities and the lake, trails, parking, swimming beach, and concessions appears to create an interior focus to the camping area and minimizes exposure from surrounding sounds.
10 visitors (3.5%) related the intimate scale of the campground as influential on their nature connection experience. Respondents reported the perceived feeling of seclusion provided by the campground allowed them to focus on the natural environment without substantial distractions. They explained:

*We like that it is small and not a lot of campers.*  
*We tent camp and were pleased to find or camp site far enough away and situated in a way that offered us privacy.*  
*It is peaceful at my campsite.*  
*Even with people noise I find I can relax and connect with nature*  
*I like the privacy that commercial campgrounds and “KOA’s” don’t offer*  
*Our campsite was at a great location. Privacy (not too close to neighboring sites).*  
*Our campsite was the most secluded campsite, so it made me feel the best connection to nature.*  
*Campsite is quiet, tent is away from road.*  
*I enjoy the breeze in the trees and the sound of water running over the rocks in Big Poe stream.*

Respondents that identified the camping facilities as a location where they felt connected to nature in the mapping exercise described the attributes of three specific elements important for creating a space where nature connection could occur: forest cover, density of sites, and facilities.

Respondents reported that the forest acted as a visual and experiential component that affected their feeling of being involved with nature.

*Lots of trees provide abundant shade*  
*Lots of trees for shade and just to look at*  
*Sites are directly in the woods and have minor modernizations*  
*The forest with the trees help make the stress fall away*

Only 4 responses (2%) expressed concerns about the physical layout of the campground, attributing increased noise to the density of other campers in the campground. This noise
distracted from the camping area being perceived as a “quiet place” which was important to respondent’s ability to connect with nature (mean 4.24, table 5-4).

*Most of the sites are very close together. This increases the noise and detracts from the views.*

*Do not like campers and tents close*

*Campers seem to make a lot of noise (AC, generators, even TVs)*

*Closeness of campsites: Takes away from the relaxation factor*

*RV’s are loud with their generators and generally make me feel like I am at a trailer park instead of in the forest.*

*Closeness to trail, road, and other campsites – too close to things we try to get away from*

Noteworthy is the fact that Poe Valley State Park visitor’s responses to question 11 (See appendix A) indicate “camping facilities” as the element that receiving the highest mean score (4.33) (See table 5-4). The camping facilities at Poe Valley are perceived as a minimal source of distractions and a high value area for connecting with nature. Of the ten respondents that indicated the camping facilities as a place for nature connection in the mapping exercise, three different respondents (30%) identified the same campsite as the place where they felt connected to nature. It is located in the corner furthest away from the lake, road, facilities, and other potential sources of human conflict and noise generated by day use activities (See fig 5-5).

Three responses (1%) expressed concern that the density of people in the park as a whole was also a deterrent to the quiet and solitude that was identified in question 12 as a powerful enhancement to the parks ability to facilitate a bond with nature. Respondents explained:

*This park is generally more crowded and developed than I prefer*

*Sometimes the lake is “too crowded” for a peaceful nature experience.*

*Lots of people, lake is over developed*
Quiet Places

At Poe Valley “Access to quiet places” mean (4.24) was below “camping facilities”(4.33), Views of the water”(4.30), and “Overlooks and vistas”(4.26) (See table 5-4). “Quiet” was used as a descriptor in 16 responses (5.6%) when describing areas that helped them connect with nature. Respondents described the role of quiet areas as a space that allowed their senses to focus on the nature in their surroundings.

*We want to find quiet and be able to hear the sounds of nature*
*Access to quiet places allows you to relax and enjoy nature more*
*Quiet, secluded places help my mind slow down and concentrate on nature, but this park does not have many of them*
Forests

Forests cover over 73% of the Poe Valley State Park, establishing forest cover as a dominant feature in the perceived environment (PASDA 2011). Interestingly the forest was only mentioned in 5 responses (2%) and the subject of 8 photographs (11%) from the VEP exercise.

Fig 5-8: Respondent photographs where the forest was the subject (respondent #6,9,13)

Views

Areas where views occur at the state park are limited due to the dense forest and location of park facilities on the valley bottom. Access to the ridges is limited to two trails accessed via the internal park trail network. No respondents identified areas of nature connection along these ridgelines. However, 8 photographs (11%) from the VEP portion of the study show views of the
adjacent valleys from elevated areas (See fig 5-9). Respondents that identified views as an important part of their experience focused on the water as a focal point with the forest as the framing element.

...the views from this area are very beautiful
The surrounding trees and beautiful lake
Beautiful view of trees and lake.
The pleasant views of the water and the mountains in the background

Fig 5-9: Respondent photographs showing expansive views from elevated areas
(respondent #12)

Lake

In addition to the recreational opportunities provided by Poe Lake, respondents also expressed the role of the lake as an aesthetic component to their nature connection experience. Ordered means from question 11 show that after “camping facilities” (4.33) three of the other top 10 ranked items related to the water. “Views of the water” (4.30), “access to the water” (4.22) and “Canoeing” (3.88) were identified as elements and experiences that aided in visitors experience with nature (see table 5-4).
I enjoy the views of the lake and the nature that can be seen around the lake and along the lakeside trail.

Being near the water always creates a connection to nature
The refreshing feels when I’m in the water made me feel the connection to nature.

Only 3 comments (1.0%) mentioned physical contact with the water, while 20 (7%) responses related the lake’s visual and scenic qualities. In particular respondents mentioned the relaxing and calming qualities of Poe Lake.

I find the lake at Poe Valley to be one of the most beautiful, peaceful spots to visit
The lake is peaceful and relaxing,
Water gives a relaxing feeling
Gave me a relaxing and peaceful feeling
Water is very calming
The water view is spectacular and calming
Evokes a feeling of peace, vastness of God’s earth

The lake was also described by visitors as an additional “quiet place.” The aesthetic qualities of the lake make the quiet places in or nearby the lake particularly potent for people to experience an emotional connection to nature.

There are quiet areas along the lake where I can sit and just watch birds, fish, chipmunks, etc.
The head water to the lake in my canoe is isolated and quiet
Calm, quiet, scenery
It is quiet and relaxing after dark to sit on top of the dam (need benches to sit on). This is a quiet place to sit and relax

In addition to the views of the water respondents expressed awareness and perception of the cleanliness and management of the lake. Respondents explained:

This lake is clean and well maintained.
Results from the mapping exercise also confirm that the lake is an attraction in Poe Valley State Park. 42% of visitors identified their individual location for nature connection with 100 feet of the lake shore (see fig 5-5). Results from the VEP exercise also confirm that the lake is an important feature for individual’s nature connection experience at Poe Valley. 20 respondent photographs (29%) contained a view of the lake, with 11 photographs (15.7%) focused solely on the lake (see fig 5-10).

Fig 5-10: Respondent photographs showing the lake (respondent #6 &13)

Environmental Education/ Interpretive Signage/Park Programs

Prior to the remodeling of Poe Valley State Park an education center existed near where the new concessions area currently sits. The remodel completed in 2010 did not include a new environmental education facility. A small display located in the lobby of the park office houses a selection of historical artifacts and wildlife information. This lack of dedicated facilities and programs did not go unnoticed by respondents. The mean response for “environmental education center” in question 11 was a 3.48, ranked 15th out of 18 of the elements and experiences (See
However, only one respondent expressed concern over these missing educational elements in the open response portion of the questionnaire:

*I think it is sad that before the park was remodeled there was one and after all the money was spent they left out a very important part.*

Two respondents mentioned the park office, but their perception was that it was remote and difficult to access.

*I also think it’s sad with all the cuts; there are no regular set hours at the visitor’s center. Do not see any signs for location (for the office)*

Interpretive signage is also lacking at Poe Valley. Only one sign, located in the campground, relates the historic logging rails that existed where the campground sits. The mean response for “Interpretive signage” in question 11 was 3.53, ranking 14th out of 18 elements (see table 5-4).

The park also did not have a park naturalist during the spring, summer, and fall of 2011. When asked what could be improved at the park 3 respondents (6%) mentioned adding nature programs to the park.

*A natural resource center - more nature activities for children
More activities for kids - Nature center
It would also be helpful to have more educational programs- fire safety, animals of the night, learn to fish, swimming safety, native plants info, cooking over an open fire (recipes and instructions) art projects (like nature prints, paper making, etc.) etc.*
Wildlife

Encountering wildlife was identified by respondents as an important (mean of 4.08, ranked 6th out of 18, table 5-4) experience related to their connection with nature. The excitement and emotion involved in wildlife encounters is noticeable in the respondent’s descriptions:

*Wildlife is part of us and we are a part of them. Without their presence, I would only half connect emotionally to nature.*

*To see wildlife in their natural habitat is amazing. From chipmunks running through campsites to grouse on the road into park reminds me to slow down and appreciate life*

*Encounters with wildlife: Reminds us there is more on earth than just us*

*I like seeing animals in their natural environment and free, it contributes to my bond with nature*

*Small buck (in velvet). We were close enough to see all this. AWESOME.*

While wildlife inhabiting the surrounding environment was considered a powerful agent in fostering nature connections, pets in the park were identified as a source of conflict among 10 respondents (17%). In addition to written complaints, the investigator noticed the pet policy was a regular topic of conversation when introducing the questionnaire to visitors.

The park manager explained that the bureau of state parks had found that state wide, on average campsites that allowed dogs were the most widely reserved and used. Thus a new policy was instigated that opened designating areas of the camping facilities to dogs, and other areas where dogs were not allowed. While comments on other subjects remained cordial, a new level of emotion can be observed when respondents related their feelings about the allowance of pets:

*Allowing dogs into state parks was the dumbest idea they ever came up with. People can’t afford to shelter their dogs or train them properly should not have them in the first place*

*The biggest thing is when they started to allow dogs at the park. They are a disturbing to nature*

*The one thing that I extremely dislike is the allowance of pets here.*
I don’t think animals should be allowed!

In addition to the comments expressing opposition and disdain for the new policy, two respondents specifically cited the noise created by the dogs as the reason for their frustration. Three additional respondents blamed the new dog policy for a lack of wildlife once seen in the park.

Camping is a relaxing time for me and there is quiet hour but that never happens with the dogs barking. It echoes through the whole camping area. They should be moved to Poe Paddy!

Not appropriate because of the allowance of dogs. They have discouraged some wildlife that we used to see prior to the allowance of pets in the park.

We often in the past had more contact with deer, bear, and raccoon. We never or at least seldom see these. Dogs are responsible

I’m not a fan of the pets in the wild area. Dogs and wildlife do not mix

The lone comment supporting dogs in the park asked for an area where pets could freely roam.

A leash free dog area would be nice!

Emotional Responses

In addition to the quest for quiet repose mentioned when respondents described accessing quiet places, respondents related the value of nature connection experiences to feelings of peacefulness and relaxation.

The peacefulness of nature helps relax the mind and body

Morning hikes are the most peaceful time in this park.
The historic and sentimental value of Poe Valley State Park was expressed by 3 respondents (17%) hinting at the possible role of place attachment in heightening the emotional responses of some respondents:

- There is a long family history of spending time at this park which greatly contributes to a positive emotional experience
- We took our family vacation here the last 2 years and 8 years before it closed we camped here. This place holds so many memories for us

**Recreation**

Reference to recreational opportunities aside from those provided by the lake and camping areas were limited to the trails in and around the park. Visitors perceived trails as moderately important to their experience (mean of 3.94, 8th out of 18), however, 46.6% of respondents admitted to not experiencing the trails at Poe Valley during their stay. Those respondents that related experiences with trails expressed the value and solitude that trails provide. Three photographs (4.3%) from the VEP exercise focused on the trails accessed at Poe Valley (Fig 5-11).

- Gives the opportunity to remove yourself from structure and gives better access to nature
- Morning hikes are the most peaceful time in this park.

The only respondent to the mapping exercise that identified a trail as a location where they felt a nature connection identified the nature loop trail located near the park office on the opposite side from the camping facilities. The respondent described the importance of the trail for its ease and convenience.

- An easy access trail for hiking that keeps you close while giving the impression of being away
One respondent mentioned the need for more trails at Poe Valley in listing it as an item that could be added to the park that would increase their ability to connect with nature (question 14a).

*It would be nice to have more trails in the Poe Valley. Shorter trails suitable for young children.*

![Respondent photographs showing trails (respondent #12)](image)

_Fig 5-11: Respondent photographs showing trails (respondent #12)_

**Social Environment**

Responses related to social interactions failed to mention any spatial location beyond the beach and camping areas. Respondents related the value of the camping areas as a means to be immersed in nature as well as connect socially.

_The campground allows us to share the outdoors with our children and get them out of the “concrete jungle.”_

_Campfire: Reminiscing with old camp friends_

Other responses illustrate the potential for social interactions to broaden visitors experience with nature and heighten the emotional response to their surroundings.

*I sometimes take my family identifying trees. Most people can’t tell one tree from another*
Can't wait to see what bugs, reptiles my kids catch

Allows me to share in an activity with our son and allow him to interact with God’s creatures in the water and help him become a well-rounded outdoorsman.

Only 25% of responses (n= 51) from Poe Valley State Park referenced human to human contact as detracting from their ability to connect with nature, the lowest percentage of all three case study parks. Of this 25%, over half (54%) indicated some element of noise as the reason the experience was a distraction.

Other activities involving other visitors were ranked on the opposite end of the same scale. When mean scores are ordered from highest mean score to lowest mean score (See table 5-4) “areas to watch people” received the second lowest mean score (3.38) only behind “motor boating” (2.83) and “Interacting with other people”, (3.56) was ranked 13th.

**Holistic Experience**

Respondents unable to identify a specific instance or element of the park that contributed to their experience none the less expressed the impact of the whole experience on their nature connection experience.

*Enjoying nature’s beauty is what this place is all about!*

*The quiet nature of the entire area*

*Nature makes me want to come here.*

*In this park, there are still enough trees and wildlife to enjoy.*

*This “pristine” condition of this park aids me in connecting with nature*
Black Moshannon State Park

Visitors to Black Moshannon State Park “somewhat agreed” (mean of 4.09) with the statement “It is important to feel an emotional connection with the natural environment while at this park.” However, visitors “neither agreed nor disagreed with the statement” (Mean 3.55) “I feel the facilities in this park help me feel connected to nature. Although respondents felt that the park in general created a connection with nature, the facilities were not a primary component in creating this connection.

Fig 5-12: Map of Black Moshannon State Park with nature connection locations from the mapping exercise.
Respondents indicated that “relaxing/hanging out” was the most frequent (14.5%) activity participated in while at the park (see table 5-5). Areas where these activities are facilitated were scored by respondents as highly important to their nature connection experience. When mean responses to question 11 were sorted from highest to lowest the mean for “Access to quiet places (4.42), views of the water, (4.41), overlooks and vistas (4.27) were ranked 1, 2, 4 respectively (See table 5-6).

Table 5-5: Frequency of activities experienced at Black Moshannon State Park

<table>
<thead>
<tr>
<th>Activity</th>
<th>Frequency (n=49)</th>
<th>Relative Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relaxing/Hanging Out</td>
<td>36</td>
<td>14.5%</td>
</tr>
<tr>
<td>Overnight Camping</td>
<td>24</td>
<td>9.6%</td>
</tr>
<tr>
<td>Walking</td>
<td>23</td>
<td>9.2%</td>
</tr>
<tr>
<td>Hiking</td>
<td>22</td>
<td>8.8%</td>
</tr>
<tr>
<td>Family/Group Activities</td>
<td>19</td>
<td>7.6%</td>
</tr>
<tr>
<td>Swimming</td>
<td>15</td>
<td>6.0%</td>
</tr>
<tr>
<td>RV Camping</td>
<td>15</td>
<td>6.0%</td>
</tr>
<tr>
<td>Nature Observation/Study</td>
<td>14</td>
<td>5.6%</td>
</tr>
<tr>
<td>Sightseeing</td>
<td>14</td>
<td>5.6%</td>
</tr>
<tr>
<td>Picnicking</td>
<td>13</td>
<td>5.2%</td>
</tr>
<tr>
<td>Fishing</td>
<td>11</td>
<td>4.4%</td>
</tr>
<tr>
<td>Attending S.P. Recreation programs</td>
<td>7</td>
<td>2.8%</td>
</tr>
<tr>
<td>Non-Motorized boat</td>
<td>6</td>
<td>2.4%</td>
</tr>
<tr>
<td>Biking (Mtn. &amp; Rd)</td>
<td>5</td>
<td>2.0%</td>
</tr>
<tr>
<td>Birding</td>
<td>5</td>
<td>2.0%</td>
</tr>
<tr>
<td>Picnicking</td>
<td>4</td>
<td>1.6%</td>
</tr>
<tr>
<td>Attending S.P. Nature programs</td>
<td>4</td>
<td>1.6%</td>
</tr>
<tr>
<td>Beach Use</td>
<td>4</td>
<td>1.6%</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>1.6%</td>
</tr>
<tr>
<td>Running</td>
<td>1</td>
<td>0.4%</td>
</tr>
<tr>
<td>Hunting</td>
<td>1</td>
<td>0.4%</td>
</tr>
<tr>
<td>Motor Boating</td>
<td>1</td>
<td>0.4%</td>
</tr>
<tr>
<td>Day Use Camping</td>
<td>1</td>
<td>0.4%</td>
</tr>
<tr>
<td>In line Skating</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>X-country Skiing</td>
<td>0</td>
<td>0.0%</td>
</tr>
</tbody>
</table>
Table 5-6: Black Moshannon sorted mean responses regarding contribution of each element to nature connection (question 11, Appendix A)

<table>
<thead>
<tr>
<th>Physical element or experience*</th>
<th>Mean Score</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to Quiet Places</td>
<td>4.42</td>
<td>40</td>
</tr>
<tr>
<td>Views of the water</td>
<td>4.41</td>
<td>45</td>
</tr>
<tr>
<td>Hiking Trails</td>
<td>4.29</td>
<td>36</td>
</tr>
<tr>
<td>Overlooks or vistas</td>
<td>4.27</td>
<td>27</td>
</tr>
<tr>
<td>Access to the water</td>
<td>4.24</td>
<td>46</td>
</tr>
<tr>
<td>Encounters with wildlife</td>
<td>4.19</td>
<td>39</td>
</tr>
<tr>
<td>Canoeing</td>
<td>4.08</td>
<td>28</td>
</tr>
<tr>
<td>Camping facilities</td>
<td>3.86</td>
<td>38</td>
</tr>
<tr>
<td>Fishing areas</td>
<td>3.81</td>
<td>23</td>
</tr>
<tr>
<td>Fishing</td>
<td>3.74</td>
<td>23</td>
</tr>
<tr>
<td>Environmental Education Centers</td>
<td>3.73</td>
<td>28</td>
</tr>
<tr>
<td>Interacting with State Park Staff</td>
<td>3.56</td>
<td>33</td>
</tr>
<tr>
<td>Biking Trails</td>
<td>3.56</td>
<td>19</td>
</tr>
<tr>
<td>Interpretive Signage</td>
<td>3.55</td>
<td>30</td>
</tr>
<tr>
<td>Visitor Centers</td>
<td>3.52</td>
<td>32</td>
</tr>
<tr>
<td>Interacting with other people</td>
<td>3.37</td>
<td>43</td>
</tr>
<tr>
<td>Areas to watch people</td>
<td>2.77</td>
<td>32</td>
</tr>
<tr>
<td>Motor Boating</td>
<td>2.50</td>
<td>18</td>
</tr>
</tbody>
</table>

*Experiences are colored white

Swimming Area

The swimming area and associated facilities at Black Moshannon are located in an isolated area on the northern end of Black Moshannon Lake (see fig 5-12). “Swimming” was ranked the 6th most frequent activity participated in by my respondents (see table 5-5). Results from the mapping exercise show that 6 respondents (14%) identified the beach as a location where
respondents felt an emotional connection to nature. Respondents that identified the beach as important related the views of the adjacent forest from the beach are particularly important. The enclosed nature of the beach area creates a very calm cove. The intimate scale of the cove also allows for a sense of enclosure and nearness to the opposite forest unmatched in the other parks.

Camping Facilities

Although “overnight camping” was the second most (9.6%) experienced activity by respondents, its value as a nature connection area was only seen as somewhat contributing (mean of 3.86) to respondents nature connection experience (see table 5-6). The designated tent and RV camping facilities at Black Moshannon State Park are located northwest and uphill of the beach and environmental education center (See figure 5-12). The 74 designated camping sites are separated from the lake by a buffer of forest and bordered on the south by Casanova Road. Casanova road is a state road that accesses Kylertown, nine miles North West of the park. Traffic noise from this adjacent road was identified by two respondents as distracting. Tent and RV sites are accessed via a single one way loop road with two cul-de-sac roads that access additional camping sites. The entire tent and RV camping area is accessed from a single entry/exit point on Casanova Road. The use of one way loops reduces traffic speed, but force all campers and visitors to drive past the 46 sites located on the main access road. Camping areas provide a mixture of tent camping and RV camping throughout the site with one separate spur road containing 9 non-electric sites typically used by tent campers only. A separate area with only cottages is located south of the camping area across from Casanova Road.

The camping facilities at Black Moshannon were identified by 4 respondents (9% of responses) as the area within the park where they felt a connection to nature. Descriptions of the camping facilities indicate that respondents were particularly aware of the wooded context of the
camping areas and felt this aspect was important for their experience with nature. Two of the responses described the quiet properties of the woods as an additional aspect that aided in their connection with nature.

- The wooded campsites make us feel the connection to nature.
- Quiet place in wooded area
- Quiet and clean camping areas
- Trees providing shade
- Nice wooded sites, roomy close to facilities

One respondent mentioned the physical spacing and two other responses indicated the qualities of the facilities and their impact on the perceived comfort of the experience was also important to their nature experience.

- Sites are spacious.
- The campsites, restrooms, and the park in general are well maintained.
- Just basic tent camping however there were enough amenities to make it comfortable.
- Electricity, modern bathrooms, etc.

Black Moshannon was the only park where “camping facilities” did not receive the highest mean score in question 11. The mean score at Black Moshannon was 3.8, making it the eighth most important element reported by visitors as important for nature connection at that park (see table 5-6). Responses from the mapping exercise at Black Moshannon support the results of the survey, showing only 9% (4 respondents out of 43 total responses) identified the camping area as a location where they felt a connection to nature (see fig 5-12). Each of these 4 locations were located within the interior camping loop, separated from both the lakeside facilities as well as Casanova Road. Of these 4 respondents 1 mentioned having greater spacing between sites that would create a more “natural setting.” Campsite spacing, visitor density and associated noise was identified in 6 responses explaining why they felt camping facilities were not conducive to nature connection experiences.
Too many people on too small an area. Noise from civilized living is an extreme
distraction. Less people and less RVs would be an improvement.
I understand that most people in the campgrounds consider it to be a social area, but I
wish there were more space between sites to preserve a more natural setting.
...campsites are close together, loud campers, not enough separation, close to road.
Spacing of campsites as well as lay out – noisy. No privacy – quiet hours not enforced
and ignored by some campers.
No primitive campsites available, too “modern”

No images of camping facilities were taken by respondents in the VEP exercise.

Quiet Places

“Access to quiet places” was rated by respondents as the most important out of the 18
element at the park presented in question 11 (mean 4.42 out of 5, see table 5-6). 7% of responses
to question 12 mentioned quiet when describing the physical or programmatic elements in the
park most important for connection with nature.

Felt connected by quiet, undisturbed hiking trails
There are quiet areas along the lake where I can sit and just watch birds, fish,
chipmunks, etc.

Enjoyed quiet areas. Strong connection with nature due to small human impact in quiet
places
Large lake with no motor boats, relatively quiet
(It is) nice on the lake because no large motor boats, quiet and nice.

9 respondents (23%) used quiet to describe the place they identified where nature
connection occurs in the park they identified in the mapping exercise. Conversely, responses to
question 13 indicate that noise is a significant detractor from visitors experience with nature. Of
the 78 responses describing elements or activities that distracted from visitors experience with nature 14 responses (18%) specifically mentioned noise as the primary distraction.

- *Crying babies and barking dogs can ruin the peacefulness. The road that runs behind the campground can be annoying.*
- *Saving for example and loud voices calling remind me I am not in nature as much as I think.*
- *Noisy beer drinking rednecks who blast music*
- *Other people’s noise ruins my connection to nature*
- *Family/group activities: Important but tend to be noisy and similar to home life.*

**Forests**

Although the forest was mentioned in the context of the camping area and in describing views, it was only mentioned by one respondent outside of these contexts. The response described the trees as beautiful. It is interesting, though, to note that the forest or trees were the subject of 6 photographs (20%) from the VEP exercise.

**Fig 5-13:** Respondent photographs showing forest as the subject (respondent #3& 4)
Views

Respondents rated “views of water” as important (mean 4.41) to their feeling connectedness to nature, the second highest ranked element at the park. “Overlooks or vistas” were also seen as “somewhat contributed” to “strongly contributed” (mean 4.27) the 4th highest ranked element at the park (see table 5-7).

*The views from the higher elevation were inspiring and provided a quiet environment in which to reflect upon nature’s beauty.*

*The overlook jutting into the water gives a better view, peaceful and a part of the environment*

Responses from the VEP further indicate that views and overlooks that provide expansive views are especially important at Black Moshannon. Of the 29 photographs 21 of them (72%) were focused on large expanses. Of these 21 photographs, 7 photos (24%) were taken from elevated areas showing views of the wooded mountains.

![Fig 5-14: Respondent photographs showing expansive views (respondent #10)]
Lake

Like the other case study parks the primary focus of Black Moshannon State Park is the lake. The 250 acre Black Moshannon Lake is a unique aquatic habitat consisting of a bog/wetland complex surrounding the lake. The park is restricted to non-motorized boating only on the lake.

The importance of the lake and the surrounding bog habitat is evident in the responses to question 11 as well as from the mapping exercise (see figure 5-12). Responses to question 11 show that respondents felt views of the water (mean 4.41) and access to the water (4.24) both “somewhat contributed” to “strongly contributed” to visitors feeling of connectedness to nature (see table 5-6). 7 respondents (19%) mapped locations directly on the water, of which 6 were spread out on the isolated south west finger of the lake, just around the bend from the main channel of the lake (see figure 5-12). Two respondents explained why they selected this area of the lake:

The upper portion of the lake is often secluded, allowing a chance to be alone and relax. The areas I liked were not near the beach or rental area where there were too many
people to be enjoyable

Physical contact with the water was not necessary for people to find nature connection experiences near the water. Twenty-six respondents (60%) identified places where they felt a connection to nature happening in the immediate water body or with 100 feet from the lakeshore. In describing their choice of location respondents associated feelings of solitude, quiet, and peace with the visual connection and proximity of the water.

Middle of the water, no one around, breeze
Docks, enjoy view, peace and serenity
There are quiet areas along the lake where I can sit and just watch birds, fish, chipmunks, etc.

When describing the properties of the water, respondents focused on the calm, stillness, and quiet of the water.

Peaceful, not crowded, not motorized boats causing waves, etc.
Out of the main stream of human activity and noise, being one in a kayak with the water.
The stillness of the water, surrounding plants,
Serene area, lots to do on the water.
(It is) nice on the lake because no large motor boats, quiet and nice.
I really like the tannin water, really gentle and clean

Results from the VEP show found that of the 21 images showing expansive views 11 (52%) were focused on capturing the open expanses of the lake. All 11 images show the lake as calm and still (see fig 5-16).
Fig 5-16: Respondent photographs showing expansive views of the water (respondent #1,3,15 (2))

Environmental Education/ Interpretive Signage/Park Programs

The environmental education center at Black Moshannon State Park is situated opposite the swimming beach, just outside of the camping facilities (see fig 5-12). The education center is closed during winter months but has programs during the summer. Special weekend programs are also held at the environmental education center. Responses regarding the environmental education center show that respondents perceived the education center as somewhat important (mean 3.73) ranking 11th in mean scores. However, no respondents specifically mentioned the environmental education center or the influence of the programs offered there in the open ended response portion of the questionnaire.
Of all three of the case study parks Black Moshannon has the most extensive interpretive signage program. The Bog Trail that provides access to a quiet corner of the bog contains the greatest density of interpretive signage, 1 sign per 137 feet of trail, within the park. Interpretive signage was also seen as “neither detracting nor contributing” to “somewhat contributing” to visitor’s feelings of connectedness with nature (mean 3.55), the highest of all the case study parks (See table 5-7). 7 respondents (16% of responses) identified areas along the signage rich bog trail as an area where they felt a connection to nature. These respondents explained the added benefits the signage provided at the bog trail site:

*I understand what I see and helps find other elements I would not otherwise look for when in nature.
*Water’s edge provided an opportunity to connect with nature that was enhanced by reading interpretive signs
*The overlook is lovely and the trail information signage is educational

**Wildlife**

Encountering wildlife were identified by respondents as an important (mean of 4.19, ranked 6th out of 18) experience related to their connection with nature. Twenty-six responses (10%) to questions 12-16 mentioned the effect that encountering wildlife had on their nature connection experience in the park.

*Seeing them make me feel connected to nature.
*We observed a great blue heron in his natural habitat. So cool when it took flight, so peaceful.
*As we sat near the campfire late last night a family of 4 raccoons approached within a few feet of our campsite.
*Looking for frogs, salamanders, whatever with family
*Watching migrating birds on lake
*Enjoying chipmunks in camp. Little cuties watching my fire at camp
*Noticed a heron (great blue) on top of a bird box
*I enjoy looking at the nature, plants and animals
Wildlife was only seen as a distraction in 4 responses (1.5%). Two responses indicate the insects associated with the bog habitat were a distraction, the remaining two responses focused on the issue of pets in the camping area.

*Bugs- ants and flies on the beach*

*Bugs- Way too many biting bugs*

*Dogs in campground: At times the noise and odor generated by dogs can be very distracting.*

*Pet access: Would like to be able to at least visit people with our pet that have cabins/campsites that do not allow pets*

### Emotional Responses

Respondents described the emotional value of nature connection experiences to their feelings of peace and relaxation. 10 respondents (3.9%) used peaceful or relaxing as a descriptor when describing what aspect of elements in question 11, or describing the attributes of specific sites where they felt a connection with nature identified in question 16.

*It is a very peaceful atmosphere*

*I truly enjoy the peacefulness of the lake when boating*

*Relaxing around the fire...*

Eight responses (3%) expressed an emotional connection they felt to Black Moshannon that appears to be associated with a strong attachment to the larger state park. Respondents expressed the value of this additional emotional bond to place that enhanced their park experience.

*I would come here with my family when I was a kid.*

*I feel like I am at home*

*I grew up in Blackie, this is home*
I love “Blackie” I have lived in this area my whole life. Grew up swimming in this lake I would come here during my childhood days

Recreation

The trail network at Black Moshannon contains over 20 miles of trails (PADCNR 2012). Many of the trails providing access to the bog and lake were identified as areas where people felt connected to nature. Nine visitors (18%) expressed the importance of the trails as a vehicle to access quiet places, wildlife, and solitude within the park.

Felt connected by quiet, undisturbed hiking trails
Hiking trails: Connect me to nature because you are in nature
Easy to find secluded spots on lake.
Hiking, being alone with nature.
Hiking trails: Allow you to experience nature on your own and away from society
The trails I’ve been on were very nice. They were not overly developed or traveled. They allowed me to experience the woods and river better.
Hiking on trails and kayaking are the two primary ways to make a connection deep down with nature
Great trails to see and interact with wildlife
...hiking the trails around the lake lets us see the animals and plants in the area.

Three respondents (7%) identified the top of the ski slope trail as an area where they felt a connection to nature. They described the quiet and peace they found in this location. Seven respondents (16%) identified areas along the bog trail as places they felt a connection with nature. Three of these respondents identified the overlook platform section of the trail was a particularly important area for visitors on the bog trail. In describing the bog trail they mentioned:

Very quiet area, beautiful views.
Overlook onto the lake- great views, easy access.
Beautiful scenery added to our experience and we were not bothered by others, even though they were around.

Three other respondents that did not identify the boardwalk as the important place for a nature connection in the mapping exercise none the less mentioned it in explaining what things were important for creating a nature connection while at the park.

*Boardwalk/signage are a great way to access natural areas without disrupting the environment*

Access to water, I enjoyed looking at the plants along the bog walk

*The bog trail allows anyone to experience many different forms of nature.*

Also, 4 respondents mentioned the legibly of the trail network as important in allowing them to explore the natural areas of the park without trepidation.

*Trails: Peacefulness*, not crowded, marked well.

*Hiking Trails: Very easy to follow and well-kept*

The trails were well posted and took your hike through beautiful areas with impressive views of wildlife and foliage

There are a lot of good trails for long but safe hikes (well marked) This helps to get into woods without fears

Results from the mapping exercise showed 17 respondents 40% identified an area where they felt a connection to nature on or within 25 feet of a state park trail. 1 visitor mentioned the benefits kayaking and can have in relation to their nature connection experience.

*kayaking really lets you be one with nature. Can be quiet to enjoy nature*

Kayaks, canoes, and rowboats were included in 7 (24%) of the photographs in the VEP exercise.
Social Environment

Visitor responses related to the social environment at Black Moshannon State Park focus on two main geographical areas, the areas surrounding the lake, and the camping areas. 9 visitors described interactions with others as enhancing the nature connection value of the activities they were participating in.

*Showing children blooming water lily while paddling past*

*Looking for frogs, salamanders, whatever with family*

The social experiences described at Black Moshannon were noticeably devoid of strong references to the camping facilities. Only 2 mentions of campsites came up in the open responses to question 13, 15 and 16.

*Enjoy sitting around camp fire with family*

This is surprising considering that ‘overnight camping’ (9.6%) was identified as the second most experienced activity behind ‘relaxing/hanging out’ (14.5%) at Black Moshannon Park (See table 5-6).

Other visitors expressed the value of spending time with family in the context of the interacting with the lake and water, a central focus of the park.
Fishing spot that I watch my husband and child fish.

The docks on the lake were nice to sit at and relax with the family and dog

Other visitors expressed the value of spending time with family in the context of the overall experience. Although these experiences were not associated with any particular location they help illustrate the enhancement value that social interactions play in the overall park experience and the visitors perception that the park is an escape to nature.

I come to this park to spend time with my family away from TV, phone, computers, etc.

Interacting with people—my son. Wonderful sharing experience—bonding.

We shared an awesome time, with each other and nature.

Conversely, 44% of responses (n=48) to question 13 mentioned human disturbances as the principle distraction from their nature connection experience. Of these responses, 62% mentioned unwanted noise as the primary distraction from nature. This is the highest proportion among the case study parks of responses to question 13 identifying human distractions as a primary complaint. Respondents expressed frustrations regarding the density of people in the park distracting from the solitude they felt necessary to allow for a nature connection.

We live in a very crowded place and enjoy parks primarily to get away from people.

Family/group activities: Important but tend to be noisy and similar to home life.

The crowds near the beach and pavilions were not enjoyable.

Dogs and stupid people

Holistic Experience

Respondents explained the experience of the park without regard to individual aspects had an effect on their experience of nature.
The beautiful scenery is alone worth seeing.
Numerous options here are its best asset. No matter what your preference, you can enjoy everything offered here.

Bald Eagle State Park

Respondents at Bald Eagle State Park mostly agreed (mean of 4.23/5.0) with the statement ‘it is important to feel an emotional connection with the natural environment while at this park.” Respondents also somewhat agreed (mean 4.06/5.0) with the statement “the facilities in this park help me feel connected to nature” (see fig 6-1). The facilities at Bald Eagle are heavily focused on recreation, and responses to question 8 indicate that respondents are using camping facilities and recreational activities at the park (see table 5-7). However, only camping facilities (4.40) were rated in the top five when mean scores from question 11 were ordered from highest to lowest (see table 5-8). Respondents also somewhat agreed with the statements that the park was a “primary place they feel an emotional bond or connection to nature” (mean 3.79) and “the reason I attend this particular park is to feel closer to nature” (mean 3.94) (see fig 6-1).
Fig 5-18: Map of Bald Eagle State Park with nature connection locations from the mapping exercise.
Table 5-7: Frequency of activities experienced at Bald Eagle State Park

<table>
<thead>
<tr>
<th>Activity</th>
<th>n</th>
<th>Relative Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overnight Camping</td>
<td>42</td>
<td>11.9%</td>
</tr>
<tr>
<td>Relaxing/Hanging Out</td>
<td>41</td>
<td>11.6%</td>
</tr>
<tr>
<td>RV Camping</td>
<td>31</td>
<td>8.8%</td>
</tr>
<tr>
<td>Walking</td>
<td>26</td>
<td>7.4%</td>
</tr>
<tr>
<td>Hiking</td>
<td>24</td>
<td>6.8%</td>
</tr>
<tr>
<td>Nature Observation/Study</td>
<td>23</td>
<td>6.5%</td>
</tr>
<tr>
<td>Picnicking</td>
<td>23</td>
<td>6.5%</td>
</tr>
<tr>
<td>Swimming</td>
<td>20</td>
<td>5.7%</td>
</tr>
<tr>
<td>Biking (Mtn. &amp; Rd)</td>
<td>19</td>
<td>5.4%</td>
</tr>
<tr>
<td>Family/Group Activities</td>
<td>19</td>
<td>5.4%</td>
</tr>
<tr>
<td>Fishing</td>
<td>16</td>
<td>4.5%</td>
</tr>
<tr>
<td>Birding</td>
<td>12</td>
<td>3.4%</td>
</tr>
<tr>
<td>Motor Boating</td>
<td>11</td>
<td>3.1%</td>
</tr>
<tr>
<td>Sightseeing</td>
<td>9</td>
<td>2.5%</td>
</tr>
<tr>
<td>Picnicking</td>
<td>7</td>
<td>2.0%</td>
</tr>
<tr>
<td>Non-Motorized boat</td>
<td>7</td>
<td>2.0%</td>
</tr>
<tr>
<td>Beach Use</td>
<td>7</td>
<td>2.0%</td>
</tr>
<tr>
<td>Attending S.P. Recreation programs</td>
<td>5</td>
<td>1.4%</td>
</tr>
<tr>
<td>Attending S.P. Nature programs</td>
<td>4</td>
<td>1.1%</td>
</tr>
<tr>
<td>Visiting Historic sites</td>
<td>2</td>
<td>0.6%</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>0.6%</td>
</tr>
<tr>
<td>Ball Sports</td>
<td>1</td>
<td>0.3%</td>
</tr>
<tr>
<td>ATV</td>
<td>1</td>
<td>0.3%</td>
</tr>
<tr>
<td>Day Use Camping</td>
<td>1</td>
<td>0.3%</td>
</tr>
<tr>
<td>In line Skating</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Running</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>X-country Skiing</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Hunting</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Disc Golf</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Winter Sports</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Snowmobiling</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Geo-caching</td>
<td>0</td>
<td>0.0%</td>
</tr>
</tbody>
</table>
Table 5-8: Bald Eagle sorted mean responses regarding contribution of each element to nature connection (question 11, Appendix A)

<table>
<thead>
<tr>
<th>Physical element or experience*</th>
<th>Mean Score</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camping facilities</td>
<td>4.40</td>
<td>53</td>
</tr>
<tr>
<td>Access to Quiet Places</td>
<td>4.35</td>
<td>50</td>
</tr>
<tr>
<td>Views of the water</td>
<td>4.29</td>
<td>51</td>
</tr>
<tr>
<td>Access to the water</td>
<td>4.29</td>
<td>50</td>
</tr>
<tr>
<td>Encounters with wildlife</td>
<td>4.15</td>
<td>49</td>
</tr>
<tr>
<td>Fishing</td>
<td>4.11</td>
<td>31</td>
</tr>
<tr>
<td>Overlooks or vistas</td>
<td>4.11</td>
<td>39</td>
</tr>
<tr>
<td>Hiking Trails</td>
<td>4.05</td>
<td>45</td>
</tr>
<tr>
<td>Fishing areas</td>
<td>4.03</td>
<td>38</td>
</tr>
<tr>
<td>Motor Boating</td>
<td>3.77</td>
<td>35</td>
</tr>
<tr>
<td>Biking Trails</td>
<td>3.69</td>
<td>35</td>
</tr>
<tr>
<td>Environmental Education Centers</td>
<td>3.68</td>
<td>36</td>
</tr>
<tr>
<td>Interacting with State Park Staff</td>
<td>3.67</td>
<td>48</td>
</tr>
<tr>
<td>Interacting with other people</td>
<td>3.67</td>
<td>51</td>
</tr>
<tr>
<td>Visitor Centers</td>
<td>3.56</td>
<td>38</td>
</tr>
<tr>
<td>Interpretive Signage</td>
<td>3.39</td>
<td>41</td>
</tr>
<tr>
<td>Canoeing</td>
<td>3.38</td>
<td>25</td>
</tr>
<tr>
<td>Areas to watch people</td>
<td>3.35</td>
<td>44</td>
</tr>
</tbody>
</table>

*Experiences are colored white

Swimming Area

The swimming facilities at Bald Eagle State Park are part of a larger complex of open fields, concessions, pavilions, playgrounds, and parking areas (See figure 5-19). Although views of the water (mean 4.29), and access to the water (mean 4.29, table 5-8) were considered by respondents as important parts of their nature connection experience in the park, the swimming beach was only identified by 3 respondents (6.2%) as a place where they felt connected to nature and the only respondent to describe the area mentioned described the sand and vista. The beach was also only specifically identified by one respondent in the open ended question section.

Very nice family beach with the playground and some trees for shade
Camping Facilities

Bald Eagle State Park has two designated camping areas, the Russell P. Letterman campground and the primitive campground. The Letterman campground is located on the north end of the park just east of the main entrance and park office. The primitive camping area is located on the opposite side of the lake and is accessed from State Route 26 just outside of the town of Howard (see figure 5-20).

The Russell P. Letterman campground is identified in park advertising (DCNR 2012) as ‘modern,’ having flush toilets, warm showers, picnic tables, fire rings, electrical hookups and large asphalt parking areas conducive to either RV or tent camping. The Letterman campground is the largest of all the study parks, with 97 designated camping sites, 3 cottages, and 2 yurts (DCNR 2012). The campground is separated into two areas, each accessed via individual one-way loop roads that access all the camping sites (see fig. 5-19). The campground is located on an open field with large expanses of grass creating the primary surface with masses of shrubs and small planted trees separating the camping sites. The Letterman camping area is isolated from the lake by a ridge running along the southern edge of both loop roads creating a physical, visual, and auditory barrier to the activities occurring at the lake.

The primitive camping area has 70 camping sites consisting of a mixture of tent only walk-in-sites and RV/tent sites located adjacent to the road (see fig 5-20). Walk-in-sites require visitors to park along the loop road and take individual trails to designated sites isolated in the adjacent woods. The primitive camping area is located in the dense woods and provides a counterpoint experience to the Letterman Campground across the lake.
Fig 5-19: Aerial view of Russell P Letterman modern campground

Fig 5-20: Aerial view of the rustic campground
Responses regarding camping facilities differed according to references made to either the modern or rustic camping facilities. Two respondents (4.1%) identified campsites within the rustic campground as a place they felt a connection with nature. Three respondents described the rustic campground as peaceful and quiet, but one respondent criticized the lack of modern conveniences that the modern campground contains.

*My campsite is peaceful and we see different animals, birds, and reptiles.*

*The peacefulness of the campground*

*I have camped at the primitive campground a number of times and found it very quiet and peaceful after the motor boats stop. I would use it more often if it were not so run down.*

In response to questions about what distracted from a nature connection experience 4 respondents (7.5%) identified the lack of trees in the modern campground as a concern. Citing greater privacy and shading that adding trees would provide.

*Not enough trees in the camping area for some shade*

*Would enjoy a more wooded environment*

*More trees around the sites, rather have wooded sites.*

*A little more privacy between sites, maybe more trees*

*We like more isolated, private campgrounds, especially with more shade but at night the stars were awesome.*

Only two responses suggested facilities updates as well as a visual connection to the water in the primitive camping area.

*Tent sites on a level pad would be great. A few landscape timbers and cracker dust.*

*There are no overlooks on the primitive side.*

8 respondents (16.6%) identified campsites in the modern campground as places they felt a connection with nature. Responses regarding the modern campground focused their description of the physical layout of the camping area in terms of the spatial relationship between campsites. Mentions of privacy and safety indicate a level of personal space is maintained through the
generous spacing of the sites even without the forested tree canopy. Campsites are spaced a minimum of 65’ a maximum of 145’ with an average distance of 92’ of separation distance.

*Camping facilities allow me to be close to nature.*

We like the campsites here. Private yet safe

Campsites are not on top of each other.

I enjoy the distances between the campers, not tight against each other

*The camping facilities are spacious and somewhat separated from other campers. The shower facilities are nice and well maintained.*

The pads are close enough to interact with others but far enough away to have some privacy.

This is one of my favorite (places) to camp because it is quiet, not too far out of the way, and you have easy access to the hiking/walking trails and fishing.

One cluster of campsites in the modern campground in particular was identified by three respondents as an area where they felt an emotional bond or connection to nature. Analysis of the description of the sites indicate the adjacent hillside to the south of the campsite is an open field where deer are typically seen, giving campers in this location a front row seat onto the sloping meadow. This view was identified in one respondent’s photograph of the area (See fig 5-21).

*Site #11, quiet and has a view of an open field where deer roam.*

*also like the camping area facing hillside.*

Fig 5-21: Respondent photographs showing the view of the field as seen from site #11 (respondent #12)
Quiet Places

Access to quiet places was the second highest ranked element from question 11 (mean 4.35). Results from the mapping exercise indicate that respondents are finding quiet areas scattered across the park both on land and in secluded areas on the lake. Responses to the open ended questions describe the importance of visual access to the lake in choosing or enjoying these quiet areas.

A secluded, lightly travelled area in a natural environment with a lovely water view.
A quiet area to have a meal while having a great view of the lake.
Secluded, shaded lake view. Very tranquil
Place to sit and enjoy the views of the lake. Quiet dead end road
A secluded, lightly travelled area in a natural environment with a lovely water view.
Secluded, shaded lake view. Very tranquil
Hidden cove to sit on boat in the quiet and listen to nature
Private areas with little development are great to get a feeling of adventure and discovery.

Views

Views of the water were seen by respondents as an important element (mean 4.29) element in their nature connection experience. When the means from question 11 were ordered from highest to lowest, views of the water (4.29) ranked 2\textsuperscript{nd} and overlooks and vistas (4.11) ranked 7\textsuperscript{th} out of 18 (see table 5-8). All respondent descriptions of views make reference to the water.

A secluded, lightly travelled area in a natural environment with a lovely water view.
A quiet area to have a meal while having a great view of the lake.
Secluded, shaded lake view. Very tranquil
Lake

The 1,730 acre Foster Joseph Sayers Reservoir is a central feature in visitor’s recreational visit to Bald Eagle State Park and subsequent nature connection experiences. Results from the mapping exercise indicate that 26 respondents (54.1%) identified their place of nature connection in the water or within 100 feet of the shoreline. Of these, 14 respondents (29.1%) identified locations directly on the water as areas of nature connection. Respondents related the aesthetic value as well as the quiet, relaxing qualities of the water.

*The beauty of the lake*

*For spiritual encounter with nature on quiet water*

*Relax and enjoy sitting near the lake.*

Those who identified areas of connection on the water did not mention the noise or human interference from other boaters although these concerns were identified by other visitors.

![Lake images](image_url)

*Fig 5-22: Respondent photographs showing the lake (respondent # 11,8,10,12)*
Environmental Education/ Interpretive Signage

Environmental education was ranked by respondents as neither “contributing nor distracting to my nature connection” (3) to “somewhat contributing to my connection with nature” (4) with a mean score of 3.68, ranked 12th when mean scores were organized from highest to lowest. Only one respondent mentioned the environmental education center in the open ended section of the questionnaire.

*Environmental education centers have a way to learn about nature, animals, etc.*

One respondent felt that the distance from the camping area to the center prohibited access.

*At bald eagle the nature center is too far away from the campsites, kids don’t get to enjoy it.*

Park sponsored recreation programs were only experienced by 5 respondents (1.4%), while nature programs were only experienced by 4 respondents (1.1%) (See table 5-8). Only two respondents mentioned the park programs.

*Programs for the kids are good.*
*It is important to me to learn about the history of the parks, the wildlife around the park, and how the park operates.*

Wildlife

By virtue of its size (5,900 acres) and a mosaic of forests, reverting fields, wetlands and streams, Bald Eagle State Park is home to a variety of wildlife. The park also actively manages areas of the park for edge habitat, early successional forest habitat, and aquatic habitat (PADCNR 2011). Respondents reported “encounters with wildlife” as important (mean 4.15) to their nature connection experience. This element was ranked 5th when means were ordered from highest to
lowest (see table 5-8). 92.5% of respondents also reported having experienced a wildlife encounter of some kind.

Seeing other animals roaming free in nature
Opportunity to view animals
My campsite is peaceful and we see different animals, birds, and reptiles.
We love to see the animals, bunnies, birds, etc. in nature and not be harmed.
Enjoy park benches near areas of lake that are quiet and enjoy seeing the deer and rabbits.
(Camping) site #11, quiet and has a view of an open field where deer roam.
Like to watch the deer that come out in the evening in the field

Located near the Allegheny front to the west, Bald Eagle State Park is part of a major flyway for migrating birds, butterflies, and dragonflies (PADCNR 2012). The park is a popular place for birders and is highly advertised as a location for viewing birds (PADCNR 2012). Six respondents specifically mentioned the experience seeing birds and bald eagles at the park.

Need more wildflowers for humming birds
Listening to the birds (and) trying to identify (them). I like the butterfly path.
Bird life enhances any visit.
Seeing two bald eagles on this trip and a bobcat reminds each of us that we are visitors in this park.
I love to look for the eagles and great blue heron
The eagle nesting spot is the best place on earth. Watching the eagles is relaxing and nature is at its best

Wildlife was only mentioned in 3 responses as distracting from visitors nature connection. The wildlife was identified as invading campsites in two cases and a skunk was identified in another response.

The raccoon that raids the campsite. He should be removed by the DCNR
Trails

The park is traversed by over 11 miles of trails. 5.5 miles of mown grass trails traverse the 650 acres that make up the main park entrance, modern campground, swimming beach area, marina, and 3 additional boat launches. Two trails act to link the campground to the picnic and swimming areas while the remaining trails create a network that access a variety of habitats and natural areas. Ten respondents (20%) identified areas of nature connection on or within 25 feet of trails. Half of these respondents identified locations on the two interior loop trails that are classified as “easiest hiking” and promoted for the natural amenities (PADCNR 2012). Of the 5 respondents, 3 identified locations along the Skyline Drive trail, while the other two were along the Butterfly trail (See fig 5-18). Respondents described the characteristics of trails with high nature connection potential as being quiet with access to wildlife.

*Trails are nice and peaceful.*

*The trails are here but not crammed into the campground. They are close enough to get to but quiet to hike and do not disturb other people.*

*We hiked this trail several times and saw butterflies, lots of birds, and deer. Secluded but easy to get to and hike.*

*The quiet while hiking and encountering wildlife I find very relaxing.*

Five responses complained about the trail system at the park, indicating a lack of legibility hindering the ability for users to feel comfortable on the trails.

*The hiking trails confused us due a shortage of signs.*

*More trails, better signage*

*More markings for hiking trails, especially colored blazes*

*Lack of markings on some hiking trails somewhat frustrating*

*Hiking trails: High grass and weeds*
Emotional Responses

Four respondents at Bald Eagle described the effects of their park experience using quiet and peaceful to describe their experiences.

*Quiet and peaceful, very beautiful area.*

*Wooded, plants, flowers. Quiet, peaceful, open to nature*

Five respondents also described their park experience and nature connection experiences as relaxing.

*Relax and enjoy sitting near the lake.*

*The eagle nesting spot is the best place on earth. Watching the eagles is relaxing and nature is at its best*

*Relax and enjoy nature*

*Camping to relax*

*Camping allows us quiet rest and relaxation*

Only two responses commented on an emotional connection to the park developed from a tradition of visitations.

*Just feels like coming home.*

*I have had many, many days and evenings enjoying the fishing here*

Recreation

The high intensity recreation at Bald Eagle was only mentioned by two respondents, both of whom indicated that motorboats were a source of distraction from their ability to connect with nature.

*Motor boating because of the noise*

*People on motor boats*
Social Environment

Respondents at Bald Eagle State Park expressed sentiments similar to visitors at other parks regarding the social environment enhancing the quality of the overall park experience. All references to the social environment lacked spatial reference, alluding to the active and dispersed recreational activities at the park.

Having a small child make wildlife encounters more enjoyable

Enjoy the nature trails with my family

Time for family bonding occurs with hikes, biking, and boating

Responses of Bald Eagle visitors to question 8 show an emphasis on active recreation activities. Visitors responded that ‘overnight camping’, ‘relaxing/hanging out’, and ‘RV camping’ were the top activities engaged in while at the park. It is interesting to note that no description of any of these spaces came out in the context of the social experience. Only 3 photographs (5%) have a social component as the focus of the photograph.

Forty-three percent of responses (n=31) to question 13 mentioned human disturbances as the principle distraction from nature. Of these responses 39% mentioned noise as the primary component that distracted them from nature. Similar to the other two parks, the primary complaints regarding humans as a source of disruption of nature connection came again from the campgrounds.

No respondents mentioned proximity to others as a distraction, however, respondents in the modern campground identified noise from other people as their primary human distraction, expressing:

The modern campground is way too noisy.

Noisy neighbors
Often there is too much noise going on in the park

...the loud speaker announcements going on at 6-7 am this morning

I not a big fan of loud music while camping

Additional areas of human distraction focused on both seeing people as a distraction as well as one respondent seeing a lack of safety as a primary concern.

I do not come to parks to watch people

People driving too fast on roads

If you’re looking at people you can’t enjoy the beauty around

No respondents from the primitive campground mentioned any human distractions in question 13. Also to note, although much of Bald Eagle State Park’s focus is on all forms of water recreation including motorized boating, no specific reference to motor boating noise or conflict was mentioned.

Holistic Experience

When asked in question 14 (see appendix A), “in general this park provides appropriate opportunities to experience an emotional bond or connection with nature?” 94.3% of visitors answered “appropriate.” Responses relating to the overall experience of the park describe the beauty of the park as well as the enjoyable experience the park provided.

The area is incredibly beautiful
Simply beautiful
I like to happen across nature in the raw, untouched by other’s sensibilities.
This park is a great place to get away from it all
I think like most people who grew up in a rural area, my wife and I just totally enjoy every minute we spend here.
Chapter 6

Synthesis

The first section of this chapter seeks to synthesize the data reported in chapter 5 and compare responses and trends between parks that developed from the data analysis chapter. The second section considers elements within all three parks in aggregate that enhance the possibilities for nature connection in the park and conversely distract from the potential for nature connection in the parks.

In general, respondents agreed that these three case study state parks provide an appropriate environment for people to connect with nature (See table 6-1). Respondents also felt that experiencing an emotional connection with the natural environment was an important part of their park experience.

Table 6-1: Comparison Table of responses to question 14: “In general does this State Park provide appropriate opportunities to experience an emotional bond or connection with nature?” (See appendix A)

<table>
<thead>
<tr>
<th>Park</th>
<th>% reporting &quot;appropriate&quot;</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poe Valley</td>
<td>82.8%</td>
<td>55</td>
</tr>
<tr>
<td>Black Moshannon</td>
<td>85.7%</td>
<td>47</td>
</tr>
<tr>
<td>Bald Eagle</td>
<td>94.3%</td>
<td>52</td>
</tr>
</tbody>
</table>
In aggregate, visitors to the three case study state parks also agreed that ‘it is important to feel an emotional connection with the natural environment while at the park’ (aggregated mean of 4.24 out of 5, question 10a, see fig 6-1). Respondents somewhat agreed with the statement that “the facilities helped them feel connected with nature” (aggregated mean of 3.87 out of 5 on question 10d, see fig 6-1).

At all three case study parks visitors identified distractions from other visitors as the primary distraction from their ability to connect with nature. 37 % (n=141) of the aggregated responses to question 13 on the questionnaire (“what the two elements distracted most from your ability to experience an emotional bond with nature”) referenced conflicts arising from human interactions. Of these responses 52% related the issue of noise as the primary human to human contact issue distracting from their ability to connect with nature (see table 6-2).

Statistical comparisons of park user demographic characteristics, the perceived role of the parks in facilitating nature connection, and the contribution of park facilities/activities in
enhancing nature connection were also made. Cross-tabular analysis and one-way analysis of variance were used to examine significant differences across the three parks. Chi-square tests (for categorical variables in the cross-tabular analyses) and F-tests (for interval and Likert scale variables in the analysis of variance analyses) were used to determine whether significant differences existed and which park users were significantly different from each other.

Results from these analyses revealed just a few significant variations. For example, Bald Eagle State Park respondents were more likely to be older (53.4 years) than Poe Valley State Park (48.2 years) and Black Moshannon State Park (46.7 years) respondents (F = 5.75, p = .004). There were also significant associations between distance traveled among the three different park users. Bald Eagle State Park respondents were least likely to travel less than 25 miles and were most likely to travel between 50-100 miles to get to the park. Black Moshannon State Park respondents were both more likely to travel less than 25 miles and more likely to travel more than 100 miles to get to this park (Chi-square = 30.42, p = .000).

In terms of nature connection perceptions, both Poe Valley (mean = 3.74) and Bald Eagle State Park (mean = 3.75) visitors were more likely to feel that their park was their primary place for an emotional bond with nature than did Black Moshannon State Park visitors (mean = 3.21; F = 4.41, p = .014). The degree to which several activities and facilities facilitated nature connection also varied to a small degree across the three parks. For example, Bald Eagle State Park visitors (mean = 3.75) were significantly more likely than Black Moshannon State Park visitors (mean = 2.50) and Poe Valley State Park visitors (mean = 2.82) to indicate that motor boating activities contributed to their nature connection within the park (F = 9.30, p = .000). Conversely, Black Moshannon State Park visitors (mean = 4.08) were more likely than Bald Eagle State Park visitors (mean = 3.36) to indicate that canoeing activities contributed to their nature connection with the park (F = 3.82, p = .027).
Facility contributions to nature connection were also different across the three parks for two specific areas: areas to watch people in the park and camping facilities. Here, Bald Eagle State Park (mean = 3.34) and Poe Valley State Park (mean = 3.39) visitors were more likely than Black Moshannon State Park visitors (mean = 2.77) to rate areas for people watching as contributing to their nature connection (F = 5.32, p = .006). Finally, Bald Eagle State Park (mean = 4.41) and Poe Valley State Park (mean = 4.32) visitors were more likely than Black Moshannon State Park visitors (mean = 3.86) to rate camping facilities as places that contribute to their nature connection within the park (F = 4.26, p = .016).

Table 6-2: Responses to question 13 indicating human distractions and noise as primary distractors of nature connection

<table>
<thead>
<tr>
<th>Case Study Park</th>
<th>n</th>
<th>% of responses identifying Human distractions</th>
<th>% of responses identifying human distractions that identify noise as the primary element</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poe Valley</td>
<td>51</td>
<td>25%</td>
<td>54%</td>
</tr>
<tr>
<td>Black Moshannon</td>
<td>48</td>
<td>44%</td>
<td>62%</td>
</tr>
<tr>
<td>Bald Eagle</td>
<td>42</td>
<td>43%</td>
<td>39%</td>
</tr>
</tbody>
</table>

Cross Case Analysis

Poe Valley

Poe Valley State Park is the smallest and most isolated of the three case study parks geographically and in the way it is perceived by visitors. Poe Valley was the only case study park in which visitors described the park as isolated and the access to the park as difficult. The park is surrounded by the 198,000 acre Bald Eagle State Forest (PADCNR 2011). Poe Valley State Park is also the only case study park that does not have any major roads bordering or traversing the park, furthering the feeling of isolation and seclusion.
The isolated perception as well as the intimate size of the park provides visitors the opportunity to be immersed in the natural environment. The park received the highest mean ranking (3.94) compared to other case study parks when respondents rated agreement/disagreement with the statement “the reason I attend this particular park is to feel closer to nature”, indicating that visitors to this park come anticipating and expecting an experience that connects them to the natural environment (see fig 6-1).

In addition to the nature connection experiences explained by respondents related to the lake and camping facilities, one unique location was identified by respondents in the mapping exercise and in written description as an additional location for nature connection. Below the Poe Lake Dam a series of small waterfalls initiate the emergence of Big Poe Creek from the Poe Lake Dam. 4 separate respondents (8.5% of respondents) indicated this as a location where they had felt a connection to nature. Additionally respondents described the location as:

*I enjoy the beauty of water falls. The more area for water the cascade the better*

*Waterfalls- calmness of waterfalls, scenery*

The physical location of this part of the park provides an interesting insight into what elements may provide a prime location for nature connection experiences. The falls are located 275 feet from the nearest camping facility, allowing comfortable access for campers, without sacrificing the privacy and isolation identified by respondents as important for nature connection. The falls also provide an auditory environment that masks noise from the nearby campground.

The recent remodel of the park provided an extra layer of sensitivity for long time park visitors. The park was opened just a year prior to the data collection phase of the research after being closed for three years may have caused some respondents to be extra sensitive to the new facilities and comforts they provided.
Black Moshannon

The general tone expressed in the open ended responses from Black Moshannon related the strongest interest in nature among all the parks. The unique and fragile natural features of the reservoir and bog/wetland complex attracts a demographic of visitors interested in low impact recreation (relaxation, family activities, hiking, camping) as indicated by the activity histogram (figure 5-6). The tranquil reservoir was seen as a source of natural beauty by those who engaged in water based recreation as well as those who were near the water. The size (250 acres) and amoeba like shape of the reservoir provided recreationalists the opportunity to find private quiet areas to view wildlife, and aesthetic views. The physical and perceptual separation of the high intensity swimming area and lack of motorized boats allow recreational areas such as, trails along the water, fishing docks, and picnic areas along the lake to perform as both recreational areas and areas that allow for nature connection to occur.

The trail network at Black Moshannon was the most highly lauded by respondents for its ability to provide convenient access to areas of the park that allow for nature connection. Respondents recognized the legibility of the trail, allowing those who experienced it to focus on the natural setting rather than worrying about getting lost.

Bald Eagle

The size of Bald Eagle State Park (5,685 acres) accommodates many different recreational functions by spreading uses to mitigate potential conflicts. This allows the park to function as a heavily used recreation area while still maintaining areas where people find access to quiet areas, views of the water, and encounter wildlife.
The park is the most heavily dominated by recreational uses of any of the parks. Responses regarding what activities were experienced while at Bald Eagle contained the most variability in comparison to the other parks (see table 5-8). Bald Eagle is also unique among the other parks in its allowance of motorized water craft on the lake. The effect of allowing motorized boats appears to change the role of the lake with regards to nature connection. In contrast to the other parks where the lakes were identified by respondents as an up close and personal source of aesthetic pleasure and calm, the lake at Bald Eagle was perceived as a source of nature connection from a distance.
Figure 6-2: Relative frequency histogram of activities by park
Areas or elements of nature connection/distraction

Swimming Area

Swimming was the dominant activity at Poe Valley State Park (14.9%) in comparison with Black Moshannon (6.0%) and Bald Eagle (5.7%) (see figure 6-2). Although swimming was an important recreational activity at all of the parks, its potential for creating nature connection opportunities varied. All swimming beaches were well groomed, clean, and within 300’ of facilities. However, differences in the physical form, location, and adjacent facilities modified visitor’s perceptions regarding the swimming beach areas nature connection potential.

At Poe Valley the beach was seen as hotspot for nature connection, with 19% of respondents identifying it in as such in the mapping exercise. The beach at Poe Valley provides the park’s primary access to Poe Lake as well as views of the lake, surrounding forests, and mountains. Visitors perceived the water as clean, calm, and tranquil. The scale of the beach is also the most intimate of all the parks. Retaining walls and forest surrounding the beach area allow users to have a comfortable prospect from which to view the water. As described by Appleton (1996) and Kaplan & Kaplan (1989) this “prospect” in important for humans to feel comfortable in natural settings. Visitors described their experiences at the beach as relaxing and noted the enjoyable social atmosphere as they watched friends and family members interact with the water. The beach was a focus or included in 14% (9 respondents) of VEP photographs, and descriptions showed that visitors felt comfortable at the swimming beach. The beach at Poe Valley acts as the focal point of the park as well as providing the majority of visitors their main connection to the water, a major source of nature connection (See table 5-3).

The beach at Black Moshannon was identified by 14% (6 respondents) of visitors in the mapping exercise as an area where they felt a connection to nature and only two photographs
(6.8%) included the beach in the VEP results. The beach is located in an isolated cove separated from the lake by State Route 504, a two lane road that crosses the lake at a bridge located approximately 80 feet from the beach. Road noise is apparent while on the beach and the physical separation from the lake by the road tends to limit beach users access to the larger views of the water. Unlike Poe Valley, Black Moshannon Lake is accessed from a variety of points along the coast and spectacular views of the lake are had from many different areas, the swimming beach provides a limited view of the water. The facilities are also close but only provide restroom and shower facilities, forcing visitors to go elsewhere for other services.

Swimming facilities at Bald Eagle are located near the open fields, parking areas, and picnic pavilions just south of the main entrance. Visitors are left exposed without a defined prospect/refuge from which to view the water. In addition to access to the water, the beach provides views of the lake. However, the presence of boats and resultant waves create views of the water that have more distractions from those experienced at the other parks. Only 6.2% of respondents (3 respondents) identified the beach as a location where they felt a nature connection in the mapping exercise and no images of the beach were found in the VEP results.

Camping Facilities

Camping facilities varied in their context from the intimate and wooded campgrounds at Poe Valley and Black Moshannon, to the open, grassed RV loops of the modern campgrounds at Bald Eagle. All the campgrounds in the case study parks are separated spatially as well as topographically from the lake and other facilities. All three parks provide a mixture of tent camping and RV camping in their overnight campgrounds.
Table 6-2: Comparison of camping facilities by Case Study Park.

<table>
<thead>
<tr>
<th>Park</th>
<th>Rank</th>
<th># of sites</th>
<th>Tent Sites</th>
<th>Trailer Sites</th>
<th>Cottages</th>
<th>Yurts</th>
<th>Forested</th>
<th>Density Sites/ac.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poe Valley</td>
<td>3</td>
<td>45</td>
<td>18</td>
<td>27</td>
<td>3</td>
<td>0</td>
<td>Y</td>
<td>3.75</td>
</tr>
<tr>
<td>Black Moshannon</td>
<td>4</td>
<td>74</td>
<td>74</td>
<td>13</td>
<td>0</td>
<td>Y</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Bald Eagle</td>
<td>1</td>
<td>70</td>
<td>35</td>
<td>35</td>
<td>0</td>
<td>0</td>
<td>N</td>
<td>1</td>
</tr>
<tr>
<td>Primitive</td>
<td>2</td>
<td>97</td>
<td>97</td>
<td>97</td>
<td>3</td>
<td>2</td>
<td>Y</td>
<td>4.8</td>
</tr>
</tbody>
</table>

Respondents identified camping facilities as important components in their nature connection experiences in all three case study parks (See figure 6-3). Camping facilities were also the greatest source of responses describing distractions. Differences in the physical properties of each facility changes visitor’s expectations for nature connection experiences as well as moderate their social experiences.

When respondents rated elements that contributed or distracted from their nature connection experience the campground at Bald Eagle received the highest mean (4.40), followed by Poe Valley (4.33) and Black Moshannon (3.86) (See tables 5-5, 5-7, 5-9). This was particularly surprising since the campgrounds at Bald Eagle consist of large expanses of grass and no forest cover (See fig 5-19). Bald Eagle has the largest spacing of camp sites and respondents described the spacing of the sites as allowing privacy and quiet (See page 108). At both of the other parks respondents complained that they felt crowded and a sense of privacy was lacking. Respondents at Poe Valley and Black Moshannon also complained that the noise from adjacent campers distracted from their ability to connect with nature (See page 73, 89).

15 (32%) of respondents at Poe Valley identified the campground as an area where they felt a connection to nature compared with 8 respondents (16.6%) at Bald Eagle modern campground and 2 respondents (4.1%), and 4 respondents (9%) at Black Moshannon.
The lowest ranked camping area was at Black Moshannon State Park. The primary complaint from respondents was that the campground felt overly crowded and lacked the privacy they required to feel connected to nature (See page 89).

**Quiet Places**

Access to quiet places was another dominant theme throughout the research. Black Moshannon respondents expressed the most concern, rating “access to quiet places” as very important (mean of 4.42) to contributing to their nature connection experience followed by Bald Eagle (4.35) and Poe Valley (4.24) (See figure 6-3). Quiet places identified by respondents varied across the three parks, likely a product of visitor’s adapting to the physical environment in each park. Poe Valley creates quiet places by limiting its recreational amenities and centralizing the intense recreation areas, thus minimizing the spread of noise from these activities. Visitors at Black Moshannon found quiet areas on the trail network and nearby the lake. The size, shape and lack of motorized boats on the lake allowed a greater area of the lakeshore to be utilized as quiet areas than at Poe Valley. The lake at Bald Eagle was only seen as a quiet place by boaters that had access to isolated areas of the lakes (see fig 5-19).

**Forests**

Forests were not listed as an element within question 11 but their importance was recognized in the VEP results. The forest exists as a matrix by which visitors experience the park, making it appreciated, but not always acknowledged by respondents. This can be seen when comparing the forested camping areas of Poe Valley and Black Moshannon with the non-forested camping areas of the modern campground at Bald Eagle. Comments from Poe Valley
and Black Moshannon regarding the forest in the campground were positive, expressing the value the trees brought to the feeling of being immersed in nature. Conversely, the lack of trees at Bald Eagle created a park like camping experience and the nature connection areas identified in the mapping exercise were located near the forest edges of the modern campground.

**Views**

Overlooks and views were identified in all three parks as important for respondent’s ability to connect with nature. Black Moshannon (4.27) and Poe Valley (4.26) had the highest mean values in response to question 11 (See figure 6-3). Both parks have picturesque water bodies that focus the attention of the viewers. The scale of the view is such that viewers can focus on the natural amenities framed by the forests and mountains. Bald Eagle had the lowest (4.11) mean values in response to question 11 (See table 5-9), the views photographed in the VEP exercise at Bald Eagle are vaster and lack a central aesthetic.

**Lake**

The central feature of each of the parks is the lake, however, the programing and uses allowed on the lakes vary by park. The uses, expectations, and role of the lake in respondent’s nature connection experiences varied accordingly.

Poe Lake’s intimate scale and tranquil water was a source of nature connection for the respondents at Poe Valley (See page 77). Respondents described the lake as a source of calm, quiet, and relaxation. The centrally located swimming facilities limited the distractions and allowed the rest of the lake to act as a source of nature connection.
Respondents at Black Moshannon also perceived the lake as a source of nature appreciation as well as a visual and educational resource. Of the 18 elements provided in question 11 respondents at Black Moshannon, 5 of the top 11 are related to water. The park amplifies the nature connection potential of the water by providing educational signage along the bog trail and isolating the swimming beach.

Bald Eagle is the only park in the study that allows for motorized boats on its lake. The lake is highly programed for motor boating; physical facilities such as marinas, docks, and launch ramps accompany most of the major lakeside facilities at the park. Respondents at Bald Eagle viewed motor boats as a vehicle for accessing quiet areas on the water; however, their presence and noise were reported as distracting for other’s ability to connect with nature (See page114).

The restrictions on motorized boats on Poe Lake and Black Moshannon Lake appear to impact the overall perception and expectation regarding how the lake performs as source of nature connection potential rather than only a recreation venue.

**Environmental Education Centers**

The physical location and design (or lack of in the case of Poe Valley) of the environmental education centers at the case study parks provides an interesting narrative regarding the relationship between environmental education and recreational at the park. Although two parks (Black Moshannon and Bald Eagle) that have environmental education centers, they lack many of the elements identified as important for nature connection (e.g. views, views/access to water). Sites that do have these elements are currently reserved for recreational venues such as concessions, parking, picnic areas, and swimming facilities at all three case study parks. Although at both of these parks these nature study/observation was an activity identified as the 6th most experienced activity at Bald Eagle and 8th most experienced at Black Moshannon
the environmental education centers and associated programs were not widely experienced nor talked about in the responses at either of the parks.

**Wildlife**

Respondents in all three case study parks reported that “encounters with wildlife” was an important element in their nature connection experience (See table 5-3). 4% of the total responses describing areas where nature connection occurred described some aspect of seeing or interacting with wildlife. An additional 28 responses (24%) regarding wildlife were found in respondents describing the place where they felt connected to nature. Respondents expressed feelings of awe, inspiration, and fascination when describing their encounters with wildlife.

Respondents at Black Moshannon reported the highest mean rating for this element (4.19) followed by Bald Eagle (4.15) and Poe Valley (4.08). The experiences of respondents regarding wildlife varied across the parks. Respondents at Poe Valley related 40 specific experiences where they actually encountered wildlife, followed by Bald Eagle with 38 instances, and Black Moshannon with 26 instances. The nature of the experiences varied among parks, with respondents at Bald Eagle describing seeing wildlife from a distance such as viewing bald eagles (3 responses) and deer (5 responses). Of the 26 responses regarding wildlife at Black Moshannon, 6 focused on seeing birds and waterfowl from a distance. Conversely, respondents at Poe Valley related close proximity interactions such as feeding chipmunks and squirrels within the campground (6 responses).

“Encounters with wildlife” was one experience that most people reported experiencing in comparison with the other items provided in question 11 (88%). It is interesting to note that this was in spite of respondents reporting low numbers (See fig 5-4, 5-7, and 5-9) regarding wildlife focused activities such as nature study/observation, hunting, and birding.
Social Environment

In aggregate, over 50 responses to questions 12-16 mentioned social interactions between individuals, family members, friends, and staff as enhancing their ability to form a connection with nature. Analysis of the open ended questionnaire responses as well as the high mean values given to areas primarily designed for social functions show that visitors perceive the social environment as playing an important role in visitors experience with nature in these three case study state parks. Responses describing experiencing nature with children, family, and friends mentioned how these social bonds amplified or highlighted some aspect of the natural world that was either unnoticed or perhaps brought to light through the exploration of social acquaintance. Social motivations also were important factors in getting many of the respondents into locations where they were able to experience nature in alternative ways.

While the physical components of each site were important to the experience of users, responses show that not only where you experience nature, but also with who further amplifies the nature connection experience.
Figure 6-3: Mean rankings for elements/experiences in question 11 by park

- Fishing areas: 3.81, 4.03, 3.97
- Biking Trails: 3.56, 3.69, 3.41
- Interacting with State Park Staff: 3.56, 3.67, 3.78
- Interacting with other people: 3.37, 3.67, 3.56
- Environmental Education Centers: 3.73, 3.68, 3.48
- Camping facilities: 3.86, 4.40, 4.33
- Areas to watch people: 2.77, 3.35, 3.38
- Visitor Centers: 3.52, 3.56, 3.57
- Access to Quiet Places: 4.42, 4.35, 4.24
- Fishing: 3.74, 4.11, 3.91
- Canoeing: 3.38, 4.08, 3.88
- Motor Boating: 2.50, 2.83, 3.77
- Views of the water: 4.41, 4.29, 4.30
- Encounters with wildlife: 4.19, 4.15, 4.08
- Hiking Trails: 4.49, 4.05, 3.94
- Access to the water: 4.24, 4.29, 4.22
- Interpretive Signage: 3.55, 3.39, 3.53
- Overlooks or vistas: 4.11, 4.11, 4.26
Chapter 7

Conclusions

The findings of this study indicate that although distractions do exist, in general, visitors to state parks are having experiences that help them feel emotionally connected to the natural environment. The results of the research also indicate that visitors’ nature connection experiences are influenced, both positively and negatively by the constructed environment. Results from the mapping exercise show that respondents rarely reported a nature connection experience in the remote corners of the parks far from the built environment. Rather, respondents identified areas of nature connection experience predominately within close proximity to the areas where they spend the most time, the built environment, e.g. swimming beaches and camping areas. While the lack of reports identifying remote corners of the parks does not signify lack of nature experience there, just lack of reports, the research reminds designers and managers of the importance the built environment plays in nature connection experiences and that modifying the built environment will likely modify the nature connection experiences for state park visitors.

Visitors identified five main items that helped them feel connected to nature: access to quiet places, views and access to the water, overlooks or vistas, camping facilities, and encounters with wildlife. Designers and managers seeking to allow visitors a greater opportunity to connect with nature should consider incorporation of these features. This list should not be surprising to landscape architects; the prominence of these items in this research confirms findings in literature regarding nature connection focused design (Kellert 2005), the role of aesthetics (Heerwagen & Orians 1993, Hinds 2008, Kaplan & Kaplan 1989), and park planning and design texts (Fogg 1995, Molnar & Rutledge 1986, Hultsman, Cottrell, & Hultsman 1987). Designers interested in creating spaces that allow for greater opportunities for nature connection should seek to infuse
their designs with these five elements. All areas identified by respondents as nature connection “hotspots” in each park had three or more of the elements (See fig 5-5, 5-12, 5-18). Conversely, distractions to respondent’s nature connection were generally products of unwanted human generated noise, conflicting uses, dissatisfaction regarding physical comforts, or concerns with safety. Design solutions that minimize exposure to these elements such as separating or buffering conflicting uses, limiting main roadways near public areas, and separating active and passive recreational uses can also increase opportunities for visitors to connect with nature.

The study also indicates that visitors to the state parks seek a nature connection experience that is not merely a by-product of their recreation experience. The wilderness context of these parks allowed respondents to find areas to connect with nature even when the physical and programmatic environment was perceived as lacking or contained unwanted distractions. Visitors to each case study park expressed a general agreement regarding the role state parks play in exposing them to natural areas (see fig 6.1). In particular, these parks contain a powerful mixture of aesthetic landscape features, physical recreation, and social space. These physical elements combine to create a holistic experience that creates a fond attachment to the natural environment in these case study parks.

In each of the parks, camping facilities were identified by visitors as important places to connect with nature. They were also the most widely criticized area of the park, highlighting the sensitive nature of these spaces. These spaces are a complex mixture of social, natural, utilitarian, public and private facilities. Camping areas are often designed for utilitarian uses and overlooked as prime areas for nature connection. Respondents in this study explained that camping areas allowed space for relaxation, a sense of home territory, necessary areas for sanitary needs, and social interactions, all within a perceived semi-wilderness environment. Camping areas are also a place where many visitors spent the majority of their time at the park. The camping areas that provided the greatest physical separation between sites, both in distance and
enclosure, were identified as more conducive to connection with nature (see table 6.3). Designers and managers intending to enhance the nature connection potential of camping areas should create sites that enhance the sense that each site is immersed in the natural environment. This can be done by maximizing spacing, using buffer planting and locating sites away from sources of unwanted noise such as roads, and high intensity recreational areas such as swimming beaches, marinas, and playing fields.

The location and physical appearance of the environmental education centers at Bald Eagle, Black Moshannon, and the choice to not reconstruct the center at Poe Valley left a gap in the experience of visitors to these parks. These facilities are designated for the development of “a citizenry that is aware of and concerned about the total environment and its associated problems, and which has the knowledge, attitude, motivations, commitment and skills to work individually and collectively toward solutions of current problems and the prevention of new ones” (PADCNR 2011). However, the site selection for the building in areas without views or vistas, distanced from camping areas, lacking access to water or wildlife, and the reuse or design of buildings lacking an architectural vernacular that suggests a strong relationship with the outside environment reduces the effect these centers might have on park visitors. Designers and managers should enhance the perceived importance of environmental education centers through selecting sites prominent within the park to signal to visitors the importance of these facilities in relationship with recreational facilities, as well as provide views of the water and surrounding landscape.

The recently completed Nature Inn at Bald Eagle State Park utilizes the above guidelines in its site location and design and may provide an opportunity to test the effects of combining these guidelines on visitor nature connection experiences. The Inn sits atop a prominent knoll providing views of the lake from the site and building, surrounding areas provide quiet areas near quaint social spaces, and the Inn encourages birding and wildlife viewing. Further research to
assess visitors to the Inn’s experience could provide additional data regarding how the built
environment affects visitor’s experience at Bald Eagle State Park. Responses from these visitors
may inform the future location and design of other structures such as future environmental
education centers intended to help visitors connect with nature. Bald Eagle State Park
administration restricted access to the areas surrounding the Nature Inn for this research project
so no respondents were approached at or near the Inn.

The most significant distraction perceived by visitors was unwanted human generated
noise and conflicts between recreational uses. All three parks minimize use conflict and noise
distraction by separating high use recreational venues from areas where users will most likely be
seeking a nature connection e.g. nature trails and camping facilities. Another distraction
perceived by respondents was the issue of pets in the camping areas. Although the pet policy was
the same in all the parks, respondents at Poe Valley and Black Moshannon were particularly
passionate in their responses to this issue. This may be a product of dogs acting as a distraction
from visitors expecting the campgrounds at these parks to feel remote, and act as quiet places.
Campers at Bald Eagle may not have come to the park with the same expectations. In addition,
no physical separation or designation beyond signage delineated areas where pets were allowed.
Respondents identified the lack of wildlife presence, and noise from dogs as a distraction from
their nature connection experience. The bureau of state parks should consider reviewing its policy
to assess the impact pets have on other user’s nature connection experience. Park managers
should consider creating physically separate camping areas for visitors with pets and those
without, allowing enough distance to buffer the noise generated by the dogs.

A dominant theme emerging from the research is the relationship between recreation and
nature connection. The study finds that recreation and nature connection can occur together when
distractions are minimized. The results of this study suggests visitors to the case study state parks
rely on the recreational activities to provide access the natural environment, and the natural
environment to give value to the recreation. In this sample, visitors were more likely to experience a nature connection in areas not programmed or designed primarily for nature connection. Respondents related more nature connection experiences while enjoying the parks amenities such as swimming, hiking, and camping than visitations to places specifically designated for nature education such as nature centers and park programs.

The study calls attention to areas within each case study park perceived by visitors as important locations to connect with nature. It also highlights elements and experiences within these parks visitors perceived as enhancing or distracting to their nature connection experience. This study reinforces the responsibility for managers and designers of state parks to be cognizant of the effect and great potential that manipulating the properties of the built environment can have on visitor’s ability to experience an emotional connection with nature. As Clayton and Myers (2009:74) explain, the most fundamental way that people respond to their environment is by perceiving its properties. The existing infrastructure, budgetary issues and historical role of these state parks provide challenges to implementing more nature connection focused design. However, this study indicates that design professionals already have the tools to confront these challenges; they often just need to be called upon to engage the site scale and long range planning and design of these parks.

Areas for further research

This study takes an initial step in critically reviewing three Pennsylvania State parks with respect to the ability and limitations in their capacity to provide nature connection experiences to park visitors. The case studies represent a small cross section of the Pennsylvania State Parks system and were limited to a discreet geographic area. Further research could continue this
evaluation in subsequent parks that further vary in physical amenities, program, and focus in order to test the findings against a larger cross section of Pennsylvania State Parks.

Further research that measures the depth to which respondents feel connected to nature relative to each park could quantify the effect of each park on individual visitor’s experience.
References


Markum, William. 2012. (Grandson of Poe Valley CCC foreman). In discussion with author, 4/12/2012.


Perrin, Jeffery, Bennassi, Victor. 2009 The connectedness to nature scale: A measure of emotional connection to nature? Journal of Environmental Psychology. 29:434-440


Appendix A

Questionnaire
I have read the provided informed consent form and my participation and completion of this survey implies my consent. Thank you for agreeing to participate in this short survey. The purpose of the survey is to get your feedback on how the physical environment of this state park has influenced your ability to feel an emotional bond or connection to nature during your visit today. The responses you provide will be entirely confidential.

Tell us about yourself
1. Gender ___ Male ___ Female
2. What year were you born? ____________
3. Which of the following categories best describes your race and/or ethnic background?
   ___ Caucasian/White ___ Latino/Chicano/Hispanic ___ Other: ____________
   ___ African American/Black ___ Asian
   ___ Native American ___ Native Hawaiian or Pacific Islander
4. Into which income group would you say your household falls? (Circle one)
   ___ $10,000 or less ___ $40,001-60,000 ___ $100,001-120,000
   ___ $10,001 to 20,000 ___ $60,001-80,000 ___ $120,001-140,000
   ___ $20,001-40,000 ___ $80,001-100,000 ___ $140,000+
5. What is your highest level of grade school you have completed? (Circle one)
   ___ Grade School ___ Technical School ___ Bachelor’s degree
   ___ High School Graduate ___ Some College ___ Graduate degree
6. How far is this park from your home? ___ 1-25 Miles ___ 26-50 Miles ___ 51-100 Miles ___ 100+ Miles
7. What is your current marital status? (circle one)
   ___ Married ___ Living with partner ___ Divorced/Separated ___ Never Married ___ Widowed

Tell us about your experience at the park today
8. What activities are you participating in today at this park? (Circle all that apply)

   Nature Observation/Study ___ Fishing ___ Non-Motorized Boating
   Hiking ___ Disc Golf ___ ATV use
   Biking (Mountain or Road) ___ Relaxing/Hanging out ___ Day use camping
   Swimming ___ Attending State Parks sponsored recreation programs
   Family/Group Activities ___ Attending State Parks sponsored nature programs
   Picnicking ___ Visiting Historic/Cultural Sites ___ Walking
   In-Line Skating ___ Ball Sports ___ Beach Use (no swimming)
   Running ___ Birding ___ Geo-caching
   X-Country Skiing ___ Winter Sports (e.g. snowshoeing) ___ RV Camping
   Hunting ___ Sightseeing
   Motor Boating ___ Snowmobiling ___ Other (Please specify) ____________

9. Which of the activities you selected above would you say is your primary or most important activity for this trip to this State Park? ____________
10. Below are some questions regarding your overall feeling towards this particular park’s ability to help you feel an emotional bond or connection to nature. Please use the scale provided below and place one check mark in the box with which most closely describes your opinion.

| It is important for you to feel an emotional connection with the natural environment while at this park? |
| This park is the primary place I feel an emotional bond or connection to nature. |
| The reason I attend this particular park is to feel closer to nature |
| I feel the facilities in this park help me feel connected to nature (e.g. shelters, trails, etc.) |
| I feel the programs offered in this park help me feel connected to nature (e.g. Guided nature walk) |

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Somewhat Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Somewhat Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

11. Below is a list of physical elements located at this state park or experiences you may have had during your visit today. Please answer each question in terms of the way you generally feel each element contributed to your ability to feel connected to nature while here at the park today. There is no right or wrong answer. Please use the following scale and place one check mark in the box which most closely describes your opinion:

<table>
<thead>
<tr>
<th>Element</th>
<th>Did not experience in my visit today</th>
<th>Strongly detracted from my feeling of connectedness to nature</th>
<th>Somewhat detracted</th>
<th>Neither detracted nor contributed</th>
<th>Somewhat contributed</th>
<th>Strongly contributed</th>
<th>Strongly contribute to my feeling of connectedness to nature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overlooks or vistas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interpretive Signage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access to the water</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hiking Trails</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encounters with wildlife</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Views of the water</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor Boating</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canoeing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fishing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access to Quiet Places</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visitor Centers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Areas to watch people</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Camping facilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Education Centers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interacting with other people</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interacting with State Park Staff</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biking Trails</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fishing areas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Please provide and rate any other elements you feel detract or add to your ability to bond with nature (Please specify below)*

<table>
<thead>
<tr>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
</tr>
<tr>
<td>Other</td>
</tr>
</tbody>
</table>
12. Using the previous list, please select the top two elements that helped you feel an emotional bond or connection to nature and describe what specific attributes about them aided in developing this emotion. (If you need more room to write please use the back of this page.
   1. (Please write the element here)
   
   2. (Please write the element here)

13. Using the previous list, please select the two elements most detracted from your ability to experience an emotional bond or connection to nature and describe what specific attributes about them made you feel this way.
   1. (Please write the element here)
   
   2. (Please write the element here)

14. In general does this State Park provide appropriate opportunities to experience an emotional bond or connection with nature?  __Appropriate  ___Not appropriate (See next two questions)

14a. If not appropriate, Please explain what specific physical elements you feel could be added or removed from this park that would help you to feel a greater emotional connection to nature.

14b. If not appropriate, Please explain what specific programs or activities you feel could be added or removed from this park that would help you to feel a greater emotional connection to nature.

15. Please describe any other what ways you typically connect with nature while here at the state park.
Mapping Exercise
16a. Please think of the place that you felt the most connected to nature while in or around the park today. Please place a dot where this area is located on the map provided.

16b. Please explain what characteristics of this place lead you to choose this location.
Mapping Exercise

16a. Please think of the place that you felt the most connected to nature while in or around the park today. Please place a dot where this area is located on the map provided.

16b. Please explain what characteristics of this place lead you to choose this location.
Mapping Exercise
16a. Please think of the place that you felt the most connected to nature while in or around the park today. Please place a dot where this area is located on the map provided.

16b. Please explain what characteristics of this place lead you to choose this location.
Mapping Exercise
16a. Please think of the place that you felt the most connected to nature while in or around the park today. Please place a dot where this area is located on the map provided.

16b. Please explain what characteristics of this place lead you to choose this location.
16a. Please think of the place that you felt the most connected to nature while in or around the park today. Please place a dot where this area is located on the map provided.

16b. Please explain what characteristics of this place lead you to choose this location.
Appendix B

Poe Valley State Park Maps
Appendix C

Black Moshannon State Park Maps
BLACK MOSHANNON STATE PARK
4216 Beaver Road
Philipsburg, PA 16666
Phone: 814-342-5900
e-mail: blackmoshannonsp@state.pa.us

Make online reservations at
www.visitaparks.com
or call toll-free 888-PA-PARKS

Camping ground is open the day before trout season opens in
April until the end of deer season in December.
Appendix D

Bald Eagle State Park Maps
Appendix E

Pennsylvania State Parks Bureau Approval
BUREAU OF STATE PARKS

June 6, 2011

LETTER OF AUTHORIZATION

EVENT SPONSOR: Mr. Jake Powell

PERMANENT ADDRESS: 1400 Martin Street #1118
(Denver, CO 80202)

State College PA 16803
(City/Town) (State) (Zip Code)

Dear Mr. Powell:

In follow-up to our conversations and correspondence, I am writing to confirm permission for you to hold your Perception Study at Bald Eagle, Black Moshannon and Poe Valley State Parks, during the period July 1, 2011 to October 31, 2011, during normal park operating hours.

The special requirements that we discussed for this event are included in Attachment "A". General Conditions for events held in Pennsylvania State Parks are provided in Attachment "B". Attachment "C" is your research plan.

The event sponsor and the event sponsor's participants must comply with Bureau of State Park rules, regulations, and permit requirements applicable to this event. The event sponsor is also responsible for knowing and complying with all applicable federal, state, and local statutes, rules, regulations, and permit requirements. Bureau of State Park rules, regulations, and permit requirements are incorporated herein by reference and are available for review at the Park Office or from the Department of Conservation and Natural Resources website at:
http://www.dcnr.state.pa.us/stateparks/recreation/newrulesregs.pdf

Preparation and clean-up for this event is your responsibility. A complete and thorough litter pick-up must immediately follow the event. Please separate all recyclable materials from refuse. You MAY utilize the park's recycling center for the recyclable materials generated during the event. All refuse must be taken with you when you leave.

Please sign this letter and return three copies of this letter to me. The fourth copy is yours to keep for your files. Feel free to contact this office during business hours at the number below.

P.O. Box 8551, Harrisburg, PA 17105-8551 | Phone 717-787-6640 | Fax 717-787-8817
if you have any questions on the enclosed materials or if for any reason you are canceling this event. Best wishes for a safe and enjoyable event.

Sincerely,

John Clifford, Park Manager
Bureau of State Parks

cc: Park File
Park Region 1
Central Office POMD - Program Services Section

ACKNOWLEDGMENT

I have read and shall abide by both this Letter of Authorization and the attached conditions and provisions regarding the use of the Bureau of State Parks' facilities.

Sponsor Representative:

[Signature]
Name and Title

[Date]

Attachments:
"A" Special Requirements for Event
"B" General Conditions
"C" User/Spectator Risk Management Plan