Family Nature Clubs:

Creating the Conditions for Social and Environmental Connection and Care

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Dedication

For my children, Bryce and Sasha. You are my inspiration and I love you as big as the sky. It is

my hope that your childhood connection with the natural world fosters your life-long well-being.

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and for showing up with cookies and chocolate during some of the most brutal phases of dissertation writing. Rean Goelst and Katherine Didow, long-lasting friendships (Go Heels!) like yours make life so much sweeter, thank you for always being there.

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Scharfenberg… thank you, thank you, thank you. You have been my rock for the past twelve

years. It is a true gift to be married to and raising a family with my best friend. Your incredible

support has made this possible – from changing your job, to participating in dozens of CFIN

events, to countless hours spent with watching the kids while I write, and reading every last word

of this dissertation. I hereby bestow you with the "h" in this PhD – you sure have earned it.

Abstract

A robust body of research has identified three primary life experiences that foster a lasting commitment to active care for the environment. These are: time spent enjoying nature, especially during childhood; a close, often familial, role model for nature appreciation; and participation in a nature or environment focused organization that offers direct learning opportunities. Family nature clubs (FNCs) bring groups of families together to explore nature on a regular basis – thus fulfilling all three of these experiences. This study used ecological psychology, attachment and family systems theories, and community psychology to create a framework for understanding how these experiences can come together in the form of FNCs to foster pro-environmental behavior as well as individual, familial, and community well-being. The methodologies of ethnography, case study and action research and the methods of direct observation, surveys, and most-significant change interviews were used. The study population was the leaders in and participants of FNCs, including *Columbia Families in Nature*, a FNC I founded. Study results incorporate data from 47 FNCs and over 350 participants. More than twenty distinct positive outcomes of FNC participation were identified in the areas of: greater knowledge of and sense of connection with nature; more time spent in nature; enhanced individual and familial well-being; stronger social connections; and greater environmental and social action. The youth nature experiences of the adult participants was found to be significantly related to their current sense of connection to nature ($p < 0.001$) and level of environmental action ($p=0.03$). Family time in nature was found to be significantly related to connection with nature ($p=0.007$), environmental action ($p=0.02$), and social action ($p=0.03$).

Keywords: care for the environment, family nature clubs, families, time in nature, social movements, ethnography, case study, action research.

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CHAPTER 1: BACKGROUND AND RATIONALE

1.1 - Ontological Background

From the coast of Virginia to the mountains of California, and many places in between, the natural environment has been at the core of many of my oldest and best memories. My early childhood was largely spent playing outside, a joyful experience to which I attribute my deep, lasting connection and commitment to the Earth. I am particularly fond of the time when I was about five years old and we lived on a hobby farm replete with a willow tree banked creek, dilapidated barn, herd of goats, and an open field. The creek was a source of grand adventures, the barn was musty and mysterious, the goats were fun to frolic with, but the field was my truly special place. I would spend hours watching the world in motion around me—ants marching, grasses swaying, and clouds drifting by. I recall feeling deeply content and at home in that little patch of land where I knew myself to be a small but worthy part of the web of life. My parents nurtured this connection, both by giving me the time and space for free play in nature and by joining me in exploration of the natural world—showing me how to make fairy houses, growing tomatoes together, and regaling me with stories of their own childhood adventures in nature and of the ways in which we are all connected with the world around us.

As I entered my school years, the days spent playing wildly, aimlessly, or with deep focus in nature began to wane. I have some favored memories of playing among the roots of a large tree on the edge of the school playground and of a science project in which we made a close study of all the life contained in one square foot of grass, but most of my days were spent sitting at a desk in windowless buildings. My after-school hours were occupied with homework and household responsibilities, but on the weekends I was still able to largely run free outside. After many moves, when I was in fourth grade my family settled in Columbia, Maryland. In a

community designed around an expansive open space system, I only had to walk to the end of

our street to reach a path through woods and streams where I could play for hours. This was the

era of the late 1980s and early 1990s, and even as a kid I noticed how few children were out

looking for salamanders and crayfish with me. Most of my peers were enrolled in numerous

extracurricular activities and captivated by the newly popular home gaming systems. While I did

not follow those particular trends, as I entered middle and high school my time in nature

continued to decrease as social engagements and, later on, work became increasingly important.

    It was not until I was a student at the local community college that my affinity for nature

and my tacit awareness of personal environmental responsibility became organized around active

engagement in broader sustainability issues. A dear family friend who was a devoted

environmentalist was critically injured in a car accident. As he slowly progressed in his recovery,

we worked together to co-found the community college's environmental club as a way to help

him reengage with his passions. As a result of my growing awareness of and engagement with

environmental issues, when I transferred to a four year university I double majored in biology

with a focus on ecological systems and international studies with a focus on the environment.

From then on, my academic and professional careers have been dedicated to protecting the

natural world. I completed a Master's degree in Environmental Science and Engineering and

have been working as an environmental consultant for the past twelve years. I have addressed

environmental issues from a variety of angles during this time, from evaluating international

protocols, to managing programs for the U. S. Environmental Protection Agency (EPA), to

designing and implementing energy efficiency programs for utility companies. A unifying thread

across this work has been the use of voluntary initiatives to achieve environmental goals.

In 2008, my husband and I moved from California back to Columbia, Maryland to be closer to family. We went so far as to buy my childhood home from my parents, the one on the street I used to run down on my way to the woods. The birth of our son in late 2009 and our daughter in early 2013 has led to many profound changes in our lives. Being a mom is the most rewarding and challenging job I have ever had. I am deeply dedicated to raising my children in a way that nurtures the best in their nature. I believe healthy human development optimally begins with secure attachment in the child-parent relationship, a path shown to me by my parents and affirmed by abundant research. I have scaled back my work as an environmental consultant to allow me to be based from home and serve as our children's primary care giver while also continuing my education. More than ever, I now turn to nature in my daily life as a source of inspiration, a place for play, and as an emotional salve. Any tensions fade almost immediately as our family breathes more deeply and our attentions become focused on the breeze on our faces, bird song beckoning from the bushes, and sunlight dancing on the stream. We delight in appreciatively exploring our surroundings, both independently and together, and come home with stories to share and natural treasures to show. More often than not, though, our spontaneous outings to nearby nature find us almost entirely our own. Unless planned, it is a rare day that we meet other families or children playing in the abundant natural areas in our community, even the many small tot-lots tucked throughout the woods. If I thought that I was the "last child in the woods" (Louv, 2005), the situation has only become more pronounced in the past thirty years.

Figure 1. Coming full circle – my children at play in my childhood place.

These personal experiences of growing up deeply connected to nature, becoming an environmental professional, returning to play in nature with my own children, and being witness to how much is changing with regard to the environment and our connection with it have directly informed my academic inquiry. Over the course of the first two years of the Sustainability Education doctoral program at Prescott College, my primary question became "How is it that some people come to care about and take care of the natural world and others do not?" I immersed myself in a rich body of research that had been done on this subject across a number of fields and was particularly captivated by a line of studies on people who are dedicated to environmental well-being and the life experiences to which they attribute their commitment. This research suggests that an active environmental ethic is fostered by time spent in nature during childhood, the presence of a close adult role model for nature appreciation, and participation in a nature-based organization during one's youth (Chawla & Derr, 2012). Within the same month of coming across that body of research I attended a Children & Nature Network (C&NN) conference where I learned about the concept of family nature clubs (FNCs). Simply defined, FNCs are groups of families that regularly gather together to explore nature. I recognized that FNCs fulfill all three life experiences that foster care for the environment and it was an "Aha!" moment where my ideas, interests, and needs coalesced. One of the primary reasons I had gone back to school was to merge my professional and personal lives into a heartfelt whole and I had been seeking a specific research focus that would be supportive of that goal and also create a meaningful difference in my community. Studying the potential of FNCs, in part by creating one in my own community, has brought all of these pieces together. It has been a gift to be able to immerse myself in academic inquiry these past four years with my family by my side as active participants. It has become clear to me that my doctoral research is the exact work my life

experience has prepared me for and it is at the core of what is most important to me--contributing

to a culture of connection and caring that nurtures the well-being of people and the natural world.

1.2 - Study Context, Significance, and Purpose

As a leading voice in the rise of the modern environmental movement, during the 1950s

and 1960s Rachel Carson issued the clarion call for people to spend time in the natural world so

that they may notice and care about their growing, detrimental impact on its many wonders. Over

the past half century however, environmental issues have increased in quantity and magnitude

and there has been a concurrent and pervasive decrease in time spent in nature. These trends of

environmental disconnect and degradation are closely linked. The EPA Administrator, Gina

McCarthy, recognized this when she made a declaration in 2013 that we are facing two great

environmental challenges—climate change and the growing divide between youth and nature.

This section frames the environmental imperative motivating this study and the emphasis on the

relationship between direct experiences in nature and the environmental behavior of individuals.

FNCs are introduced as the research focus area and the study purpose and goals are presented.

1.2.1 - Environmental Imperative

Climate change is likely top of mind for many people when thinking about environmental

problems. The Intergovernmental Panel on Climate Change (IPCC) is the leading international

body for the assessment of climate change and has operated under the auspices of the United

Nations since 1988. Thousands of scientists from all over the world contribute to the work of the

IPCC on a voluntary basis, reviewing and assessing the scientific, technical, and socio-economic

information produced worldwide that is related to the understanding of climate change. The most

recent report by the IPCC (2014, p. 2) states that:

Warming of the [Earth's] climate system is unequivocal, and since the 1950s, many of

the observed changes are unprecedented over decades to millennia. The atmosphere and

ocean have warmed, the amounts of snow and ice have diminished, and sea level has

risen. Human influence on the climate system is clear, and recent anthropogenic

emissions of greenhouse gases are the highest in history. Recent climate changes have

had widespread impacts on human and natural systems.

We are now living in an age in which humans have become the dominant force of change

to Earth's systems, with climate change being just one stark example of the environmental crises

that have ensued and are expected. Beginning with the industrial revolution at the end of the

eighteenth century, the impact of human activity on local and global environments has

accelerated so rapidly that a new geological epoch, the Anthropocene, has been demarcated

(Crutzen, 2009). Teams of scientists have defined nine planetary boundaries within which

humanity can avoid inducing massive global environmental change. Science indicates that we

have already exceeded boundaries in three of these areas, (climate change, nitrogen cycles, and

biodiversity loss) and are rapidly heading in a deleterious direction for the other six (acidic

oceans, stratospheric ozone, global freshwater, land system change, chemical pollution, and

atmospheric aerosols) (Rockstrom et al., 2009). There is virtually unanimous scientific

agreement about the urgency of addressing these coalescing environmental crises and

ameliorating their consequences (Speth, 2005). The continuation of human-induced pressure on

these systems may result in irrevocable and catastrophic changes for life as we know it. With

regards to how climate change can be addressed, the IPCC (2014, p.26) states that:

Many adaptation and mitigation options can help address climate change, but no single

option is sufficient by itself. Effective implementation depends on policies and

cooperation at all scales and can be enhanced through integrated responses that link

adaptation and mitigation with other societal objectives. Adaptation and mitigation

responses are underpinned by common enabling factors. These include effective

institutions and governance, innovation and investments in environmentally sound

technologies and infrastructure, sustainable livelihoods and behavioral/lifestyle choices.

This guidance holds true for most other environmental issues as well (Hungerford &

Volk, 1990). Quimby and Angelique (2011) note that "while some have argued against the focus

on individual consumerism and behavior changes, claiming a macro-level approach is necessary,

others have pointed out that individuals are not only consumers, but also citizens that can effect

change on the structural/institutional level" (p. 389). Through their own behavior and the

demands they make of the entities of which they are a part, individuals can be a force for

creating new norms and help set the stage for community and organizational changes (Flatt,

2008; Quimby & Angelique, 2011). The question of how people come to make knowledgeable

and conscientious decisions regarding the environment is where the growing divide between

people, especially youth, and the nature world becomes a critical environmental issue.

1.2.2 - Decline in Nature Time

It is increasingly well understood that the growing disconnect from nature common in

westernized and/or industrialized countries is a root cause of the socio-ecological crises facing

humanity and the Earth on which we depend and, conversely, that connectedness with nature

motivates people to become more engaged citizens who practice environmentally responsible

behavior (Chawla & Derr, 2012; Nisbet et al, 2009; Swaisgood & Sheppard, 2011; Zylstra,

2014). Scientists Balmford and Cowling (2006, p. 694) recognize:

a great need for interdisciplinary efforts to tackle perhaps the most pervasive underlying

threat of all by reconnecting people and nature…Even if all the other building blocks of

effective conservation are in place, we will not succeed unless the general public cares,

and they are unlikely to care enough if they no longer experience nature directly.

If life-long connection with and care for the natural environment is the goal, then

childhood experiences in nature are known to be especially potent (Chawla & Derr, 2012; Wells

& Lekies, 2012). However, with each recent generation, children in the U.S. are spending less

time outdoors, a trend that is accelerating rapidly. Most contemporary grandparents and parents

played outside for hours on end each day during their childhoods. As of a decade ago, outdoor

play had dwindled to half of what had been the norm twenty years prior and play time outdoors

was part of daily life for only a quarter of the children in the U.S. (Clements, 2004). It is

currently estimated that the average child in the U.S. engages in seven minutes or less of

unstructured outdoor play each day; instead they are spending seven or more hours a day in front

of an electronic screen (Juster et al., 2004; Rideout, 2010). In addition to the increased

prevalence of electronic media, primary contributors to diminishing time in nature include:

changes in family structure and demographics; the intense scheduling of children's time with

school and extracurricular activities; and risk aversion that causes parents to reduce their

children's independent mobility (Hofferth, 2009). As a result, "children's opportunity for direct

and spontaneous contact with nature is a vanishing experience of childhood" (White, 2004, p. 2).

While children's everyday life has shifted to the indoors, most adults spend as much if not

more time indoors. The U.S. EPA has determined that, on average, people in the U.S. spend

approximately 90 percent of their time indoors (U.S. EPA, 1989). The decline of time in the

nature has become so significant that terms such as *nature-deficit disorder* and *extinction of*

experience have been coined and books have been written about the impacts for human physical, mental, and emotional health as well as for the natural environment (Ewert, Mitten, & Overholt, 2014). *Nature-deficit disorder* suggests that numerous developmental, social, and ecological problems arise from a lack of sufficient contact with nature (Louv, 2005). *Extinction of experience* suggests, in part, that when people do not have direct, meaningful contact with nature they have reduced motivation for environmental protection (Pyle, 2002). Kellert (2002, p. 118) says society today has become "so estranged from its natural origins, it has failed to recognize our species' basic dependence on nature as a condition of growth and development."

1.2.3 - Family Nature Clubs: A Path Forward

Time spent in nature has been identified as potentially the most significant pathway for increasing the likelihood that people will engage in environmentally responsible behaviors, especially if the nature experiences begin at an early age (Chawla & Derr, 2012; Wells & Lekies, 2012). In addition to spending time in nature, the company of a close adult that models comfort with, enjoyment of, and respect for nature helps children develop a positive, protective relationship with the environment (Chawla, 2009; James et al., 2010). In her research on environmentalists, Louise Chawla (1999, 2007) found a pattern in which the majority of these individuals attributed their commitment to a combination of two sources--many hours spent outdoors in a clearly remembered natural area in childhood or adolescence, and an adult who taught respect for nature. The activists' stories suggested that the quality of the relationships that they shared with these adults as children was as significant as the quality of the experiences in nature that the children and adults shared together. Indeed, a close, loving relationship between children and their primary caregivers creates a *secure base* from which children develop the capacity for connection and care and the confidence to explore the world around them (Bowlby,

1988; Karen, 1994; Walant, 1999). With the solid foundation of ample opportunities to enjoy

nature, at times in the presence of a close-adult role model, the third most influential experience

for the development of active environmental citizenship is reoccurring participation in an

organization that fosters direct engagement with and learning through action about the natural

environment (Chawla, 2009; Chawla & Derr, 2012).

A unique and significant opportunity to fulfill all three of these life experiences that

create the conditions for people to care about and take care of the natural world can be found in

family nature clubs (FNCs). Coming in many shapes and sizes depending on their context, FNCs

are community-based organizations that regularly bring families together to enjoy the benefits of

time spent in nature. Some FNCs are small while others are quite large, some meet at the same

place each week while others make a point of going to a new place for each gathering, some are

focused on education while others are focused on free play, some are run by a parent volunteer

while others are part of a larger organization's mission. FNCs can essentially be created by

anyone in any community. What FNCs have in common in their structure is that the events occur

outdoors, are geared towards full family participation, and are designed to develop positive

connections with nature through direct experience and informal learning opportunities.

Creating the conditions for future leaders to care about the environment is extremely

important. After all, today's children will be inheriting numerous environmental problems and a

sense of deep connection and commitment to the natural world will inform their personal

decision making and energize their ability to create solutions for larger issues. However, given

the urgency of current environmental crises, there are two additional elements that FNCs offer

that make them particularly significant. The briefly referenced research on what motivates adults

who are committed to environmental protection harkens back to their childhood experiences in

nature. FNCs provide these experiences for today's children, but they also provide the

experiences to their adult care-givers, the people who are currently making decisions about their

family's environmental behavior and, potentially, engaged in the broader conversation about

how to protect the Earth, for its own sake and that of future generations. Additionally, FNCs are

an important part of the growing movement to reconnect people and the natural world. The

Children & Nature Network (C&NN) is a leader in this movement and promotes FNCs as a form

of self-replicating social change that can help to rapidly scale-up family and community

engagement with the natural environment. At this time there are over 200 FNCs from across the

country registered with the C&NN--simultaneously a notable and small number.

Two of the co-founders of C&NN, Cheryl Charles and Richard Louv, have said that

"around the world, the window of opportunity available to confront both climate change and the

nature deficit is approximately the same. Unless we act quickly, one issue will be determined by

the chemical imbalance in our atmosphere, the other by an imbalance in the human heart"

(Charles et al., 2009, p. 51).

This study originated with inquiry into the potential of FNCs to help address both

environmental issues and the detrimental decline of time spent in nature, a topic that has not

previously been studied. A long-term, longitudinal study would be required to assess how

participation in a FNC as a child impacts environmental behavior as an adult. However, FNC

participation has the potential for a number of substantial near-term effects, including changes in

time spent in nature and household environmental behavior as well as sense of connection to

nature, individual and family well-being, sense of community, and social engagement. This study

has sought to develop a deep understanding of what FNCs are, how they are designed depending

on their purpose and context, what motivates people to lead and participate in them, what the

attributes are of the people who are currently engaged in them, and what the effects are of this engagement for individuals, families, communities, and the natural environment. It is hoped that this knowledge may support efforts to replicate the best of locally appropriate FNC design and scale-up the creation of FNCs in many more communities.

1.3 - Research Framework

This research was both exploratory and descriptive in purpose and design, bringing the methodologies of ethnography, action research, and case study together with a selection of methods to develop an understanding of FNCs, their participants, and their effects. This research was guided by three nested questions:

1. *What are common design frameworks for family nature clubs?*

2. *What are the attributes of the people who are leading and participating in family nature clubs with regards to demographics, motivation, nature experience and connection, environmental and social behavior, and relationship satisfaction?*

3. *What are the effects of being a part of a family nature club on individual, familial, social and ecological well-being?*

The study population for this research was the leaders in and participants of FNCs. As of June 2014 there were 192 family nature clubs registered with C&NN. One of these was *Columbia Families in Nature (CFIN)*, which I started in my community of Columbia, Maryland as the action research and case study portion of this study. For CFIN participants, the research methods included in-depth surveys, interviews, and direct observation. For other FNCs, methods included in-depth surveys and interviews for the leaders and in-depth surveys for the participants. The combination of these quantitative and qualitative methods allowed a robust data set to be gathered, which facilitated the exploration of this topic from multiple perspectives.

CHAPTER 2: LITERATURE REVIEW

This literature review begins with a presentation of research investigating how people come to actively care about the natural world. Starting with a summary of the evolving theoretical frameworks that have driven this area of inquiry since the U.S. environmental movement began in the 1960s; this section summarizes the different factors and life experiences, for both children and adults, which have been found to contribute to environmental behavior. This body of research strongly suggests that long-term, active care for the natural environment is motivated by three primary life experiences: 1) time spent directly enjoying nature, especially during childhood; 2) the presence of close social support for nature appreciation, often family members; and 3) participation in a nature or environment focused organization that fosters direct learning. Family nature clubs (FNCs) were selected as the focus for this study because they have the opportunity to offer all three of these significant life experiences. Therefore, the rest of the literature review focuses on the areas of *nature*, *family*, and *clubs* to: 1) present the grounding theories for this research; 2) explore their significance with regards to environmental behavior; and 3) consider the effects for human well-being. The literature review concludes with a discussion of social movements to provide context for how efforts to foster environmental and human well-being can be scaled up and replicated to achieve maximum impact for sustainability.

2.1 - The Individual: Caring About and Taking Care of the Environment

Environmental issues need to be addressed at all levels and with a wide variety of approaches, such as international treaties, national regulations, corporate standards, technological advances, community initiatives, educational programs, and personal actions. Whether the mechanism is regulatory or voluntary and whether it happens within a country, corporation, or community, the actual decisions to prioritize environmental health happen at the level of

individuals. Decision-makers at all levels are first and foremost people, and whether they are

making decisions for their families or organizations and entities over which they have influence,

individuals are the fundamental unit for changing the status quo and creating new norms.

This section presents research on how individuals come to care about and take care of the

environment. A variety of terms are used throughout the literature to describe a person's

environmentally beneficial actions. The term *pro-environmental behavior* (PEB) is primarily

used here for the purpose of consistency. This discussion begins with a brief review of the

evolving inquiry into how people come to develop PEB, focusing on some of the most influential

and commonly used academic frameworks of the past half century. The external, demographic,

and internal factors that have been found to influence PEB are summarized for context and

further reference throughout this literature review. The primary focus of this section is on the life

experiences that have been found to have a positive influence on child and adult PEB.

2.1.1 – Evolving Frameworks for Understanding Pro-Environmental Behavior

The core environmental questions of "What makes us care?" and "Why is it that some

people care and others do not?" have yielded answers that are diverse and complex. In the U.S.,

the emergence of the modern environmental movement in the 1960s inspired a multidisciplinary

interest in understanding the roots of people's relationship with and behavior towards the natural

world. In the past half-century, a variety of theoretical frameworks have been created and

hundreds of studies have been conducted to help explain the personal motivations for and

barriers to PEB. Overarching disciplines such as environmental, ecological, and conservation

psychology have emerged to specifically explore the psychological roots of environmental

degradation and PEB.

During the 1960s and 1970s, conventional thinking in both academia and practice was that environmental knowledge was the key to PEB. It was thought that environmental knowledge would lead to environmental awareness which would lead directly to PEB. However, research has consistently found that increasing environmental knowledge does not directly result in PEB (Hungerford & Volk, 1990; Palmer & Suggate, 1998). Attempts to explain the gap between knowledge and behavior have found a number of causes, such as: the stronger influence of direct experiences on people's behavior than the indirect experiences common to most forms of education; the significant influence of social, cultural, and familial norms and customs on people's environmental attitudes and behavior; and distinctions between environmental awareness and PEB (Gardner & Sterns, 2002; Kollmus & Agyeman, 2002).

In the 1970s and 1980s a variety of frameworks emerged to better parse out the varied influences on PEB. Attitude-behavior models such as Ajzen and Fishbein's *Theory of Reasoned Action* and *Theory of Planned Behavior* conceived of a process in which "the ultimate determinants of any behavior are the behavioral beliefs concerning its consequences and normative beliefs concerning the prescriptions of others" (Ajzen & Fishbein, 1980, p. 239). Fietkau and Kessel (as cited in Kollmus & Agyman, 2002) considered both sociological and psychological factors that create barriers to and/or motivations for PEB, and honed in on five variables that they considered to be independent and modifiable: attitude and values; external possibilities to act ecologically, such as infrastructure; internal behavioral incentives, such as quality of life; perceived feedback or positive reinforcement about ecological behavior; and, to close the loop, the knowledge needed to modify attitudes and values. The *Model of Responsible Environmental Behavior* was developed by Hines, Hungerford and Tomera (1987) based on a meta-analysis of 128 pro-environmental behavior research studies and found the following

variables associated with responsible PEB: knowledge of issues; knowledge of action strategies; locus of control; attitudes; verbal commitment; and individual sense of responsibility. Hines and colleagues (1986, 1987) acknowledged that the relationship between these variables and actual PEB was still weakly understood and, like Fietkau and Kessel, noted that there are also situational factors that influence PEB, such as economic and social considerations as well as the existence of opportunities for PEB (e.g., the presence, or not, of a recycling program).

A specific body of research has also honed in on pro-social behavior as a way to better understand choices surrounding care for the environment. Pro-social behavior is intentional, voluntary behavior that results in benefits for another and includes behaviors such as altruism and empathy. For example, Geller's (1995) *actively caring hypothesis* states that PEB is predicated on an individual's concern extending beyond themselves to the greater community of which they are a part. Geller suggests that active caring only occurs if a person's need for self-esteem, belonging, personal control, optimism, and self-efficacy has been satisfied. Borden and Francis (1978, as cited in Kollmus & Agyeman, 2002) expanded on theories such as Maslow's hierarchy of human needs to hypothesize that:

1. people with a strong selfish and competitive orientation are less likely to act ecologically;

2. people who have satisfied their personal needs are more likely to act ecologically because they have more resources (time, money, energy) to care about bigger, less personal social and pro-environmental issues. (p. 244)

When looking across these, as well as numerous other, models and frameworks associated with the inquiry into PEB, important themes emerge with regards to specific factors and experiences that have notable influence. Key factors that influence PEB are presented in Section 2.1.2 and key experiences that influence PEB are presented in 2.1.3.

2.1.2 – Factors That Affect Pro-Environmental Behavior

As the body of research on PEB has grown, a number of literature reviews have been conducted to compare and compile the factors that have been identified as influential. In 2002, Kollmus and Agyeman completed a comprehensive analysis of the demographic, external, and internal factors that had been found to have some influence, positive or negative, on environmental behavior. In 2009, Chawla presented *Growing up Green: Becoming an Agent of Care for the Natural World*, which drew from meta-analyses and syntheses of research on PEB by Hines, Hungerford, and Tomera (1986, 1987), Geller (2002), Stern (2000), Vining and Ebreo (2002), and Bamberg and Möser (2007). The following is a summary of the external, demographic, and internal factors that have been identified as having a notable influence on PEB in these synthesizing sources as well as in more recent research.

External factors. Institutional, economic, and sociocultural external factors comprise many of the barriers and constraints to PEB, but also foster opportunities and motivations.

Institutional factors. Many PEBs, such as recycling and taking public transportation, are only possible if the requisite institutional infrastructure exists. Similarly, some PEBs such as gardening and composting do not require infrastructure, but they can be impeded by institutional factors such as community ordinances that prohibit or limit such activities. Kollmus and Agyeman (2002) note that where institutional resources, programs, or rules that facilitate PEB are not in place, citizen engagement in the public sphere can help bring them into existence and this action can be considered a form of indirect PEB. More substantially, the physical design of a community can be considered an institutional factor that influences PEB. For example, highly car-centric communities that lack accessible green space create barriers to PEB in their design,

while communities that are walkable and have ample parks and public natural areas make some

forms of PEB as well as experiential factors that influence PEB more viable.

Economic factors. Financial considerations have a strong and complex influence on

people's decisions and behavior in many spheres of life, including choices around PEB.

Economic factors can have both a positive and a negative influence on PEB. For example, people

are often motivated to make more energy efficient choices due to the positive financial impact of

reduced utility bills, regardless of environmental persuasion; however, if cost is no issue, energy

consumption is less likely to be reduced unless the person has a strong commitment to PEB.

Conversely, purchasing green products is often more costly than otherwise comparable options.

People who are more resource constrained may not be as readily able to take this form of PEB,

while those with a greater level of disposable income may more easily choose to purchase local,

organic, fair-trade, recycled, or otherwise more sustainable products. Economic incentives can

also be deployed to motivate people to take PEB, such as utility rebates on energy efficient

products or tax breaks for installing rain gardens to reduce storm water run-off. Economic factors

are connected with a variety of other factors and while they should be closely considered, due to

their complexity, they cannot readily predict PEB (Kollmus & Agyeman, 2002).

Social and cultural factors. Social norms, cultural traditions, and family customs play a

very important role in influencing and shaping people's attitudes and behaviors. For example, if

the dominant social culture propagates a lifestyle that is unsustainable in its focus on consumer

consumption, there is likely to be a large gap between knowledge of environmental issues and

many important forms of PEB, such as waste reduction. From a cultural perspective, perceptions

about spending time in nature, for example, can impact sense of connection to nature, which has

been shown to influence PEB. Outdoor Afro, for example, has a mission to "disrupt the false

perception that black people do not have a relationship with nature, and works to shift the visual

representation of who can connect with the outdoors" (Mapp, 2009). Family influences are very

significant for PEB, and can flow from parent to child as well as child to parent, as occurs with

some environmental education programs (Damerell, et al., 2013).

This study recognizes the importance of institutional and economic factors for PEB;

however, with regards to external factors, the focus is on social influences such as family and

community dynamics, which are addressed in the internal factors section below (2.1.3) and in

detail in sections 2.3 and 2.4.

Demographic factors. Demographic factors captured in research on PEB often include

gender, age, ethnicity, and household income, and for studies on adults, education level, marital,

parental, and employment status may also be noted. Roberts (1996) summarized the research on

demographics and PEB up through 1996 and found that PEB is most affected by age, education,

and income, with results varying from study to study. Fisher and colleagues (2012) reviewed

more recent research on the relationship between green consumer behavior and demographics

and used this analysis to inform a survey-based study on the subject. The works of Roberts

(1996) and Fisher and colleagues (2012) inform this discussion of the relationship between

demographics and PEB.

Gender. Robert's (1996) research review found gender to have an impact on ecological

consumer behavior[1], with females rising to the top in every study examined. Lehmann (1999, as

cited in Kollmus & Agyeman, 2002) found women to be more emotionally engaged, show more

concern about environmental destruction, believe less in technological solutions, and more

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[1] Some research focuses specifically on ecological consumer behavior, a subset of PEB. Ecological consumer
behavior is when consumers choose ecological products when they shop, "not only because it is a healthier option
but also because it helps to sustain the environment for future generations. They are prepared to switch products for
ecological reasons and stop buying products from companies that cause pollution" (Fraj & Martinez, 2007, p, 26).

willing to change. Fisher and colleagues (2012) also found a highly consistent relationship

between gender and PEB in their review of more recent research, with seven studies finding

females to be more likely to exhibit PEB. The study conducted by Fisher and colleagues (2012)

found that the impact of gender differs depending on the specific environmental behavior in

question. For example, gender was related to using green products (more likely for women) but

"had no impact on separating trash for recycling, turning off light while leaving the room and

using energy-efficient light bulbs" (p. 181).

Age. Fisher and colleagues (2012) reviewed ten studies that compared age groups and

found that the results were mixed, with PEB found to be more likely with younger people in two

studies, more likely with older people in four studies, and not significantly related to age in four

studies. For example, a 2008 survey by ICOM Information and Communications found that in

the U.S., consumers over 55 years of age were the most prolific users of green products while a

1999 study by Straughan and Roberts found that young adults have a greater level of

environmental concern and PEB. The study by Fisher and colleagues (2012) found no

relationship between age and the PEB of 316 U.S. adults. When parsing out the relationship

between age and PEB, related factors such as income and education-level can be confounding.

Ethnicity/race. According to Aguilar (2008), past research has shown that U.S.

minorities, especially African-Americans and Hispanics, have not typically scored as high as

Caucasians on instruments measuring concern for the environment; however, these differences

are often linked to other demographic variables that are interdependent with ethnicity such as

income and education (Waliczek & Zajicek, 1999). The 2012 study by Fisher and colleagues

found no relationship between race and three of the PEBs that they measured, but did find a

relationship between race and turning off lights when leaving a room and using energy-efficient light bulbs, which were more common for Asian respondents.

Income. The research review by Fisher and colleagues (2012) found a wide variance in the relationship between income and PEB with four studies finding no relationship, three studies finding higher income levels to be related to more PEB, and two studies finding lower income levels to be related to more PEB. The results from the study by Fisher and colleagues (2012) found income to be related to some PEB, such as the use of green products. This aligns with the International Institute for Sustainable Development's 2006 finding that pro-environmental consumer actions are positively related to a higher level of income. It makes sense that there is variance in the research on the relationship between income and PEB—some actions save people money, like those that conserve water and energy, and some cost people more money, like purchasing green products, which are often more expensive.

Education. People with more years of formal schooling are often found to have greater knowledge about environmental issues; however this does not necessarily correlate with greater PEB (Kollmus & Agyeman, 2002). A nationwide survey showed that education had an impact on ecological consumer behavior, but this impact was not statistically significant when attitudinal variables were accounted for (Roberts, 1996). A 2009 study by Do Paco and colleagues found that the people who demonstrated the highest level of concern about the environment were also those with the highest education levels. Looking at behavior rather than concern, the study by Fisher and colleagues (2012) did not find a relationship between education level and PEB.

Parental and marital status. The presence of children in the household or parental status was used as a demographic variable by only two studies reviewed by Fisher and colleagues (2012), both of which found that adults with children in their households were more likely to

exhibit PEB. For example, Loureirro et al. (2002) interviewed consumers buying apples and found that mothers with children under the age of 18 were the most willing to pay more for apples that were labeled as environmentally friendly. According to Laroche et al. (2001), married consumers are more likely to exhibit PEB. In the 2012 study by Fisher and colleagues, parenting and marital status were not related to PEB for four out of the five environmental actions that they measured, the use of recyclable bags being the exception in both cases. However, broader research suggests that adults who are actively engaged in PEB cite a generative concern about the state of the natural world being left to future generations as a significant motivator, with parents being especially attuned to this issue (Pratt et al., 2013).

Efforts to improve individual PEB cannot change the demographic factors of the population(s) that are being addressed, but understanding and documenting these demographic factors can be helpful in tailoring such efforts and understanding their effects.

Internal factors. Internal factors that predicate PEB include environmental knowledge, environmental awareness, motivation, values, attitudes, responsibility and priorities, locus of control and emotional involvement, each of which are summarized below (Kollmus & Agyeman, 2002). Chawla and Derr (2012) loosely organize these factors into three groups—knowledge, self-efficacy, and motivation—a structure also used to present the information below.

Knowledge. Environmental knowledge is not directly linked to environmental behavior, but it is the primary focus of much environmental education because it can lead to improved environmental awareness and attitudes, which may potentially change behavior (Damerell et al., 2013). Unless taking an action for a non-environmental reason (e.g., using public transportation for economic reasons or gardening for aesthetic reasons), for a person to choose PEB they need to be familiar with environmental issues and their causes and also know what they need to do to

reduce their impact or to have a positive effect. Chawla and Derr (2012, p. 528) note two forms

of knowledge that influence PEB: "direct experience through immersion in the natural world or

learning how to protect it through trial and error; and secondhand information about

environmental issues and problem-solving." Knowledge gained through direct experiences has

been shown to have substantially more impact on PEB, as described in section 2.1.3.

Environmental awareness has both a cognitive, knowledge-based component and an

affective, perception-based component. For example, in addition to knowing that there is poor

water quality in the Chesapeake Bay in part because people are using too much fertilizer on their

lawns, environmental awareness includes understanding that this matters to the person because it

threatens aquatic animals, which they may like to catch and eat and causes beach closures, which

may impact summer plans. The ability to have a full awareness of environmental issues is often

limited by factors such as the non-immediacy of many environmental problems, the cumulative

impact of destruction, and the complexity of ecological systems, but is essential from the

standpoint that a lack of understanding may compromise emotional engagement and the

motivation to act (Pruess, 1991, as cited in Kollmus & Agyeman, 2002).

Locus of control/self-efficacy. Locus of control represents a person's perceived ability to

effect change through her or his actions (Newhouse, 1991) and is similar to Ajzen's (1985)

perceived behavioral control. A related construct, self-efficacy, was presented by Bandura

(1994), who suggested that perceived self-efficacy refers to judgments about how well a person

is able to achieve goals that they set for themselves. While not synonymous, self-efficacy and

locus of control are closely related. For example, people with high self-efficacy in an area are

more likely to believe that they can control the outcome of a situation. People with a strong

internal locus of control or sense of self-efficacy believe that they can achieve change through

their actions, while people without a sense of self-efficacy or with an external locus of control

believe that their actions are not significant and change can only be achieved by other, more

powerful, people. Hines and colleagues (1987, p. 5) state that "those individuals who have an

internal locus of control were more likely to have reported engaging in PEB than were

individuals exhibiting a more external locus of control." For example, a study of Swedish

teenagers and young adults by Ojala (2011) found that PEB is associated with 'constructive

hope' that includes trust in one's own environmental efficacy and in other societal actors. The

importance of self-efficacy for PEB and human well-being is a reoccurring theme throughout

this literature, showing up in some form in each subsequent section.

    Motivation. Motivation is the reason for a behavior, including PEB, and is shaped by

intensity and direction, which determines the selection of a specific behavior from all the

possible options (Wilkie, as cited in Moisander, 1998). Primary motivations for PEB, such as

altruistic, ecological, and social values, can be superseded up by more immediate, selective

motives, which evolve around one's own needs such as being comfortable or saving money and

time (Kollmus & Agyeman, 2002). In Chawla's (2009) illustration of factors associated with

action for the environment, motivation is used as an overarching organizer for other internal

factors such as value and attitudes and external factors and experiences such as the cost of PEB

and positive experiences in nature.

    Values. Values are responsible for shaping much of our intrinsic motivation, however the

question of what shapes our values is complex. Fuhrer and colleagues (as cited in Kollmus &

Agyeman, 2002) suggest that a person's values are most influenced by the microsystem of a

person's immediate social network of family, neighbors, peer-groups, etc. and to a lesser extent

by the exosystem such as the media and political organizations and the macrosystem of the

cultural context in which the individual lives. The resulting value orientation influences people's

ecological worldview, which influences the way they act (Cheng & Monroe, 2012).

   Attitudes. Attitudes have been identified as an important element in PEB in a number of

studies (Stern & Deitz, 1994). There are two components of attitudes—cognitive components

include beliefs about certain objects and affective components include feelings related to that

object (Millar & Tesser, 1990). While people with strong pro-environmental attitudes are often

found to be more likely to engage in PEB, the direct relationship between attitudes and actions is

often complicated by other internal factors (Kollmus & Agyeman, 2002). In a retrospective

survey of 2,000 adults in the U.S., Wells and Lekies (2006) found that "environmental attitudes

are both influenced by various forms of childhood participation with the environment and have a

positive influence on environmental behaviors" (p. 13).

   Responsibilities and priorities. Responsibilities and priorities are shaped by values and

attitudes and are influenced by locus of control. As it pertains to PEB, personal responsibility

refers to perceived feelings of duty or obligation toward the environment, with people who feel

some environmental responsibility being more likely to engage in PEB than people with no such

feelings of responsibility (Hines et al., 1987). When PEBs are aligned with personal priorities,

such as individual and familial well-being, the motivation to act increases, but if they are not

aligned, PEB is less likely.

   Emotional involvement. Emotional involvement can be defined as the extent to which

people have an affective relationship to the natural world. Several studies have suggested that

affective factors, such as emotional affinity, empathy, and sympathy, are essential elements in

predicting PEB (Geller, 1995; Kals et al., 1999; Mayer & Frantz, 2004). For example, Kals and

colleagues (1999) investigated the influence of emotional motivations on PEB and found that for

both active members of environmental organizations and the general public, emotional affinity

toward nature helped predict 47% of the variance in behaviors. Muller and colleagues (2009)

found that children's direct contact with nature impacts their willingness for PEB through the

development of emotional affinity towards nature.

Since Kollmus and Agyeman (2002) presented their organization of external,

demographic, and internal factors influencing PEB in *Mind the Gap: Why Do People Act*

Environmentally and What Are the Barriers to Pro-Environmental Behavior?, additional efforts

to synthesize and organize the variety of factors influencing PEB have been presented. Pruneau

et al. (2006) organized the factors affecting PEB into three categories: (1) level of awareness and

knowledge; (2) emotions, feelings and personality traits; and (3) situational factors, including

economic/demographic constraints, as well as peer influence and community feedback. In

Growing up Green: Becoming an Agent of Care for the Natural World, Chawla's (2009)

synthesis of existing research in this area found that empathy and sympathy are foundational to

develop care for the natural world, socializers (e.g., influential family members) play a key role,

and opportunities to develop a sense of environmental efficacy are important. The following is

Chawla's illustration of the relationship between factors associated with action for the

environment (Chawla, 2009; Chawla & Derr, 2012).
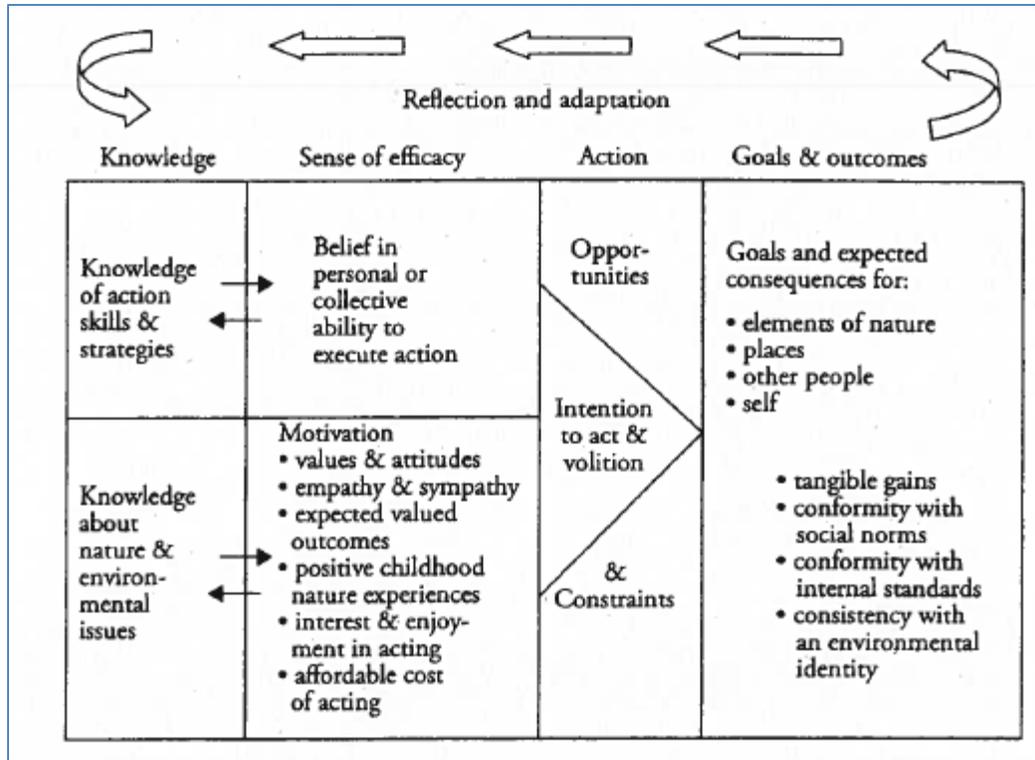
Figure 2. Chawla's (2009, 2012) factors associated with action for the environment.

These highly interconnected factors provide insight into why and how efforts to inspire and sustain PEB may or may not work and provide a foundation for the following exploration of specific experiences that have been shown to influence PEB. In Figure 1 Chawla incorporates such experiences under the category of motivation. Experiences that foster PEB also do so by affecting knowledge, self-efficacy, behavioral intent, opportunities for action, and outcomes.

2.1.3 – Experiences That Affect Pro-Environmental Behavior

As with the factors that influence PEB, as the body of research on PEB has grown a number of literature reviews have been conducted to compile and compare the experiences that have been identified as influential. This summary of experiences that affect PEB uses Chawla and Derr's (2012) *The Development of Conservation Behaviors in Childhood and Yo*uth as well Wells and Lekies' (2012) *Children and Nature: Following the Trail to Environmental Attitudes and Behavior* as foundational texts and incorporates additional research relevant to this study. As

was done by Chawla and Derr (2012), this section of the literature review emphasizes research

that includes behavior outcomes as well as "research that works backward, identifying adults and

youth who exemplify the type of engaged action for the environment [needed], and asking them

about their formative experiences" (p. 528). It begins with research on youth experiences, moves

on to focus on adults' life experiences, and concludes with a brief section looking at how

experiences influence PEB across the lifespan. Across the research cited, findings related to the

previously described factors that affect PEB are also highlighted to help make the connection

between how specific experiences influence specific factors and vice versa.

Youth experiences. Youth can generally be organized into five stages of development—

infancy (0 to 18 months), toddlerhood (18 months to 36 months), early childhood (3 to 6 years),

middle childhood (7 to 12 years), and adolescence (13 to 18 years). Sections 2.2 and 2.3 will

discuss the critical importance of experiences in people's earliest years for developing the

capacity to connect with and care about the world around them. However, it becomes feasible to

directly study personal environmental behavior as children enter their school years. This section

organizes a selection of relevant studies according to the age of the participants (middle

childhood and adolescents) and offers summary findings regarding specific types of experiences.

Early/Middle childhood. A study by Elliot and colleagues (2014) sought to evaluate the

effects of a nature kindergarten program in regards to several aspects of children's functioning:

activity level, motor coordination, attentional regulation, social skills, well-being, nature

relatedness, and PEB. Direct observations by these researchers suggest that nature kindergartens:

foster a community of learners; promote children's social skills, as seen in the way the children

offered to support one another's efforts; help children discover their own ideas, strengths and

confidence; and nurture a deep connection to the environment, as demonstrated by the caring and

concern shown by the children. The researchers emphasize that this study is supportive of the idea that "education within nature is particularly important in early childhood because direct experience with various environments facilitates the development of positive feelings and attitudes towards nature and natural phenomena" (Elliot et al., 2014, p.116).

A study by Owens (2005) on the environmental experiences of children in several primary schools found that children valued the environmental features and experiences available on their school grounds for both extrinsic and intrinsic reasons, with particularly notable interest in other life forms and impact of direct experience. The importance of adult modeling of behavior and values was highlighted by this study, with Owens (2005) stating "it is not merely enough to provide stimulating school grounds if the children are not shown how to investigate and participate in them" (p. 14). This study also found memories of significant experiences in natural areas to be sustained over time. As noted by Chawla and Derr (2012, p.535):

> students remembered and valued activities such as gathering autumn leaves, looking for animals, and planting a willow shelter, and when these memories were reinforced by a school ethos of care for the environment, the children expressed their concern to conserve the environment".

In 2012, Cheng and Monroe developed a connection to nature index for measuring children's affective attitude toward the natural environment using four primary dimensions: enjoyment of nature, empathy for creatures, sense of oneness, and sense of responsibility. Over 370 fourth grade students in a Florida public school system completed a survey including this index as a part of a mandatory outdoor environmental education program. The study found that children's sense of connection to nature influenced their interest in participating in nature-based activities in the future. The study also found that "children's connection to nature, their previous

experience in nature, their perceived family value toward nature, and their perceived control positively influenced their interest in performing environmentally friendly behaviors" (p. 31).

A study by Blanchet-Cohen (2008) used drawings and interviews to understand the environmental commitment of 42 ten to thirteen year olds participating in an International Children's Environment Conference. These children emphasized their experiences of wonder in special natural places that held significant meaning to them. Additionally, as Chawla and Derr (2012, p.534) noted in their review, "the children expressed their environmental concern in a variety of ways, including environmental action projects, through art and writing, questioning existing practices, and maintaining their connection to their special place."

Adolescence. A study by Kidd and Kidd (1997) interviewed 63 suburban adolescents (43 female, 20 male) who volunteered in a wildlife education program and found that their interest in and concern for wildlife developed primarily out of early childhood experiences with animals, such as household pets. These teens also recognized the influential role of adults who showed approval for their interest in animals as well as role models for and instruction in wildlife care. A study by Sivek (2002) used focus groups and a survey to assess the influences on environmental sensitivity for Wisconsin high school students (38 female, 25 male) participating in environmental groups. The most frequently cited influence was frequent time spent in nearby nature. Friendly role models, often relatives or teachers, were the second most frequent influence and witnessing environmental destruction was also noted as being impactful.

In Germany, Bogeholz (2006) surveyed over 1,000 10 to 18 year olds to understand the differences between students that participated in nature or environment focused groups and students that did not. As Chawla and Derr (2012, p.53) noted in their review, this study found that "the strongest predictors of a stated intention to protect nature, in order of influence, were

the environmental behavior of parents, the behavior of peers, nature experiences, action-specific

knowledge, and environmental knowledge from the media." In Germany and Lithuania, Muller

and colleagues (2009) surveyed 403 urban and rural 15 to 19 year olds to understand the personal

significance of contact with nature. Awareness of environmental risks and emotional affinity

toward nature were the two factors that predicted willingness to commit PEB in this study, with

contact with nature having a notable correlation with both factors. The researchers concluded

that the strength of the association between emotional affinity with nature and a stated

willingness to commit to its protection reaffirms the importance of experiences that foster this

"sense of affinity, including frequent positive contacts with nature that begin in childhood and

youth" (Chawla & Derr, 2012, p. 533).

　　　　Youth research summary. Each of the aforementioned studies reference experiences with

nature and/or animals as being highly influential for youth, particularly with regards to their

sense of connection with nature and interest in PEB. Wells and Lekies (2012) conducted a

literature review that specifically focused on research on the effect of nature experiences on

children's near-term environmental attitudes and behaviors. They found that comparison studies

of children's participation in environmental education programs largely suggest positive impacts

on environmental attitudes and behaviors (Bodzin, 2008; Bogner, 1998; Cronin-Jones, 2000;

Leeming et al., 1997). The amount and immediacy of children's contact with nature as part of

such programs was also noted as having been found to affect the impact on environmental

outcomes, with longer, more immersive experiences having a greater impact (Bogner, 1998;

Palmberg & Kuru, 2000; Stern et al., 2008;). Wells and Lekies (2012) noted that non-comparison

studies of children who participate in nature-related programs found that they provide evidence

of greater: interest in environmental issues, awareness of and concern about nature, interest in

learning about nature; and likelihood of adopting PEB (Farmer et al., 2007; Smith-Sebasto & Obenchain, 2009). Nature-based environmental education programs are further addressed in this literature review in Section 2.4.

Chawla and Derr (2012) presented an in-depth literature review focused on the development of conservation behaviors in childhood and youth, which noted that "empirical studies with young people yield responses similar to results with adult samples, although young people now talk about environmental youth groups that were not available to previous generations" (p. 536). Studies on adults are the next focus of this section of the literature review and, overall, this study's focus on family nature clubs seeks to offer insight into an emerging type of nature-based group that is inclusive of youth and adults. Chawla and Derr (2012) also note that "studies with youth samples suggest that direct encounters with nature, supportive family members, teachers, other mentors, and opportunities to participate in environmental organizations are experiences that

> Rachel Carson's legacy includes advocacy for nurturing children's inherent sense of wonder about the world. Personal experience as well as years of inquiry and observation taught Carson that children have an innate curiosity and love of nature and that nurturing a connection to the natural world during childhood fosters the development of adults and a society that values the broader family of life on Earth. Carson also recognized that for these deeper relationships to form with nature children need caring adults who share their own love and enthusiasm for the environment. She encouraged parents to spend time exploring nature with their children in the book "The Sense of Wonder." She understood that children need adults as role models and companions on their journey of discovery and wrote, "If a child is to keep alive his [or her] inborn sense of wonder… he [or she] needs the companionship of at least one adult who can share it, rediscovering within him [or her] the joy, excitement and mystery of the world we live in." (1965, p.45).

remain influential" (p. 536). This *youth nature experience triad* (a term being used for ease of reference in this study) is the inspiration for studying family nature clubs and guides the structure of the following sections of the literature review.

Adult experiences. Numerous studies have sought to hone in on the life experiences of dedicated adult environmentalists in order to better understand and contextualize the factors that lead to active, sustained PEB. This body of significant life experiences (SLE) research was initiated by Tanner (1980), who recognized the importance of understanding the types of experiences that produce citizens committed to maintaining "a varied, beautiful, and resource-rich planet for future generations" (p. 20). In his foundational study, Tanner (1980) asked 45 conservation professionals to provide an autobiographical statement that specified the influential factors that led them to this career. A majority of participants indicated that childhood natural experiences were very influential to their environmentalism and parental influence was also frequently cited. Following Tanner's approach, Peterson (1982) conducted interviews with 22 environmental educators in an attempt to isolate variables perceived as being of prime importance in developing environmental sensitivity. Responses in this study closely mirrored those from Tanner's work, with outdoor experiences during childhood, the influence of parents and other adult role models, and love of nature cited as important contributors to environmental sensitivity and subsequent career choice. During the latter half of the 1980s, two surveys conducted in the U.S. involved a measure of environmental sensitivity and found that childhood experiences of natural areas are a leading predictor of self-reported environmental action (Sia, Hungerford & Tomera, 1985, 1986; Sivek & Hungerford, 1989, 1990).

A 1992 study by Pease gathered surveys from 822 randomly selected Iowa farmers and found that the farmers who chose to enhance wildlife habitat on their land "were much more likely to say that in childhood they had a wild place where they went to be alone, hunted or fished with family and friends, or read nature books" (Chawla & Derr, 2012, p. 532). A survey-based study in Switzerland by Finger (1993, 1994) found that, of a sample of 1,000 adults that

was representative of the national population, people who practiced PEBs such as recycling and local civic engagement were also likely to have notable nature experiences before the age of 20. In a 1995 study by James, 50 environmental educators in the U.S. that were from diverse minority backgrounds were interviewed to understand what inspired their career choice and found the now familiar pattern of childhood time spent in nature, role models for PEB, and the combined effect of these early influences leading them to study the environment in college. Studies by Palmer and colleagues (1998, 1999) of environmental educators in the UK, Slovenia, Greece, Australia and Canada also consistently found positive experiences in nature during childhood to be a formative influence on their concern for the environment. They state that "it is those 'in' and 'with' the environment experiences that appear to be fundamental to the development of long-term environmental awareness and concern" (Palmer et al., 1999, p.199). Their results also highlight the significant influence of people, notably family and other adult role models such as teachers, in inspiring and developing environmental awareness and PEB.

Kals and colleagues (1999) hypothesized that people are more likely to commit to PEB "if they have developed an emotional affinity towards nature, in the sense of a love for nature and feelings of safety and oneness in it, as well as an interest in nature and feeling of indignation at its inadequate protection" (Chawla & Derr, 2012, p. 532). A survey of 200 people demographically representative of the German population and 80 active members of environmental organizations confirmed this hypothesis—environmental affinity and behavior were predicted by more time spent in nature in the company of significant companions, both in the past and in the present. In the research presented in *Life Paths into Effective Environmental Action* (1999), Chawla interviewed a diverse group of committed environmentalists, who were asked to share the sources of this commitment. The two factors cited most frequently as the

catalyst for a commitment to environmental protection were positive experiences of natural areas during one's youth and family role models. These sources of commitment often went together, with 77% of those who talked about a special childhood place also mentioning a special relative in childhood who affirmed nature's value. Most often, the significant adults referenced in this research were close family members and the quality of the relationship between the child and the adult seemed to be potentially as important as the quality of the shared relationship with nature.

A cluster of retrospective survey studies in the mid-2000s built on, and ultimately provided evidence that was in alignment with, the significant life experiences research that had been previously conducted. A 2003 study by Bustam sought to determine the relationships between level of environmental sensitivity and outdoor recreation experiences. A survey of 84 students in a university recreation program found youthful outdoor experiences to be the primary reported influence on environmental sensitivity, followed by equal responses for outdoor experiences as an adult and parental influence. In 2005, Lohr and Pearson-Mims found that favorable adult attitudes towards trees were significantly predicted by childhood experiences such as planting trees and taking care of plants and Ewert and colleagues found that the types of nature activities experienced during childhood predicted ecocentric versus anthropocentric beliefs in college. Wells and Lekies (2006) surveyed 2,000 adults in the U.S. about their childhood nature experiences. The results suggest that participation in wild nature activities (i.e., camping), and to a somewhat lesser extent, domestic nature activities (i.e., gardening) during childhood influenced adult pro-environmental attitudes and behaviors. A positive relationship was also found between the quantity of childhood nature experiences and adult pro-environmental attitudes, which may further influence PEB. Wells and Lekies (2006) also found that less-structured nature-based experiences before age 11 are more strongly associated with the

development of positive adult attitudes towards the environment, but that nature experiences at any age may positively influence PEB.

Hsu (2009) conducted a notably robust three-part study to examine significant life experiences effecting the cultivation of environmental activists in eastern Taiwan. Content analysis of 40 autobiographical memories identified 17 significant life experiences, the most frequent of which were experiences of nature in childhood (65%), participation in environmental organizations (58%), the loss of loved natural places (45%), the influence of friends and family (38% and 20%), and experiences of nature in adulthood (33%). These data were turned into a quantitative questionnaire, which was completed by 430 people who were ultimately identifiable as committed or apathetic to environmental protection based on their significant life experience responses. This study also found that 55% of the variances in reported PEB could be explained by significant life experiences.

These and numerous other studies on PEB with adults from a variety of countries have found "strikingly consistent findings. The greatest commonality among all findings is the importance of time spent outdoors in natural habitats during youth" (Wells & Lekies, 2012, p. 206). In addition to regular experiences in nature, many of these studies also found that the presence of close companions in and role models for nature appreciation and participation in a nature based organization are significant antecedents of PEB in adulthood (Chawla, 1999, 2007, 2009; Edmondson, 2006; Farmer, 2011; Phenice & Griffore, 2003; Wright & Wyatt, 2008).

Experiences of nature across the lifespan. As highlighted by Chawla and Derr (2012), the body of research on the life experiences that foster PEB can be organized to offer a general progression of key experiences that are particularly influential at different periods in life, with

the following studies offering insight into such a construct—Chawla (1999), Furihata and colleagues (2007), Hsu (2009), James and colleagues (2010), and Wright and Wyatt (2008).

During childhood, time in nature and family members are particularly significant influences for life-long PEB. The experiential emphasis during early childhood is on direct nature play and exploration that is, at times, facilitated by family members or teachers and in the company of peers or members of a youth organization. In middle childhood *environmental socialization*, a phrase coined by James and colleagues (2010), expands to include more structured knowledge, skills, and activities.

During later adolescence and early adulthood, nature experiences remain important and "education, books, films, travel, student organizations, and friends help… lead to the formation of an environmental identity that crystallizes in advanced education and skills, and in affiliation with other committed environmental professionals, amateurs, or volunteers" (Chawla & Derr, 2012, p. 535). During adulthood, "people increased their knowledge about issues and strategies for action through work or volunteer activities…nature experiences remain important, including the loss of valued habitats" (Chawla & Derr, 2012, p.353).

Thus, people's relationship with nature and environmental identity optimally begins with direct, informal childhood experiences and gradually proceeds to include more formal, still experience-based learning about the environment and PEB—fostering motivation to protect the natural environment as well as a sense of efficacy to do so (Chawla & Derr, 2012).

Given the strong importance of time in nature for PEB, the rapid decline in children's contact with nature is concerning. However, Chawla and Derr (2012, p.535) assure that:

> If people fail to have outdoor experiences in nature in childhood, all is not lost. Intense experiences of nature, inspiring mentors, supportive friends, and engaging organizations

in adolescence not only reinforce early experiences, but also appear to be able to compensate for missed experiences of early free play in nature, for the purposes of PEB. What emerges are different paths into environmental action, although all involve direct experience of nature in some way, at some time, as well as some form of social support.

As people seek to engage in or encourage experiences that effectively foster PEB, the following experiential components should be emphasized (Wells & Lekies, 2012): active, hands-on activities; addressing local issues; involvement in projects; the use of familiar and easily accessible sites; repeated exposure; active engagement of teachers; sensory experiences that make interaction with nature more real and memorable; relationships with peers and adults; novelty of experiences; and freedom to choose activities. FNCs can offer many, if not all, of these key experiences. In FNCs, children and their caregivers participate in hands-on activities, visit familiar natural settings over multiple time-periods, learn and discover new aspects of the natural world, work with others, and have opportunities to make genuine contributions.

2.1.4 – Summary

This review of the factors and experiences that foster individual PEB in children and adults reflects the complexity of this topic. However, it also presents a robust and consistent body of research that suggests three primary personal factors that influence PEB—knowledge , self-efficacy, and affective motivations—and three primary life experiences that facilitate PEB—time spent in nature (especially during childhood), social support (especially role models for nature appreciation), and participation in an environment or nature-based organization that provides opportunities to learn about the natural world through direct experience and collective action. FNCs have the potential to foster each of these personal factors and fulfill each of these life experiences. The remainder of this literature review follows the sequence of experiences,

with sections on *nature*, *family*, and *clubs* that continue to highlight the key factors and

experiences that affect environmental and human well-being within the context of grounding

theories for this study. A discussion of social movements concludes the literature review given

the role of FNCs within the *new nature* facet of the sustainability social movement.

2.2- Nature: The Human Need for Nature

Perhaps the most substantial take away from the previous section is that spending time in

nature across the lifespan is essential for the development of a connection to the natural world

that informs, empowers, and motivates PEB. Experiences in nature are also essential for human

physical, cognitive, psychological, emotional, and social well-being. Beginning with a brief

history of the human-nature relationship, this section uses the theoretical framework of

ecological psychology to explore why human contact with nature is critically important for

environmental and human well-being.

For the vast majority of human history we have been hunters and gatherers directly

evolving in and adapting to natural environments. The immediate dependence of hunter gathers

on nature created an intimate relationship in which humans were understood to be inseparable

from the natural world (Wilber, 2000). After millions of years, the wide-spread transition of

many cultures to a life of agriculture and settlement occurred between 12,000 and 10,000 years

ago, beginning a long process of separation from nature (Massey, 2002). The growing

populations and social complexity of agrarian society ultimately led to an 'urban revolution' in

which the first cities were built around 8,000 years ago (Gullone, 2000). It was with this shift to

a more urban context that humans began to radically modify their natural environment through

the extensive and localized use of the natural resources needed to feed, house, clothe, water and

otherwise care for growing, centralized populations. In evolutionary terms, "the urban

environment is a spontaneous and historically unfamiliar habitat" (McMichael, 2001, p. 252).

Even so, it was just two to three hundred years ago that human society entered the unprecedented

period of change created by the industrial revolution, in which a mainly agrarian economy based

on manual labor transformed into one of industry and manufacturing by machines. As societies

have made the transition to an industrial economy, products from natural ecosystems have

primarily been viewed as goods to be sold in the globalizing marketplace. Additionally, two of

the most fundamental and profound effects of the industrial revolution are rapid urbanization and

the rapid growth in human population that it enabled—more people have been born in the past

200 years than in all previous human generations combined (Massey, 2002). An even greater

acceleration in economic and societal change began

around 1980 with the introduction of computer

technology into virtually all aspects of life. Overall,

the last few hundred years have wrought an

extraordinary disengagement of humans from the

natural environment (Beck & Katcher, 1996).

Compared with the roughly 30,000

generations that humans spent as hunter gatherers

and the 500 generations spent as agrarians; the nine

generations passed in the industrial era and the one to

two generations spent so far in the emerging post-

industrial era are a drop in the bucket of time

(Massey, 2002). Because people have spent over

> A defining characteristic of regions of the world that are considered to be "industrialized," such as North America, Western Europe, Japan, and Australia is that they have experienced unprecedented economic growth in the past 60 years. In the U.S. in particular, the dominant cultural narrative has become one in which everyone could and should pursue the acquisition of material wealth as the pathway to happiness and freedom. As a result, each U.S. citizen now requires an average of 30 acres of prime land and sea to satisfy our consumer lifestyle (Wann, 2009). This comes to a national total of approximately 9 billion acres, which is three times the acreage of the U.S., and requires the resources of other countries to be extracted to meet our demand for material goods.

99% of their evolutionary history in close proximity with nature, the affinity to connect with the

natural world is rooted in the biological character of the human species and has been found to exist regardless of cultural influences (Kellert, 1997). As biological organisms, we cannot have adapted to the environment in which we now find ourselves—one in which there continues to be a pervasive shift away from time spent in nature as a part of the human experience (Kellert & Wilson, 1993; McMichael, 2001). This shift is especially pronounced for people in WIRED[2] (western, industrialized, rich, educated and democratic) countries—those that have the greatest historical culpability for environmental issues. Today people in the U.S. spend more than 90% of their time indoors and children's ability to play outside is constrained to a degree rare even in recent generations (Clements, 2004; England Marketing, 2009). Even as our lived experiences with nature are rapidly waning, evidence is mounting of the critical connections between human well-being and the well-being of the natural world. As demonstrated in section 2.1, people need contact with nature to be motivated to take care of the natural environment. A healthy environment is essential for our physical health, but we also need contact with nature for optimal cognitive, psychological, and emotional well-being (Ewert, Mitten & Overholt, 2014).

2.2.1 – Theoretical Framework: Ecological Psychology

Ecological psychology studies the relationship between people and the natural world through ecological and psychological principles. A primary premise of ecological psychology is that while the human mind is highly influenced by the modern social world, it is adapted to the natural environment in which it evolved (Roszak, 1992). As echoed by researchers in other fields, ecological psychologists recognize that disconnection from nature has a heavy cost for human health (Scull, 2001). Ecological psychologists seek to develop and understand ways of expanding the emotional connection between individuals and the natural world, thereby assisting

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[2] This a re-ordering of the acronym WEIRD used to present these same cultural descriptors in "The weirdest people in the world?" by Joseph Henrich, Steven Heine, and Ara Norenzayan.

individuals with remedying alienation from nature and developing healthy, sustainable lifestyles (Gullone, 2000; Scull, 2001). Although only relatively recently adopted in Western society, ecological psychology is essentially a modern interpretation of ancient views of humans and nature held by many indigenous peoples. In essence, most native cultures believe that people are intricately linked to all life forms and life-like processes, and that by harming nature we harm ourselves (Burns, 1998). Chawla (2007, p. 149) states that:

> Most fundamentally, ecological psychology is grounded in evolutionary theory and a realist philosophy (Heft, 2001). It views human beings like other creatures in the web of life with which they have co-evolved, and claims that humans, like other organisms, encounter the physical world directly, with the ability to perceive qualities of the world that are really there rather than merely mental constructions about the world. In this respect, it shares basic assumptions with the environmental movement: it assumes that human beings are dependent on intrinsic qualities of the physical world, its resources, and its limits, and they can discover what these resources and limits are through direct perception in order to adjust their behavior in adaptive ways.

From this perspective, Chawla and colleagues have used ecological psychology to create a framework for understanding why experiences in nature are so strongly associated with PEB (Chawla & Derr, 2012). According to ecological psychologists James Gibson (1979), Eleanor Gibson and Anne Pick (Gibson & Pick, 2000), as moving organisms in the natural environment people are part of relational system in which they are simultaneously acting on the world and receiving information from the world through their senses (Chawla, 2007). As such, the field of ecological psychology emphasizes environmental learning and action in all settings and offers particularly useful concepts for understanding the relationship between people, especially

children, and the natural environment (Chawla & Derr, 2012). Of particular relevance for this study, ecological psychology's focus on the physical qualities and social contexts of human interactions with natural environments can help to explain the research presented in section 2.1 in which people who practice PEB are consistently found to have a history of meaningful time spent nature, often in the presence of important others (Chawla, 2007).

Section 2.2.2 explores the significant ecological psychology concepts of *primary experiences* and *affordances*, as well as the related concepts of sense of place and connectedness with nature to further flesh out the causal relationship between spending time in nature and a commitment to PEB. In section 2.2.3 having the context of human's evolution in close proximity with nature and of ecological psychology concepts helps to frame the many ways in which contact with nature is beneficial for human well-being. Additional insights from ecological psychology, such as the concepts of *fields of action*, *joint attention*, and *behavior settings,* are incorporated into the forthcoming literature review sections on 'family' and 'clubs' as well because they help to explain the important role of close adult role models for nature appreciation and why experiences in organizations are also often formative for the development of PEB.

2.2.2 – Nature and Pro-Environmental Behavior

Section 2.1 provided a substantial body of research on how people come to care about the environment and practice PEB. The predominant theme was the importance of people's time in nature, with experiences in childhood being particularly potent. This section emphasizes four related concepts and areas of inquiry that are especially salient to this research on FNCs – *primary experiences*, *affordances*, *sense of place,* and *connectedness with nature*. Section 2.1 highlighted research related to these concepts; here they are each given specific attention.

Primary experiences. The importance of *primary experience* is a principle of ecological psychology that emphasizes "learning about the world first hand through one's own actions in it, rather than second hand as others represent it" (Chawla, 2007, p. 153). Proposed by Reed (1996), primary experiences are sensory-based opportunities to gain a direct understanding of reality, which is considered to be essential for being able to think and feel independently. Chawla (2007, p. 153) explains that:

> primary or first-hand experiences expose people to inexhaustible possibilities for learning, including creative new discoveries. Outdoors especially, a person encounters a dynamic, dense, multi-sensory flow of diversely structured information, but some places are richer in this regard than others. For example, shoppers are bombarded by more varied smells, sounds, and sights in a traditional marketplace than in a supermarket, and there is more information in a woodlot than a parking lot. In contrast, in *secondary* experience, when others tell about the world second-hand through a text or an image, information is radically reduced—literally, in most cases, two-dimensional. Primary experience is also necessary because it occurs in the real world of full-bodied experiences, where people form personal relationships and place attachments, drawing motivation to protect the places and people they love and building alliances and competencies to do so.

It is through primary experiences that people have the opportunity to engage with the affordances of the natural environment and develop a sense of place and connectedness with nature, concepts described below.

Affordances. One of the founders of ecological psychology, James Gibson (1979, as cited by Chawla, 2007, p. 150) conceptualized *affordances* as:

significant properties of the environment which are defined by the relationship between the environment and an organism. For example, a tree affords climbing for a child only if its lower branches reach down to a child's grasp, relative to the child's height, and the child has strength to pull itself up, relative to its weight (Heft, 1988). The affordance is neither in the tree, nor in the child, but in the relationship between them. So it is with all creatures' abilities to take advantage of the resources that the environment holds. Success depends not just on the qualities of the environment, but equally on the biological systems that creatures have evolved to detect and use information about these qualities, as well as the particular capabilities of individual organisms.

Kyttä (2004, 2006) notes the positive cycle that occurs when children are able to interact with the natural world, have satisfying, self-efficacy supporting experiences with engaging affordances, and then be motivated towards further exploration and the effortless learning about the natural world that occurs with such experiences. It is this sequence of experiences that Chawla (2007, (p. 162) hones in on as a key reason that childhood experiences in nature are so formative for life-long PEB, with personal illustrations such as:

> As I grew up in my new home in suburban New York, the place that captured me for countless hours was the brook that marked the back boundary of our yard. I knew it inch by inch from the marsh at the top of the hill, out of which it flowed, to the culvert at the end of the street where it disappeared. It was a place of enthrallingly responsive affordances, loose parts, and graduated challenges for exploration and creative play, and its stream of multi-sensory images remains vivid in my memory.

The concept of affordances can also be understood as contributing to the creation of a sense of place and a sense of connectedness with nature, concepts described below.

Sense of place. The term *sense of place* describes characteristics of a particular place that make it special and unique in its own right as well as the human relationship to a particular place in which they have an authentic sense of attachment and belonging. How a sense of place develops and evolves informs how people interact with their environment. Given the opportunity, children create a strong bond with the places they inhabit through direct experience and engagement with its affordances. Such 'primal landscapes' of one's youth can become a part of a person's identity, informing their relationship with subsequent places later in life and creating a greater propensity for continuing to cultivate a sense of place (Measham, 2007). The extent to which children are able to create a sense of place is strongly mediated by the influences of family as well as community and cultural norms (Derr, 2002; Chawla & Derr, 2012).

Research on the relationship between sense of place and PEB recognizes that it may be possible to harness an individual's attachment to and affect towards a place in order to influence her or his environmental behavior. Numerous studies have found place attachment to be an important antecedent to environmental awareness, pro-environmental attitudes, and PEB, with higher levels of place attachment being associated with more PEB (Dredge, 2010; Lee, 2011; Gosling & Williams, 2010; Lewicka, 2011; Raymond, Brown, & Robinson, 2011; Scannell & Gifford, 2010a; Scannell & Gifford, 2010b). The affective or emotional connection between people and place is also well documented, as is the positive relationship between place affect and PEB (Kals & Maes, 2002; Kals et al., 1999; Pooley & O'Connor, 2000; Theodori & Luloff, 2003). For example, in a study by Ramkisson, Smith, and Weilerd (2013), place affect was the strongest predictor of both low effort and high effort pro-environmental behavioral intentions.

Connectedness with nature. *Connectedness with nature* is "a stable state of consciousness comprising symbiotic cognitive, affective, and experiential traits that reflect,

through consistent attitudes and behaviors, a sustained awareness of the interrelatedness between one's self and the rest of nature" (Zylstra et al., 2014, p. 1). Although nature connectedness is a stable individual trait, it can change based on one's experience with nature (Vinning et al., 2008), meaning the more time an individual spends in nature, the more connected they may feel with nature and the more concern they may feel for the natural world (Nisbet et al., 2009). Based on their review of a cross-section of more than 300 interdisciplinary sources related to connectedness with nature, Zylstra and colleagues (2014) highlight the existence of significant research finding connectedness with nature to be a reliable predictor and motivation for PEB and contributor to physical as well as psychological benefits such as "happiness and more purposeful, fulfilling, and meaningful lives" (Zylstra et al., 2014, p.1). As summarized by Weinstein and colleagues (2009), connectedness with nature has also been linked to many behaviors indicative of intrinsic aspiration, such as the relational emotions of love and care, relational mind-sets such as perspective taking and altruism, and less selfish decision making in the areas of consumption and the environment (Mayer & Frantz, 2004; Vining et al., 2008).

Zylstra and colleagues (2014) called out several specific experiences that can be particularly beneficial in fostering connectedness with nature and increasing the likelihood that people will exhibit PEB, such as hands-on ecological restoration, experiential citizen science, and cultivating naturalist skills such as observation, nature drawing and identification, tracking, and ecological mapping (Baille, 2003; DeLange et al., 2010; Miller, 2005; Rogers & Bragg, 2010; Schultz, 2011; Young, 2010). These activities involve attentiveness to nature in an active embodied way and can help bring people into closer contact with wildlife, which has been shown to be especially poignant for fostering connectedness with nature (Zylstra, 2014). FNCs can also fit these experiential criteria for nurturing connectedness with nature.

2.2.3 – Nature and Human Well-Being

A substantial and rapidly growing body of research has found that, in addition to

fostering PEB, regular contact with nature and a sense of connectedness with nature is important

for human well-being (Bell et. al., 2008; Ewert, Mitten, and Overholt, 2014; Herzog et al., 1997;

Kaplan, 1995; Mayer, et al., 2009; Howell, et al., 2011; Kahn, 1999; Leather et al., 1998; Mitten,

2009; Munoz, 2009; Plante et al., 2006; Stilgoe, 2001; Ulrich, 1991). Research has examined the

impact of exposure to nature in a variety of forms, from mere images, to views from a window,

to neighborhood play, to educational settings and wilderness programs. The populations studied

have been from a wide range of demographics, socioeconomic groups, and countries, and have

included the general public as well as people in clinical populations. The specific outcomes

examined have been diverse as well, including physical, cognitive, emotional and social

development. The outcome of positive findings from studies employing different populations,

research designs, and measures suggests that the benefits of time in nature are pervasive and

generalizable. Research is also providing convincing evidence that for all the benefits of time in

nature for adults, the benefits are even more profound for children due to their greater levels of

both plasticity and vulnerability (Wells & Evans, 2003). The following is a brief summary of the

evidence on the positive effect of contact with nature for human physical, cognitive,

psychological, emotional, and social well-being.

Physical benefits. While not the focus of this study, the physical benefits of time in

nature are increasingly well documented and are frequently linked with the increase in physical

activity that comes with time spent outdoors (Cleland, et al., 2008; Dyment & Bell, 2008;

Potwarka, et al., 2008). For example, children who regularly play in natural environments show

more advanced motor fitness, including coordination, balance and agility, and are sick less often

(Fjortoft, 2001). Conversely, a decrease in time spent outdoors has been found to contribute to physical ailments such as children's myopia (Nowak, 2004).

Cognitive benefits. Cognitive benefits from time in nature include creativity, problem-solving, focus, and self-discipline. Early experiences with the natural world have been positively linked with the development of imagination and a sense of wonder, which are important motivators for life-long learning (Cobb, 1977; Wilson, 1995). Exposure to natural environments has been found to improve children's cognitive development by enhancing their awareness, reasoning and observational skills (Pyle, 2002). A study on the effects of 'greenness' on children's cognitive functioning found that proximity to, views of, and daily exposure to natural settings increases children's ability to focus and therefore enhances cognitive capabilities (Wells, 2000). Faber Taylor and colleagues (2001) surveyed parents of children with attention deficit disorder (ADD) regarding their child's attentional functioning after activities in several settings and found that ADD symptoms were milder for those children with greener play settings. Faber Taylor and colleagues (2002) also examined relationships between near-home nature and self-discipline in children and found significant, positive relationships between near-home nature and concentration, impulse inhibition, and delay of gratification in girls. Walking in nature for fifteen minutes (in comparison to walking in an urban environment) has been found to increase an individual's subjective connectedness to nature, positive affect, attentional capacity (as measured by the number of errors they made in a cognitive task) and their ability to reflect on a life problem (Mayer et al., 2009). In five studies, Ryan and colleagues (2010) found that nature exposure relates to both physical and mental vitality. Even a view of natural settings has been found to have cognitive benefits (Matsuoka, 2008).

Psychological benefits. Nature relatedness has been found to be significantly correlated with the six dimensions of psychological well-being--autonomy, environmental mastery, positive relations with others, self-acceptance, purpose in life, and personal growth for children and adults (Nisbet, et al., 2011). As noted by Weinstein and colleagues (2009), nature can bolster autonomy directly by affording opportunities for introspection and a coherent sense of self (Walker et al., 1998) and providing an alternative to the pressuring elements of everyday life (Stein & Lee, 1995). Nature connectedness is associated with mindfulness (Howell, et al., 2011), which is in turn supportive of self-awareness, self-esteem, resilience (Coholic, 2011) and reduces maladaptive rumination (Heeren & Philippot, 2011). An effective connection with nature has been found to foster an overall sense of psychological well-being (Korpela et al., 2009).

Emotional benefits. Emotional benefits include stress reduction, reduced aggression and increased happiness (Burdette & Whitaker, 2005; Chawla, 2006). Wells and Evans (2000) studied rural children and found that those with more nature near their home received lower maternal ratings on a measure of behavioral conduct disorders, anxiety and depression and rated themselves higher on a global measure of self-worth than peers with less nearby nature. A follow-up study by Wells and Evans (2003) found that even a view of nature in the form of green plants and vistas helps reduce stress among children, with a correlation between the amount of nature exposure and positive results. Kuo and Sullivan (2001) found that levels of aggression and violence were significantly lower among individuals who had some nearby nature outside their apartments than among their counterparts who lived in barren conditions. Chiesura (2003) found that people visiting an urban park perceived regeneration of emotional equilibrium, relaxation, and the stimulation of a spiritual connection with the natural world as key benefits from their

experience. Gidlof-Gunnarsson and Ohrstrom (2007) found that better green area availability in urban residential settings was associated with reduced fatigue, stress, and irritation.

Social benefits. Social benefits include enhanced cooperation, flexibility, and self-awareness and reduced aggression. In several studies, children observed in a school yard with both green play spaces and built or barren play spaces engaged in more creative, social forms of play in the green spaces than in the built spaces (Kirkby, 1989; Taylor et al., 1998). Play in a diverse natural environment has been found to reduce or eliminate anti-social behavior such as violence, bullying, vandalism and littering, as well reduces absenteeism (Coffey, 2001; Malone & Tranter, 2003). Natural environments have been shown to stimulate social interaction between children (Bixler et al., 2002) and children who play in nature have more positive feelings about each other (Moore, 1996). An evaluation of a program in which students participate in a range of projects outdoors, such as planting trees and constructing footpaths, found that children's psychosocial health improved significantly as a result of participation (BTCV, 2009). A review of research by Blair (2009) has found that time spent in nature in the form of school gardening enhanced student bonding.

Even subtle exposure to nature can increase indicators of well-being. For instance, simply having plants in a lab can increase intrinsic aspirations, decrease extrinsic aspirations, and encourage more generous decision making (Weinstein et al., 2009). Virtual nature has also been found to provide some psychological benefits, although not as much as real nature (Mayer et al., 2009). Taken together, the aforementioned studies demonstrate the positive relationship between time spent in nature, feeling connected to nature, and human well-being.

2.2.4 – Summary

Nature and contact with natural environments are directly related to human health and well-being (Ewert, Mitten, & Overholt, 2014). To seek human health and sustainability without considering the importance of environmental sustainability is to invite potentially devastating consequences for the health and well-being of humanity (Maller et al., 2006). The field of ecological psychology and related concepts such as affordances, sense of place, and connectedness with nature help to provide a framework for understanding how and why time in nature throughout the lifespan is so memorable and has such a strong influence on human well-being and on PEB. As Chawla (2007, p. 155) eloquently illuminates, a child at play in nature is a perfect example of the type of essential primary experience in which:

> people move and act in the real world with their full-bodied powers, encountering inexhaustible sources of information that offer opportunities for creative discovery. In natural habitats, children discover infinitely new iterations. No two crickets and no two birds sing exactly the same song. No two rotting logs hold exactly the same constellation of insects. No stream pools and floods the same way twice when children dam it, nor does the water flow with the same music and force, or reflect the same gleam of light, on different days in different weathers. No bank of earth has exactly the same consistency, nor smells exactly the same, at different points along its length. Thus even down in the *same* stream and the *same* mud bank for the 237th time, children can discover a world that is inexhaustibly new. It is also the world in which human beings evolved; with which children have a connection as ancient as the chemistry of their cells. It is the world for which they are adapted, on which human existence depends.

2.3 - Family: Cultivating the Capacity for Connection and Care

Over the course of our evolution, humans have gathered in close family and kinship groups that provide physical, emotional and communal safety and support. Families are the most basic, foundational social unit in human communities around the world, and healthy individuals within healthy families are at the core of a healthy society. As with the discussion on developing a caring relationship with the natural environment, there are many external, demographic, and internal factors that influence healthy family dynamics. For the purpose of this research, and this section of the literature review in particular, the emphasis on family is on the interplay between parent-child relationships and human development, which sets the foundation for the capacity for connection and care for one's self, other people, and the natural world on which we depend.

This topic has been the focus of substantial research in disciplines ranging from social sciences to neurobiology over the past several decades. As the knowledge generated by interdisciplinary developmental science has grown and evolved, a number of core concepts have come to frame understanding of the healthy human development (National Research Council, 2012; Shonkoff & Phillips, 2000):

- Human relationships are the building blocks of healthy development.

- Human development is shaped by a continuous dynamic between biology and experience.

- Culture, which is reflected in childrearing practices, influences all development aspects.

- Children are active participants in their own development.

- Development is honed by the interplay of sources of vulnerability and resiliencies.

Virtually every aspect of human development, from the brain's evolving circuitry to the capacity for empathy, is affected by cumulative exposure to environments and experiences from the prenatal period through the early childhood years, the period of the most substantive

development across the human lifespan (Shonkoff & Phillips, 2000). Thus, what happens during

the first years of life is significant because this period of development creates either a sturdy or

fragile foundation for what follows, impacting life-long well-being. Although many forces, both

internal and external, shape human development, the science is clear that parent-child

relationships during infancy, toddlerhood, and childhood have an exceptionally strong and life-

long influence on healthy development (Schaefer & DiGeronimo, 2000). Children grow and

thrive in the context of close and dependable relationships that provide love and nurturance,

security, responsive interaction, and encouragement for exploration. Without at least one such

relationship, development is disrupted and the consequences can be severe and long lasting

(Shonkoff & Phillips, 2000). A secure, loving primary relationship enables children to value and

love themselves, it teaches them how to love and relate to other people, and it creates a strong

foundation for confidently exploring and meaningfully connecting with the world around them.

This section explores a theoretical framework for understanding the importance of family and the

role of family in both environmental and human well-being.

2.3.1 – Theoretical Framework: Attachment and Family Systems Theories

As Chawla (2007) highlights "ecological psychology acknowledges that the affordances

of the world evoke a range of emotions, that there is inherent pleasure in achieving competence,

and that children's access to the world… [is] embedded in social relations" (p.158). Ecological

psychologist Edward Reed (1996) makes note of how people's interactions with nature are

influenced by other people from infancy onwards. However, the more social elements of how

people come to care about and take care of the natural world are not the focus of ecological

psychology. Thus, in addition to ecological psychology, this research is grounded in two

complementary theories regarding the significance of families in creating the conditions for

healthy human development, healthy human relationships, and a healthy relationship between people and the natural world--*attachment theory* and *family systems theory*. This theoretical framework helps to illuminate why the influence of parents and other close relatives is often one of the primary factors to which PEB is attributed (Chawla, 2007) as well as contextualize the benefits for families of shared time in nature.

Attachment theory. Attachment theory focuses on the way in which early relationships with primary caregivers play a major role in child development and continue to influence mental health and social relationships throughout life (Bowlby, 1988). Originally proposed in the literature by John Bowlby, attachment theory is conceptualized as an evolved behavioral system that motivates people, starting in infancy, to seek proximity to close caregivers in order to ensure security and survival. Through his research, Bowlby (1951) found that deprivation of a close maternal presence would cause depression, acute conflict, and hostility in children, decreasing their ability to form healthy relationships in adult life. In the past several decades, research informed by Bowlby and his colleague Mary Ainsworth, who developed an approach to assess the quality of the parent-child attachment, has confirmed that a secure parent-child attachment is a crucial foundation for ongoing competence and well-being (Karen, 1998).

Longitudinal, observational research using carefully standardized measures of the quality of attachment has identified four primary attachment styles—secure or one of three forms of insecure attachment—avoidant, ambivalent, or disorganized (Ainsworth et al., 1978). Attachment styles tend to remain relatively stable from infancy through adulthood, becoming lasting models of the relationship between one's self and other people which guide cognitive, affective, and behavioral responses in attachment-relevant contexts (Bowlby, 1988; Fraley, 2010; Hazan & Shaver, 1994; Zhang & Labouvie-Vief, 2004).

With sensitive, responsive care, infants and children learn to trust their caregivers and perceive the world as a safe place. Children also learn that they have the power to solicit what they need; when their signals to their caregivers are effective, babies have their first experience of competence and what developmental psychologists call effectance (or locus of control or self-efficacy)—discovering that they have an effect on those around them. With that foundation of trust and security, children venture out with confidence and enthusiasm, using their attachment figures as a secure base from which to explore and learn about the world around them (Bailik, 2012; Prior and Glaser, 2006). Securely attached children also regulate their emotions more effectively and are more likely to enter into cooperative, caring relationships with other adults and children than children who do not have that firm foundation of a secure attachment.

In contrast, when parents are inconsistent, unresponsive and/or insensitive to infant and children's cues, signals and other communications, they feel powerless to solicit the care they need and they develop an insecure attachment. Depending on the particular type of care a young child has received—and the type of insecure attachment the child develops with his or her parent(s)—in the long run, the child is at risk for a lack of confidence, anxiety, behavior problems and relationship difficulties throughout childhood and into adulthood (Erickson & Kurz-Riemer, 2002). Further, since self-esteem is the foundation of emotional well-being, a poor self-appraisal, among other factors, determines how people treat their surroundings and how destructive they will be towards themselves and others (Stainbrook 1973, cited in Lewis, 1996).

Over the past six decades, the tenets of attachment theory have been developed, refined, and applied to human functioning across the life span. Johnson's (2004) review of this research noted ten major tenets of attachment theory that remain relevant from the earliest parent-child relationships through adult to adult relationships, such as those between spouses: (1) attachment

is an innate motivating force; (2) secure dependence complements autonomy; (3) attachment

offers an essential safe haven; (4) attachment offers a secure base; (5) emotional accessibility and

responsiveness build bonds; (6) fear and uncertainty activate attachment needs; (7) the process of

separation distress is predictable; (8) a finite number of insecure forms of engagement can be

identified; (9) attachment involves working models of self and other; and (10) isolation and loss

are inherently traumatizing.

Family systems theory. Whereas Bowlby's attachment theory focuses primarily on the

qualities and effects of person to person relationships, or dyads, Murray Bowen (1985)

developed *family systems theory* to contextualize individual behavior within the framework of

broader family dynamics. Bowen recognized that having evolved over millennia in close

relationship with nature and in close family groups, human beings are part of the natural world

and are primarily social creatures. As such, he believed individual behavior could be best

understood as a part of larger family emotional and relationships systems. Based on years of

observing family interactions in his work as a psychiatrist, he solidified his understanding that to

change individual behavior first required awareness of how the individual's choices are affected

by current and historical family behavior. In this view, "family" would include the immediate

people with whom the individual lives, the extended family of relatives and friends, including

prior generations, and the community at large. The resulting family systems theory describes

how the social existence of human beings, in family groups, affects the functioning of each

individual member (Bowen, 1985). Key concepts from family systems theory include that

(Western Pennsylvania Family Center, 2015):

- Human functioning is governed by principles common to all life forms.

- Human life is guided primarily by emotional, instinctive forces that can be regulated to some extent by an individual's ability to think.

- Human emotional forces and behavior are influenced by interplay among instinctual, biological, genetic, psychological, and sociological factors.

- The family is a single emotional unit made up of interlocking relationships existing over many generations.

- We can best understand individual behavior across the life span as being closely related to the functioning of her/his family of origin, including family histories.

- When the individual is seen in her/his family context, we can move beyond simplistic cause-and-effect thinking to a more comprehensive understanding of the multiple factors that interact across time to produce problems or symptoms.

- People are able to modify their automatic, emotional responses by studying their own patterns of behavior as well as the behavioral patterns of their families.

Like attachment theory, family systems theory is used in a variety of research on individual and family functioning. As the theory has been applied, families have been described as dynamic, interconnected systems that both affect and are affected by their environment and by qualities within the family itself (Zabriskie & McCormick, 2001).

Like ecological psychology, Bowlby's (1969) attachment theory and Bowen's (1985) family systems theory are grounded in the evolutionary theory of Darwin and recognize the importance of the direct interactions between people, and between people and the physical world. Where ecological psychology emphasizes how the physical environment affords successful physical adaptation, attachment theory and family systems theory recognize the centrality of evolution and emotional bonds in the development of human psychology (Van ecke

et al., 2006). For example, attachment theory affirms the need to bond from an evolutionary

perspective, with physiological and psychological components, and emphasizes that it is not the

perception of the relationship between caregiver and child but the actual interaction that forms

the blueprint that continues to influence how we relate to significant others throughout our life

(Bowlby, 1988; Lannon, 2002; Lewis, 2002; Main, 2002). Bowen and Bowlby both also viewed

the family as a natural system (Holmes, 1993; Kerr & Bowen, 1988). For example, Bowen

viewed the family as an organic system which is held in balance by the opposing forces of

togetherness and separation, a balance that is also recognized by Bowlby (Van ecke et al., 2006).

Where attachment theory emphasizes the interaction between children and their caregivers,

family systems theory emphasizes the family as a whole as an evolving system (Ng & Smith,

2006). By considering insights from both theories, this research is grounded in the importance of

the care giving/ receiving relationship between parents and children in their early years, which is

relevant for the primary population under study, as well as the reciprocal relationships in which

care giving and receiving are exchanged by family adults.

2.3.2 - Family and Pro-Environmental Behavior

Children raised with a secure attachment in a healthy family system are more likely to

become individuals that develop healthy, caring relationships with other people and with the

natural world. For example, with regards to the environment, they are more likely to have the

self-esteem, belongingness, self-efficacy, personal control, and optimism necessary to be actively

care enough to engage in PEB (Geller, 1995). The development of a strong internal locus of

control or sense of self-efficacy that comes from consistent, responsive parenting is particularly

important to engagement in PEB as people with these characteristics believe that their actions

can bring about change, while people without a sense of self-efficacy or with an external locus of

control believe that their actions are insignificant and change can only be brought about by

powerful others; such people are much less likely to act ecologically (Kollmus & Agyeman,

2002). Additionally, a person's ecological worldview is shaped by their value orientation (Cheng

& Monroe, 2012), which is most directly influenced by the microsystem of their immediate

social network of family and friends (Fuhrer et al., 1995, as cited in Kollmus & Agyeman, 2002).

As people get older, their priorities are often driven by care for their own families. When people

recognize the connection between environmental health and well-being and the health and well-

being of their families PEB is more likely to become a personal priority (Stern & Dietz, 1994).

Karen Walant (1999) has studied the cultural norm in the U.S. of disconnected parenting

approaches that emphasize the need for children to become totally self-reliant and autonomous at

early ages over approaches that nurture their capacity to form close, loving, intimate

relationships with others. She posits that by not allowing ourselves to connect deeply to other

people, we have attached more intensely to material things (Walant, 1999). The notion that

infants and children should learn to comfort themselves when possible, with objects replacing

parents, is a popular one in U.S. culture. However, the 'transitional object' is far from a universal

event in the course of normal child development. Research has found that when a child routinely

goes to sleep in the presence of an adult, which has been the norm throughout human history and

is still practiced widely around the world, it is extremely rare to find thumb sucking or

attachment to material security objects (Litt, 1981). Researchers who conducted a study on

transitional objects posit that many mainstream U.S. child-rearing practices may be teaching

children not to rely on other people as a way of handling stress, but to rely on objects for comfort

(Wolf & Lozoff, 1989). Research has also found a correlation between clinical psychopaths who

have a consistent inability to trust, empathize, and form affectionate relationships and the

pathology of a consumer-based society where values such as immediate gratification, materialism, and wealth are raised above those such as family, connection, and altruism (Barker, 1987). Thus, it is plausible that the replacement of human connection with a connection to material goods in infancy and childhood sets the stage for the rampant consumerism of many Western cultures and its environmental consequences.

Experiences that create positive emotional fulfillment, especially for children and within the context of their families, may help to address the psychological antecedents of environmentally damaging consumption behaviors (Walant, 1999). The remainder of this section integrates core concepts from ecological psychology with the theoretical framework offered by attachment theory and family systems theory to explore why the presence of emotionally close role models for nature appreciation is so prominent in the life experiences of people who are committed to taking care of the environment. As Chawla (2007, p. 18) states:

> The very fact that a parent or grandparent chose to take the child with them to a place where they themselves found fascination and pleasure, to share what engaged them there, suggests not only care for the natural world, but, equally, care for the child.

Fields of action. Ecological psychology identifies three possible *fields of action* in relationship to children's interaction with the world around them--free action, promoted action, and constrained action, which are "useful lenses for examining how social contexts create the conditions for children's experience of nature" (Reed, 1996, as noted in Chawla & Derr, 2012). In fields of free action, children can explore their environment with independence and autonomy, as was largely the case for children in the U.S. as recently as the 1970s. While enjoying fields of free action, children are able to pursue their own interests while simultaneously learning about the environment and their own capacities (Chawla & Derr, 2012). The new norm, especially

when it comes to nature, has become fields of constrained action, in which children's exploration

and engagement with their surroundings is significantly limited (Louv, 2005). Largely confined

indoors, for many children nature has become "a socially mediated abstraction" (Chawla & Derr,

2012, p. 530). In fields of promoted action, children's engagement with their surroundings is

supported, and potentially directed or joined, by other people such as their parents and teachers.

When families spend time together in nature together or adults encourage nature exploration and

awareness, it conveys that nature is to be enjoyed and valued.

As Chawla (2007, p. 159) noted, attachment theory adds emotional depth to the

ecological psychology concept of fields of action:

> Many observations of young children and their mother or other close caregiver show that
>
> a child moves back and forth from its caregiver to the attractions of the world around it,
>
> pivoting around the adult as a "secure base" that the child keeps in sight and often returns
>
> to touch (Colin, 1996). The caregiver sets limits to this movement and is quick to draw
>
> near if there is any sign of danger (creating a "field of constrained action"), but when the
>
> environment appears safe, she encourages the child's exploration and allows an
>
> expanding range (creating the conditions for "fields of promoted action" and "free
>
> action"). When young children feel securely attached to their mother or other primary
>
> figure, they explore the world more confidently. Under good conditions, this back and
>
> forth movement opens out with time to encompass children's wide ranging exploration of
>
> their community and natural areas, confident that they can always return to the secure
>
> base of their home (Hart, 1978).

From infancy, fields of promoted action in nature are not only possible, but beneficial for

both child and parent (St. Antoine, 2013). This is the type of opportunity created by FNCs. While

it is understandable to lament the loss of freedom experienced by previous generations, having

children and adults actively engaged in exploring the natural world together has many positives,

for the individuals, for their relationships, and for the natural environment. Additionally, the

increased comfort and confidence gained through promoted action or shared activity in nature

via a FNC may increase the likelihood that participating children will be allowed to play and

explore in nature independently (fields of free action) as well when they are of an age to do so.

Indeed, recent research by McFarland and colleagues (2014) found a positive relationship

between parental attitudes towards nature and the amount of time their children actually spend in

outdoor free play activities, with the more positive parental attitude associated with a greater

quantity of free play outdoors for their children.

      Joint attention. Relationships rely on the sharing of experience and knowledge, and the

process of *joint attention i*s a developmentally significant way in which people are able to attend

to an aspect of their environment in unison with significant others. Joint attention is an important

part of the process of developing the secure parent-child relationship described by attachment

theory. This can be observed in infants, who will turn away from objects of interest to engage in

joint attention with others as soon as they are physically able (Carpenter, 2011). By

approximately one year old most children will actively invite people to join them in giving

attention to something of interest by directing their gaze, pointing, or using early language

abilities. Studies have found that children's skills in initiating and responding to joint attention

predict their social competence during early childhood and account for differences in social and

emotional abilities in later life (Van Hecke, et al., 2012).

      As children grow and they begin to explore the world around them, ideally from a secure

base and within fields of promoted action, the process of joint attention helps them to:

learn what people around them consider worth noticing and how they appraise it, and

they find their own spontaneous interests either encouraged, reprimanded, or ignored.

Thus a nearby natural area can be a place of fascination that a family explores and

appreciates together, a scary place that children are forbidden to enter, or something

barely noticed as children ride by in the family car (Chawla & Derr, 2012, p. 529).

The process of joint attention helps to illuminate why close role models for nature

appreciation are such an important influence for people committed to PEB. By setting an

example of interest in and care for the natural world and inviting others to share in this

experience, role models convey the value of the environment. Based on her research of

environmental activists and the stories they shared about their significant role models for nature

appreciation, Chawla (2007, p. 158) offers that:

Significant adults gave attention to the environment in four ways: by expressing care for

the land as a limited resource essential for family identity and well-being; by

disapproving of destructive practices; by sharing pleasure at being out in nature; and

through their own fascination with details of the earth, sky, and living things. These

forms of attention were not mutually exclusive, but tended to reinforce each other. The

same people who taught care for the land were also likely to express disapproval of other

people's destructiveness, and when they showed fascination with the details of things, it

underscored lessons about the value of family land, or general expressions of pleasure at

heading out into forests or fields.

Social learning theory. Both fields of action and joint attention find a home in social

learning theory (Bandura, 1997), which explains human behavior in terms of continuous

reciprocal interactions between cognitive, behavioral, and enviromental influences. People learn

through observing other's behavior, attitudes, and outcomes of those behaviors. Bandura (1997)

found that most human behavior is learned through observing others and that this modeling is

called on as a guide for later action. For children in particular, much learning occurs through the

imitation of the attitudes and behaviors that they observe in their parents, teachers, and peers.

Research shows that children are likely to take a positive attitude toward and exhibit positive

behavior in relationship to concepts that their parents feel positively towards, including in the

area of PEB (Meeusen, 2014; Gronhoj & Thogersen, 2009; Leppanen et al., 2012). For example,

a study by Pratt and colleagues (2013) investigated the relationship between generativity (care

for future generations) and the development of environmental concern and PEB among teenagers

and their parents. Parental environmental values and behaviors were found to be the strongest

predictor of adolescent PEB, which was thought to reflect "both parental modeling, as well as

actual parental engagement with the adolescent in some of these specific environmental

activities" (Pratt et al., 2013, p.21). Adolescent environmental and prosocial behaviors were also

influenced by their own level of generative concern, which was, in turn, influenced by a high

warmth, high demand (authoritative) parenting style and the generative concern of the mother, as

is encouraged by attachment theory.

At the center of Bandura's social learning theory is the concept of self-efficacy, or one's

belief in one's ability to succeed in specific situations. By determining the beliefs a person holds

regarding her or his capacity to affect situations, self-efficacy strongly influences both a person's

ability to face challenges competently and the choices a person is most likely to make, thus

affecting all areas of human endeavor (Bandura, 1997). Research on the development of a sense

of efficacy and competence helps to explain why children value the opportunity to play in nature

as well as how they learn the skills and strategies associated with taking care of the natural world

(Chawla & Cushing, 2007). Chawla & Derr (2012, p. 529) hone in on the idea that:

> people develop a sense of efficacy most effectively when they have opportunities to
>
> practice action to achieve valued goals, they experience for themselves how the world
>
> responds to their efforts, and they taste at least some measure of success. One reason why
>
> play in nature may figure so prominently in the memories of people who show care for
>
> the environment is that natural areas are places where children can set challenges at levels
>
> they choose for themselves and enjoy the effects of their actions.

2.3.3 – Family and Human Well-Being

A report by the American Academy of Pediatrics Committee on Psychosocial Aspects of

Child and Family Health states that certain character traits will produce children capable of

navigating an increasingly complex world as they grow older (Ginsburg, 2007). These traits

include confidence, competence, and "a deep-seated connectedness to and caring about others

that create the love, safety, and security that children need to thrive" (Ginsburg, 2007, p. 186). In

addition, to be resilient—to remain optimistic and be able to rebound from adversity, which is

essential in the socially and ecologically turbulent world we live in— the report finds that young

people need the essential character traits of honesty, generosity, decency, tenacity, and

compassion. Children are most likely to gain all of these essential traits of resiliency within a

home in which parents and children have time to be together and to look to each other for

positive support and unconditional love (Ginsburg, 2007; Power, 2004; Ungar, 2004).

However, many of the aspects of American family life that are limiting children's time in

nature are also impacting the overall quantity and quality of basic family time together. Having

two working parents, long work hours, distance from extended family, school demands, extra-

curricular activities, and substantial time spent consuming electronic media are all common

characteristics of the modern family. Many families are successfully navigating a wide variety of

commitments without sacrificing high-quality parent-child time, but some families' ability to

maintain essential parent-child time may be compromised by this modern lifestyle. For the well-

being of the family unit as well as individual family members, it is important for families to

connect with each other despite, or arguably because of, the aforementioned constraints.

Family leisure. For many families, leisure activities are given a high level of importance

as a way to achieve quality time together. As such, family leisure is typically purposeful in

nature, with parents deliberately planning and facilitating activities to improve family

relationships (Shaw & Dawson, 2001). Decades of research on recreation and leisure patterns

among families have provided substantial evidence for the positive relationships between family

leisure and family well-being outcomes (Hawkes 1991; Orthner & Mancini 1991). Hawkes

emphasized that "family strength or cohesiveness is related to the family's use of leisure time"

(1991, p. 424), and Orthner and Mancini emphasized that "leisure experiences foster system

adaptation to new inputs" (1991, p. 297). A balance of cohesion and adaptability is known to be

essential for family functioning (Olson & DeFrain's, 2000).

To better understand the nature of the family-leisure relationship, a theoretical framework

referred to as the core and balance model of family leisure functioning was developed by

Zabriskie and colleagues (Zabriskie 2000, 2001; Zabriskie & McCormick, 2001). The model

indicates two types of family leisure patterns, *core* and *balance,* that families use to meet

individual and family needs for both stability and change and suggests that they contribute to

different aspects of family functioning (Zabriskie & McCormick, 2001). Family leisure patterns

classified as core are "depicted by activities that are common, every day, low-cost, relatively

accessible, often home-based, and are participated in frequently" and increase personal relationships and family closeness or cohesion (Freeman & Zabriskie, 2003, p. 76). Examples of core activities include family dinners, walks, games, or movie nights. Family leisure patterns classified as balance are novel, out of the ordinary, are usually not home-based, often require a greater investment of time, effort, and resources, and occur less frequently than core activities (Zabriskie, 2001). Examples of balance activities include family vacations, special events, and outdoor leisure activities such as hiking, camping, and boating. These experiences are often unpredictable and provide a leisure context in which families develop adaptive skills.

Using the core and balance model, research with a variety of family types has found a significant relationship between family leisure involvement and family cohesion, adaptability, and overall family functioning and that families who participate in relatively equal amounts of both core and balance family leisure are likely to function better than families who participate in very high or very low amounts of one category or the other (Freeman & Zabriskie, 2003; Hill et al., 2001; traditional families, Zabriskie, 2000; adoptive families, Zabriskie & Freeman, 2004; single-parent families, Smith et al., 2004; Hispanic families, Christenson, 2004). Additionally, studies that examined the influence of family leisure from both the parent and youth perspectives have demonstrated that family leisure is associated with increased satisfaction with family life (Zabriskie & McCormick, 2003), increased collective efficacy (Wells et al., 2004), and improved family communication (Huff et al., 2003). FNCs have a unique potential to be core and/or balance activities, depending on the way they are structured, with all of the associated benefits for family functioning.

Shared nature experiences. There are numerous ways to cultivate lasting family bonds. However "shared nature experience presents a natural opportunity for families to put into

practice the most important components of strong, healthy relationships—sensitive interactions, affective sharing, joint problem-solving, interdependence, and, free from the many distractions of most households, emotional availability to each other" (Erickson, 2009, p. 8). Natural environments provide a unique context for families to share in fields of promoted action, joint attention, and social learning, with the ability to experience enhanced self-efficacy. Decades of studies have consistently found a direct relationship between strong, successful, cohesive families and participation in outdoor recreation (Dynes, 1977; Hart, 1984; Hawkes, 1991; Hill, 1988). Outdoor recreation has not only been identified as a significant component of successful families, but is recognized as valuable treatment modality for dysfunctional families (Burg, 2000; Gillis & Gass, 1993; Mulholland & Williams, 1998). Gass (1993, p. 137) demonstrated that outdoor "adventure experiences are inherently rich with processes that can foster realism and a sense of empowerment rarely achieved in other therapeutic processes".

With an interest in the preventive and/or family enrichment effects of outdoor recreation for average families, Freeman and Zabriskie (2002) presented a study on the effects of an intensive one-day, eight hour family adventure program on parental perceptions of family problem solving, communications, cohesiveness, and general functioning. The program was sponsored by a city park and recreation department and included family participation in a variety of initiative games, rock climbing and belaying, and white water rafting. Pre and post-surveys, as well as observational data, were gathered from the 24 participating families and follow-up interviews were conducted with 11 of the families one month after the experience. Survey data indicated significant increases in both the father's and mother's perceptions of family cohesiveness due to program participation. Interview analysis indicated that powerful memories of the experience persisted and families claimed to have grown much closer as a result of the

program. Some of the benefits described by families include improvement in participants' self–esteem, family trust, adaptability, and love. One father stated, "You can go through months without any experiences to really talk about. A family activity like this though provides us a whole lot to talk about. Not just the activity, but our feelings about the activity, and how they relate to us as a family. These types of experiences, I think, are what draw families closer together" (Freeman & Zabriskie, 2002, p. 137). These results offer support for the importance of shared experiential learning opportunities and are consistent with the core and balance model of family leisure as well as family systems theory.

Research on family camping programs has also offered meaningful insights into the value of shared nature experiences for family well-being. Potter and Duenkel's (1997) study of families that participated in a five to nine day camping experience found three common themes with regards to what was meaningful about the experience for both the parents and the children: creation of an alternative culture (from the experience of daily life at home); the development of a sense of community; and the importance of experiential learning components. Research on a variety of family camps by Garst and colleagues (2013) found that families were motivated to participate in family camp experiences primarily to have a fun and relaxing experience, to enjoy a peaceful outdoor atmosphere, to spend quality time with family, and because of the affordability of family camp. Participants indicated that the family camp experience reinforced family relationships (86%) and good parenting (60%). The most common camp-related factors that influenced positive family relationships were cited as being quality family time, the relaxing outdoor environment, spending time away from the stress of day-to-day routines, teamwork involved in novel activities or living together, the camp staff, and mentoring from other parents. This study by Garst et al, (2013) supports the benefits of family camp experiences identified by

other researchers—that they can be highly motivating and empowering experiences for families

and can act as a tremendous catalyst toward change within a family system (Agate & Covey,

2007; Lewicki, Goyette, & Marr, 1996; Taylor et al., 2006).

2.3.4 – Summary

The family is the fundamental unit in society and perhaps the oldest and most important

of all human institutions (Nisbet, 1975). Many of the strategies known to promote healthy and

resilient youth and families are rooted in the deep connection that develops when parents engage

with their children with warmth and consistency (Ginsburg & Jablow, 2006). Studies on strong

families also indicate that both quality and quantity of time are necessary to create a family

identity, enhance communication, and build family strengths. Leisure activities, especially those

outdoors, have been found to be directly related to the quality of family life and family strength.

Family outdoor leisure activities are therefore a field of promoted action that offer a prime

opportunity for joint attention, social learning, and self-efficacy, setting the stage for connection

and care for the natural world as well as enhanced connection and care within the family.

2.4 - Clubs[3]: Supporting Social and Community Engagement

Over the course of millions of years, humanity's evolution has occurred in intimate

relationship with nature, immediate family, and a broader social community. Scientists such as

Jane Goodall (2000) have observed the ways in which chimpanzee communities are created

around emotional bonds between individuals, with especially strong and long-lasting ties existing

between mothers and their children. For chimpanzees, the bonds of kinship and friendship are

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[3] Family nature clubs could also readily be referred to as family nature communities, which is more meaningful phrasing, especially when considering and contextualizing the potential effects of FNC participation.

developed and maintained by mutual grooming, which is a close social interaction that fosters

complex knowledge of community members and the capacity to form mutually supportive

alliances (Goodall, 2000). When early hominids descended from the trees six million years ago,

they are thought to have lived in kinship groups of approximately 65 individuals that were

similar to those of chimpanzees. Hunting and gathering societies, which emerged approximately

2.5 million years ago, and are characterized by the prevalence of the family and kinship

structures as the basic institution and fulfiller of most individual and societal needs, with each

individual having ties to the other members of the group (Massey, 2002). Over the course of the

age of the hunter gatherer, individual communities gradually expanded in size and complexity,

peaking at about 155 people per group prior to the dawn of agrarianism 10,000 years ago. Social

group dynamics have been so essential and influential that the increase in social complexity that

came with increased group size is believed to be a primary stimulus for the increase in brain size

that was seen over this period of evolution (Massey, 2002). In agrarian society the vast majority

of people were still living in small villages not much bigger or more socially complex than

hunting and gathering communities.

It was the massive shift towards urbanization that occurred with the industrial revolution

several hundred years ago that wrought numerous changes for family and community social

patterns. Even so, over the past dozen or so generations, an individual's physically immediate

community continued to serve a vital role in terms of offering camaraderie and acting as a

support system. More recently, the lack of place continuity, demographic changes, the intense

schedules associated with work and school, and the lure of electronic media are dramatically

reducing civic engagement and sense of community. For example, in the 40 years between 1960

and 2000, there was a 30% to 40% decline in how many people in the U.S. engage in civic

activities such as serving as an officer or member of an organization, attending community

meetings, or attending political events (Putnam, 2000). Purely social activities have also been on

the decline, with the number of people entertaining friends at home declining by 45% between

1970 and 2000 (Putnam, 2000). The wide-spread use of computer technology and the internet

has perhaps had the most dramatic influence on communities, with a decoupling from immediate

geography that was not previously possible. Now, to the extent to which people are actively

involved with community, it often more closely linked with personal interests than with location.

There are now many kinds of communities at various scales and therefore there are many

ways to define community. A broad definition that provides space for the different forms of

community is a group or network of persons who are connected to each other by relatively

durable social relations that extend beyond immediate familial ties, and who mutually define that

relationship as important to their social identity and social practice (James et al., 2012). Charles

and Samples (2004, p. 36) offer a definition of community as "a dynamic set of relationships in

which a synergic, self-regulating whole is created out of the combination of individual parts into

a cohesive, identifiable, unified form." They further describe several key elements of considering

community and its continued importance in modern life (Charles & Samples, 2004, p. 36):

- Community requires a perception of belonging and supports a sense of identity.

- Community puts identity into context.

- Community requires participation and commitment.

- People can be members of many communities at the same time.

- The community provides support to individuals and every individual contributes to the

  community overall.

- Community in its optimal form is a coherent system that operates with all of its parts working effectively as individual self-constrained elements and as a whole.

- Communities exercise a form of synergy – a coherent whole is created by more than a simple sum of the parts.

Overall, "healthy communities are cultural and natural systems where life and learning are nourished and the actions of members enable a peaceful and sustainable future" (Charles & Samples, 2004, p. 10). This section explores community psychology as theoretical framework for understanding the importance of communities and the role of sense of community and community engagement for both environmental and human well-being.

2.4.1 - Theoretical Framework – Community Psychology

Community psychology began to emerge as a distinct field during the 1960s out of recognition that psychology needed to have a greater focus on community and social issues in order to address human health and well-being. Closely related to disciplines such as ecological psychology, social psychology and community development, community psychology focuses on people's behavior and well-being in the context of all the community environments and social systems in which they live (Levine et al., 2005). Community psychology emphasizes ecological thinking to explore the fit, or interaction, between people and environments (Rappaport, 1977). Community psychology also addresses communities that are not geographically bound, such as communities of practice comprised of people who live in disparate locations. The field recognizes two dimensions of community: territorial (the physical demarcations) and relational (the nature and quality of relationships in that community), such that proximity or shared territory cannot constitute a community without the relational dimension (Gusfield, 1975).

Psychological *sense of community* is one of the key concepts of community psychology. Introduced by Sarason (1974), sense of community is an extra-individual construct in that it transcends individual-level concepts such as social support and focuses on the role communities of people have as a whole system of, optimally, supportive transactions (Pretty et al., 2006). For example, for a community to be healthy it is not necessary for each person to have a personal relationship with all members of the community and a sense of community can persists even as individual members come and go. Hence, sense of community can be an elusive mental and emotional construct that includes, but is not necessarily based on, transactions at the level of the individual. Early research on sense of community was conducted in neighborhoods and identified relationships between sense of community and greater community participation (Wandersman & Giamartino, 1980), perceived safety (Doolittle & McDonald, 1978), ability to function competently in the community (Glynn, 1981), social bonding (Riger & Lavrakas, 1981), strengths of interpersonal relationships (Ahlbrandt & Cunningham, 1979), greater sense of purpose and perceived control (Bachrach & Zautra, 1985), and greater civic engagement (Davidson & Cotter, 1986).

Building off this work and seeking a more robust theoretical definition, McMillan & Chavis (1986, p.9) influentially defined sense of community as "a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together". To better understand and empirically analyze how sense of community can influence relationships among individuals in communities as well as collective behaviors, McMillan and Chavis (1986) proposed a four-dimension model representing key processes. First, *membership* represents the feeling of being part of a community, which is inclusive of perceptions regarding shared boundaries and symbols

as well as feelings of emotional safety and personal investment in the community. Second, *influence* references the opportunities available for people to participate in the community through reciprocal relationships as well as people's perceptions of being able to make a contribution, which is similar to self-efficacy. Third, *integration and fulfillment* represents the benefits that people derive from community membership and refers to a positive relationship between individuals and their community through which both personal and community needs are satisfied. Fourth, shared *emotional connection* references the sharing of a common history and purpose, community narratives about significant events, and the quality of social ties. This model was used to develop the Sense of Community Index (Perkins et al., 1990), which is the most widely-used instrument for empirically measuring the construct.

The concept of sense of community has become popular within a range of disciplines and practices and is also commonly used as a lay term to refer to feelings of belonging, identity and support (Pretty et al., 2006). Sense of community has such wide resonance and significance because of its influence on social attachment among individuals, social engagement and community participation, and impacts on mental and physical health. Sense of community also provides an important framework for understanding related concepts such as social networks and social capital. *Social networks* within a community can be defined as the web of social relationships that surround an individual and the characteristics of those ties (Laumann, 1973). Social networks are a conduit through which social norms are spread and have a strong influence on individual and community well-being. The positive potential for social networks to provide personal and community benefits is captured in the concept of *social capital,* which is the collective value of all the social networks in a community. This value arises because social networks allow us to accomplish what we cannot so readily manage on our own, whether it is

finding a job, taking care of a sick family member, or sharing information. Research has

identified important relationships between social networks, social capital and improved natural

and social environments as reflected in government performance, economic development,

environmental protection, youth development, academic achievements, and positive outcomes

for human health and well-being (Alaimo et al., 2010; Brinig, 2011; Hunter et al., 2011; Lima &

d'Hauteserre, 2011; Maclean, 2010; Tseloni et al., 2010).

2.4.2 - Clubs and Pro-Environmental Behavior

In addition to direct contact with nature and the presence of emotionally close, often

familial, role models for nature appreciation, the research on how people come to care about and

take care of the natural environment suggests that experience in nature-based organizations or

communities, such as FNCs, is a particularly important influence. Integrating community

psychology and ecological psychology, this section will present three primary ways in which

such organizational or community participation effects PEB—*behavior settings*, *environmental

education programs,* and *community engagement/efficacy.*

2.4.2.1 Behavior settings and social norms. Social interactions are informed by the

places in which they occur. In their recognition of this, "environmental and ecological theories of

human behavior gave psychologists a position from which to argue the relevance of community

to individual and group well-being" (Pretty et al., 2006, p.5). Early research on topics such as

social identity, networks, and environments provided an opportunity to explore the physical

contexts within which individual behavior occurs. From this inquiry, Lewin (1951) proposed that

behavior is a function of the person, the environment and the interaction between the two and

Kelly (1966) proposed that to fully understand relationships social and physical environments

must be considered. For ecological psychologist Roger Barker (1968), the nature of the physical

setting itself (e.g., schools) created a context that defined and moderated behavior.

Chawla (2007, p. 152) describes Barker's concept of *behavior settings* as "customary

patterns of behavior in designated places where people gather to engage in particular activities at

particular times. These settings are constituted by the coordinated actions of the people there as

well as the affordances of the place that support these actions." For example, a FNC event

requires an event leader, the participation of children and their caregivers, and an outdoor

gathering place for people to play and explore. Each behavior setting informs the roles specific

people take, whether it is a relatively passive role as a recipient of an experience or, more

optimally for learning, as an "active functionary" who has the ability to influence some part of

the setting or experience and act upon observed consequences (Barker, 1968). As noted by

Barker and explained by Chawla (2007, p.152), some of the "best predictors of people's actions

include the behavior settings that they occupy, for people quickly learn the programs for

different settings and take up appropriate roles". For example, in a FNC, participants may

quickly understand that families are expected to actively explore nature together, be responsible

for their own children while also working together to watch out for the group, engage one

another, and leave each place better than it was found (e.g., picking up litter).

The concept of behavior settings has similarities to the concept of socially-based place

bonds, in which the physical setting of a social interaction influences the relational experience

(Scannell & Gifford, 2010). Stated differently, the place itself can positively or negatively alter

the cognitions, affect and behavior of its inhabitants (Heft, 2001). Some researchers have

emphasized that natural environments have a particularly important meaning for social

experiences and relationships related to PEBs, the meanings of which are mediated by social

interactions and the physical setting (Nye & Hargreaves, 2009; Raymond et al., 2011). With a lesser focus on place, *social norms* also help to explain why participating in a nature or environment-based organization, community, or club has an influence on PEB. Social norms exist to define appropriate behavior for every social group. People rely on social norms to guide and direct their behavior, to provide order and predictability in social relationships and to make sense of and understand of each other's actions (McLeod, 2008). Like behavior settings, social norms are predictive of individual and group behavior.

As Walant (1999) explains, every society has expectations and rules for its members, which are put into effect by parents, teachers, government, and other social and cultural institutions. However, when seen by a future generation, these same customs, which were the norm of their time, can be judged as strange, wrong, harsh, or even abusive. As new information, societal demands, or social protest becomes too loud to ignore, forms of normative abuse, such as corporal punishment, begin to shift. This paradox—between what is viewed as right thinking and correct behavior in a particular time period, but later viewed as wrong—is a hallmark of the fluidity of social change. Knowing about this dynamic can enable us to have empathy for our predecessors, because some of the norms in our own era will be seen as abuse by future generations. The concept of normative abuse also helps to frame and give hope around the ongoing abuse of the natural environment. Our society's diminishing connection with the natural world has made it easier to abuse the environment through blatant destruction and pollution. There is hope that with new information, education, and more frequent direct experiences with the natural environment, the maltreatment of the environment will decrease and greater care for the environment will be intentionally prioritized.

2.4.2.2 - Experiential environmental education programs. Experiential environmental education programs create a learning community that is of particular relevance when considering the development of PEB. FNCs offer a form of experiential outdoor environmental education, often informally, but sometimes with greater intention and structure. To consider the implications and effects of participation in this type of learning community, Chawla & Derr's (2012) critical analysis of three substantial reviews of literature on effects of environmental education programs is used as a foundation (Rickinson, 2001; Zelezny, 1999; Zint, 2012). Given that no prior research has been conducted on FNCs, of particular relevance is their review of nature field trips, environmental service learning, and forest kindergartens each of which has some common ground with FNC events. A review of a study on a school-based nature club concludes this section.

Nature field trips. Almost by definition, FNCs can be seen as a community-based opportunity for nature field trips. Most are several hours in duration, although many offer more extended opportunities such as weekend camping trips. A study by Stern and colleagues (2008) used pre and post surveys (one same day and one three months later) to evaluate the effects of student participation in a field trip to a nature center. The results showed that students had significant gains in their sense of connection to nature, interest in learning and discovery, knowledge about the park and biodiversity, and environmental stewardship attitudes and behaviors immediate after the program and stilled showed significant gains in environmental knowledge and stewardship behaviors three months later. A similar study by Stern and colleagues (2011) focused on the sense of environmental responsibility for home environments and communities resulting from a five-day program on the Chesapeake Bay and found significant increases in community environmental responsibility, especially in urban students.

Environmental service learning. Some FNCs make a point of engaging in locally

relevant environmental service projects, such as tree or native species planting and stream clean-

ups. Consistent with assessments of place-based education more broadly, service learning

programs have been found to achieve increases in awareness of community issues, the capacity

to develop projects relevant to community need, and a dedication to making a difference

(Melchior & Bailis, 2002). For example, a year-long program in a secondary school class sought

to help students become catalysts for community change by teaching them about local

environmental issues, exploring nearby natural areas, putting PEBs into practice, and doing

service projects such as creek clean-ups. Using pre and post interviews with students from two

class cohorts as well as adults associated with the program, Schneller (2008) found that 75% of

the program participants adopted new environmental behaviors, most of which were sustained a

year later for the previous cohort, and more than 70% of the students were able to successful

change their family's environmental practices.

Nature kindergartens. Some FNCs are created to offer an informal type of nature

kindergarten or school for their community. Having a relatively substantial history in

Scandinavia and Germany, nature or forest kindergartens generally emphasize: direct, immersive

experience in nature; connecting deeply with nature through play and exploration; local ways of

knowing and understanding; learning collaboratively as part of a community, and recognizing

the environment as a co-teacher. A study by Elliot and colleagues (2014) suggests that nature

kindergartens foster a community of learners; promote children's social skills, as seen in the way

the children offered to support one another's efforts; help children discover their own ideas,

strengths and confidence; and nurture a deep connection to the environment. The researchers

(Elliot et al., 2014, p. 116) emphasize that this study is supportive of the idea that "education

within nature is particularly important in early childhood because direct experience with various environments facilitates the development of positive feelings and attitudes towards nature and natural phenomena." Research on low-income British children participating in forest kindergartens found a ripple effect in which families with limited nature experience began to pursue nature experiences similar to those their children had at school during their own leisure time (Knight, 2009; Murray & O'Brien, 2005).

School-based nature clubs. A study by Damerell and colleagues (2013) used school-based wildlife clubs to study environmental education for children that is intended to also influence parental behavior. A controlled trial was used to "quantify the effect of receiving education on wetland ecology and conservation on children's environmental knowledge; quantify differences in knowledge between parents whose children had or had not received wetland education; and assess whether reported water conservation behavior differed between households with children who had or had not studied wetlands" (Damerell et al., 2013, p.1). Fifteen wildlife clubs at primary and secondary schools participated in the study, seven of which had conducted wetlands education in the past year and eight of which had not conducted any wetlands education during the period of inquiry. This design created four distinct study populations—the children who had received wetlands education and their parents as well as the control group of children that did not receive this education and their parents. The study results suggest that the environmental knowledge of the participating students was positively influenced by: the environmental education provided the wildlife clubs; the duration of participation in the wildlife club; and, for the topic of wetlands, awareness of local rivers. These results are believed to be linked to the practical, hands-on, field-based experiences offered by the wildlife club outside of learning that occurs in school. The study results suggest that the environmental knowledge of the

parents was positively influenced by: their child's participation in the wildlife club wetland education; greater age; higher levels of education; and longer duration living in the same community. Environmentally conservative household water use was shown to be positively influenced by: children's participation in the wetlands education at the wildlife club; higher combined attendance at the wildlife club (duration and/or multiple children); and the adult's knowledge of freshwater systems and engagement with related activities in their community. This study suggests that children can be 'effective agents' for the environment within their immediate social structures and also makes links between community duration, knowledge, and engagement and household PEB.

This research by Damerell and colleagues (2013) raises an important point about environmental education programs. Children are often the target audience of environmental education programs because attitudes towards the environment begin to develop at an early age and, once formed, are not easily changed (Asunta, 2003). Additionally, children can help to promote PEB in others and, if inspired early, have a long life-time in which to engage in and encourage PEB (Leeming & Porter, 1997). However, many current environmental issues require immediate and substantive action, which suggests the need for environmental education to target adults that currently have the ability to implement changes in household behavior and demand business and legislative changes (Damerell et al., 2013). Programs that bring children and parents together to learn about the natural environment, such as FNCs, align with a growing body of literature that provides evidence for bi-directional influence of knowledge sharing and behavior change between parents and children (Kuczynski et al, 1999; Knafo & Galansky, 2008) and resolve the need to make a trade-off in the target audience.

As Zelezny (1999), Rickinson (2001), Zint (2012), and Chawla & Derr (2012) all noted in their literature reviews of a wide variety of environmental education programs, there are three consistent characteristics of programs that are most likely to effectively promote PEB. Both extended duration and intensity of nature immersion are primary attributes of effective programs. Direct, experiential learning that connects to real, local issues is also a hallmark of successful programs. PEB is also more likely to be achieved and sustained in environmental education programs where participants are actively engaged in learning and provided with opportunities to learn and practice the skills needed for PEB. With ongoing participation, FNCs have the potential to offer all three of these learning experiences.

      2.4.2.3 - Community engagement and efficacy. The sense of community that can come, in part, from participating in an organization, club, program or other community group seems to provide the basis for what has been called the *competent community* (Cottrell, 1976). Research on adult populations has found that sense of community can be a significant catalyst for community participation, increasing both individual and collective action (Prezza et al., 2001; Simon et al., 1998). A study by Da Silva and colleagues (2004) found that adolescents' attachment to peers strongly facilitates being actively engaged in altruistic community behaviors like taking part in fundraising activities. Moreover, contributing to community life through social participation was found to enhance adolescents' sense of control, domain specific self-efficacy and generally promotes positive developmental outcomes (Da Silva et al., 2004). A study by Albanesi and colleagues (2007) showed that involvement in community groups is associated with increased civic involvement and increased sense of community and that sense of community predicts social well-being. More broadly, a sense of community can generate communal efficacy, responsibility, and concern. For example, the strong sense of community

within a very poor Venezuelan community has been attributed to buffering the residents against

economic and social hardship as well as fostering grassroots efforts to address infrastructure

needs (Garcia et al., 1999). Similarly, in some economically and socially disadvantaged areas of

Australia, a strong sense of community has reduced the frequency of crime, child abuse, and

poor physical and mental health that would otherwise be expected (Vinson, 2004).

More specific to environment issues, a study by Quimby and Angelique (2011) used

community psychology as a framework for exploring perceived barriers and catalysts to

increasing PEB among people associated with the environmental movement. They found that

individuals who were associated with environmental groups had engaged in individual PEB such

as recycling, but most had not engaged in community-level environmental action. Participants

cited primary barriers as being time and money, the lack of efficacy, and feelings of

disappointment. Participants also suggested that to catalyze greater personal and community PEB

education and increased institutional support would be beneficial, but changing social norms

would make the greatest difference. This feedback supports other research that has found that

people are more likely to participate in PEB if they believe others are doing the same (Wall,

1995). Perhaps one of the most important roles community and ecological psychologists can play

in the effort to create sustainable communities is to help create a sense of community that fosters

community engagement and efficacy through empowering settings where participants have the

opportunity for action around making sustainable decisions, thereby creating new norms.

2.4.3 - Clubs and Human Well-Being

Human health and well-being is directly and intricately tied to our interactions with

others and the health of our communities. At the community level, the ability of meaningful

social contact and positive social cohesion to mediate and moderate socioeconomic disadvantage

and associated health problems have been well documented (Browning & Cagney, 2003). Social epidemiologists have demonstrated how community connections, belonging, networks, cohesion, and social capital play a significant role in mental and physical health outcomes, which are the focus of this section.

      2.4.3.1 - Mental health. Social ties and networks, a sense of community, and social capital can play a significant role in people's well-being (Berkman & Glass, 2000; Kawachi & Berkman, 2000; Ziersch et al., 2005). There is a considerable body of evidence that self-efficacy is one of the psycho-social pathways through which social support operates and, as a result, self-efficacy has been shown to be associated with a variety of mental health outcomes, many of which also effect physical health (Mendes de Leon et al., 1996). For example, studies have observed the indirect influence of social support through enhanced self-efficacy in coping with stressful events (Gulliver et al., 1995), and depression (McFarlane et al., 1995).

      Community connections are also positively correlated with individual well-being and life satisfaction. Wandersman and Florin (2000) found that contributions given to the community through participation imply an aspiration for life that facilitates individuals' well-being. Berkman and colleagues (2000) suggest that socially oriented behaviors, and feeling of belonging to a meaningful social context, increase social well-being and reinforce both participation and civic engagement. A large cross-section study (n > 350,000) found that social relationships explained more variance in life satisfaction than health and socioeconomic status combined (Barger et al., 2009). A study conducted in Australia demonstrated that social support and interaction in one's neighborhood significantly predicted life satisfaction (Shields et al., 2009). Social support, especially perceived emotional support, has also been shown to buffer the deleterious influences of stressful life events on the risk of depression and depressive symptoms (Choenarom et al.,

2005). For example, Hagerty and Williams (1999) examined people with major depressive

disorder and found that among a number of interpersonal phenomena including social support,

loneliness and conflict, a lack of sense of belonging was the strongest predictor of depression.

> **2.4.3.2 - Physical health.** It has become well understood that social isolation can

adversely affect physical health while social engagement and attachment can lead to positive

health outcomes and significantly reduce mortality risk (Holt-Lunstad et al., 2010). Research has

shown that higher levels of perceived social connectedness are associated with lower blood

pressure rates, better immune responses, and lower levels of stress hormones, all of which

contribute to the prevention of chronic disease (Uchino et al., 1996). Studies have also shown

that higher levels of trust between residents in a community are associated with lower mortality

rates (Lochner et al., 2003). In contrast, social isolation is considered a risk factor for multiple

chronic diseases, including obesity, high blood pressure, cancer, and diabetes (Cacioppo &

Hawkley, 2003). According to the Institute of Medicine (2001) studies have shown that

regardless of socioeconomic status, age, gender, or race, the greater the social isolation of

individuals, the more likely they are to report being in fair or poor health when compared to

individuals with larger social networks. A lack of social connectedness can increase stress levels

and lead to behavior that increases health risks, such as tobacco use, or reduce healthy behaviors

such as eating well, exercising, and getting adequate sleep (Institute of Medicine, 2001).

Traditional physical and demographic epidemiological risk factors have been found to

account for only about 40% of the variance when studying cardiovascular mortality and

morbidity, with much of the remaining 60% of the variance related to the social determinants

that can be best understood in terms of sense of community (Syme, 2000). A meta-analytic

review was conducted by (Holt-Lunstad et al., 2010) to determine the extent to which social

relationships influence risk for mortality, which aspects of social relationships are most highly predictive, and which factors may moderate the risk. Across 148 studies (n = 308,849), a 50% increased likelihood of survival was found for participants with stronger social relationships. This finding remained consistent across age, sex, initial health status, cause of death, and follow-up period. The authors note that the magnitude of this effect is comparable with quitting smoking and surpasses many other risk factors for mortality such as obesity and physical inactivity (Holt-Lunstad et al., 2010). Berkman and Krishna (2014) hypothesize that part of the reason social connectedness is such a powerful predictor of mortality is that social ties give meaning to an individual's life by virtue of enabling her or him to participate in it fully, to be counted on as a provider of support, and to feel attached to both people and community. Social networks and capital can also help create healthy social norms, help people connect with services, provide support, increase knowledge about health, and influence healthy policies (Kim et al., 2006).

2.4.4 – Summary

From ecological, sociological, and psychological perspectives substantial research has demonstrated peoples' basic and evolutionary need to belong as a valued member of a community (Hollings, 2001; Zylstra et al., 2014). Communities that create a behavior setting for environmentally conscientious social norms, offer the opportunity for experiential environmental education, and foster community engagement and a sense of personal and collective efficacy sets the stage for personal and community PEB. FNCs have the potential to fulfill each of these experiences. More broadly, being part of a community can have meaningful mental and physical health outcomes for the participants. Efforts to increase social connectedness within communities through free or low cost opportunities to engage and connect with neighbors through participation in groups such as FNCs have the potential for individual, community, and

environmental benefits. Social networks also play a crucial role in the process of individual

participation in social movements, the next focus of discussion (Klandermans, 1997).

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2.5 - Social Movements: The New Nature Movement and Sustainability

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Given that environmental crises, such as climate change, and the divide between people

and the natural world are growing environmental and social problems, there is an urgency to

scale up existing individual, familial, and community-level efforts to address these issues. Social

movements can be broadly understood as collective action by people with a common purpose

and solidarity in creating social change. They are defined by Snow and Soule (2010, p.6) as

being "collectivities acting with some degree of organization and continuity, partly outside of

institutional or organizational channels, for the purpose of challenging extant systems of

authority, or resisting change in such systems, in the organization, society, culture, or world

system in which they are embedded." This section focuses on social movements for

sustainability, such as the new nature movement of which FNCs are a part. It begins with a brief

overview of the history of social movements and the classification and theories of social

movements as a way to frame the discussion on mass mobilization for sustainability and

exploration of the new nature movement.

2.5.1 – Theoretical Framework

Several fundamental and noteworthy processes and capacities lie behind the origin and

evolution of social movements. The first is increased physical proximity of people. As societies

urbanized, people with similar ideas and social goals had greater opportunities to interact and

organize for change. Similarly, the process of industrialization gathered large numbers of

workers together in unprecedented ways. As a result, many of the early social movements

occurred in urban areas and were focused on matters such as economic well-being that were

important to the working class. As centers of mass education, universities have also consistently

been wellsprings of social movements. The second process is the enhancement of

communication technologies over time. In the 18th century, printed information regarding social

movements was often circulated in local gathering areas. Today, ever increasing access to the

internet makes social movements easier to create and sustain over larger distances. The third, and

arguably most important, process is the spread of democracy and political rights, such as

freedom of speech and freedom to assemble, which profoundly impacts the ability for social

movements to flourish.

From the perspective of western sociological and political science theory, these three

processes and capacities came together in 18th century Europe and allowed the first social

movements to be ignited by broad economic and political changes such as market capitalization

(Tilly, 2004). The resulting political movements, such as those connected to the British

abolitionist movement and French revolution, are among the first academically documented

social movements. With the 19th century came the labor and socialist movements, which are

viewed as the classic social movements in their focus on class struggles and the demand for

social change to provide a more equal distribution of resources (Buechler, 1995). In the mid-20th

century 'new' social movements such as civil, women's[4] and gay rights and the peace and

environmental movements emerged (Westd, 2004). While having deep historical roots, these

movements are considered distinct from 'old' movements in that they are oriented towards social

change related to lifestyle and culture and operate via direct democracy, spontaneity,

nonhierarchical structures, and small-scale, decentralized organizations (D'Anieri et al., 1990).

As the 21st century unfolds, social movements have reached an unprecedented scale as people

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[4] The movement for women's suffrage was part of the movement for women's rights, and came earlier in a number of countries.

around the world are increasingly able to connect via modern telecommunications. As a result, a progressive global citizens movement, that is at times referred to as the 'movement of movements' due to its composition of numerous sub-movements, has begun to emerge (Kriegman, 2006). The environmental movement is a prime example of a new social movement that is a facet of the global citizen's movement.

Sociologists distinguish between types of social movements according to the scope, type of change, targets, methods of work, range, and era, as summarized below (Tarrow, 1998):

- **Scope.** *Reform movements* advocate changing specific norms or laws. *Radical movements* are dedicated to changing value systems in a fundamental way.

- **Type of change.** *Innovation movements* seek to introduce or change particular norms and values. *Conservative movements* seek to preserve existing norms and values.

- **Targets.** *Group-focused movements* give emphasis to affecting groups or overall society. *Individual-focused* movements give emphasis to affecting individuals.

- **Approach.** *Peaceful movements* use nonviolent means of protest as part of civil resistance. *Violent movements* are often armed or may employ destructive or threatening techniques.

- **Range.** *Global movements* have transnational objectives and goals and seek to change global society. *Local movements* are focused on local or regional objectives and are among the most common social movements.

- **Old and new.** *Old movements* have existed for centuries, focus on specific social groups, and have resource-focused goals. Rooted in older efforts, *new movements* are often viewed as those that have emerged since the mid-20th century with a focus on issues that go beyond class, for example all facets of human rights and environmental sustainability.

Social movements for sustainability can be reform or radical in scope, innovative or conservative with regards to type of change, target groups or individuals, and be focused at the global or local levels. They can even be peaceful or violent in their methods of work, the Earth Liberation Front being an example of a more aggressive environmental organization. However, it is readily argued that true sustainability cannot be achieved through violent methods.

In addition to organizing social movements by type, they are often understood through the lenses of a number of theories. *Marxist theory* focuses on the role of class, economic, and political differences as primary forces in many social movements and seeks to foster viable alternatives to capitalist social structures (Callinicos, 2010). *Resource mobilization theory* emphasizes the importance of resources such as knowledge, money, media, labor, solidarity, legitimacy, and support from elites in social movement development and success (Buechler, 1999). *Political process theory* argues that there are three vital components for movement formation: insurgent consciousness, organizational strength, and political opportunities (Tarrow, 1998). *Culture theory* argues that a sense of injustice is essential for social movements to successfully mobilize because it provides the motivation for people to contribute to a movement instead of being free riders (Ryan & Gamson, 2006).

New social movement (NSM) theory seeks to explain the 'new' movements that have emerged in primarily post-industrial economies since the mid-20th century and is of particular importance in exploring social movements for sustainability, contemporary social activism, and the dynamics of movement emergence (Buechler, 1995). Habermas (1981) argues that NSMs are the 'new politics', which are about quality of life, individual self-realization, and human rights whereas the 'old politics' and social movements focus on economic, political, and military security. NSMs concentrate on bringing about social mobilization through cultural innovations,

development of new life-styles and transformation of identities. According to Melucci (1980), NSMs commonly reject the materialistic orientation of consumerism in capitalist societies by questioning the modern idea that happiness and success are closely linked to material acquisition and economic growth and by promoting alternative values and understandings, many of which recognize the value of indigenous ways of knowing and being in the world. Increasing numbers of NSMs and their individual members are highly motivated by related ethics, morals, and visions and focused on sustainability (Kilgore, 1999; Polletta & Jasper, 2001). NSMs are often considered to be progressive because they are expected to contribute to the further development of society. This explains the exclusion of nationalist and religious movements as well as racist, sexist and homophobic movements from the category of NSMs (Westd, 2004).

2.5.2 - Mass Mobilization for Sustainability

In *Blessed Unrest: How the Largest Social Movement in History is Restoring Grace, Justice and Beauty to the World* (2007), Paul Hawken gives compelling evidence that there are at least one and potentially two million organizations in the world that are working toward ecological sustainability and social justice. He explains that, by conventional definition, this enormous group of committed individuals and their associated organizations does not constitute a movement because movements typically have leaders and theologies that inspire people to join them. In contrast, the movement that Hawken (2007) has tried to quantify is dispersed, emergent, and highly independent. He characterizes the distinctive feature of this movement as its emergence from the bottom up as a global humanitarian effort to respond to the classic triggers of injustice, inequities and corruption as well as an unprecedented motivator--massive ecological degradation at a scale that threatens the very survival of humanity.

Across these millions of organizations, the broader NSMs they represent focus on a variety of scales, from global to local, and on progressive issues such as specific environmental concerns like climate change or social concerns like indigenous rights. Understandably given this massive breadth, NSMs tend not to develop a unified focus that includes political action. Rather many focus on grass-roots organization in the form of locally based, small groups that are loosely held by personal or informational networks (Buechler, 1999). There is an argument for the importance of a 'plurality of resistance' that can be found in the emergence of spontaneous coherence among various autonomous movements (Foucault, 1980). However, many scholar-activists agree that the only way to achieve large-scale social change is for individual NSMs to create stronger movement identities and collaborate with other NSMs to create a unified meta-identity (Brecher et al., 2000).

In examining the capacity of NSMs to unite for the purpose of creating a sustainable human society, it is useful to consider the important concepts of collective identity and movement identity. Collective identity is an individual's cognitive, moral, and emotional connection with a broader community, category, practice or institution (Polletta & Jasper, 2001) and is essential for leading a group to a course of collective action (Kilgore, 1999). According to Morris and Mueller (1992), three components must be present for a collective identity to form in NSMs: 1) a subculture that directly opposes hegemonic cultures; 2) a shared sense of solidarity; and 3) a collective consciousness with a shared vision for the future. Collective identity is a necessary precursor for movement identity, which forms when "a collection of groups and individuals perceive themselves (and are perceived by others) as a force in explicit pursuit of social change" and is also critical for a social movement's success (Jasper, 1997, p. 86).

According to Jasper (1997), movement identity is not the sum of individual identification with groups or goals, but a sense of a movement as a coherent entity with shared goals and strategies.

To understand barriers and bridges to NSM unification, Wood (2008) conducted a study that explored the convergence of thousands of social movement organizations in the U.S. at demonstrations such as the 'Battle in Seattle.' This study identified four sequential organizational forms of social movement unification: homogenous, particularized, thin, and strong. Homogenous unity can be efficient, but it often marginalizes those with differing perspectives. Particularized unity promotes a decentralized set of simultaneous movements, recognizing differences often at the expense of successful mobilization. The capacity for a thin unity emerged in the mid-1990s when fragmented movements started connecting via the internet. According to Wood (2008), strong NSM unity has not yet been achieved, but could be created if these social movements diverge from the status quo of uniting against a common 'enemy' and work to build the relationships and common ground necessary for a robust and resilient 'movement of movements'.

The term 'global citizen's movement' is colloquially used to refer to a number of organized and overlapping citizen driven movements seeking to establish global solidarity on progressive issues such as ecological sustainability, corporate responsibility, and social justice. In the theoretical discussion of social movements, the global citizen's movement refers to a

complex and unprecedented phenomena made possible by the latent potential for a profound

shift in values among an aware and engaged citizenry (Guidry et al., 2003). Arguments for the

existence of a global citizenry of tens of millions of people ready to identify around new values

of Earth consciousness have been put forth by such authors as David Korten, Duane Elgin, Paul

Raskin, and Vandana Shiva as well as organizations such as Oxfam International, who believe

that a global citizens movement rooted in social, environmental, and economic justice is

emerging and is necessary for achieving sustainability. Orion Kriegman (2006, p.2), author of

Dawn of the Cosmopolitan: The Hope of a Global Citizens Movement, states that:

> Transnational corporations, governments, and non-governmental organizations (NGOs)
>
> remain powerful global actors, but all of these would be deeply influenced by a coherent,
>
> worldwide association of millions of people who call for priority to be placed on new
>
> values of quality of life, human solidarity, and environmental sustainability.

Notes from Nowhere (2003) observes that the global citizens 'movement of movements'

shows the major features of complex, emergent, self-descriptive systems—what complexity

theorists call 'distributed intelligence'. Such self-organizing human systems are capable of rapid

and unpredictable emergent behaviors, manifestations and mobilizations based on their self-

descriptions (Diener et al., 1980). However, Kriegman (2006, p. 16) asserts that:

> existing social movements have not found a way to effectively balance the creative
>
> tension between pluralism and coherence to provide a collective framework for theory
>
> and action. The development of a shared framework will depend on new forms of
>
> leadership to facilitate engaged dialogue inclusive of diverse voices [in the] struggle for a
>
> socially just and ecologically sustainable global society and the establishment of an
>
> institutional structure to defend the rights of future generations and the biosphere.

Greater unification across NSMs can be fostered by an intentional focus on the values and principles they have in common. If each important facet of the global movement for sustainability can honor what makes it unique while seeing its place in the whole and making connections with other movements, it may greatly enhance the ability of the greater common purpose of achieving true social, environmental, and economic sustainability.

2.5.3 – The New Nature Movement

One element of the sustainability social movement is the effort to help people reconnect with the natural world, both for the well-being of people and because experience in nature is a direct path to PEB. Academics and practitioners have been addressing the growing divide between people and nature for decades. However, the significance of this issue was catalyzed in the mainstream conversation by the 2005 book *Last Child in the Woods: Saving our Children from Nature-Deficit Disorder* by journalist Richard Louv. His term nature-deficit disorder seemed to put a fine point on an issue that resonated broadly, as a movement "to reconnect children to the natural world has arisen quickly, spontaneously, and across the usual social, political, and economic dividing lines" (Louv, 2007). Louv also coined the phrase *new nature movement*, which he says "includes but goes beyond the good practices of traditional environmentalism and sustainability, and paints a compelling, inspiring portrait of a society better than the one we live in—not just a survivable world, but a nature-rich world in which our children and grandchildren thrive" (Louv, 2013, p. 1).

To help lead this movement, the Children & Nature Network (C&NN) was formed in 2006 with the mission to "connect all children, their families and communities to nature through innovative ideas, evidence-based resources and tools, broad-based collaboration and support of grassroots leadership." To support this vision and mission C&NN has launched and promoted

several key initiatives such as Grassroots Leaders, the Natural Service Network, and Family

Nature Clubs. The C&NN website notes that they:

> have identified over one hundred regions that have either launched or are
>
> assembling grassroots campaigns to connect children with nature. Grassroots coalitions
>
> work on the state, regional and local level to create shared strategic visions and plans and
>
> to map out a process for implementation. Regional strategies include: public awareness
>
> campaigns and community events; legislation and policy changes; public education and
>
> advocacy. Each effort increases the number of people and organizations participating in
>
> and taking action to reconnect children with nature.

One of the key initiatives of C&NN is to provide resources to support self-replicating

social change in the form of community-based clubs in which families come together in natural

outdoor settings. C&NN provides a toolkit for starting a family nature club (FNC) in their own

community as well as a variety of other resources, such as an online forum for exchanging ideas

and a club directory. As of June 2014, 192 FNCs were registered with C&NN. While each FNC

is unique, the common goal stated by C&NN is to: get outside in nature on a frequent basis;

gather children, friends and community members to share outdoor adventures; and experience

the benefits of time spent together outside. C&NN describes key benefits of FNCs as their ability

to: be created in any neighborhood, be joined or created by any family, break down key barriers

to time in nature, provide motivation to get outside, and increase knowledge.

Over the past eight years, local efforts such as those undertaken by people involved with

the Grassroots Leaders, Natural Service Network, and FNC initiatives have helped C&NN "turn

a cause into a movement by building a powerful source of shared information and resources;

engaging and empowering organizations and people across sectors; and bringing new, diverse

and sometimes unlikely allies to the table" (Louv, 2013, p.1). The new nature movement that has

emerged can be classified as: both reform and radical in scope in that it seeks to change specific

community norms and laws as well as fundamentally change value systems; innovative in terms

of the type of change being sought; targeting groups at the community level as a way to

coordinate and galvanize institutional and individual change; local in range, with increasing

international engagement; and peaceful with regards to its methods of work. Important

commonalities with other sustainability oriented social movements include peaceful methods of

work, an appropriate balance of a local focus with the capacity to have self-replicating social

change occur around the world, a strategy for targeting a mix of individual and group action, and

an emphasis on creating change that brings values and cultures back to more truly traditional

ways of living with one another and with the natural world.

2.5.4 - Summary

As promoted by the C&NN, the new nature movement is grounded in community

building. The co-founder of C&NN, Cheryl Charles (Charles, et al., 2009, p.14), has said that:

> the key to any successful movement is creating and sustaining a powerful sense of
>
> community. People feel a part of something that matters, and are inspired, nourished and
>
> supported in the process… The movement to reconnect children and nature stands on a
>
> belief that healthy children are the heart and foundation for healthy communities.
>
> Communities begin with their individual members—in this case, in home and families,
>
> with friends and neighbors.

FNCs play an important role in the new nature facet of the sustainability social movement

in four ways. First, FNCs offer all three of the life experiences shown to foster long-term PEB,

for both children and adults. Second, FNCs have the potential to create the conditions for

numerous individual, familial, community and environmental benefits, all of which foster

sustainability. Third, the social networks that can be created through FNC participation play a

crucial role in the process of individual participation in social movements (Klandermans, 1997).

Fourth, FNCs can be created in and be made accessible to any community with minimal cost for

leaders and participants, making this vehicle for social change highly replicable.

2.6 – Literature Review Summary

Over the past forty years, over a hundred studies have been conducted to understand how

people come to practice PEB. A review of this literature consistently finds three primary

personal factors that influence PEB--knowledge, self-efficacy, and affective motivations—and

three primary life experiences that facilitate PEB—time spent in nature (especially during

childhood), social support (especially role models for nature appreciation), and participation in

an organization that fosters experiential learning about the natural world (Chawla, 2006; Chawla

& Derr, 2012; Cheng & Monroe, 2012; Kollmus & Agyeman, 2002; Mayer & Frantz, 2004;

Pruneau et al., 2006; Wells & Lekies, 2012). This study used ecological psychology (Chawla,

2007; Gibson, 1979; Reed,1996; Zylstra et al., 2014), attachment theory (Ainsworth, 1978;

Bowlby, 1988) family systems theory (Bowen, 1985; Zabriskie & McCormick, 2003) and

community psychology (Pretty et al., 2006; Rappaport, 1977) to create a theoretical framework

for understanding how these factors and experiences can come together in the form of FNCs to

foster pro-environmental behavior as well as individual, familial, and community well-being.

CHAPTER 3: RESEARCH DESIGN – METHODOLOGY AND METHODS

This research was both exploratory and descriptive in purpose and design, bringing the methodologies of ethnography, case study, and action research together with a selection of methods to develop an understanding of family nature clubs, their participants, and their social and ecological effects. Stated differently, this research was guided by three questions: *1) What are common design frameworks for family nature clubs?; 2) What are the characteristics of the people who are leading and participating in family nature clubs?; and 3) What are the effects of being a part of a family nature club on individual, familial, social and ecological well-being?* This chapter presents the methodologies and methods used to address these questions, as illustrated in Figure 2. The study populations and research timeline as well as the topics of validity and reliability, ethical considerations, and data analysis are also discussed.
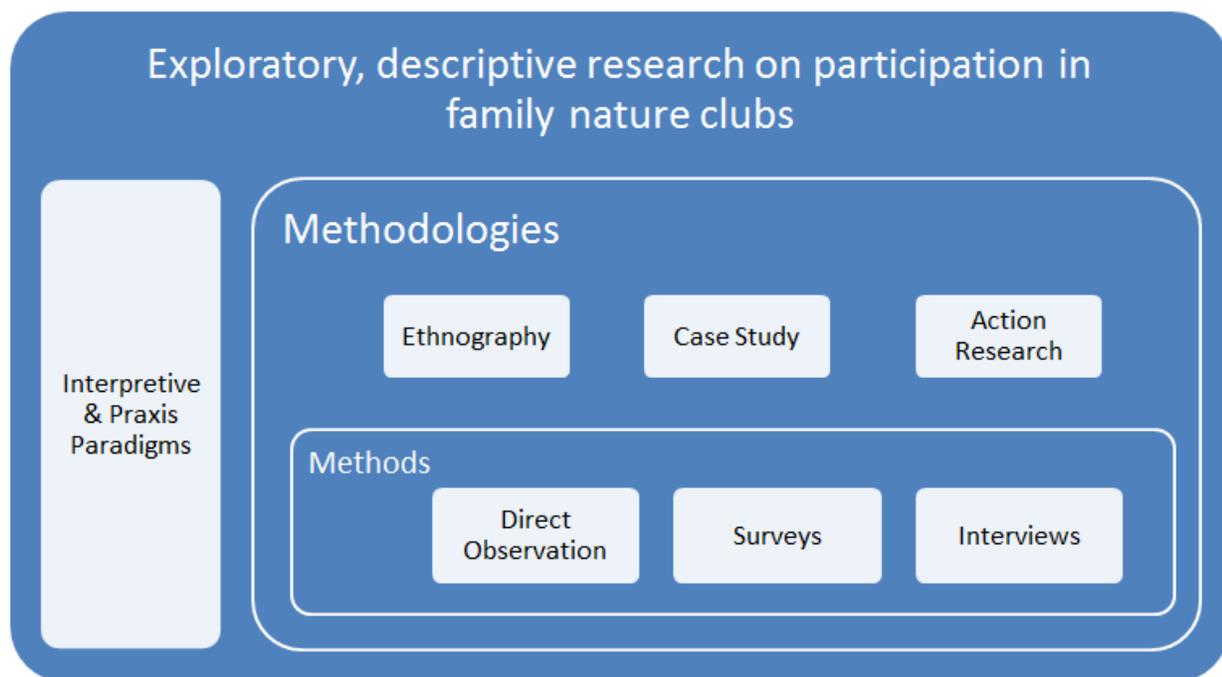
Figure 3. Family nature club research design illustration.

3.1 - Methodologies

A research methodology reflects the researcher's ideological and philosophical lenses, which influence how they consider and analyze data as well as the principles that determine how research tools (methods) are deployed and interpreted (Clingan, 2011). This study utilized three methodologies – ethnography, case study, and action research – and used a mix of quantitative and qualitative methods to allow for the robust collection and triangulation of data. Both the methodologies and the methods were utilized in alignment with the humanist and feminist beliefs that the researcher should be visible in the research as an interested and subjective actor rather than a detached and impartial observer (Bentz & Shapiro, 1998; Jacobs, 2008).

3.1.1 - Ethnography

Particularly well suited to exploratory research, the central aim of ethnography is to provide rich, holistic insights into the perspectives and practices of people who comprise a cultural group (Reeves et al., 2008). Ethnography originated as a research methodology with anthropological studies of non-western societies during the early 1900's in which the researcher became immersed in the cultures in order to document their social arrangements and belief systems (Creswell, 2007). This approach was later adopted by sociologists and applied to studies on a wide variety of groups. For the purposes of this research, the cultural group being studied was family nature club (FNC) leaders and participants.

There are three key methodological principles associated with ethnographic research: naturalism, understanding, and discovery (Genzuk, 1999). Naturalism is the view that the aim of such social research is to capture the character of naturally occurring human behavior, and that this can only be achieved by first-hand contact with it, not by inferences from what people do in artificial settings like experiments or from what they say in interviews about what they do

elsewhere. The principle of understanding argues that it is necessary to learn the culture of the group being studied, however small or informal, before valid explanations for the behavior of its members can be produced and that we cannot assume that we already know others' perspectives, even in our own society. The principle of discovery encourages the ethnographic researcher to begin with an interest in a social phenomenon and/or a practical problem and then hone the research focus as it proceeds. Thus, ethnographic research requires ongoing, direct engagement with the study population and necessitates the use of multiple methods, particularly detailed observations coupled with interviews. This study sought to adhere to each of these ethnographic principles in both design and practice. For example, interviews conducted with the leaders of other FNCs had more depth as a result of my own experience as a FNC leader (both the interview process and my FNC leadership are described further below).

3.1.2 - Case Study

According to Creswell (2007), the entire culture-sharing group in an ethnography may be considered a case, but the intent in ethnography is to determine how the culture works and the intent of case study research is to explore an issue through one or more cases within a bounded system such as a particular setting or context. Originating in anthropology and sociology, case study research has a long history across many disciplines, ranging from psychology to medicine to law and political sciences. The ethnographic case study methodology allows the researcher to anchor the global in the local using four reflexive dimensions: the extension of the observer into the world of the participants; the extension of observations over a bounded time and space; extending out from micro processes to macro forces; and the extension of theory into reality (Burawoy et al., 2000). As a methodology, case study research is a primarily qualitative approach in which the investigator explores a bounded system (case) or systems (cases) over

time through detailed data collection from multiple sources (e.g., observations, interviews, audio

visual materials) and reports a case description and case based themes (Creswell, 2007).

Types of qualitative case studies are distinguished by the size of the bounded case (an

individual, a group, an entire program, etc.) and by the intent of the case study—the single

instrumental case study, the multiple case study, and the intrinsic case study (Creswell, 2007).

This study used a single instrumental case study in the form of *Columbia Families in Nature*

(CFIN)--the FNC that was created for this purpose in Columbia, Maryland and is described in

the action research section below. A detailed description of this case, including its history and

chronology, has been developed through the direct, action research-based experience of being the

founder and leader of CFIN. Substantial and diverse data collection (including direct

observation, pre- and post-surveys, and interviews) and holistic data analysis were used to help

better understand the complexities and nuances of this specific case in the context of the dozens

of other FNCs included in this research and the meaning of the case in relationship to the

research questions.

3.1.3 - Action Research

Several key attributes separate action research from other types of research. Most

significantly, action research takes place in real-world situations, aims to solve real problems,

and the researcher is an active participant who openly acknowledges her or his perspectives and

focuses on engaging study participants in the research (Greenwood & Levin, 2007). Action

research has its academic origins in the 1940s with the work of Kurt Lewin, a psychologist who

was concerned with social problems and focused on participative group processes for achieving

change. By the mid-1970s, four main streams of action research had evolved: traditional,

contextual, radical, and educational (O'Brien, 2001). The action research portion of this study,

creating a FNC aligns most closely with educational action research, which advocates for

professional educators to become involved in community problem-solving and apply learning in

a social context.

3.1.4 - An Action-Based Ethnographic Case Study: Creating a Family Nature Club

This study used action research to create a new family nature club, *Columbia Families in Nature (CFIN),* which served as a case study for the broader ethnographic inquiry into family nature clubs, their participants, and social and ecological effects.

The seeds for CFIN were sown during my childhood spent playing freely in nature and watered by the experience of bringing my own young children outside to enjoy Columbia's nearby nature and finding few other families there to share in the experience. The light needed to urge these seeds to put out shoots in the form of a FNC came from the 2012 C&NN Grassroots Gathering. As a participant in this conference I received a copy of the C&NN Nature Clubs for Families Toolkit and participated in several sessions on FNCs. As a

Columbia is a socio-economically diverse suburban community of approximately 100,000 people located between Baltimore, Maryland and Washington, DC. As one of the first planned communities in the country, Columbia is comprised of ten distinct villages that are connected by an integrated park and trail system that covers over 25 percent of Columbia's total acreage. Despite this availability of abundant, accessible local nature, Columbia is facing the pressures common to suburbia, and much of the community travels to destinations via car and seeks recreation indoors. As a result, the park system is lightly utilized, especially by children and families for play and exploration.

second year PhD student at the time, my research interests were becoming focused on how

people come to care about the natural environment and how this care can be scaled up and

activated in the form of social movements for sustainability. My review of research suggested

that time in nature during childhood, in the presence of a close adult, and participation in a

nature-based organization or group were important formative experiences for having a life-long

active care for the environment (Chawla, 1999). I became excited about starting a FNC as an

opportunity to offer these three experiences to my community and in doing so have an action-

based approach to my research that incorporated my personal passions as well as my family.

Over the course of the following year I used the C&NN resources as a catalyst for

designing a FNC that made sense for my community and context. The description and goals for

CFIN evolved to be:

Columbia Families in Nature (CFIN) provides free, fun opportunities for families to

spend time together in nature. On two to three Sunday afternoons a month CFIN outings

take place at natural areas in and around Columbia. These outings emphasize playtime in

nature and also include hands-on conservation activities. By connecting families with

nearby nature, the goals of CFIN are to: foster greater connection with nature and the

community; increase environmental awareness and action; support the well-being of

participants; and help strengthen family relationships.

In early January of 2014 I began advertising CFIN to the community in preparation for an

initial outing date of March 23, 2014. The foundation for my CFIN communications plan was the

development of a dedicated website, www.columbiafamiliesinnature.org, which was used to

describe the club, promote and allow people to sign up for upcoming events, share pictures and

testimonials, and address common questions. The website was updated regularly, especially with

regards to information about upcoming events; however, most of the content was fairly static.

The primary communications mechanism for growing interest in and conversation about CFIN

was a dedicated Facebook page, www.facebook.com/columbiafamiliesinnature, which was

updated almost daily. To connect interested people with the website and Facebook page I

developed a list of community contacts that had some interest common to CFIN. This list

included school PTAs, pediatricians, local politicians, community centers, pre-schools,

environmental organizations, religious organizations, mom's groups, Meetup groups, outdoor

enthusiast groups, outdoor equipment stores, libraries, children's consignment stores, and more.

Concurrent with my efforts to spread awareness about CFIN, I was working on the

logistical details of preparing to hold the outings. I worked with the organization responsible for

managing the open space in my community, the Columbia Association, to select appropriate

locations for the first three months of outings. I prepared basic materials such as fliers and

registration forms with liability and photo release waivers. I also purchased collateral materials

to help create a presence for CFIN, such as business cards, a yard-sign to demarcate the outing

gathering place, and custom bandanas for participants and leaders during the outings. I used an

online survey tool, Survey Monkey, to develop a brief pre-registration form for outings and

downloaded this data into an Excel spreadsheet used to methodically track people's engagement

with CFIN and participation at specific outings.

Over the course of 2014, thirty-one (31) CFIN outings were offered to the community,

including the addition in September of Friday morning nature walks on alternate weeks to the

Sunday outings in response to participant requests for a weekday option. The outings were held

at a variety of nearby natural areas including diverse parks, farms, gardens, wildlife sanctuaries,

and community open space trails, with minimal repeat visitation. The foci of each two-hour

outing were also diverse, ranging from free exploration and play, to active hikes, to structured,

environmentally focused events, such as tree planting and garden creation. During every outing

families were supported in engaging in exploration of the specific natural environment together.

Two days in advance of each outing registrants received a confirmation email that provided

details on where we were going (with a focus on the ecology of the particular location), how to

come well prepared (given the weather and site features), and what we would be doing (playing

in a river, receiving Junior Naturalist 'training' from park rangers, helping a library create a

children's garden, etc.). Appendix A provides an example of this participant email. Additionally,

at most outings participants received a customized scavenger hunt created to help them engage

with and learn more about their fellow CFIN participants and the local environment, as shown in

Appendix B. Participants were invited to provide feedback after each event.

3.2 - Study Populations

The study population, or cultural group, for this research was people who participate in a

FNC Within this broader context the population can be broken down into two groups in two

different ways. CFIN served as a case study of the approximately 200 FNCs registered with the

C&NN. Additionally, FNCs leaders were specifically engaged as a sub-population of the broader

group of FNC participants. This section provides a brief description of each of the CFIN and

C&NN FNC study populations to provide context for what is known about the ethnographic

group under study and frame the forthcoming description of the methods of data collection used

with each study population.

3.2.1 - Columbia Families in Nature

The CFIN population was comprised of families living in or near Columbia, Maryland.

According to the U.S. Census Bureau (2010), this community of approximately 100,000 people

is 57% Caucasian, 25% African American, 11% Asian, and 8% Hispanic or Latino.

Approximately two-thirds of Columbia's 36,000 households are comprised of families, of which

~50% have children under 18 at home, for a population of ~22,000 children. Columbia residents

have a high degree of educational attainment. Of those 25 and older, 94% have graduated high

school, 61% have a bachelor's degree, and 30% have a graduate degree. The mean household

income for Columbia is ~$113,000. Approximately 22% of households have annual incomes of under $50,000, which is a constrained income for a very expensive region.

It was a priority for CFIN to engage the full socioeconomic diversity of Columbia, which includes many historically under represented populations in outdoor activity and the environmental movement, such as those from lower income and/or African American and Latino families. Recruitment efforts strategically focused on reaching members of the community that were not already known to be actively engaging their children in nature-based activities (i.e., actively advertising at community centers, libraries and schools rather than focusing primarily on places such as nature centers and groups such as Maryland Natural Approach to Parenting). As the founder and leader of CFIN, and as a mother of two young children who attended all of the outings, I was also a part of the CFIN study population and documented my own experiences and direct observations in relationship to the research questions.

3.2.2 - C&NN Family Nature Clubs

The Children & Nature Network (C&NN) actively promotes the creation of FNCs by individuals and/or organizations across the country. FNC leaders are encouraged to register their club with the C&NN so it appears on their online new nature movement directory (www.childrenandnature.org/directory/clubs/). In 2013, C&NN conducted an online survey based inquiry into the 137 FNCs registered in the directory at that time (Swaisgood, 2013). These C&NN surveys garnered responses from 54 nature club leaders and 103 participants and found that most FNC leader and participant respondents were Caucasian, educated, and relatively economically affluent. Most of the leaders that responded were parents themselves and cited a variety of motivations for starting a club with many mentioning a mentor or friend. The number of families participating in each represented FNC varied significantly, ranging from less than 25

to over 800 families per club. The substantial majority of the FNCs were started between 2009 and 2013, with most having started in 2012. This summary data collected by C&NN over two years ago is useful in broadly contextualizing the C&NN FNC study population engaged during this research and offering a reference point of comparison for study results.

As of June 2014, there were 192 distinct family nature clubs registered with the C&NN, including CFIN. From this pool of FNCs, C&NN was able to provide contact information for 151 family nature club leaders, each of whom was invited to participate in this research. C&NN attributes the discrepancy between the 192 clubs and 151 leader contacts to the presence of a number of clubs in which one leader registered multiple sub-clubs and instances where C&NN staff registered clubs on behalf of a leader that may not have been internet savvy. C&NN FNC participants were reached through a combination of outreach from their club leader and from C&NN, who sent emails and made posts to social media regarding this research.

The study populations for this research are illustrated in Figure 4, with the star-shape at the crossroads of CFIN and FNC leaders signifying my place as the researcher.
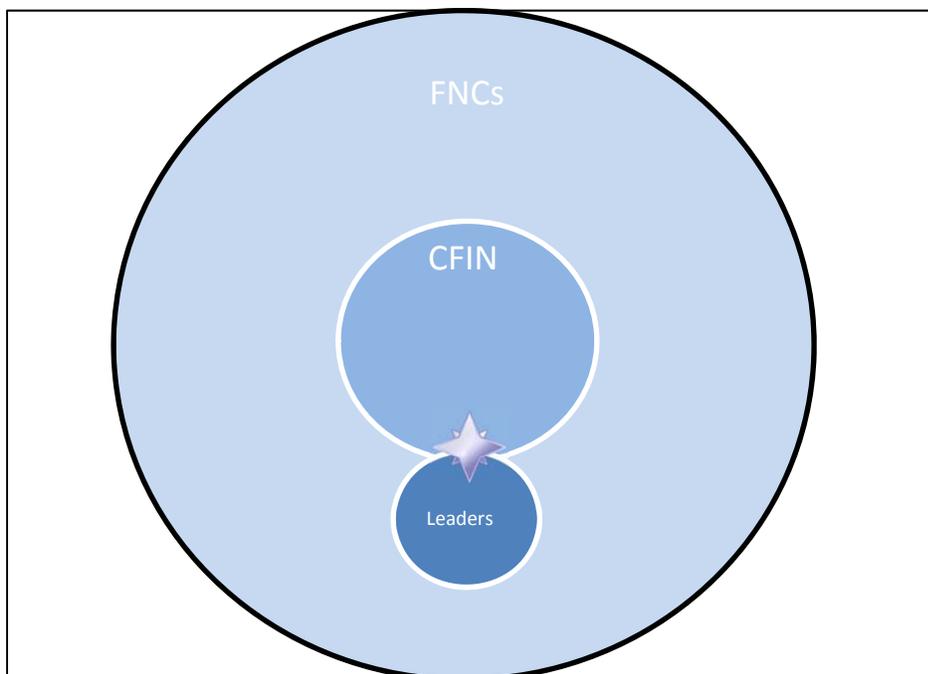
Figure 4. Family nature club research participant group illustration.

3.2.3 - Comparison Group

Individuals known to have interest in CFIN, but who had not participated in an outing as of December 1, 2014 were invited to complete a comparison group survey. Derived from people who had registered for but never attended a CFIN outing, signed up for the CFIN list-serve but never attended an outing, or followed the CFIN Facebook page but never attended an outing, this study population allowed for comparison between people with a common interest in FNC participation but a difference in the experience of FNC participation.

3.3 - Methods of Data Collection

The methods used to engage the different study populations on questions framing this research include direct observation, surveys, and interviews, as presented in Table 1.

Table 1. *Research methods used with each study population.*

Method	Study Participant Category			
	CFIN Participants	FNC Participants	FNC Leaders	Comparison Group
Direct Observation	*			
Surveys	*	*	*	*
Interviews	*		*	

This combination of qualitative observation and interview methods with quantitative survey questions strengthened this study by allowing for triangulation of the results. Using several methods also allowed topics to be explored from different perspectives, for more views to be captured, and for more complex answers to both exploratory and descriptive questions (Gelo et al., 2008; Johnson & Onwuegbuzie, 2004). The following is a description of each method and how it was used with the relevant study populations.

3.3.1 - Direct Observation

(Study population: CFIN participants)

Direct observation is a primary method of ethnographic research. Participant observation enables researchers to learn about the activities of the people under study in their natural setting through observing and participating in those activities, usually over the duration of a year or more. DeWalt and DeWalt (2002, p.92) believe that "the goal for the design of research using participant observation as a method is to develop a holistic understanding of the phenomena under study that is as objective and accurate as possible" and suggest that participant observation is a way to increase the validity of a study when combined with other methods.

With CFIN, I took a participant as observer stance, in which the researcher is a member of the group being studied and the group is aware of the research activity. During each of the thirty-one (31) CFIN outings held in 2014, I conducted participant observations in the form of field notes, photographs, and informal conversations. In addition to participant observation, I also engaged in self-observation and reflection throughout the process of leading CFIN, which included keeping a reflexive journal in which I recorded both the actions I took as a FNC leader and my personal experience with regards to my roles as a researcher and CFIN leader.

3.3.2 - Comprehensive Online Surveys

(Study populations: CFIN parents, C&NN FNC parent participants, C&NN FNC leaders, and CFIN non-participant comparison group)

The survey is a non-experimental, descriptive research method that is particularly useful in the collection of data that cannot be directly observed. In a survey, researchers sample a population that possesses at least one common characteristic, in this case their participation (or not) in a FNC. There are two basic types of surveys: cross-sectional surveys and longitudinal surveys. Cross-sectional surveys are used to gather information on a population at a single point

in time. Longitudinal surveys gather data over a period of time. The three primary types of

longitudinal surveys are trend studies, cohort studies, and panel studies. This research used

different types of surveys with different study populations. For the leaders and the participants in

the C&NN FNCs, two similar, but study population specific, cross-sectional surveys were used.

For participants in CFIN, a related longitudinal panel study (or pre/post survey) was used to be

able to assess changes in the case study population resulting from their participation in the FNC.

A pared down version of the aforementioned surveys was used with the comparison population

of CFIN non-participants.

For the C&NN FNC participant and leader research surveys, the following format was

consistently used for the question structure: family nature club participation information, outdoor

activity information, household practices information, relationship information, and demographic

information. Existing survey tools were used to answer specific research questions when

possible. Where there was a gap between existing survey tools and information needed for this

research, a substantive process was undertaken to develop appropriate questions. The survey

questions were beta-tested by a group of 22 first year PhD students at Prescott College, several

staff and leaders within C&NN, and my dissertation committee and refined based on their

feedback. Each survey had an informed consent agreement as the first question and was designed

to be completed within twenty minutes. For all surveys, the online Survey Monkey platform was

the distribution mechanism and adults were the specified audience. The following is a

description of the five surveys that were developed and distributed for this research, organized

by study participant group.

- Columbia Families in Nature – A 22 question pre-survey was developed for the parent

    participants in CFIN to assess their initial relationship to the primary research questions. The

invitation to complete the pre-survey was sent immediately after the family's first outing

with a request to complete it prior to their second outing. Appendix C presents the invitation

to participate in the pre-survey and Appendix D provides the complete set of pre-survey

questions. After a family participated in their sixth outing they were invited to complete the

survey again as the post-test. The 18 question post-survey, provided in Appendix E, included

several new questions in place of the demographic questions, which were removed, while

retaining the same core research questions.

- C&NN FNC Leaders – A 28 question online survey was distributed to the leaders of FNCs

  registered with C&NN. In addition to the questions consistently used across the four surveys,

  the leader survey gathered information on group member's motivations for club engagement

  and leadership and provided opportunities for narrative responses on their observations of the

  social and ecological effects of their FNC. The survey for C&NN FNC leaders was open

  from June 15th to September 15th. C&NN staff sent the initial invitation to complete the

  leader survey, as provided in Appendix F, as well as several mass email follow up requests. I

  also sent three different individualized emails to the 151 FNC leaders for whom C&NN was

  able to provide contact information. The request for leaders to complete their survey was

  accompanied by a request for them to also engage their FNC members in the study. The

  complete C&NN FNC leader survey is provided in Appendix G.

- C&NN FNC Participants – A 28 question online survey was distributed to the participants in

  FNCs registered with C&NN. The survey used for the CFIN participant population was

  modified slightly for use with this broader population of C&NN FNC participants.

  Modifications primarily reflected the cross-sectional rather than longitudinal use of this

  survey and the need to capture additional data on the participant's FNC. The survey for

C&NN FNC participants was open from June 15th to September 15th. Outreach to this study

population occurred primarily through their FNC leader, as described above, as well as

through several social media announcements about this study made by C&NN. A simple

study website, shown in Figure 5, was used as the landing page from which FNC leaders and

participants could access their online surveys.
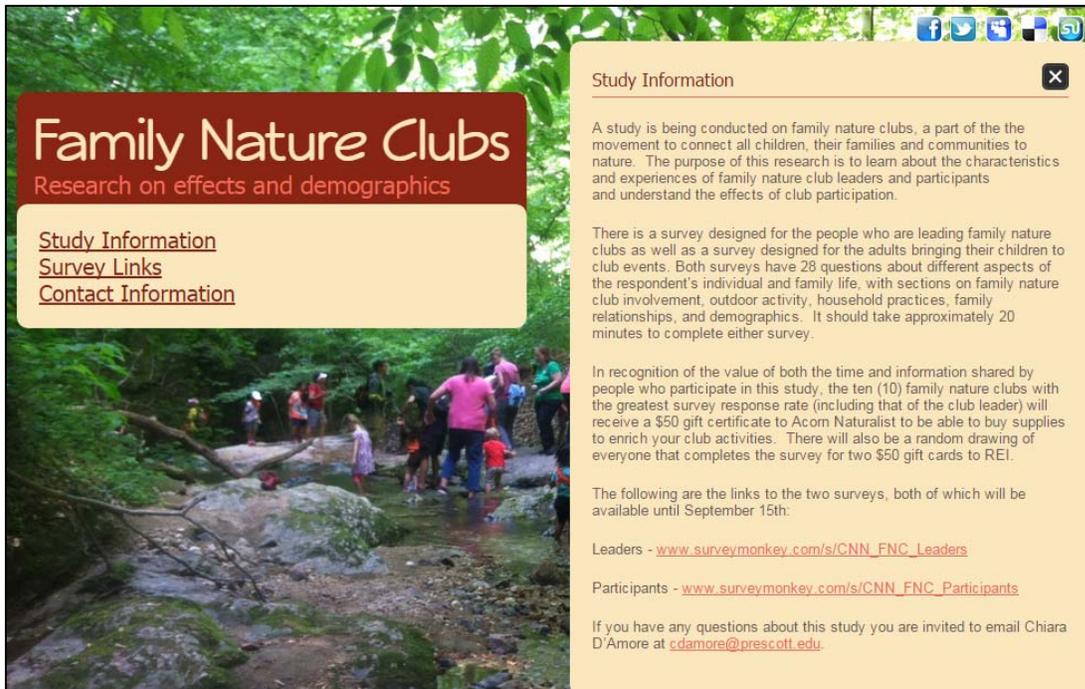
Figure 5. Website for C&NN FNC survey links and study information.

- CFIN Comparison Group – A 20 question survey was developed for use with the study's

  comparison group, people who showed interest in CFIN but never attended an outing. To

  foster survey completion, this survey did not include several of the more complex questions

  about time in nature and family relationships, and it included an opportunity for a narrative

  response regarding the family's barriers to CFIN participation. On December 1, 2014 an

  email requesting participation in this survey was sent to 52 individuals who had registered for

  a CFIN outing but never attended as well as to another 54 individuals who had signed up for

the CFIN list serve but never attended an outing. The survey invitation was also posted to the

CFIN Facebook page, which had 558 followers at the time.

Table 2 summarizes the survey questions used in all four primary research surveys,

specifies the question number associated with the question in each survey, if applicable, and

summarizes the research purpose of the question.

Table 2. *Survey research questions and purpose summary*.

Survey Question Summary	CFIN pre #	CFIN post #	FNC part. #	FNC leader #	Cont. Group #	Research Purpose
a. Informed consent agreement	1	1	1	1	1	Ethical considerations
b. Family nature club information	-	-	2	2	-	Describing FNCs
c. FNC engagement - duration and frequency	-	-	3	2	-	Describing participation in FNCs
d. FNC leadership role	-	-	-	3	-	Describing participation in FNCs
e. Relationship to children bringing to outings	2	-	4	8	-	Demographics
f. Age and gender of children	3	-	20	19	5	Demographics
g. Why joined / lead the FNC (or interested)	-	2	5	4	1	Describing participation in FNCs
h. Why continued participation in FNC	-	3	6	-	-	Effect of participation
i. What has been meaningful about participating *(Narrative)*	-	4	7	-	3*	Effect of participation
j. How has leading a club affected you *(Narrative)*	-	-	-	5	-	Effect of participation
k. Childhood nature experience triad	4	-	8	7	12	Ethnographic context
l. Types / frequency of family outdoor activity	5	6	9	9	-	Ethnographic context
m. Family time in nature per week *(before/after for other FNCs)*	6	7	10	10	13	Ethnographic context / effects of participation

n. Kid time in nature per week *(before/after for other FNCs)*	7	8	11	11	13	Ethnographic context / effects of participation
o. Family leisure practices, frequency, satisfaction	8	9	12	12	-	Ethnographic context / effects of participation
p. Social action - types and frequency	9	10	13	13	18	Ethnographic context / effects of participation
q. Environmental action - types and frequency	10	11	14	14	17	Ethnographic context / effects of participation
r. Family relationships	11	12	15	15	-	Ethnographic context / effects of participation
s. Family life satisfaction	12	13	16	16	16	Ethnographic context / effects of participation
t. Family's relationships with other groups	13	14	17	17	15	Ethnographic context / effects of participation
u. Sense of connection with nature	14	15	18	18	14	Ethnographic context / effects of participation
v. Four summary outcomes of participation	-	5	19	6	-	Effect of participation
w. Gender identification	15	-	21	20	4	Demographics
x. Birthday	16	16	22	21	6	Demographics
y. Number of children	17	-	20	19	5	Demographics
z. Ethnicity / race	18	-	23	22	7	Demographics
aa. Education	19	-	24	23	8	Demographics
bb. Relationship status	20	-	25	24	9	Demographics
cc. Household income	21	-	26	25	10	Demographics
dd. Personal responsibilities / employment	22	-	27	26	11	Demographics
ee. Other thoughts *(Narrative)*	23	18	-	-	20	Narrative opportunity
ff. Interest in interview	24	17	28	27	-	Interviewee identification
gg. Interested in receiving aggregate data for their club	-	-	-	28	-	Leader participant appreciation

*For the comparison group, this question was an open narrative opportunity to describe barriers to their participation in CFIN.

The following is a description of how these survey questions were developed, organized

by survey section: family nature club participation information, outdoor activity information,

household practices information, relationship information, and demographic information.

Family nature club participation information:

    B. Family nature club information
    C. FNC engagement - duration and frequency
    D. FNC leadership role
    E. Relationship to children bringing to outings
    F. Age and gender of children
    G. Why joined / lead the FNC (or interested)
    H. Why continued participation in FNC
    I.   What has been meaningful about participating?
    J. How has leading a club affected you?

Questions **B** through **F**, which primarily focused on describing the FNC and the

respondent's engagement with it, were developed specifically for this research. Questions **G** and

H were based on questions asked in the 2013 C&NN informational surveys sent to FNC leaders

and participants (previously described in the C&NN FNC study population section) and updated

in collaboration with the C&NN Natural Families Network leadership. Questions **I** and **J** were

developed specifically to offer opportunities for open-narrative responses regarding the effects of

leading and/or participating in FNCs.

Outdoor activity information:

    K. Childhood nature experience triad
    L. Types / frequency of family outdoor activity
    M. Family time in nature per week (before/after for other FNCs)
    N. Kid time in nature per week (before/after for other FNCs)

Question **K** was developed to capture the respondent's recollection of the three youth

experiences that may to lead to life-long environmental care: time in nature; presence of close

adult role model; and participation in a nature-based organization. Question **L** condensed the

Nature Frequency Scale to gather information on the types and frequency of family outdoor

activity. Questions **M** and **N** were based on time in nature questions asked in surveys on the

relationship between outdoor activity and women's body image (Mitten & D'Amore,

forthcoming) and were adjusted for the surveys for C&NN FNC leaders and participants to

create a proxy of a pre-post question with regards to participation in their FNC.

Household practices information:

- O. Family leisure practices, frequency, satisfaction
- P. Social action - types and frequency
- Q. Environmental action - types and frequency

Question **O** is a modified version of the Family Leisure Activity Profile intended to help

contextualize a respondent's time in nature within family other leisure activities and characterize

overall satisfaction with family time. Question **P** is based on the Occupy Research and Data

Center survey instrument and is intended to provide insight into the respondent's level of

participation in social action. Question **Q** is based on Canada's Household and the Environment

Green Index and is intended to provide a gauge of family environmental behavior.

Relationship information:

- R. Family relationships
- S. Family life satisfaction
- T. Family's relationships with other groups
- U. Sense of connection with nature
- V. Four summary outcomes of participation

Questions **R** and **S** use the Family Adaptation and Cohesion Scale to characterize the

overall cohesion of the family as well as the respondent's satisfaction with specific facets of their

family life. Question **T** was developed specifically for this study to characterize the family's

relationships across several categories: extended family; other families; children's peer

friendships; parent's peer friendships; connect with the community; and connection with nature.

Question **U** is a condensed version of the Connectedness to Nature Scale. Question **V** was developed specifically for this study to capture overall experiences with family nature club participation in the following areas: greater sense of connection with family; the opportunity to learn something new; enhanced sense of connection with nature; and the opportunity to get to know new people.

Demographics and follow-up information:

All of the demographic questions listed in Table 2 were based on the nature and body image research survey research by Mitten and D'Amore. The last three questions provided opportunities to share final narrative thoughts and/or to indicate interest in further research engagement.

In addition to the formal research surveys described above, for CFIN participants several additional surveys offered insight into this study population. Prior to each family's first outing they were required to complete an online pre-registration form. This survey captured basic demographic information about the family and included a liability waiver and photo release. Additionally, after each outing CFIN participants were invited to complete a four question survey that included three open questions asking what was meaningful about their experience, anything notable about their child(ren)'s experience, and for any other feedback on the outing. One Likert scale question asked whether the CFIN participant experienced: greater connection with their family, the opportunity to learn something new, an enhanced sense of connection with nature, and/or the opportunity to get to know new people.

3.3.3 - Most Significant Change Interviews

(Study population: CFIN parents, C&NN Family Nature Club Leaders)

In-depth interviews are a method used to ask open-ended questions that elicit depth of information from select people. This type of interview process is characterized by: having a semi-structured format; using open-ended questions; and seeking understanding and interpretation of information throughout the interview. In-depth interviews involve asking questions as well as systematically recording and documenting the responses to probe for deeper meaning and understanding. Ethnographic interviews emphasize having a relationship of rapport and respect with respondents as well as understanding the meaning of actions and events to respondents. Taking this further, feminist researchers have challenged traditional interview formats, opting for more creative and interactive methodologies that reduce the distinction between the researcher and the researched (Ellis, 2008; Reinharz & Davidman, 1992). One approach for doing this is the interactive interview, which "involves the sharing of personal and social experiences of both respondents and researchers", who share their stories in the context of a developing relationship (Ellis, 2008, p. 443). My role and experience as the CFIN founder and leader fostered the rapport and relationships that facilitated such ethnographic and interactive interviews with both CFIN parents and the leaders of other FNCs.

Study interviews were designed to utilize the most significant change (MSC) technique, a qualitative participatory method of program evaluation. MSC involves the generation of significant change stories by participants in a given program (or intervention) for the purpose of understanding the most significant effects the program can have. MSC can be likened to appreciative inquiry, which is a research and/or evaluation approach that focuses on understanding what works and determining how to do more of what works. The MSC was selected as the framework for study interviews because it (Dart & Davies, 2003):

- works well with programs that may produce diverse and emergent outcomes, are focused on social change, and are participatory in ethos, such as FNCs;

- is a good means of identifying unexpected changes, is easy to communicate, and can deliver a rich picture of what is happening; and

- focuses on learning about effects on people's lives and including the words of participants.

In a study design that includes substantial quantitative survey data, an interview process that focused on rich narratives about the most significant effects of leading and/or participating in a FNC offered a strong complement to develop a robust picture of the potential for FNCs to effect social and ecological change.

The MSC was developed by Dart and Dart (2003) to have ten fundamental steps. Each of these steps was adjusted as needed for this study and followed in the process of conducting interviews, as described below.

Step 1. Defining the interview selection criteria – The two populations chosen for interviews in this study were: 1) leaders of other FNCs; and 2) participants in CFIN. For the leaders of other FNCs, the interview population was defined based on the leader's expression of interest in being interviewed on the leader survey. For the participants in CFIN, the interview population was defined based on the family's attendance in at least six CFIN outings between the launch of the program on March 23, 2014 and the last outing of the year on December 21st.

Step 2. Defining the domains of change - Domains of change are different than indicators, which are supposed to be SMART (specific, measurable, achievable, relevant and time-bound) and defined so that everyone interprets them in the same way. MSC encourages the use of domains of change that are deliberately non-precise to allow people to have different interpretations of what constitutes a change in that area. For this study, domains of change were

loosely defined as: personal effects (for the leader and/or parent) and observed effects (for their

club participants and/or other family members) in the areas such as family connection, social

connections, and sense of connection with nature.

Step 3. Engaging participants - For both study interview populations, the identified

candidates were invited to voluntarily participate in the interview process. The thirty-one (31)

FNC leaders that indicated interest in being interviewed in their survey were contacted via email

in the fall of 2014 to further explain the interview purpose and process and confirm their interest

in conducting an interview via phone or Skype. Doodle was used to schedule one-hour

interviews with each interested FNC leader over the course of October, November, December

2014 and January 2015. Interviews with CFIN families that had been to six or more outings

began in August, 2014. After each family attended their sixth outing they received an email

thanking them for their active engagement in CFIN and inviting them to be interviewed about the

most significant effects of their participation. CFIN participant interviews were conducted from

August 2014 to January 2015. These interviews were held in person as much as possible,

although phone and Skype interviews were accepted when necessary. Upon agreeing to be

interviewed, each interviewee received a copy of the Informed Consent Form (ICF), provided in

Appendix H, which was signed and returned before the interview began.

Step 4. Conducting Interviews – For each interview, time was spent at the beginning

engaging in collegial and/or social conversation as appropriate to the relationship between me

and the interviewee. For the leaders of other FNCs the conversation was often focused on their

physical location (i.e., the city of San Diego, a farm in Nebraska, etc.) and for participants in

CFIN the conversation was often focused on our respective families. These portions of the

conversation were typically not recorded. When it was time to begin the formal interview, I

made sure the interviewee knew I was turning on a voice recorder, as noted in the ICF.

The MSC interview uses a specific, six-part format for its primary/leading question. For

this study the leading question for FNC leaders was: "Looking back over the time you have spent

leading NAME OF THE CLUB, what do you think the most significant changes have been for

you as a leader and for the participants in your club?" For CFIN participants the leading question

was "Looking back over the six (or more) CFIN outings that your family has participated in,

what do you think the most significant changes have been for your family?" In both cases, I

would follow the lead question with a prompt about the study's domains of change (personal or

observed changes in experience of familial, social, and/or nature connection). Using the CFIN

example, the MSC logic behind this question structure is as follows:

- "Looking back over the six (or more) outings…" refers to a specific time period.
- "…what do you think was..." asks the interviewee to exercise their own judgment.
- "…the most significant…" asks the interviewee to be selective in their response.
- "…changes…" asks the interviewee to be more selective by describing a change rather than a static element of their experience.
- "…have been for your family?" asks the interviewee to be even more selective, not to report just any change but a change in their family's lives.

The subsequent prompt about the domains of change helped the interviewee hone in on the

potential areas of change of most relevance to this study, such as connection with nature.

Steps five through nine, listed below, are addressed in detail in the data analysis and

validity and reliability sections:

- Step 5: Transcription and Initial Identification of Themes
- Step 6: Feeding Back the Results
- Step 7: Corroboration of Results
- Step 8/9: Quantification and Analysis

Step 10: Revising the system – Separate from the study, the results from the MSC

interviews were used to refine the way in which CFIN was offered to the community in 2015.

3.4 - Research Timeline

January - February 2014	•Finalize survey questions, including beta-testing •Preparations for launching CFIN
March - May 2014	•Launch CFIN •CFIN outings continue •CFIN pre-surveys open
June - July 2014	•CFIN outings continue •CFIN pre-surveys open •C&NN FNC leader and participant surveys open •Finalize interview methods
August - September 2014	•CFIN outings continue •CFIN pre and post surveys open •C&NN FNC leader and participant surveys open •CFIN participant interviews begin
October - December 2014	•CFIN outings continue •CFIN pre and post surveys open continue •FNC leader and CFIN participant interviews continue •Survey data analysis begins
January* - February 2015	•Participant interviews conclude in January •Survey data analysis continues •Interview data analysis •Effects validation survey is distributed •Data triangulation and interpretation

*For the purpose of this dissertation CFIN data "closed" at the end of 2014 with regards to
quantifying participation, collecting pre- and post-surveys, and eligibility for interviews.
However, CFIN activities are expected to continue indefinitely, with over 24 outings in 2015.

3.5 - Ethical Considerations and IRB

Ethnographic case study and action research is carried out in real-world circumstances and requires close and open communication among the people involved. Therefore, this type of research requires the utmost consideration for ethical conduct. Most importantly, researchers must be sure that the research does not harm or exploit the research subjects. In the fall of 2011, I completed the National Institute of Health course on Protecting Human Research Participants to ensure that I had a current working knowledge of research ethics. In the spring of 2014, a detailed proposal for this study was submitted to the Human Subjects Internal Review Board (IRB) at Prescott College to obtain approval for the research design and to make sure all ethical protocols were delineated and followed.

From the outset, all participants in CFIN were informed about the research associated with this FNC. The study was mentioned in the online pre-registration and liability/photo waiver form each family was required to complete before their first outing and after each family's first outing they received an in-depth email describing the research and inviting them to participate. For each method of participation in the research (i.e., pre-survey, post-survey, interview) completion of a specific ICF was required. This was also true for the engagement of leaders and participants of the other C&NN FNCs in the study surveys and interviews. Three important elements of the ICFs were: 1) the voluntary nature of their participation; 2) the need to record interview conversations, if applicable; and 3) the preservation of anonymity of the participants in the presentation of the research results.

With regards to the confidentiality of personal identifying information, people were not required to provide their names or contact information in the research surveys. CFIN participants had the option of providing their full birthdate as a way to link their pre- and post-surveys

without providing their name. However, for CFIN participants the names of all family members along with basic demographic information was required in the pre-registration and waiver form. The FNC leader population had to provide their name and email address on the research survey if they were interested in being interviewed. All survey data was collected using the online platform Survey Monkey. Access to the survey results on Survey Monkey is password protected and only accessible to me, my dissertation committee chair, and one other member of a related research team. Downloaded versions of the survey data were stored on my password-protected personal computer and any transmission of this data was stripped of personally identifying information. Interviews did not include any directly personally identifying information other than the individual's first name. The full interviews were shared only with the transcriber, who was required to protect the privacy of the interviewees and not to personally store any files, via a password protected online Drop Box. Combined, these measures sought to ensure the confidentiality of personally identifying information in the research process and no directly personally identifying information is included in the reporting of this research in this dissertation or in other formats.

An additional area of ethical significance for this study was the inclusion of children in research. The Institutional Review Board includes specific considerations for providing additional protections to 'persons with diminished autonomy', such as children. The U.S. Department of Health and Human Services Code of Federal Regulations for research on human subjects includes requirements for gaining the assent of children to be study participants as well as the permission of their guardians. For this study, children were not the direct participants in the research, although they were certainly included in participant observations during CFIN events and the effects of participation on children were an important area of inquiry, as observed

by their parents and/or club leader. Inclusion of all family in direct observation was a de facto

element of each family's pre-registration form. Families had the opportunity to indicate that they

did not wish to be photographed during CFIN outings on their initial registration and

liability/photo waiver form.

Beyond the intrinsic value of supporting research intended to discern the beneficial

effects of FNCs, each category of study participant had the potential to receive incentives for

their engagement with this research:

- Family nature club leaders – The ten club leaders who completed the leader survey and had

    the greatest number of their club participants complete the participant survey received a $50

    gift card to Acorn Naturalist to buy materials for their club. In the survey they were also

    given the opportunity to indicate that they would like to receive aggregate data from the

    participants in their club that responded to the participant survey. Completion of the survey

    was also a pre-requisite for being invited to complete a leader interview.

- Family nature club participants (non-CFIN) – By completing the participant survey,

    individuals were able to help their club earn the $50 gift card to Acorn Naturalist described

    above. They also became eligible for inclusion in a random drawing for a $50 gift card to

    REI, an outdoor equipment store.

- CFIN participants – For completion of the pre-survey CFIN participants received a thank you

    gift of a hard-case double-lens magnifying glass. Completion of the pre-survey made families

    eligible to complete both the post-survey and the interview after their sixth outing. Families

    that completed the post survey before September 30, 2014 received a free professional family

    photo shoot on one of two weekends in October. Families that completed the post survey

    between October 1 and December 31 were entered into a drawing to win a $50 gift card to

REI. Each family that completed an interview received "A Year Across Maryland: A Week

by Week Guide to Discovering Nature in the Chesapeake Region" by Bryan MacKay.

- CFIN non-participants – Families that completed the non-participant survey between

  December 1 and December 20 were entered into a drawing to win a $50 gift card to REI.

3.6 - Data Analysis and Interpretation

The process of research data analysis and interpretation involves disciplined examination,

creative insight, and careful attention to the purposes of the study (Patton, 1987). The analysis

process includes the assembly of the raw data and its organization into patterns, categories, and

descriptive units. The data interpretation process then involves "attaching meaning and

significance to the analysis, explaining descriptive patterns, and looking for relationships and

linkages among descriptive dimensions" (Patton, 1987, p. 144).

The quantitative data gathered from the surveys used for this research include

measurement scales, checklists, and demographics. For many of the quantitative survey

questions, descriptive statistics and associated graphs and tables were created directly from the

responses in Survey Monkey. All survey data was also downloaded into Excel and merged into

an aggregate results workbook with a dedicated tab for each survey: CFIN pre responses, CFIN

post responses, FNC leader responses, FNC participant responses, CFIN comparison group

responses. This workbook remained unedited and was copied into another Excel workbook in

which analysis to develop descriptive statistics was conducted for each relevant question. Two

tailed, type three t-tests were conducted to determine any statistical significance in the responses

between study participant groups on questions related to nature experiences, relationships, and

social and environmental behavior.

Statistical analysis to test for the relationship between specific variables of interest was performed using the scientific computing language Python. Data was cleaned by hand in Excel and then manipulated programmatically for analysis using linear regression as well as two-sample and paired t-tests. The following describes the variable analyses that were conducted:

- *Childhood nature experience:* A three-part survey question inquired into the respondent's childhood experiences of nature. Each part had an associated ordinal response, which were summed to obtain a single measurement of the degree to which an individual had significant nature experiences in their childhood.

- *Family nature time:* A question asked respondents to quantify the amount of time that their family spends in nature. The responses were quantitative with values ranging from 0 to 14 hours and one unbounded response of "more than 14 hours", which was coded as 15 hours. For FNC leaders and participants, the question asked about how much time they spent in nature before and after their FNC participation.

- *Connection with nature:* A multi-part question inquired into the respondent's sense of connection to nature. Each part had an associated ordinal response, which were summed to make a single measurement of each person's sense of connection with nature.

- *Environmental action:* A multi-part question listed various types of personal or household environmental actions and asked individuals to report how frequently they engaged in that activity. Each item had an associated ordinal response, which were summed to make a single measurement of each person's level of environmental action.

- *Social action:* A multi-part question listed ways that people can engage in social action and asked respondents to indicate how frequently they engaged in that activity. Other than the

"not sure" response option, which was excluded, the responses were made ordinal and summed together to make a single measurement of each person's social action.

- *Family satisfaction:* A multi-part question asked respondents to rate their level of satisfaction with various aspects of their family life. Each part of the question had an associated ordinal response, which was summed together to make a single measurement of family satisfaction.

The *childhood nature experience triad* was considered as an independent variable and analyzed for association with the other variables described above. Since the response and predictor variables were quantitative, ordinary linear regression was used to test for a significant association. *Family nature time* was also considered as an independent variable and analyzed for association with connection with nature, environmental action, social action, and family satisfaction. Ordinary linear regression was used to determine the statistical significance of any linear relationship between the variables. To include the effects of FNC participation, the post-participation surveys for CFIN participants were used for this analysis. For each variable the effects of FNC participation were analyzed by comparing the CFIN pre and post-surveys and by comparing the comparison group survey responses to the CFIN post-survey responses. In the first case a paired t-test was used and in the latter case a two-sample t-test was used since there were two independent samples. These analyses were done in a repeatable fashion using a master analysis script to generate all results. Results were also verified graphically and manually.

Qualitative data are valued for being rich, natural, detailed, contextualized, sensitive, and filled with the authentic and complex representations through which people communicate meaning in their lives (Patton, 2002). For this study qualitative data include surveys (narrative responses), in-depth interviews, and observations. Using Excel, qualitative survey data regarding motivations for participating in a FNC and the most significant change or effect from FNC

participation were explored for a priori and emergent themes, excerpted and coded, and assessed

for deeper patterns within commonly coded excerpts and the relations between differentially

coded content (Patton, 2002). The interviews were transcribed by a third party to the study

process. Upon completion of transcription this individual also provided a summary document

that presented their assessment of the primary significant change themes that emerged from the

interviews of the FNC leaders and CFIN participants. I reviewed each transcript while listening

to the recorded audio file from the interview and marked up a new version of the Word

document with my initial coding of themes and selection of narrative quotes that highlighted

themes and most significant changes. After developing my initial list of themes, I compared my

list to that of the transcriber to look for consistencies as well as any discrepancies. This iterative

process of identifying themes refined a large volume of personal narratives into a set of more

broadly applicable themes while still capturing the rich stories that illustrated the significant

changes people experienced as a result of FNC participation. The themes emerging from the two

interview populations were considered separately and in combination. Looking across the survey

and interview data, seven categories of significant change were identified, under which there

were twenty specific changes. These results were tested via a brief verifications survey

distributed to all study participants. Additionally, a key part of the data analysis process was

triangulation across the data gathered from the different methods to determine whether they

support the same conclusions.

The theoretical frameworks (ecological psychology, attachment theory, family systems

theory, community psychology, social movement theory), key concepts (i.e., affordances, fields

of action, behavior settings, environmental education, family leisure, efficacy) and studies

presented in the literature review (i.e., cultivating pro-environmental behavior, effects of nature

experience on human well-being, etc.) were used to guide the data interpretation process.

3.7 - Validity and Reliability

The validity and reliability of the data obtained through this research and of the data

analysis and interpretation process was ensured in a number of ways, as described below:

- Participant observation increases the validity of a study when combined with other methods

  because it helps the researcher develop a holistic understanding of the phenomena under

  study. In this study, participant observation also provided an opportunity to confirm data that

  was obtained through survey and interview methods, both in terms of the observer's

  experiences and in terms of being able to confirm participant responses with their real data

  (i.e., demographics, frequency of participation, etc.).

- Third party interview transcription increased the reliability of interview data because an

  independent listener documented the conversation (reducing interviewee bias) and also

  provided a summary of key interview themes, which were cross-referenced with the themes

  that I identified.

- Participant feedback on the results – After all of the interviews were conducted, transcribed

  and put through initial analysis for themes, the summary results on participant effects were

  aggregated with relevant survey themes and sent to all study participants for which contact

  information was available in February 2015. Through this effect validation survey, study

  participants were able to provide feedback on which effects were the most significant based

  on their experience and whether any significant effect themes were missing from the results.

- Corroboration of results – The two interview populations serve as a form of corroboration for

  one another. The FNC leaders were asked, in part, to speak to the MSC they observed in the

participants in their club. By having CFIN as a case study in which club participants are

being directly asked about their MSC it is possible to compare the leader's observations of

effects for participants with participants' own reporting of the effects of participating in a

FNC. Conversely, by looking beyond the specific CFIN experience, it is possible to

understand what types of effects are possible in the context of a different FNC.

- Use of a comparison group – By surveying individuals interested in CFIN participation but

  who had not attended any CFIN outings, it was possible to have a comparison group for the

  effect of FNC participation that is representative of the same population.

- Data triangulation - Using a mixture of methods allowed topics to be explored from different

  perspectives, for more views to be captured, and for more complex answers to both

  exploratory and descriptive questions to be developed and validated through triangulation.

CHAPTER 4: RESEARCH RESULTS

This research was guided by three questions: *1) What are common design frameworks for family nature clubs?; 2) What are the characteristics of the people who are leading and participating in family nature clubs?; and 3) What are the effects of being a part of a family nature club on individual, familial, social and ecological well-being?* To begin to answer these questions, this chapter presents the results from six different surveys representing more than 348 individuals as well as 48 interviews with family nature club (FNC) leaders and Columbia Families in Nature (CFIN) participants.

4.1 - Study Participation

The FNC created as a case study for this research, CFIN, was the 187th FNC registered with the Children &Nature Network (C&NN). As of June 2014, the C&NN directory included 192 FNCs, as shown in Figure 6, in which each circle identifies and quantifies a cluster of FNCs. This research sought to engage the leaders and participants of these FNCs through a combination of surveys and interviews and, in the case of CFIN, direct observation was used as well.
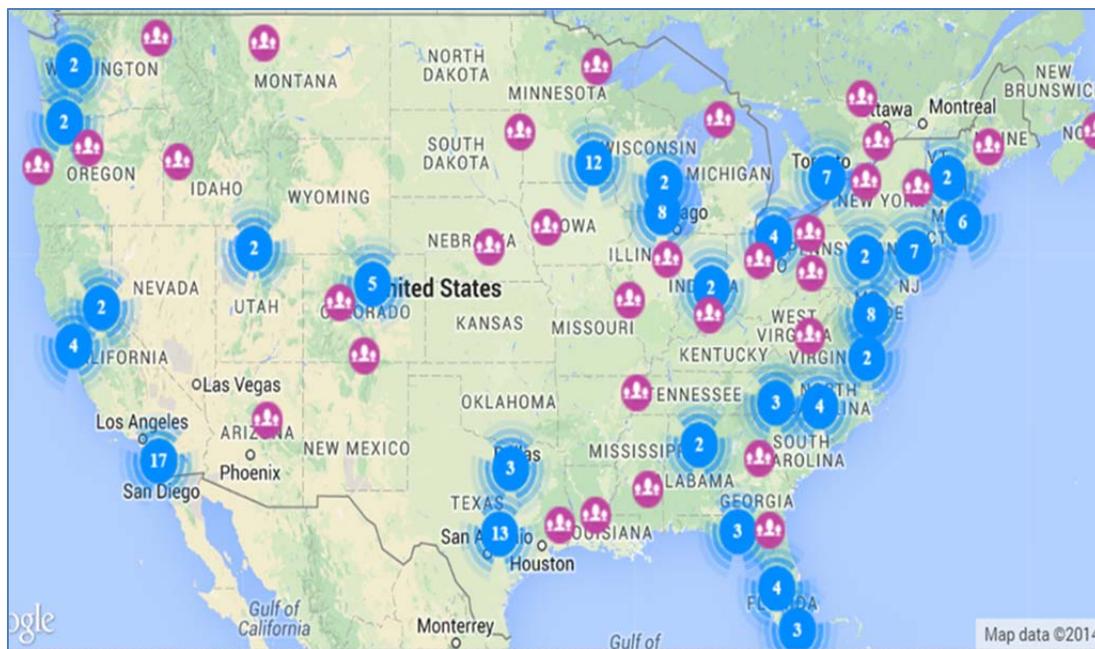
Figure 6. Map of family nature clubs registered with C&NN as of June 2014

The FNC leaders that completed the study survey represented 37 distinct clubs and

another 9 clubs were represented by one or more participant responses, but no leader response. In

total, 47 FNCs, including CFIN, were represented by survey responses, as shown in **Error!**

Reference source not found.organized by location, with the 10 FNCs associated with the

greatest number of participant survey responses shaded in green (CFIN is not included).

Table 3. *Complete list of family nature clubs represented by study survey data.*

Family Nature Club Name	Location	Leaders	Participants	% Participants
JTL Nature Fun	Alabama	0	1	1%
The Rumpus Romp	Alaska	1	5	3%
Skedaddle	Alaska	1	0	0%
Family Adventures in Nature San Diego	California	3	64	38%
Adventure Kids	California	1	1	1%
Berkeley Forest School	California	0	1	1%
Rancho Santa Fe Nature Play	California	0	1	1%
Wild Child Freeschool	California	0	1	1%
Bay Farm & Forest: Outdoor Adventures	California	1	0	0%
C5 Family Nature Club	California	1	0	0%
Camping Club	California	1	0	0%
Exploradores Mar y Tierra	California	1	0	0%
Northern Colorado Nature Tribe	Colorado	1	15	9%
Adventure Club	Florida	4	14	8%
NaturePlay Orlando Outdoor Families	Florida	1	5	3%
Families in Nature at St. Marks Refuge	Florida	1	1	1%
Tavares Family Nature Club	Florida	1	1	1%
Family Nature Club - Lake County	Florida	0	1	1%
Doodle Bug Club	Illinois	1	0	0%
Cool Creek Park Family Nature Club	Indiana	1	0	0%
Family Friendly Hikes Maryland	Maryland	1	5	3%
The Gifts of Trees	Maryland	1	0	0%
Family Adventures in Nature Club	Maryland	1	0	0%
Cub Scout Pack 24 Hiking Club	Massachus.	1	0	0%
Green Spiral Tours	Missouri	1	0	0%
Walk on the Wild Side	Montana	1	0	0%
Prairie Loft Family Outdoor Club	Nebraska	1	2	1%

Town of Nassau Youth	New York	1	0	0%
Nuts About Nature	N. Dakota	1	0	0%
Cleveland family outdoor adventures	Ohio	0	1	1%
HOOT!	Ohio	1	0	0%
Mohican School in the Out-of-Doors	Ohio	1	0	0%
Summit Co. Preschool Nature Explorers	Ohio	1	0	0%
Priestley Forsyth Library Nature Nuts	Pennsylvania	1	4	2%
Austin Families in Nature	Texas	3	11	6%
AIS Family Nature Club	Texas	1	0	0%
Young adventurers club Burlington	Vermont	1	0	0%
Nature Explore Clubs of Clark County	Washington	0	1	1%
Young Naturalists' Clubs of BC	Canada	9	32	19%
Columbia Shuswap	Canada	0	1	1%
Pumpkin Patch Rangers	Canada	0	1	1%
Fantail Trails	N. Zealand	1	1	1%
Club NaturaNiños	Peru	1	0	0%
Freier Waldhort Ebersberg e.V.	Germany	1	0	0%
Lindisfarne explorers	England	1	0	0%
Cyfleon Forest School	England	1	0	0%
Total Responses		**52**	**170**	

A total of 52 FNC leaders and 170 FNC participants (not including CFIN participants) provided substantively complete responses to study surveys, as shown in Table 3. For the 52 leaders, 73% led FNCs in the U.S., 15% in California, 13% in Florida, and 8% in Texas. Leaders from five other countries responded to the survey as well, with 17% of the total respondents coming from Canada. For the 170 FNC participant respondents, 79% lived in the U.S., 40% in California, 13% in Florida, 9% in Colorado, and 6% in Texas and 20% lived in Canada.

Two FNCs, Family Adventures in Nature in San Diego, California and the Young Naturalists' Club of British Columbia, Canada provided 57% of the participant responses (38% and 19% respectively), not including CFIN. Each of these FNCs also provided multiple leader responses, which is reflective of their club structure. Family Adventures in Nature San Diego has

several sub-clubs and the Young Naturalist Club of British Columbia is an umbrella non-profit with more than 40 local FNCs operating under its auspices.

When considering the quantity and distribution of leader and participant responses in this study, it is important to note that these data may not directly reflect the broader C&NN FNC distribution, illustrated in Figure 6. Rather, study participation reflects the leader's interest in engaging in this research and the diligence of several leaders in recruiting their FNC members to participate in the study. For example, several of the leader participants from California, Florida, and Texas are also leaders within the national C&NN community and colleagues with whom I had the opportunity to substantively correspond about the study.

At the end of the leader survey, respondents had the option to provide contact information if they were interested in being interviewed for this study. Thirty-one (31) leaders indicated interest in being interviewed in their survey and a total of 20 leader interviews (65%) were completed. The eleven person discrepancy between leader interest in being interviewed and the number of interviews completed is largely attributed to the time constraints of completing this research. Four interviews were with leaders in Maryland, three were with leaders in California, two each were with leaders in Canada, Florida, and Ohio, and one interview was conducted with a leader in each of the following states--Alaska, Massachusetts, Missouri, Nebraska, North Dakota, Pennsylvania, and Texas. A total of 11 states plus Canada were represented in these interviews and each interview represented a distinct FNC.

After each CFIN study family's first outing with the club, they were invited to complete the pre-survey and, after a family participated in their sixth outing, they were invited to complete the post-survey. Out of the 133 families that attended at least one event in 2014, 81 (61%) completed the pre-survey. By the end of 2014, thirty (30) families, including my own, had

participated in six or more CFIN outings. Each of these families was invited to complete the

post-survey and participate in an interview. Twenty (29) nine families completed the post-survey

and twenty-eight (28) CFIN participant interviews were completed. For my family, my husband

was the individual that completed the surveys and interview. A survey was also distributed to

individuals interested in CFIN, but who had not attended an outing as of December 1, 2014. This

comparison group survey received a total of 45 complete responses.

Towards the end of the study, a FNC participation effects summary and validation survey

was sent to all CFIN families that had participated in at least one outing, all the FNC leaders that

had originally been invited to participate in the study, with a request to send it on to their

participants, and all the FNC participants who had provided contact information in their survey.

This survey was completed by 190 people, for whom identifying information was not collected.

In total, the results of this study weave together insights from: 47 family nature clubs,

348 unique individuals that completed in-depth surveys, 48 in-depth interviews, 190 effect

validation survey responses, direct observations of 133 families that participated in 31 CFIN

outings in 2014, and my experience of designing, launching, and leading a new FNC and

participating in outings with my own family.

4.2 - Family Nature Club Design Frameworks

By definition, FNCs have the purpose of connecting children and their families with

nature. The way in which FNCs are designed to meet that common purpose varies significantly,

depending on the context within which they operate and the specific goals of their leaders.

Looking across the 47 clubs represented in this study, some were located in small towns while

others were in large cities, some were a project of a larger organization while others were

independent, some were open to the public while others were set up for a private group, some

clubs primarily frequented one location while others prioritized variety in event locations, some

clubs had a focus on environmental education while others focused on child-led free play, some

clubs were intentionally kept small while others had grown so large that offshoots or sub-clubs

had developed to manage demand and group size.

This section provides results related to the first research question guiding this study:

What are common design frameworks for family nature clubs? Stated differently, this question

sought to understand what FNCs look like in practice and how their practices could be organized

to help frame understanding of the potential effects of being a part of a FNC. This section begins

with a review of key considerations for and elements of FNC design including: purpose,

organizational context and leadership structure, participant engagement, and event structure.

Brief profiles of CFIN and eight other clubs from which there was both leader and participant

engagement in this study highlight how a variety of FNCs are structured. In addition to

illustrating the range of structures possible for FNCs, this information serves to contextualize the

FNCs from which leaders and participants in this study are sharing their experiences and the

effects of involvement with their FNC.

4.2.1 - Organizational and Leadership Structure

The primary determinant of many FNC design decisions is the organizational and

leadership structure for the group. Most FNCs can be divided into two categories with regards to

organizational structure, those that are a part of a larger organization and those that are set up

independently. Depending on the organizational structure, FNC leadership can be a paid or

volunteer position and can be the job of one person or shared across co-leaders.

A wide variety of organizations have created a FNC. Approximately 30% of the FNCs

represented in this study were a part of a larger organization, including: schools, conservation

organizations, libraries, scouts, churches, agricultural centers, nature centers, experiential

education centers, parks and wildlife refuges. Leaders from these clubs reported that their FNC

was started to help further the mission of the organization. For example, FNCs were created to

engage the broader community in which the organization was situated, add an experiential

component to educational programs, and offer an activity that would engage the entire family.

The majority of the FNCs represented in this study (68%) were created independent of a

larger organization, primarily by a parent or group of parents who had a personal motivation for

creating a FNC. For example, FNCs were created by parents with preschool-aged children who

were looking for a way to help their family engage with other families and the natural

environment simultaneously, by homeschooling parents interested in the learning opportunities

afforded by FNCs, and by groups of parents seeking to create a strong sense of community

around shared values. Some independent FNCs grew so large that sub-groups or offshoots led by

new leaders developed, with the original FNC and its leader providing a support structure.

A hybrid of the two above approaches, organizations have also developed specifically to

provide structure to local FNCs. For example, in Canada the Young Naturalist Club (YNC) of

British Columbia is a non-profit that has been dedicated since 2000 to connecting children and

nature through a unique program of volunteer-led nature clubs across the province. The YNC

provides support in the form of participant registration, website portals, newsletter content,

liability coverage, etc. to help dozens of local leaders start and manage FNCs. Seventeen percent

(17%) of the FNC leaders participating in this study were a part of the YNC (which was counted

as one large club in the quantification of overall study participation).

In any of the above contexts, the FNCs could be led by a single individual or multiple co-

leaders. The majority of the FNC leaders in this study (70%) founded their club, with a fairly

equal distribution across the group between those who were the only current leader and those who shared the leadership responsibility. For example, one club co-founder reported that she is currently the only active leader, another leader founded the FNC but leadership is shared across all adult members, and another leader is in charge of scheduling and camping trips while the co-leader manages field trips and books naturalists, and both share in supporting the participants during outings. Some leaders also invite volunteers to help manage the group during events.

Whether a FNC is part of an organization or independent, some FNC leaders volunteer their services and some earn an income for their work. Within an organization, at times FNC leadership is part of a larger job, such as was the case for the librarian, agricultural center director, teacher, and conservation program manager. In other cases, such as the Scout leader and church member, leading the FNC was a part of a broader commitment to volunteering within the organization. For independent FNCs, most leaders are volunteers; however some have created companies or non-profit organizations in association with the clubs and/or charge membership fees or receive grants, which allowed them to earn some income from their efforts.

These different approaches to situating and leading a FNC influence the other FNC design and implementation decisions, such as participant engagement and event structure.

4.2.2 - Participant Engagement

Whether motivated by an organizational or personal mission, or both, when a FNC is created there is often additional specificity of purpose beyond the common mission of connecting families to nature. For example, FNCs may also seek to: engage as many diverse families as possible, increase awareness of and membership in an organization, create a close sense of community, give preschool-aged children a chance for free play, or offer nature-based learning opportunities for a particular population. These additional purposes and goals influence

both who is engaged to participate in the FNC, as described in this section, and how FNC events

are structured, as described in the next section.

Participant engagement decisions include several key elements: *audience, access, size,*

communications, and commitment, all of which are closely intertwined. Audience defines who

the FNC is targeting—a geographic area, a specific age range, members of a particular group,

etc. Access defines whether participation in the FNC is publicly available to all interested

families or kept private such that only approved members may participate. Size preferences are

influenced by both audience and access, with some public FNCs targeting a wide audience

becoming large (twenty or more families at events) and other private FNCs targeting a more

narrow audience being kept small on purpose (four to five families at events). At other times size

can be a product of the physical environment in which the FNC is situated, with more rural areas

often having smaller FNCs than more urban areas. For example, the FNC leaders participating in

this study reported a range in the number of families receiving their communications (emails,

newsletters, Facebook posts, etc.) from 5 to 2,500 with an average of 194 families and a range in

the average number of families participating in outings from 2 to 40, with an average of 11

families[5]. Communications is related to how information is shared and commitment is related to

whether participants need to register in advance of FNC events or are welcome to drop in and

whether there is a participation fee.

The four FNCs from Maryland represented in this study offer a chance to compare

different approaches for participant engagement across audience, access, size, communications,

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[5] The highs and lows of these ranges represent fairly unique FNC dynamics within this group. The small communications number is associated with a closed FNC that is inclusive of just 5 families, the high communications number is associated with an urba FNC that uses substantial social media, the low participation number is associated with a closed FNC that has frequent yet inconsistently scheduled events, and the high participation number is associated with a very large, well-established umbrella FNC in an urban area.

and commitment. *Columbia Families in Nature (CFIN)*, launched in 2014, is located in a suburban community of approximately 100,000 people in central Maryland, and has a goal of broad community engagement, with a focus on reaching communities that are typically less represented in nature activities. The group is public and approximately 700 families have signed up to directly receive CFIN communications. The average number of families participating in CFIN events is 15, with a range from 5 to 30 families. To effectively manage this large group size, participants are required to formally pre-register and complete waivers. In the same community, *The Gifts of Trees* launched in 2012 and is a closed group for homeschooling families that meets once a week. Approximately 50 families are members of the group and the average attendance at the week-day outings is 3 to 4 families. Families are asked to sign-up for events in advance via Facebook, but may drop in as there is no formal registration requirement. In Baltimore, *Family Friendly Hikes* launched in 2013 and is a public group that uses Meetup to reach a wide audience in this large urban environment. There are approximately 170 members of this group and the average attendance at the outings, which are held on most weekends, is 4 to 5 families. Families are asked to sign-up for events in advance via Meetup, but may drop in as there is no formal registration requirement. Most recently, in a conservation organization has launched *Family Adventures in Nature* with the mission to gain new, younger, and more diverse membership. Events are public, held monthly, require pre-registration, and draw a range of group sizes, from 5 to 15 families. Like the other three groups, there is no membership fee, but participants are, at times, required to cover their own costs associated with an event.

4.2.3 - Event Structure

The way in which events are structured is one of the most defining elements of a FNC, especially with regards to participant experience and effects. The purpose, organizational and

leadership structure, and participant engagement approach each influence the way in which

FNCs events are designed. For example, a FNC that is a part of an organization with its own

property, one part-time leader, and a mixed-age-group audience from the broad community, may

have a very different event structure than a FNC that is led by a team of parent volunteers who

make use of different parks to engage a closed group of pre-school-aged children. Event

structure decisions include key elements such as *frequency, location, and level of structure.*

With regards to frequency, FNC leaders in this study reported a range from a club that met twice

a year to a club that met five days a week as part of a school, with an average of 36 events per

year (3 per month). Common FNC event schedules were to meet once a week (13 FNCs), once a

month (18 FNCs), or two to three times a month (10 FNCs), as shown in Figure 6. Combined,

the FNCs in this study offer approximately 1,800 events to their communities per year.
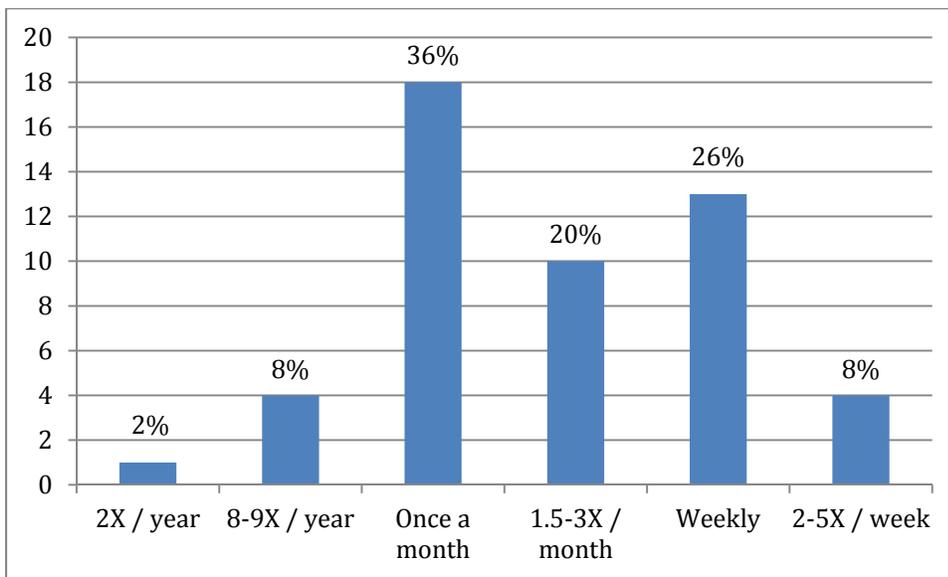
Figure 7. FNC leaders report of frequency of FNC events (n = 50).

       One of the most important considerations for event frequency is consistency with regards

to timing. Participants need to be able to put their FNC time on their calendar and be able to plan

around a reliable day and time, whether it is Monday mornings, Thursday evenings, Sunday

afternoons, or some combination of multiple offerings. The selected day and time of the week

directly impacts FNC participation. For example, weekday events are more accessible for young

children and their caregivers or homeschool families and weekend events are more accessible for

mixed-age groups and multiple adults.

The location of events does not require a similar level of consistency. Some FNCs hold

all their events at one location. These are primarily FNCs that are a part of an organization that

owns property. For example, leaders from both a library and an agricultural center used their

buildings and adjacent land to run their weekly FNCs; rarely, if ever, going elsewhere. Other

FNCs pick a few public natural areas through which they rotate their visits. Another common

model is to visit a wide range of diverse areas--from parks, to farms, to water, and nature centers.

What occurs during FNC events is also widely varied and guided by the intended

audience as well as the leader's available resources and/or philosophy about how the time should

be spent. For example, some FNCs leaders have a direct focus on offering young children the

opportunity for child-led free play. Such groups tend to frequent a smaller set of locations and

encourage the parent(s) to stand back and let the children explore with a limited direction. Other

FNCs have a more educational focus and offer some light structure and/or learning activities

during events, while also offering room for exploration. Some FNCs that are focused on an older

age group emphasize physical activity such as long hikes and the learning of wilderness skills

such as fire building. Many FNCs offer a mix of event types and activities such as hikes,

gardening, camping trips, stream clean-ups, scavenger hunts, geocaching, tree planting, potlucks

at a park, foraging, farm tours, and fort making--the possibilities are vast.

4.2.4 - FNC Profiles

This section presents brief profiles of eight FNCs for the purpose of illustrating the way different design decisions come together to form clubs that achieve their purpose and make sense for their context. Eight FNCs from which there was both leader and participant engagement in the study, including CFIN, are profiled in order of the date of their founding. Each profile includes a photograph from the FNC, the public description and website when available, and the structural and design elements described above and summarized in Table 4.

Table 4. *Family Nature Club Structure and Design Elements.*

Organizational Leadership Structures	*Organization*	Part of organization	Under an umbrella	Independent
	Leader compensation	Paid leader	Membership fees/grants	Volunteer Leader
	Leader structure	Single leader	Volunteer support	Co-leaders
Participant Engagement	*Access*	Public group, no requirements	Open to public with registration	Private group
	Size	Large	Medium	Small
	Cost	Free	Cover own costs	Membership fee
Event Structures	*Frequency*	Frequent (weekly)	Regular (1-3/ month)	Infrequent (quarterly)
	Location	One location	A few regular locations	A range of rarely repeated locations
	Activity	Informal / child-led free play	A variety of activities types	Structured / educational format

Starting the results chapter with this presentation of what FNCs look like in practice, with a focus on the FNCs most represented in the study data, provides context for the forthcoming results about the people who lead and participate in FNCs and the effects of their involvement.

Young Naturalists Club of British Columbia

Figure 8. Young Naturalists Club of BC photograph. Reprinted with permission.

- Founded: 2000
- Location: British Columbia, Canada
- Leadership structure: Executive director for non-profit and volunteer leaders for each club.
- Participation: Public. Families register to participate in their local YNC.
- Families receiving communications: 650 families in 40+ clubs in network
- Average number of families at events: 10-15
- Frequency of events: Explorer Days are typically held once a month in each club.
- Location and activity: Widely varied with an interest in environmental education.
- Costs: Annual membership fee.
- Public description: *YNC is an exciting nature discovery and environmental action program that invites young people ages 5-12 years to discover nearby nature on Explorer Day Adventures with local experts, learn about native wildlife and plants in NatureWILD Magazine and take part in environmental actions to protect their habitat with Stewardship Projects and an Action Awards Quest. The YNC is a registered charity, powered by passionate volunteers, members and donors.*
- Website: www.ync.ca/

Austin Families in Nature

Figure 9. Austin Families in Nature photograph. Reprinted with permission.

- Founded: 2008
- Location: Austin, Texas
- Leadership structure: Independent parent volunteer leader that is nurturing new leaders for emerging sub-groups
- Participation: Private. Families are matched with specific groups, which are kept to a set size.
- Families receiving communications: 200
- Average number of families at events: 15
- Frequency of events: 2 to 4 times a month
- Location and activity: Widely varied with an interest in diversity and environmental education.
- Costs: Annual membership fee plus coverage of event specific costs. They have received some grants to help offset costs.
- Public description: *The mission of Austin Families in Nature is to connect children and their families to nature and to each other through time spent learning, playing, and volunteering outdoors. AFiN activities are aimed at teaching children and their parents about ecology and conservation through hands-on experiences in nature, while they spend quality family time together. Each activity also has time built in for unstructured play.*
- Website: http://familiesinnature.org/benefits-of-a-family-nature-club/

Family Adventures in Nature San Diego

Figure 10. Family Adventures in Nature San Diego photograph. Reprinted with permission.

- Founded: 2009
- Location: San Diego, California
- Leadership structure: Led by a single family that volunteers their time. Sub-groups have formed with their own leaders that receive support from the founding family.
- Participation access: Public, open "enrollment", with pre-registration requirement.
- Families receiving information: 1,300
- Average number of families at events: 40
- Frequency of events: 10-20 opportunities per month across the FNCs in the group.
- Location and activity: Widely varied with an interest in diversity. Depending on the group, more rigorous hikes and extended camping trips are popular.
- Costs: Free unless there is a cost associated with the event, which participants cover. They have received some grants to help offset costs.
- Description: *Family Adventures in Nature (FAN) and its eight "sub-clubs" called Nearby Nature Clubs meet either weekly or bi-weekly "nearby" in their own neighborhoods. The mission of FAN is to inspire and support families to unite in a commitment to frequently enjoy fulfilling experiences in nature, and ultimately to foster a deep, lifelong connection to, and responsibility for, the natural world.*
- Website: http://quetallsd.wix.com/familyadventures

Priestly Forsyth Memorial Library Nature Nuts

Figure 11. Priestly Forsyth Library Nature Nuts photograph. Reprinted with permission.

- Founded: 2010
- Location: Northumberland, Pennsylvania – a small, rural community
- Leadership structure: Individual leader that is an employee of the library.
- Participation access: Public.
- Families receiving communications: 400
- Average number of families at events: 4
- Frequency of events: Tuesday evenings, September to May with occasional summer events.
- Location and activity: Almost all events are held on the library property. Events begin with the reading of a related book, include outdoor play and exploration and include a craft.
- Costs: Free.
- Description: *The Priestley-Forsyth Memorial Library is a Family Place Library. We are committed to creating an environment that is welcoming to all. It is a service model that emphasizes the important role parents (and caregivers who act as parents) play as a child's first teacher. The Nature Nuts Program is an opportunity for families with school aged children to explore, play in, and learn about nature together.*
- Website: http://priestleyforsyth.org/new/family-place/

Nature Play Orlando Outdoor Families

Figure 12. Nature Play Orlando Outdoor Families photograph. Reprinted with permission.

- Founded: 2013
- Location: Orlando, Florida
- Leadership structure: Independent, individual parent volunteer leader
- Participation access: Private. For the area homeschool community.
- Families receiving information: 250
- Average number of families at events: 20
- Frequency of events: Weekly
- Location and activity: Several public locations with a pattern of repeat visitation.
- Cost: Free, participants cover any costs associated with a particular event.
- Public description: *Nature Play Orlando offers a weekly forest school experience for homeschoolers between the ages of 5 and 12 years old. The emphasis of our events is child-directed free play in which the children have the opportunity for independent exploration of the natural area we are visiting.*
- Club website: n/a

Maryland Family Friendly Hikes

Figure 13. Maryland Family Friendly Hikes photograph. Reprinted with permission.

- Founded: 2013
- Location: Baltimore, Maryland
- Leadership structure: Independent, family volunteer leader
- Participation: Public, with open enrollment via Meetup
- Families receiving communications: 170
- Average number of families at events: 4
- Frequency of event: Three times a month
- Location and activity: A wide variety of locations and activities around the region.
- Costs: Annual Meetup dues and coverage of any event specific costs.
- Public description: *Let's get together for some outside adventures! We like to have easy hikes the whole family can enjoy. Hikes will be scheduled throughout the week, including daytime, evening, and weekend hikes in relatively close proximity to Baltimore City. It will be a slower pace to let children explore plants, bugs, sounds and anything they might find interesting along the way!*
- Website: www.meetup.com/Family-Friendly-Hikes/

Prairie Loft Family Outdoor Club

Figure 14. Prairie Loft Family Outdoor Club photograph. Reprinted with permission.

- Founded: 2013
- Location: Nebraska, small rural town of approximately 25,000
- Leadership structure: The Executive Director of the agricultural center leads the club
- Participation access: Public
- Families receiving communications: 60
- Average number of families at events: 15
- Frequency of events: The third Saturday of each month.
- Location and activity: Always at the center's property with a variety of activities that are lightly structured.
- Cost: $5 per family per event.
- Public description: *Our Family Outdoor Club offers outdoor activities and art activities geared toward kids ages 2-8 with their grownups.*
- Club website: www.prairieloft.org/Prairie_Loft/Prairie_Loft_Home.html

Columbia Families in Nature

Figure 15. Columbia Families in Nature photograph.

- Founded: March 2014
- Location: Columbia, Maryland – a large suburban community of 100,000
- Leadership structure: Led by a single family that volunteers their time and invites others to volunteer to assist during events.
- Participation access: Public, open enrollment with pre-registration requirement.
- Families receiving information: 560 on Facebook page, 250 on list serve for emails
- Average number of families at events: 20
- Frequency of events: two to three per month
- Location and activity: Widely varied locations and activities with an interest in diversity.
- Cost: Free unless there is a cost associated with the event, which participants cover. Has received grants to help offset costs.
- Description: *Columbia Families in Nature (CFIN) provides free, fun, friendly opportunities for families to spend time together in nature. On two to three Sunday afternoons a month CFIN outings take place at natural areas in and around Columbia, Maryland. These outings emphasize play time in nature and also include hands-on environmental education and conservation activities. By connecting families with nearby nature, the goals of CFIN are to: foster greater connection with nature and the community; increase environmental awareness and action; support the well-being of participants; and help strengthen family relationships.*
- Website: www.columbiafamiliesinnature.org

4.3 Participant Group Profiles

This section provides results related to the second research question guiding this study: *What are the characteristics of the people who are leading and participating in family nature clubs?* Profiles of each study population are presented, starting with FNC leaders and participants and then focusing on CFIN participants and non-participants. For each group, data are provided on motivations for FNC engagement, demographics, nature experience and connection, social and environmental behavior, and relationships. At the end of this section, tables are provided to compare each group's responses in each of the discussed study areas. This information on the characteristics of FNC leaders and participants provides insight into the people who are helping to lead the movement to reconnect people with nature and the people who are responding to the opportunity afforded by having a FNC in their community. It is also a foundation for understanding the effects of FNC participation identified through this research.

4.3.1 - FNC Leaders

The 52 FNC leaders who participated in this study were asked to identify the major factors that motivated them to start and/or take a leadership role in their FNC, with the ability to select all the factors that applied, as shown in Table 5. The most frequently selected motivator for this group of FNC leaders was to be a part of the movement to reconnect children and nature (88%). Other motivating factors identified by the majority of the FNC leaders were: to have fun (73%), filling a need in the community (65%), the health and well-being of my child(ren) (60%), to meet new families (50%), and to learn more about nature (50%).

Table 5. *FNC Leaders' Factors for Leading a FNC (n = 52).*

Answer Choices	Responses	
▾ To be a part of the movement to reconnect children and nature	88%	46
▾ To have fun	73%	38
▾ Filling a need in the community	65%	34
▾ The health and well being of my child(ren)	60%	31
▾ To meet new families	50%	26
▾ To learn more about nature	50%	26
▾ To further the mission of an organization I am part of	38%	20
▾ For motivation to stay active as a family	37%	19
▾ To get quality time with my child(ren)	35%	18
▾ To learn about places to take my child(ren) in nature	33%	17
▾ The security of going out in nature with other people	27%	14
▾ As part of my job	19%	10
▾ Other (describe below)	13%	7

The following quotes from the narrative responses to this question were selected for their ability to illustrate how some of these factors manifested for a FNC leader:

- *To be part of the movement:* "To motivate and inspire other families to make nature a priority." (L#23).
- *To have fun*: "A need to share my joy in nature." (L#15)
- *Filling a need in the community*: "I am a certified science teacher and my passion has always been outdoor, hands-on science education. I combined that with filling the need for an activity that the whole family could go to. This combination led me to our mission of scheduled family time outside to learn, play and volunteer together." (L#7)
- *The health and well-being of child(ren):* "I wanted my children to become stewards of the Earth and to find value and love and solace in one, single location they could call their own. We meet weekly at the same location. In addition, I wanted a core group of families and adults that my children would come to know as extended family and learn to see and hear and respect all voices." (L#44)
- *To meet new families:* "To connect with neighbors in our shared ecosystem." (L#10)

- *To learn more about nature:* "We tend to share our knowledge with other families, but also have a great group of nature oriented friends that share knowledge with us too." (L#2)

- *To further an organizational mission*: "We wanted to extend our library activities to include some outdoor involvement. We found this nightly program allowed working families to spend time with their children doing quality activities that are nature related." (L#38)

- *For quality time with child(ren):* "I live next to a small nature reserve and started doing forest school activities with the children, the families love it and I meet up with other grandparents who care for grandchildren." (L#32)

- *The security of a group:* "We knew that there were families that needed the security of going with other families so we wanted to be part of encouraging our friends to get out in nature with us." (L#2)

- *As part of my job*: "I am a wildlife biologist and environmental educator. Most wildlife issues are really people issues. This realization during my master's work motivated me to make a career out of building environmental literacy by connecting children and families with nature." (L#52)

During the leader interviews, one woman recalled her motivation for starting a FNC, which had similar themes to many other leader stories, including my own. She shared:

> *When I was a little girl my family spent a lot of time outdoors and camping. I have a lot of wonderful memories of discovering the world around me with deep imagination as a child. Then when I became a teenager I went off and started doing the normal suburban social life thing and I lost touch with nature. When I got married and had my first child seven years ago, all the memories of my childhood in nature came flooding back to me. I also went from being a career woman to a full time mom and had something of an identity crisis. I needed something to help me recreate myself. I also wanted to find ways to spend time in nature with my kid, but all the outdoor groups around me were for adults and serious hikers. I came across a family nature club that was 45 minutes away, which was too far to go with a young kid for short events. The leaders recommended that I start*

my own sub-club and offered me with support to do that. At first I was nervous, but then it wasn't a big deal to post an event and meet up with people and I noticed that the events really mattered to people. I have been leading this club since 2008 and now I also have a new baby too. Both of my children have multiple special needs, so this group is especially important for my family because it gives us a way to get the time outside that they so need in a setting where they are comfortable and it creates a sense of community for us that would be hard to get elsewhere – I see that it does that for other families as well. This is really my way of making a contribution to the community without taking time away from my family. It is a benefit for my family.

Another leader shared a different trajectory for her motivation to start a FNC, which also has a unique structure:

I had worked as an early childhood nature-based educator since my own children were very young. Now they are in their late teens and as they grew up and we entered into the recession of 2008 I was looking for a new way to use my knowledge to make a living. I began a social enterprise designed to connect families and nature, primarily through "flash-mob field trips" to interesting nature places in the area. I consider my group to be a "family adventure school" or a loose learning community with a focus on all things green. I have found that by specializing in unique green adventures such as milking goats, picking strawberries, and looking for snakes and toads in public parks I can fill a niche need in the community.

Appendix I provides a complete FNC leader interview to illustrate the depth of the insights leaders shared on their motivations for starting a FNC, their club designs, and the effects of their club for the leader and their family and the families that participate in club events.

Demographics. Forty-eight FNC leaders completed the demographic section of their survey. Eighty-seven percent (87%) were female and 13% were male. The age range of leader respondents was from 23 to 60 years old with an average of 42 years of age. Eighty-nine percent (89%) of the FNC leaders are married and/or in a domestic life partnership, 93% of the FNC leaders indicated that they have children and 82% of this parent group indicated that their children participate in the FNC events that they lead. With regards to ethnicity and race, 85% of the leader respondents were Caucasian, 4% were Hispanic, 2% were Asian, 2% were Native American, 2% were multi-racial, 2% identified as other, and 2% preferred not to answer.

The formal education experience of FNC leaders was primarily characterized as having completed a bachelor's degree (48%). Another 39% had completed a graduate degree and 13% had some college experience or had completed trade or vocational school. FNC leaders were asked to describe their familial, economic, or personal responsibilities and were able to select all that applied from the list shown in Table 6.

Table 6. *FNC Leader Familial, Economic and/or Personal Responsibilities (n = 46).*

Answer Choices	Responses	
Homemaker	59%	27
Volunteering / community service	41%	19
Employed full-time	35%	16
Self-employed	24%	11
Employed part time	22%	10
Retired	4%	2
Full or part time care giver for a family member in special need	4%	2
Not employed, NOT looking for work	2%	1
Not employed, looking for work	2%	1
Degree seeking student	2%	1
Active armed services / veteran	0%	0
Disabled, not able to work	0%	0

The majority of respondents (59%) indicated that they are a homemaker and 41% also selected volunteering/community service. Fifty-seven percent (57%) of the leaders are also full or partially employed, with 24% noting that they are self-employed. The income distribution of FNC leaders was fairly spread out, with 39% making less than $75,000 a year and 44% making $75,000 or more a year. According to the Census ACS survey, the median household income for the U.S. was $52,250 in 2013, the most current data available. When considering the national average data point, the FNC leader population is more affluent than average, with 61% of the respondents indicating that they make more than $50,000 per year. Seventeen percent (17%) of the respondents to this question preferred not to provide their income information.

Overall, the FNC leaders that participated in this study were primarily parents in their 30s to mid-40s, Caucasian, educated, and relatively well-off economically, which aligns with the results of C&NN's 2013 survey of FNC leaders (Swaisgood, 2013).

Nature Experience and Connection. FNC leaders were asked to indicate whether the nature-related experiences described in Table 7 were part of their own childhood. Ninety-five percent (95%) of the leader respondents indicated that playing outside in nature was an important part of their childhood. Sixty-eight percent (68%) indicated that there was an adult that helped teach them an appreciation for nature during their childhood and 46% participated in a nature-focused organization during their youth. Eighteen (35%) of the leaders strongly or generally agreed with all three prompts, 38% strongly or generally agreed with two of the three prompts, 25% strongly agreed or agreed with one of the three prompts, and one leader did not agree with any prompts.

Table 7. *FNC Leader Agreement with Youth Nature Experience Triad (n = 52).*

	Strongly agree	Generally agree	Neutral	Generally disagree	Strongly disagree	Total	Weighted Average
Playing outside in nature was an important part of my childhood.	82.69% 43	11.54% 6	3.85% 2	0.00% 0	1.92% 1	52	3.73
As a child there was at least one adult that spent time with me outside and helped teach me an appreciation for nature.	34.62% 18	32.69% 17	17.31% 9	11.54% 6	3.85% 2	52	2.83
During my youth, I participated in an organization that had a nature and/or environmental focus.	32.69% 17	13.46% 7	17.31% 9	21.15% 11	15.38% 8	52	2.27

The following are select, illustrative quotes from the narrative responses to this question.

- "As a child I didn't have many opportunities to be outside in nature (growing up in Chicago), but the times that I did were my most favorite and vivid memories as a child. Those few opportunities shaped my love of nature as an adult." (L#35)
- "I lived on a farm so nature was everywhere. We were busy from morning till night outside doing chores and as such didn't really have any leadership - just learned by doing." (L#12)
- "We camped as our vacations when I was growing up and most of our playing was done outside." (L#41)
- "I also spent lots of unsupervised time alone in nature with only the company of other children. I value those experiences among all else." (L#10)

When asked to quantify the time that they currently spend in nature with their families, separate from their club events, 33% of the FNC leaders reported daily activity and 46% reported

that their family spends time in nature two to six times per week. In terms of quantity of hours

spent in nature with their families each week, 13% of the leaders reported less than two hours,

36% reported two to four hours, 21% reported five to nine hours, 11% reported ten to thirteen

hours, and 16% reported more than fourteen hours of family time in nature a week. Comments

associated with this question noted seasonal variability with regards to the amount of time spent

in nature and several FNC leaders also noted that their own children are grown up, so personal

family time in nature is not a common part of their lives anymore.

FNC leaders were asked to indicate their level of agreement with a set of prompts related

to their connection with the natural world, as shown in Table 8.

Table 8. *FNC Leader Nature Connectedness Responses (n = 37).*

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total	Average Rating
I think of the natural world as a community to which I belong.	0.00% 0	2.70% 1	2.70% 1	18.92% 7	75.68% 28	37	3.68
My personal welfare is dependent on the welfare of the natural world.	0.00% 0	0.00% 0	10.81% 4	13.51% 5	75.68% 28	37	3.65
I have a deep understanding of how my actions affect the natural world.	0.00% 0	0.00% 0	8.11% 3	21.62% 8	70.27% 26	37	3.62
I often feel a kinship with animals and plants.	0.00% 0	5.41% 2	8.11% 3	16.22% 6	70.27% 26	37	3.51
I often feel a sense of oneness with the natural world around me.	0.00% 0	5.41% 2	2.70% 1	35.14% 13	56.76% 21	37	3.43

Of the thirty-seven FNC leaders that responded to this question, 95% agreed that they think of the natural world as a community to which they belong, 92% agreed that they have a deep understanding of how their actions affect the natural world, 92% agree that they often feel a sense of oneness with the natural world around them, 90% agreed that their welfare is dependent on the welfare of the natural word, and 86% agree that they often feel a kinship with animals and plants. Between 2% and 11% percent provided a neutral response depending on the prompt. The "disagree" responses came from two leaders, one of whom was the individual who indicated disagreement with all of the youth nature experience prompts. No one selected strongly disagree.

Social and Environmental Behavior. FNC leaders were asked to indicate their experience with or willingness to take social action for causes that are of personal interest to them. Of the 37 FNC leaders who responded to this question, it was reported that "frequently" or "in the past year": 78% have changed their behavior out of concern for a cause of interest, 76% have joined internet groups related to a cause of interest, 73% have donated time or money, 66% have bought or boycotted products out of ethical concerns, 65% have participated in a voluntary organization, 61% have signed a petition, 49% have contacted a civil servant or the media to express their views, and 38% have attended a meeting or rally.

FNC leaders were asked to indicate how often they and/or their family members engaged in specific environmentally-responsible household behaviors. Of the 37 respondents to this question, it was reported that "very often" or "almost always": 95% recycle, 94% turn off lights when they are not in use, 81% turn off the tap when brushing their teeth, 76% set heating and air condition levels to save energy, 68% purchase water and/or energy saving products, 67% use natural parenting practices, 65% purchase local and/or organic food, purchase green products, and switch off appliances when not in use, and 60% purchase used and/or recycled products. In

the comments section of this question several people noted that public transportation and

walking to destinations are not viable options in the communities in which they live and that they

were not familiar with what the term 'natural parenting'[6] meant.

Relationships. FNC leaders were asked to characterize their family's relationships in six

areas on a five point scale from poor to very good, as shown in Table 9. Participants indicated

that the relationships were "good" or "very good" as follows: family's connection with the

natural world (90%), parent's peer friendships (79%), friendships with other families (76%),

children's peer friendships (73%), family's connection with community (73%), and family's

relationships with extended family (71%). None of the FNC leaders selected "poor" for any of

the prompts on family relationships and none of the respondents selected "below average" for

their family's connection with the natural world.

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[6] The use of the term 'natural parenting' was not defined in the environmental behavior question in the study surveys. Natural parenting is largely individually defined, but is generally based on a desire to live and parent responsively and consciously. There are a number of practices that are widely agreed to be a part of this philosophy and approach. According to the Natural Parenting Network (2012), in addition to incorporating attachment parenting principles, natural parenting emphasizes strategies to reduce the family's ecological impact by making choices such as purchasing organic food, using cloth diapers, selecting toys and clothing made out of natural materials, supporting local economies, and spending quality time together in nature. Above all, natural parenting focuses on creating deep, respectful bonds within the family and with the Earth.

Table 9. *FNC Leader Family External Relationships (n = 37).*

	Poor	Below average	Average	Good	Very good	Total	Weighted Average
Family connection with natural world	0.00% 0.0	0.00% 0.0	10.81% 4.0	21.62% 8.0	67.57% 25.0	37	4.57
Children's peer friendships	0.00% 0.0	5.41% 2.0	21.62% 8.0	18.92% 7.0	54.05% 20.0	37	4.22
Parent's peer friendships	0.00% 0.0	5.41% 2.0	16.22% 6.0	37.84% 14.0	40.54% 15.0	37	4.14
Friendships with other families	0.00% 0.0	8.11% 3.0	16.22% 6.0	35.14% 13.0	40.54% 15.0	37	4.08
Family connection with community	0.00% 0.0	5.41% 2.0	21.62% 8.0	37.84% 14.0	35.14% 13.0	37	4.03
Relationships with extended family	0.00% 0.0	13.51% 5.0	16.22% 6.0	29.73% 11.0	40.54% 15.0	37	3.97

FNC leaders were also asked to indicate how satisfied they were on eleven elements of their family's interpersonal relationships on a five point scale--from "very dissatisfied" to "extremely satisfied." When combining very satisfied and extremely satisfied responses to this question, FNC leaders had very positive perspectives on: their family members concern for each other (92%), their family's ability to share positive experiences (89%), their ability to be a good role model for their child(ren) (81%), the degree of closeness between family members (78%), their ability to effectively parent their child(ren) (77%), their family's ability to be flexible (76%), amount of time their family spends together (73%), the quality of communication between family members (73%), family's ability to resolve conflicts (72%), the way problems are discussed (69%), and the way the family copes with stress (52%).

4.3.2 - FNC Participants

FNC participants were asked to indicate the major factors that led them to join a FNC, with the ability to select all the factors that applied, as shown in Table 10.

Table 10. *FNC Participant's Major Factors for Joining a FNC (n = 169).*

Answer Choices	Responses	
To have fun	86.98%	147
To learn about places to take my child(ren) in nature	78.11%	132
The health and well being of my child(ren)	71.60%	121
To learn about nature	65.09%	110
To meet new families	60.95%	103
To get quality time with my child(ren)	59.76%	101
For motivation to stay active as a family	53.85%	91
The security of going out in nature with other people	29.59%	50
Other (describe below)	10.65%	18
Total Respondents: 169		

The most frequently selected motivator for this group of FNC participants was to have fun (87%). Other factors for common factors for joining a FNC were: to learn about places to go in nature (78%), the health and well-being of my child(ren) (72%), to learn about nature (65%), to meet new families (61%), and to get quality time with my child(ren) (60%). The following quotes from the narrative responses to this question were selected for their ability to illustrate how some of these factors manifested for FNC participants:

- *To have fun: "*For the kids to experience free play in nature with other children." (P#50)
- *To learn about places*: "The leader is good at finding family friendly hikes and informing us about what to expect ahead of time." (P#46)
- *The health and well-being of my children*: "To help my child (who has a disability) build a stable group of friends outside of school." (P#157)
- *To learn about nature:* "To have access to biologists, ecologists, educators and activities that my children can learn from in a hands-on, interactive way." (P#6)

- *To meet new families:* "Meeting other, like-minded families that value nature." (P#44)
- *To get quality time with my child(ren):* "The benefits of being in nature for us as individuals (relaxation, health, etc.), as a family (adventures together, meeting other families), and for nature itself (because the more we feel a part of nature, the more we take care of it and encourage others to do the same)." (P#57)

Demographics. One-hundred and forty-eight (148) FNC participants completed the demographic section of their survey. Eighty-seven percent (87%) of the survey participants were female and 12% were male. The age range of participant respondents was from 20 to 68 years old with an average of 39 years of age. Thirty-two (32%) of the FNC participants were between the ages of 40 to 45. With regards to ethnicity and race, 81% of the respondents were Caucasian, 5% were Asian, 6% were Hispanic, 4% were multi-racial, and 1% were African American.

By definition, the individuals responding to the participant survey were parents. The relationship status of the parents was married and/or in a domestic life partnership for 91% and single for 9%, which includes the never married, widowed and divorced statuses. The survey respondents were primarily mothers (87%) who brought their child(ren) to FNC events. Forty percent (40%) of the survey respondents brought their child(ren) to FNC events by themselves and 54% came to events with their co-parent. Three percent (3%) of the respondents indicated that extended family members (e.g., grandparents) often participate in FNC events with them.

Fifty percent (50%) of the participating families had two children, 31% of the families had one child, 11% of the families had three children, and 11% of the families had four to six children. All told, these family sizes equate to 298 children that were 47% female and 51% male. It should be noted that these data on family size do not necessarily match the total number of child of FNC participants because not all children in a family always attend FNC events, often due to age. For example, sometimes a parent will bring their elementary school-aged child while

the other parent stays home with their infant or, alternatively, teenagers will be engaged in other activities while their young siblings participate in the FNC.

The formal education experience of FNC participant parents was fairly evenly divided between having completed a bachelor's degree (43%) and having completed a graduate degree (40%), making this a well-educated population. When FNC participants were asked to describe their familial, economic, or personal engagements and/or responsibilities: 60% selected homemaker as a familial responsibility, 54% indicated that they were full or partially employed, and 19% of the respondents selected volunteerism/community service. Of the 14 people who provided additional comments on this question, ten specified that they are homeschooling their children. The income distribution of FNC participant households trended towards the affluent, with 14% making less than $50,000 a year, the national average in 2013. Nine percent (9%) made between $50,000 and $75,000 a year, 25% made between $75,000 and $99,999 a year, and 31% made more than $100,000 a year.

Overall, the FNC participants who completed this survey were primarily mothers in their late 30s to mid-40s that were Caucasian, educated, and economically affluent.

Nature Experiences and Connection. FNC participants were asked to indicate whether the nature-related experiences described in Table 11 were part of their own childhood.

Table 11. *FNC Participant Responses to Youth Nature Experiences Triad (n = 162).*

	Strongly agree	Generally agree	Neutral	Generally disagree	Strongly disagree	Total	Weighted Average
Playing outside in nature was an important part of my childhood.	65.43% 106	17.90% 29	6.79% 11	6.79% 11	3.09% 5	162	3.36
As a child there was at least one adult that spent time with me outside and helped teach me an appreciation for nature.	28.57% 46	27.33% 44	18.01% 29	15.53% 25	10.56% 17	161	2.48
During my youth, I participated in an organization that had a nature and/or environmental focus.	27.61% 45	17.79% 29	15.34% 25	24.54% 40	14.72% 24	163	2.19

Eighty-three percent (83%) of the FNC participant respondents indicated that playing outside in nature was an important part of their childhood. Fifty-six percent (56%) indicated that there was an adult that helped teach them an appreciation for nature during their childhood. Forty-six percent (46%) participated in a nature-focused organization during their youth. Ten percent (10%), 26%, and 40% respectively generally or strongly disagreed with each of these statements about their youth experiences in nature, with the remaining respondents selecting a neutral response. This question on youth nature experiences gave the respondents the opportunity to provide a narrative response. The following are illustrative excerpts from these responses.

- "Parents didn't play outside with us kids at all. We just played in yard, driveway and streets." (P#98)

- "I wanted to do more in nature, but my parents were not very outdoorsy. Living by the beach there were luckily many beach trips, and trips to the pool. However other forms of nature weren't the norm outside of school trips. I went camping for school in sixth grade and loved it but that was it until I left home and began doing it on my own. Now, I can give many more nature opportunities to my kids and make it a regular thing." (P#101)

- "We spent the summer at my mom's cabin, which was tucked in the middle of a national forest. I'd go out on my horse, with my dog trailing behind, and disappear for the day. We'd play in the creek, try to herd the cows, and catch snakes and frogs." (P#91).

- "I grew up in museums and the mall. The cultural knowledge I have because of some of my exposures are definitely something I value but now I have a whole new tool right outside my doors that I can also give to my children to truly shape them in to grounded and well-rounded individuals." (P#130)

- "We lived in a suburb of Detroit that happened to have a creek and floodplain running through the backyards of our houses. We were in the back end of the subdivision so it was relatively safe to let us go out and explore all day long!" (P#170)

- "I spent most of my time outdoors as a kid, with cousins and siblings - relatively adult free, totally unstructured, never in house or watching TV." (P#122)

When asked to quantify the time that they currently spend in nature with their families, separate from FNC events, 15% of the FNC participants reported daily activity and 60% reported that their family spends time in nature two to six times per week. In terms of quantity of hours spend in nature with their families each week, 8% of the participants reported less than two hours, 48% reported two to four hours, 26% reported five to nine hours, 8% reported ten to thirteen hours, and 7% reported fourteen or more hours of family time in nature a week. Comments associated with this question highlight the seasonal variance with regards to time spent outdoors, considerations about what constitutes 'nature' versus outdoors, and reflections on how time spent camping gives infrequent, but large doses of family time in nature.

FNC participants were asked to indicate their level of agreement with a set of prompts related to their connection with the natural world. Of the 148 FNC participants who responded to this question, 86% agreed that their personal welfare is dependent on the welfare of the natural world, 83% agreed that they think of the natural world as a community to which they belong, 83% agreed that they have a deep understanding of how their actions affect the natural world, 77% agree that they often feel a sense of oneness with the natural world around them, and 73% agree that they often feel a kinship with animals and plants. Between 1% and 9% of respondents disagreed with the nature connectedness prompts.

Social and Environmental Behavior. FNC participants were asked to indicate experience with or willingness to take social action for causes that are of personal interest to them. Of the 156 FNC participants who responded to this question, it was reported that frequently or in the past year: 75% changed their behavior out of concern for a cause of interest, 73% donated time or money, 68% bought or boycotted products out of ethical concerns, 65% signed a petition, 62% participated in a voluntary organization, 54% joined internet groups related to a cause of interest, 38% contacted a civil servant or the media to express their views, and 31% attended a meeting or rally.

FNC participants were also asked to indicate how often they and/or their family engaged in specific environmentally-responsible household behaviors. Of the 158 respondents to this question, it was reported that very often or almost always: 94% recycle, 88% turn off lights when they are not in use, 78% turn off the tap when brushing their teeth, 75% set heating and air condition levels to save energy, 72% switch off appliances when not in use, 58% purchase local and/or organic food, 56% purchase or use green products, 55% purchase water and/or energy saving products, 51% use natural parenting practices, and 51% purchase used and/or recycled

products. Comments regarding environmental practices primarily included questions about what natural parenting is, notes about the higher cost of organic and natural products making them less feasible, the lack of public transportation options in some communities, and barriers to composting and gardening associated with home owner association or city ordinances.

Relationships. FNC participants were asked to characterize their family's relationships in six areas on a five -point scale from poor to very good. Participants indicated that the relationships were good or very good as follows: family's connection with the natural world (81%), friendships with other families (73%), parent's peer friendships (72%), children's peer friendships (76%), relationships with extended family (65%), and family's connection with community (59%). Most of the narrative comments for this question focused on the family's relationship with extended family and commented on an imbalance in the quality of the relationship between different sides of the family or physical distance from extended family.

FNC participants were asked to indicate how satisfied they were on eleven elements of their family life on a five point scale from poor to very dissatisfied to extremely satisfied. Combining very satisfied and extremely satisfied responses to this question, participants indicated that they had a very positive perspective on their family life as follows: their family's ability to share positive experiences (84%), the degree of closeness between family members (78%), family members concern for each other (77%), the amount of time their family spends together (73%), their ability to be a good role model for their child(ren) (70%), their ability to effectively parent their child(ren) (63%), their family's ability to be flexible (62%), the quality of communication between family members (60%), family's ability to resolve conflicts (58%), the way problems are discussed (54%), and the way the family copes with stress (48%).

4.3.3 - CFIN Participants

One-hundred and thirty-three (133) families participated in the 31 CFIN outings held in 2014. Immediately after their first outing, each family was invited to complete the pre-survey associated with this research. The invitation directed the parents to complete the survey before they attended their second event and this process was closely tracked. Eighty-one (81) parents from distinct families substantively completed this survey, for a 61% percent response rate.

Demographics. Seventy-eight (78) families completed the demographic section in the CFIN pre-survey. These respondents were 90% female and 10% male. The age range of participant respondents was from 25 to 67 years old with an average of 39 years of age. Twenty-eight percent (28%) of the CFIN participants were between the ages of 40 to 45. With regards to ethnicity and race, 78% of the respondents were Caucasian, 8% were Asian, 6% were African American, 6% were Hispanic, and 1% identified as multi-racial. The responding parent's ethnicity and/or racial background were not the same as that of their spouse or children for a number of families.

By definition, the individuals responding to the CFIN participant survey were parents. The relationship status of the responding parent was married and/or in a domestic life partnership for 94% and single for 6%, which includes the never married, widowed, separated, and divorced statuses. Forty-one (41%) of these families were comprised of one child, 45% had two children, 10% of the families had three children, and 4% of the families had four to five children. These family sizes equate to 139 children, 42% of which are female and 58% of which are male.

The formal education experience of CFIN participant parents was fairly evenly divided between having completed a bachelor's degree (44%) and having completed a graduate degree (51%), making this a very well-educated population. CFIN participants were also asked to

describe their familial, economic, or personal engagements and/or responsibilities and were able to select all applicable options. Of the 78 respondents to this question, 51% selected homemaker, 45% indicated that they were employed full-time, 24% indicated that they were employed part-time, 12% of the respondents selected volunteerism/community service, and 4% each selected active armed services/veteran and degree seeking student.

The income distribution of CFIN participants is largely affluent. This makes sense, given that, according to the US Census, the estimated median household income for Howard County was $108,844 in 2012, which was the second-highest median household income of any U.S. county. Twenty-seven percent (27%) of the CFIN families made between $100,000 and $150,000 per year and 23% of the families made more than $150,000. Twenty-two percent (22%) made between $50,000 and $100,000 and 5% made less than $50,000 a year, which was the national average in 2013. The remaining 23% of the families did not disclose their income.

Overall, the CFIN parents that participated in this study were married mothers in their late 30s to mid-40s that were Caucasian, highly educated, and very well-off economically.

Nature experience and connection. CFIN participants were asked to indicate whether the nature-related experiences described in Table 12 were part of their own childhood. Eighty percent (80%) of the CFIN participant respondents indicated that playing outside in nature was an important part of their childhood. Fifty-nine percent (59%) indicated that there was an adult who helped teach them an appreciation for nature during their childhood. Forty-one (41%) participated in a nature- focused organization during their youth. Eight percent (8%), 24%, and 37% respectively generally or strongly disagreed with each of these statements about their youth experiences in nature, with the remaining respondents selecting a neutral response.

Table 12. *CFIN Participant Youth Nature Experiences (n = 80).*

	Strongly agree	Generally agree	Neutral	Generally disagree	Strongly disagree	Total	Weighted Average
Playing outside in nature was an important part of my childhood.	56.25% 45	22.50% 18	13.75% 11	6.25% 5	1.25% 1	80	3.26
As a child there was at least one adult.	26.25% 21	32.50% 26	17.50% 14	17.50% 14	6.25% 5	80	2.55
During my childhood, I participated in an organization that had a nature and/or environmental focus.	26.25% 21	25.00% 20	11.25% 9	21.25% 17	16.25% 13	80	2.24

The following are illustrative excerpts from the narrative responses provided in association with this question:

- "I played outside ALL THE TIME - however, I didn't really consider it 'nature', which is why I responded with 'neutral' for the 'playing outside' question." (CFINP#22)
- "I was in girl scouts all the way from brownies through earning my gold award." (CFINP#41)
- "I grew up in Columbia and we LIVED outside. We played in our yards or in the creeks in the backyard. Generally, the parents were not "guiding" us. All the kids in the neighborhood just played together." (CFINP#47)
- "We went camping as a family all the time and I loved it." (CFINP#61)

When asked to quantify the time that they currently spend in nature with their families, separate from CFIN events, 11% of the pre-survey participants reported daily activity, 61% reported that their family spends time in nature two to six times per week, 15% get outside once a week, and 14% reported that their family spends time in nature less than once a week. In terms of quantity of hours spent in nature with their families each week, 17% of the participants reported less than two hours, 49% reported two to four hours, 26% reported five to nine hours, 7% reported ten to thirteen hours, and 2% reported fourteen or more hours of family time in

nature a week. Comments associated with this question highlighted the seasonal variance with

regards to time spent outdoors, questioned what the difference is between nature and the

outdoors, and mentioned that it can be hard to get the full family out together, so much of what

was reported is referencing the children with at least one parent, not always the whole family.

CFIN participants were asked to indicate their level of agreement with a set of prompts

related to their connection with the natural world. Of the 79 CFIN participants who responded to

this question, 86% agreed that their personal welfare is dependent on the welfare of the natural

world, 78% agreed that they have a deep understanding of how their actions affect the natural

world, 70% agreed that they think of the natural world as a community to which they belong,

65% agreed that they often feel a sense of oneness with the natural world around them, 62%

agreed that they often feel a kinship with animals and plants. Between 1% and 8% of

respondents indicated that they disagreed with the nature-connectedness prompts.

Social and environmental behavior. CFIN participants were asked to indicate

experience with or willingness to take social action for causes that are of personal interest to

them. Of the 80 CFIN participants who responded to this question, it was reported that frequently

or in the past year: 73% changed their behavior out of concern for a cause of interest, 66%

bought or boycotted products due to ethical concerns, 70% donated time or money to raise funds

for a cause of interest, 64% joined a group related to a cause of interest, 63% signed a petition,

51% participated in a voluntary organization, 32% contacted a civil servant or media to express

views, and 27% attended a meeting or rally.

CFIN participants were asked to indicate how often they and/or their family engaged in

specific environmentally-responsible household behaviors. The 80 respondents to this question

indicated that they very often or almost always: recycle (97%), turn off lights when they are not

in use (89%), set heating and air condition levels to save energy (74%), turn off the tap when brushing their teeth (74%), switch off electrical appliances when not in use (67%), purchase local and/or organic food (65%), use green products (49%), purchase recycled products (47%), purchase energy and/or water saving products (44%), use natural parenting practices (46%), walk to destinations (18%), compost (18%), use public transportation (6%). Comments associated with this question primarily included questions about what natural parenting is and comments about barriers to walking to destinations and or using public transportation.

Relationships. CFIN participants were asked to characterize their family's relationships in six areas on a five point scale from poor to very good. The 79 respondents indicated that the relationships were good or very good as follows: family's connection with extended family (81%), children's peer friendships (71%), friendships with other families (70%), parent's peer friendships (66%), family connection with nature (61%), and connection with community (44%).

CFIN participants were asked to indicate how satisfied they were on eleven elements of their family life on a five point scale from poor to very dissatisfied to extremely satisfied. Combining very satisfied and extremely satisfied responses to this question, 79 participants indicated that they had a very positive perspective on their family life as follows: their family's ability to share positive experiences (90%), the degree of closeness between family members (82%), family member's concern for each other (82%), the amount of time their family spends together (64%), their ability to be a good role model for their child(ren) (56%), their family's ability to be flexible (55%), the quality of communication between family members (53%), their ability to effectively parent their children (53%), their family's ability to resolve conflicts (50%), the way problems are discussed (50%), and their family's ability to cope with stress (36%).

4.3.4 - CFIN Post-Population

When each CFIN family attended their sixth event, they were invited to take the post-survey, which was completed by 28 of the 30 eligible families. The purpose of the pre-post survey design was to potentially be able to isolate the effects of FNC participation within a specific population, in this case CFIN participants. A paired t-test was used to compare CFIN participant's pre-survey and post-survey responses, as shown in Table 13.

Table 13. *Comparison of CFIN Pre and Post Survey Responses (n = 28).*

Statistical Comparison of CFIN pre and post survey participants			
Response variable	n	t	p
Connection to Nature	28	1.88	0.07
Environmental Behavior	28	1.18	0.25
Social Action	28	0.69	0.50
Family Nature Time	27	-0.35	0.73
Family Satisfaction	28	-0.21	0.84

Although no statistical significance was found, using a significance level of $p < 0.05$, there were notably positive changes between the CFIN pre and post survey responses for the questions about the respondent's sense of connection to nature ($p = 0.07$) and household environmental behaviors ($p = 0.25$). The lack of statistical significance may be driven by the relatively small sample size, the eligibility threshold of six outings (which equates to 12 hours) for the post-survey, and the propensity for this population to have relatively positive responses to many of the survey responses, as indicated by the pre-survey results described above.

A narrative description of the CFIN post survey sub-population is not provided as was done with the other study populations. However, this population is reflected in the comparison tables in section 4.4 and substantial attention is given to this population in the CFIN case study in section 4.5, which provides a pre and post survey comparison for five diverse families as well as interview excerpts from all 28 post-population families that conducted an interview.

4.3.3 - CFIN Non-Participants

Forty-five (45) parents who had signed up for CFIN communications but never participated in an outing completed the CFIN "non-participant" survey. The purpose of this survey was to potentially be able to isolate effects of actual FNC participation within a similar population or identify differences between people who come to FNC outings and those that do not. This comparison group of CFIN non-participants was compared to the group of 28 people who attended six CFIN outings and completed the post-survey. A two sample t-test was used to compare these two independent populations. Table 14 provides the results of the statistical analysis of these two groups.

Table 14. *Comparison of CFIN Post Survey Participants and Non-Participants.*

Statistical Comparison of CFIN post survey participants and non-participants				
Response variable	n1	n2	t	p
Family Nature Time	40	28	-1.900	0.062
Environmental Behavior	42	28	-1.390	0.170
Connection to Nature	42	28	-0.680	0.500
Family Satisfaction	42	28	-0.420	0.680
Social Action	40	28	0.370	0.720

Although no statistical significance was found, there was a notable difference between the amount of family time spent in nature ($p = 0.062$) and household environmental behavior ($p = 0.17$) between the CFIN families that participated in six outings and the CFIN non-participant group. The lack of statistically significant difference between these two populations may, again, be primarily driven by the relatively small sample sizes, the threshold of six outings (which equates to 12 hours) for the post-survey, and the fairly similar characteristics of the CFIN non-participant population as compared to the CFIN participant population.

Given the lack of statistically significant differences between these two study populations, a narrative description of the CFIN non-participant population is not provided as

was done with the other study populations. However, this population is reflected in the comparison tables provided in section 4.4. Surveying this population did provide constructive insight into why the parents were interested in CFIN and the barriers that had prevented their participation thus far.

The factors motivating parent's interest in CFIN were: to learn about places to take their children in nature (84%), the health and well-being of their children (82%), to have fun (80%), to stay active (76%), quality time with their child(ren) (69%), to meet new families (53%), and to learn about nature (47%). A comparison between these non-participant responses and the responses to this same question about motivation to participate from the broader group of FNC participants showed that the FNC participants were more motivated by fun (87% vs. 80%), learning about nature (65% vs. 47%), and meeting new families (63% vs. 53%). Conversely, the CFIN non-participants were more motivated, although they did not follow through, by learning about places to go in nature (84% vs. 78%), their children's well-being (82% vs. 72%), and quality time with their children (69% vs. 60%).

The CFIN non-participant population provided detailed narrative feedback on the primary barriers to their participation. The three primary barriers to participation were:

- *Time / schedule limitations and conflicts* (i.e., parents have heavy work schedules, the family is over scheduled in general, events conflict with nap time of younger children and other activities of older children, weekend travel, etc.).

- *The logistics of attendance* (i.e., getting it on the calendar, need to commit in advance, how very hard it can be to get out the door with kids, proximity, weather, etc.).

- *Concern about participating in the event* (i.e., babies not old enough, limitations in how much young kids can do in a day, activities not geared towards preteens, special needs, social concerns for parents about being new to a group, etc.).

    The following quotes illustrate how these barriers showed up for non-participant families:

- "Laziness. Nervousness about socializing with people we don't know. Distance. Need to rsvp and commit to outings in advance."

- "Working mom - very little time after work during the week (especially with lack of daylight) and then my weekends get booked with family a lot of times."

- "Time is a big factor. My daughter's most active time is early in the morning. Most of the activities are later in the afternoon. Also, some have been that the activities may not be suitable for my 2-year old daughter just yet."

- "My son has a developmental disability (sensory processing disorder) that can make new situations and large group activities difficult since they can cause unpredictable behaviors."

- "Getting all 4 of my children dressed, diapered and into car seats. Getting them into strollers and backpacks. Getting them out of strollers and backpacks so they can walk and explore. Getting them back into strollers and backpacks when they throw themselves on the ground because they don't want to walk anymore."

4.4 Comparative and Statistical Analysis

The following tables compare each of the study participant group responses to each of the key study data sets: demographics, nature experience, time, and connection, social and environmental behavior, and relationships. The section also includes the results of statistical analyses on whether two independent variables, the 'youth nature experience triad' and family

time in nature, have an influence on connection with nature, social behavior, environmental

behavior, and family satisfaction.

4.4.1 - Demographics

A total of 322 study participants completed the demographic sections of their respective

surveys (not double counting the 29 CFIN post participants), as shown in Table 15. The

percentages presented in the table do not add up to 100% in all cases due to the preference of

some participants to not report certain demographic data. Note that the 29 CFIN post-survey

participants are a subset of the 81 pre-participants.

Table 15. *FNC Study Populations - Comparative Demographics (n = 322).*

	FNC Leaders	FNC Participants	CFIN Post Participants	CFIN Pre-Participants	CFIN Comparison
Respondents	48	148	29	81	45
Parent Gender					
Female	87%	87%	86%	90%	95%
Male	13%	12%	14%	10%	5%
Age Data					
Range	23 – 60	20 – 68	26 – 57	25 – 67	28 – 47
Average	42	39	40	39	35
Predominant	40 – 45	40 – 45	35 – 39	40 – 45	30 – 34
Ethnicity / Race					
Caucasian	85%	81%	66%	78%	86%
Asian	2%	5%	10%	8%	6%
Hispanic	4%	6%	7%	6%	0%
Black	0%	1%	10%	6%	1%
Other	4%	4%	0%	1%	1%
Children					
1 child	41%	31%	45%	41%	39%
2 children	45%	50%	43%	45%	45%
3 children	10%	11%	3%	10%	14%
4 children +	4%	11%	7%	4%	2%
Female	42%	47%	45%	42%	53%
Male	58%	51%	55%	58%	47%
Relationship Status					
Married	89%	91%	90%	94%	95%
Single	11%	9%	10%	6%	5%
Formal Education Level					
Some college	14%	13%	4%	5%	13%

Bachelors	48%	43%	57%	44%	21%
Graduate	39%	40%	39%	51%	66%
Work / Responsibilities					
Homemaker	59%	60%	50%	51%	48%
Full-time	35%	32%	43%	45%	50%
Part-time	22%	22%	32%	24%	16%
Volunteer	41%	19%	14%	12%	16%
Caregiver	4%	4%	4%	0%	0%
other	4% (retired)	0%	8% (student/ veteran)	8% (student/ veteran)	4% (student)
Household Income					
> $150k,	13%	14%	14%	23%	11%
$100-$150k	20%	17%	36%	27%	34%
$50k-$100k	28%	34%	29%	22%	25%
< $50k	22%	14%	7%	5%	2%

When comparing the demographics of these study groups, the following trends emerge:

- *Gender:* The large majority of study participants are women across all groups (87% to 95%).

- *Age:* The average age of the participating parent was in the upper 30s to lower 40s across all groups, with the CFIN non-participant group being younger overall than the other groups.

- *Ethnicity/race:* The large majority of the study participants are Caucasian across all groups (66% to 86%). Hispanic, Asian, and African American participants comprise between 2% and 10% each within each group, other than the CFIN post group, which has the greatest diversity (23%). According to the U.S. Census, the country is comprised of people who are 63% Caucasian, 17% Hispanic, 12% African American, 4% Asian, 2% multi-racial, and 1% Native American.

- *Children:* Most families had two children (43% to 50%), followed by one child families (31% to 45%), and three children families (3% to 14%). The children were mostly male (51% to 58%) for all but the CFIN non-participant group (53% female).

- *Relationship status:* The large majority of study participants were married (89% to 95%). According to the U.S. Census, in 2012 married couples made up 63% of the family groups with children under the age of 18.

- *Education:* The large majority of study participants hold a college degree (83% to 96%), with between 39% and 66% also holding a graduate degree. The CFIN non-participant group had the highest graduate degree rate (66%). According to the U.S. Census, 32% of the country's adults had received a bachelor's degree and 16% of the population had received a graduate degree in 2012. The participants in this study are very highly educated comparatively.

- *Responsibilities*: The most common selection of personal responsibilities was homemaker (50% to 60%) for all groups other than the CFIN non-participant group, which had slightly more people selecting full-time employment. FNC leaders were substantially more likely to indicate volunteerism is a primary responsibility (41% compared to 19% for FNC participants, and 16% for non-participants), which may be a reflection of their FNC role.

- *Income:* For the FNC leaders and participants not associated with CFIN, the most common household income selection was $50,000 to $100,000, followed by a fairly equal distribution of families making less than $50,000 and between $100,000 and $150,000. Across the CFIN groups, which are comprised of people living in the affluent and expensive Howard County area of Maryland, the most common household income was $100,000 to $150,000 with more people making more than $150,000 than less than $50,000. By way of comparison, according to the U.S. Census, the median household income for the U.S. was $52,250 in 2012.

Overall, study participants were primarily married, Caucasian, mothers in their late 30s to mid-40s who were college educated, took responsibility as their family's homemaker while also holding other responsibilities, and had a greater than average household income.

4.4.2 - Nature Experience, Time, and Connection

This section compares the study group responses with regards to nature experiences

during their youth, current family time spent in nature, and sense of connection with nature.

Youth Nature Experience Triad. A total of 337 study participants completed the "youth

nature experience triad" section of their respective surveys (not double counting the 28 CFIN

post participants), as shown in Table 16. The specific prompts in this question were: 1) playing

outside in nature was an important part of my childhood; 2) as a child there was at least one adult

(parent, grandparent, etc.) that spent time with me outside and helped teach me an appreciation

for nature; and 3) during my childhood, I participated in an organization that had a nature and/or

environmental focus.

Table 16. *Youth Nature Experience Triad Response Comparisons (n = 337).*

	FNC Leaders	FNC Participants	CFIN Post-Participants	CFIN Pre-Participants	CFIN Comparison
Respondents	52	162	28	80	43
Playing outside	***95%** **^ 3.73**	*83% ^ 3.36	*68% ^ 2.96	*80% ^ 3.26	*82% ^ 3.14
Adult role model	*68% ^ 2.83	*56% ^ 2.48	*50% ^2.25	*59% ^ 2.55	*58% ^ 2.49
Nature organization	*46% ^ 2.27	*46% ^ 2.19	*64% ^ 2.46	*41% ^ 2.24	*56% ^ 2.40

*Percentage is derived from adding "generally agree" and "strongly agree" responses.
 ^The average weight is a zero to four scale with four indicating a stronger agreement response.

The level of agreement with these three prompts on youth nature experience generally

followed the same order found in Chawla's (2006) research on life experiences that foster

environmental action. In her study of committed environmentalists, 77% reported spending time

in nature as a child, 64% reported having a close, positive adult role model for nature

appreciation, and 55% reported participation in a nature-based organization. Excluding the CFIN

post-group, this study population had a somewhat stronger agreement about having played in

nature as a child than Chawla's group, with 95% of FNC leaders agreeing that outdoor play was

an important part of their childhood. The FNC leaders also had a slightly higher agreement

(68%) with having had an adult role model for nature appreciation, while the rest of the study

groups had a somewhat lower level of agreement (50% to 59%). The FNC leaders and

participants (46%) and the CFIN pre group (41%) had a lower level of agreement with having

participated in a nature-based organization during their youth. The CFIN post group is an

anomaly, with lower agreement rates about spending time in nature as a child and having a close

adult role model than all the other groups, and stronger agreement with the prompt about

participating in a nature-based organization during their youth than having a close adult role

model. Their agreement about participating in a nature-based organization is greater than all of

the other groups. It is interesting that these responses are coming from a set of parents that

participated in the greatest number of CFIN events (at least six). Perhaps participation in a

nature-based group during their youth created awareness of the importance of time in nature for

their children, even if they did not have as much of that experience for themselves, or made them

feel familiar and comfortable with group activities in nature.

       The youth nature experiences of the entire study population were analyzed as an

independent variable that may influence the other response variables. Linear regression was used

to test the relationship between the responding parent's *youth nature experience triad* and family

time spent in nature, connection to nature, social action, environmental action, and family

satisfaction. For this analysis, all survey respondents (FNC leaders, FNC participants, CFIN pre

survey participants, and CFIN non-participants) were aggregated. For family satisfaction ($p =$

0.749), social action ($p = 0.124$), and current family time spent in nature ($p = 0.077$), there is an

increasingly positive, but not statistically significant, relationship with the youth nature

experience triad. There are statistically significant relationships between the youth nature

experience triad and an individual's sense of connection to nature ($p < 0.001$) and their level of

environmental action ($p = 0.03$). Table 17 shows the n and p values for these tests.

Table 17. *Statistical Analysis for Youth Nature Experiences Triad vs. Response Variables*.

Youth nature experience triad vs. response variables		
Response variable	***n***	***p***
Connection to Nature	306	**<0.001**
Environmental Behavior	314	**0.031**
Family Nature Time	318	0.077
Social Action	312	0.124
Family Satisfaction	306	0.749

These data show a very significant correlation between the positive strength of study

participants' youth nature experiences triad score and their score with regards to their current

sense of connection with nature. This suggests that youth nature experiences may have an

ongoing positive influence on adults' sense of connection with the natural world. These data also

show a significant correlation between the positive strength of study participants' youth nature

experiences triad score and their current household environmental behavior score. This suggests

that youth nature experiences may also have an ongoing positive influence on adults'

environmentally-responsible behavior. These results support research that identified the youth

nature experiences triad as being three primary life experiences that foster a long-term

commitment to environmental well-being (Chawla, 2006) as well as research that links sense of

connection to nature to environmental behavior (Zylstra et al., 2014). While family time in

nature did not have a statistically significant relationship to the youth nature experiences of the

participating parent, there is a positive relationship. This suggests that the parents' recollection of

their childhood experiences in nature influences the amount of time that they now spend in

nature with their own children, creating a positive cycle of youth nature experiences.

Family Time in Nature. A total of 353 people completed the family time spent in nature section of their surveys (the 28 CFIN post participants included), as shown in Table 18.

Table 18. *FNC Study Populations - Family Nature Time Response Comparisons (n = 353).*

	FNC Leaders	FNC Participants	CFIN Post-Participants	CFIN Pre-Participants	CFIN Comparison
Respondents	39	163	28	80	43
Frequency					
Daily	**33%**	15%	7%	11%	5%
2-3 x week	31%	**37%**	**32%**	**38%**	**33%**
4-6 x week	15%	22%	**32%**	23%	9%
1 x week	5%	8%	25%	15%	26%
< 1 x week	10%	15%	4%	14%	21%
other	5%	2%	0%	0%	7%
Time / week					
< 1 hour	3%	6%	0%	3%	5%
1 hour	10%	18%	14%	14%	**30%**
2 hours	8%	**21%**	21%	21%	28%
3-4 hours	28%	17%	**29%**	**28%**	14%
5-7 hours	18%	19%	21%	25%	9%
>8 hours	**28%**	17%	11%	10%	7%
other	5%	2%	0%	0%	7%

The study population that spent the most daily family time in nature was FNC leaders (33%). The rest of the study groups indicated that their most common frequency of family time spent in nature was two to three times per week (32% to 38%). CFIN non-participants indicated that they had the lowest frequency of family time in nature of all the groups. The study population that spent the greatest amount of time in nature was also FNC leaders, for whom 28% spent more than eight hours of family time in nature per week. CFIN participants had the second highest quantity of family time spent in nature per week, with 28% to 29% spending three to four hours and 21% to 25% spending five to seven hours of family time in nature per week. CFIN non-participants indicated that they had the lowest quantity of family time in nature of all the groups. The instances where the CFIN post group reported a decrease in family nature time frequency may be attributed to the post-survey being completed during the winter months.

Family time spent in nature was also analyzed as an independent variable that may influence other response variables. Ordinary linear regression was used to determine the statistical significance of any linear relationship between family time spent in nature and connection to nature, environmental action, social action, and family satisfaction. To include the effects of FNC participation, the 28 post participation surveys were used for CFIN participants rather than the 80 pre-surveys. There is a statistically significant relationship between family time in nature and three of the other response variables: connection to nature ($p = 0.007$), environmental action ($p = 0.021$), and social action ($p = 0.027$). The relationship between family nature time and family satisfaction is positive, although not statistically significant within this sample ($p = 0.07$). Table 19 shows the n and p values for these tests.

Table 19. *Statistical Significance for Family Nature Time Versus Response Variables.*

Family nature time vs. response variables		
Response variable	n	p
Connection to Nature	249	**0.007**
Environmental Behavior	256	**0.021**
Social Action	254	**0.027**
Family Satisfaction	249	0.070

These data show a very significant correlation between the quantity of time a family spends together in nature, in hours per week, and the responding parent's sense of connection with nature, the family's household environmental behavior, and the responding parent's social action. This suggests that the more time a parent spends in nature with her or his child, the greater the parent's connection to nature and also the greater the environmental and social behavior, which may be attributed to the increase in the parent's sense of connection to the environment in which they live. This effect on adult behavior is important, since these parents are the current decision makers in their household. Based on the finding of statistical significance

between youth experiences in nature and adult sense of connection with nature and

environmental behavior, it bodes well too for the long-term effects on the children in these

households where there is more family nature time.

Connection with Nature. A total of 334 study participants completed the section of their

respective surveys about sense of connection to nature (including CFIN post survey

respondents), as shown in Table 20.

Table 20. *FNC Study Populations - Connection with Nature Response Comparison (n = 334).*

	FNC Leaders	FNC Participants	CFIN Post Participants	CFIN Pre Participants	CFIN Comparison
Respondents	37	148	28	79	42
Nature is part of community of belonging	*95% ^3.68	*83% ^3.27	*82% ^3.21	*70% ^3.20	*79% ^3.26
Welfare dependent on nature	*90% ^3.65	*86% ^3.31	*89% ^3.43	*86% ^3.00	*89% ^3.19
Understanding of effects on nature	*92% ^3.62	*83% ^3.16	*79% ^3.14	*78% ^2.92	*91% ^3.05
Sense of oneness with nature	*92% ^3.43	*77% ^3.09	*57% ^2.71	*65% ^2.80	*62% ^2.69
Kinship with animals and plants	*86% ^3.51	*73% ^3.02	*64% ^2.82	*62% ^2.78	*50% ^2.60

*Agreement percentage is derived from adding the "agree" and "strongly agree" responses.
^The average weight is a zero to four scale with four indicating a stronger agreement response.

The bolded numbers in Table 20 reference the prompt that received the highest

agreement level for each study group. The numbers highlighted in green show the group that

received the highest response rate for each prompt. The numbers highlighted in yellow show the

group that received the lowest response rate for each prompt. For all nature connectedness

prompts, FNC leaders had the highest level of agreement in terms of percentage and weight. The

prompt that garnered the highest agreement response was "I think of the natural world as a

community to which I belong," to which 95% of FNC leaders agreed. For the FNC and CFIN

participants, the prompt that garnered the greatest agreement in terms of percentage and weight

was "my personal welfare is dependent on the welfare of the natural world." The CFIN non-participant group most strongly agreed (91%) with the prompt stating "I have a deep understanding of how my actions affect the natural world." Perhaps the very high education level of the non-participant group facilitated resonance with a prompt that focused on knowledge. The lowest level of agreement for the prompt "I often feel a sense of oneness with the natural world around me," came from the CFIN post group, and this was the only prompt for which the overall level of agreement decreased between the CFIN pre and post groups. Looking at the post survey respondents, four people indicated a lesser sense of connection on this prompt than they had at the time of the pre-survey. Of these one changed from strongly agree to agree, two changed from agree to neutral, and one changed from agree to disagree. Perhaps the sense of oneness indicated in this prompt is harder to achieve when time spent in nature is often with a large group including many joyfully noisy children. Alternatively, the decrease could be attributed to personal comparisons with other CFIN participants who may be more 'connected' with nature or a reduction in an idealization about what being in nature is like (i.e., sweat, bugs, dirty kids). Overall, the prompt that received the lowest level of agreement was "I often feel a kinship with animals and plants."

On a scale from 0 (strongly disagree) to 4 (strongly agree), the overall individual response averages for the different study groups were 2.96 for the CFIN non-participant group, 2.94 for the CFIN pre-survey group, 3.15 for the FNC participant group, and 3.58 for the FNC leader group. As shown in Table 21, statistical significance in the sense of connection with nature between the study participant groups was found for comparisons between the CFIN pre-survey participants and the FNC participants ($p = 0.024$), CFIN pre-survey participants and FNC leaders ($p = 0.000003$), and FNC participants to FNC leaders ($p = 0.0004$). Although not

statistically significant, the comparison between the CFIN non-participant group and the FNC

participant group, showed a notable difference in sense of connection with nature *(p= 0.08)*.

There was negligible difference between the CFIN non-participant group and the CFIN pre-

survey group *(p = 0.90)*, which had the primary distinction of attending one FNC event.

Table 21. *Statistical Significance for Adult Sense of Connection with Nature (n = 334).*

Adult Sense of Connection with Nature (n = 334)	
CFIN pre-survey participants and the FNC participants	0.024
CFIN pre-survey participants and FNC leaders	0.000003
FNC participants to FNC leaders	0.0004

4.4.3 – Social and Environmental Behavior

A total of 346 study participants provided insight into their family's social actions and

environmental behaviors as shown in Table 22 and Table 23. These tables are coded with bolded

numbers for the prompt that received the highest agreement level for each study group, green

highlighting for the group that received the highest response rate for each prompt and yellow

highlighting for group that received the lowest response rate for each prompt.

Social Action. The question on action prompted people to "indicate your experience with

or willingness to take these actions for causes that are of personal interest to you."

Table 22. *FNC Study Populations - Social Behavior Response Comparisons (n = 346).*

	FNC Leaders	FNC Participants	CFIN Post-Participants	CFIN Pre-Participants	CFIN Comparison
Respondents	37	158	28	80	43
Join internet group	*76% ^ **4.38**	*54% ^ 3.39	*61% ^ 3.61	*64% ^ 3.88	*64% ^ 3.68
Voluntary group	*65% ^ 4.22	*62% ^ 3.80	*54% ^ 3.43	*51% ^ 3.53	*48% ^ 3.50
Buy / boycott products	*66% ^ 4.14	*68% ^ **4.12**	*68% ^ 4.14	*66% ^ 4.08	*68% ^ 3.83
Donate time or money	*73% ^ 4.14	*73% ^ 3.97	*86% ^ 4.11	*70% ^ 3.91	**81%** ^ **4.32**
Sign petition	*61%	*65%	*65%	*63%	*66%

	^ 4.11	^ 3.70	^ 3.54	^ 3.71	^ 3.73
Express views	*49% ^ 3.05	*38% ^ 2.84	*39% ^ 2.86	*32% ^ 2.77	*39% ^ 2.83
Attend meeting	*38% ^ 3.00	*31% ^ 2.60	*25% ^ 2.64	*27% ^ 2.64	*24% ^ 2.41
Behavior change	*78% ^ 4.31	*75% ^ 4.01	*78% ^ 4.39	*73% ^ 4.34	*66% ^ 3.90

*Agreement percentage is derived from adding the "frequently" and "in the past year" responses.
^The average weight is a zero to four scale with four indicating a stronger agreement response.

For six out of the eight social action sub-prompts, FNC leaders had the greatest level of reported action in terms of percentage and/or weight. For the FNC leaders and participants and the CFIN pre survey group, the sub-prompt that received the highest level of agreement in terms of people indicating that they had taken the action "frequently" or "in the past year" was the catch-all option of "change your behavior in any other way out of concern for a cause of interest.". The most popular social action for both the CFIN post-group and CFIN non-participant group was "donate time or money or raise funds for a cause of interest." The study groups were very consistent in their commitment to "deliberately buy or boycott products due to ethical concerns" (66% to 68%) and "sign a petition" (61% to 66%). The actions that people participated in the least across all participant groups were "contact a politician, civil servant, and/or media to express your views" (32% to 49%) and "attend a related hearing, meeting or rally" (24% to 38%). The lowest score for any social action prompt for any group is "attending a meeting" for the CFIN non-participant group, which perhaps speaks to an overall challenge for this particular population in attending extracurricular events.

On a scale from 0 (would not) to 4 (frequently), the overall individual response averages for the different study groups were 2.44 for the CFIN non-participant group, 2.38 for the CFIN pre-survey group, 2.42 for the FNC participant group, and 2.60 for the FNC leader group. No statistical significance was found in the responses between these four study groups.

Environmental Behavior. The prompt guiding the question on environmental behavior

was "How often does your family take the following environmental actions?"

Table 23. *FNC Study Populations - Environmental Action Response Comparisons (n = 346).*

	FNC Leaders	FNC Participants	CFIN Post-Participants	CFIN Pre-Participants	CFIN Comparison
Respondents	37	158	28	80	43
Recycle	*95% ^ 4.76	*94% ^ 4.71	*89% ^ 4.61	*97% ^ 4.80	*96% ^ 4.79
Turn off lights	*94% ^ 4.51	*88% ^ 4.52	*89% ^ 4.54	*89% ^ 4.49	*83% ^ 4.24
Turn off tap	*81% ^ 4.16	*78% ^ 4.32	*71% ^ 4.11	*74% ^ 4.10	*66% ^ 3.71
Heating, AC levels	*76% ^ 4.24	*75% ^ 4.20	*67% ^ 4.04	*74% ^ 4.10	*57% ^ 3.69
Turn off appliances	*65% ^ 3.86	*72% ^ 3.99	*72% ^ 4.07	*67% ^ 3.95	*50% ^ 3.33
Organic / local food	*65% ^ 3.89	*58% ^ 3.59	*68% ^ 3.79	*65% ^ 3.73	*40% ^ 3.14
Natural parenting	*67% ^ 3.95	*52% ^ 3.47	*50% ^ 3.14	*46% ^ 3.14	*26% ^ 2.57
Energy, water saving prods.	*68% ^ 3.89	*55% ^ 3.47	*39% ^ 3.14	*44% ^ 3.25	*45% ^ 3.14
Green products	*65% ^ 3.86	*56% ^ 3.56	*47% ^ 3.43	*49% ^ 3.45	*45% ^ 3.05
Used/recycled products	*60% ^ 3.89	*51% ^ 3.48	*51% ^ 3.29	*47% ^ 3.31	*33% ^ 2.95
Composting	*38% ^ 2.59	*40% ^ 2.45	*25% ^ 1.71	*18% ^ 1.74	*24% ^ 1.52
Walk to destinations	*24% ^ 2.62	*19% ^ 2.52	*18% ^ 2.29	*18% ^ 3.35	*16% ^ 2.24
Public transportation	*8% ^ 1.41	*5% ^ 1.24	*0% ^ 1.32	*6% ^ 1.38	*2% ^ 0.95

*Agreement percentage is derived from adding the "almost always" and "very often" responses.
^The average weight is a zero to five scale with five indicating a stronger positive response.

For eleven out of the thirteen environmental behavior sub-prompts, FNC leaders had the

greatest level of reported action, in terms of percentage and/or weight. For ten of the

environmental behaviors, the CFIN non-participant group has the lowest level of reported action.

There was consistency across all the participant groups for the most common and most

uncommon environmental behaviors. Recycling (89% to 96%), turning off the lights when not in use (83% to 94%), and turning off the tap while brushing teeth (66% to 81%) were the three most frequent environmental behaviors, in that order. Composting (18% to 24%), walking to destinations (16% to 24%), and using public transportation (0% to 8%) were the three least frequent environmental behaviors in descending order. The frequency of the seven environmental behaviors in between the top and the bottom varied widely between the study groups in terms of rank and percentage and/or weight.

On a scale from 0 (never) to 5 (almost always), the overall individual response averages for the different study groups were 3.03 for the CFIN non-participant group, 3.37 for the CFIN pre-survey group, 3.52 for the FNC participant group, and 3.67 for the FNC leader group. As shown in Table 24, statistical significance in the reported household environmental behaviors between the study participant groups was found for comparisons between the CFIN non-participant group and the CFIN pre-survey participants ($p = 0.01$), CFIN non-participants and FNC participants ($p = 0.00004$), CFIN non-participants and FNC leaders ($p = 0.0001$), and CFIN pre-survey participants and FNC leaders ($p = 0.0496$). No statistical significance was found between CFIN pre-survey participants and FNC participants ($p = 0.13$), and FNC participants and FNC leaders ($p = 0.29$).

Table 24. *Statistical Significance for Household Environmental Behavior (n = 336).*

Household Pro-environmental Behavior (n = 336)	
CFIN non-participant group and the CFIN pre-survey participants	0.01
CFIN non-participants and FNC participants	0.00004
CFIN non-participants and FNC leaders	0.0001
CFIN pre-survey participants and FNC leaders	0.0496

4.4.4 - Relationship Satisfaction

A total of 334 study participants provided insight into their family's external relationships and their own satisfaction with elements of their family life, as shown in Table 25 and Table 26. These tables use the same bold and color coding to highlight details as previous sections.

Family's External Relationships. The prompt guiding the question on family's external relationships was "How would you characterize your family's relationships in the following areas?" The response options were poor, below average, average, good, and very good.

Table 25. *FNC Study Populations - Family Relationships Response Comparisons (n = 334).*

	FNC Leaders	FNC Participants	CFIN Post-Participants	CFIN Pre-Participants	CFIN Comparison
Respondents	37	148	28	79	42
Family connection with nature	* 90% ^4.57	*81% ^ 4.18	*65% ^ 3.89	*61% ^ 3.76	*48% ^3.29
Children's peer friendships	* 73% ^ 4.22	*76% ^ 3.98	*68% ^ 3.89	*71% ^ 3.96	*71% ^ 3.80
Parent's peer friendships	* 79% ^ 4.14	* 72% ^ 3.99	*61% ^ 3.75	* 66% ^ 3.82	* 68% ^ 3.70
Friendships with other families	* 76% ^ 4.08	* 73% ^ 4.05	*65% ^ 3.82	* 70% ^ 3.90	* 60% ^ 3.52
Family connection with community	* 73% ^ 4.03	* 59% ^ 3.71	*47% ^ 3.54	* 44% ^ 3.44	* 34% ^ 3.15
Relationships with extended family	* 71% ^ 3.97	* 65% ^ 3.83	*75% ^ 4.00	* 81% ^ 4.19	* 73% ^ 4.21

*Percentage is derived from adding the "good" and "very good" responses.
^The average weight is a zero to five scale with five indicating a stronger satisfaction response.

FNC leaders had the most positive responses for five of the six relationship areas and the CFIN non-participant group had the least positive responses overall. With regards to family connection with nature, FNC leaders had the highest score for this entire question, with 90% responding that their relationship was good or very good. The FNC participants were tied for the second highest overall response to this question for their sense of having a good family connection to nature (81%). There was a notable pattern across all three CFIN related study

groups of having relationships with extended family receive the most positive responses, when the FNC leaders and participants had this relationship at the lower end of their responses. Family connection with community was consistently ranked lower than connections with other people.

The FNC participants consistently reported better external relationships than the CFIN pre population for all but extended family. To the extent that participation in a FNC has an effect on a family's relationships with the people and places around them, this makes sense because the CFIN pre-population had by definition only attended one FNC event and the FNC population had primarily attended multiple events over a longer period of time (please see Appendix J for data on FNC participation frequency). Comparisons between the CFIN pre survey and CFIN post survey population have to be made with caution because the pre-population has 51 additional people who are not reflected in the post-population. However, the modest increases in "family connection with nature" (61% to 65%), and "family connection with community" (44% to 47%) could potentially be attributed to having participated in at least six CFIN events. The modest decreases between CFIN pre- and post-populations in parent and child peer friendships and friendships with other families as a whole may be attributable to the interest in making new friends through the FNC often being slower and more challenging to achieve than perhaps was expected, given the larger size of CFIN events and the need to watch one's children.

On a scale from 0 (poor) to 5 (very good), the overall individual response averages for this question on external relationships for the different study groups were 3.53 for the CFIN non-participant group, 3.85 for the CFIN pre-survey group, 4.08 for the FNC participant group, and 4.17 for the FNC leader group. As shown in Table 26, statistical significance regarding the quality of external familial relationships between the study participant groups was found for comparisons between the CFIN non-participant group and the CFIN pre-survey participants ($p =$

0.039), CFIN non-participants and FNC participants ($p = 0.0003$), CFIN non-participants and

FNC leaders ($p = 0.0006$), CFIN pre-survey participants and FNC participants ($p = 0.013$), and

CFIN pre-survey participants and FNC leaders ($p = 0.025$). No statistical significance was found

between FNC participants and FNC leaders ($p = 0.49$). More specifically, for "friendships with

other families" statistical significance was found between CFIN non-participants and FNC

participants ($p = 0.011$) and CFIN non-participants and FNC leaders ($p = 0.024$). For "family

connection with community" statistical significance was found between CFIN non-participants

and FNC participants ($p = 0.002$), CFIN non-participants and FNC leaders ($p = 0.00009$), CFIN

pre-survey participants and FNC participants ($p = 0.037$), and CFIN pre-survey participants and

FNC leaders ($p = 0.002$). For "family connection with the natural world" very substantial

statistical significance was found across all study group comparisons: CFIN non-participants and

CFIN pre-survey participants ($p = 0.007$), CFIN non-participants and FNC participants ($p =$

0.0000002), CFIN non-participants and FNC leaders ($p = 0.0000000004$), CFIN pre-survey

participants and FNC participants ($p = 0.0006$), CFIN pre-survey participants and FNC leaders (p

$= 0.0000007$), FNC participants and FNC leaders ($p = 0.004$).

Table 26. *Statistical Significance for Quality of Family's External Relationships (n = 334).*

Quality of Family's External Relationships (n = 334)	
CFIN non-participants and the CFIN pre-survey group	0.039
CFIN non-participants and FNC participants	0.0003
CFIN non-participants and FNC leaders	0.0006
CFIN pre-survey participants and FNC participants	0.013
CFIN pre-survey participants and FNC leaders	0.025
Friendships with other families	
CFIN non-participants and FNC participants	0.011
CFIN non-participants and FNC leaders	0.024
Family connection with community	
CFIN non-participants and FNC participants	0.002
CFIN non-participants and FNC leaders	0.00009

CFIN pre-survey participants and FNC participants	0.037
CFIN pre-survey participants and FNC leaders	0.002
Family connection with the natural world	
CFIN non-participants and CFIN pre-survey participants	0.007
CFIN non-participants and FNC participants	0.0000002
CFIN non-participants and FNC leaders	0.0000000004
CFIN pre-survey participants and FNC participants	0.0006
CFIN pre-survey participants and FNC leaders	0.0000007
FNC participants and FNC leaders	0.004

These results suggest that FNC participation has a significant positive overall effect on the relationships that participating families have with nature, peers, other families, and their community. This effect is particularly significant for developing friendships with other families, more significant still for developing a sense of connection between families and the communities they live in, and of dramatic significance for every incremental measure of increased FNC participation for the family's sense of connection with the natural world.

Family Life Satisfaction. The prompt guiding the question on family life satisfaction was "How satisfied are YOU with the following elements of your family life?", the responses to which are shown in Table 27.

Table 27. *FNC Study Populations - Family Satisfaction Response Comparisons (n = 334).*

	FNC Leaders	FNC Participants	CFIN Post-Participants	CFIN pre-Participants	CFIN Comparison
Total Responses	37	148	28	79	42
Concern for each other	* 92% ^ 4.49	* 76% ^ 4.19	* 85% ^ 4.29	* 82% ^ 4.28	* 79% ^ 4.07
Ability to share positive experiences	* 89% ^ 4.46	* 84% ^ 4.49	* 90% ^ 4.21	* 82% ^ 4.28	* 69% ^ 3.90
Closeness between family members	* 78% ^ 4.32	* 78% ^ 4.19	* 79% ^ 4.07	* 82% ^ 4.23	* 70% ^ 3.98
Ability to effectively parent child(ren)	* 77% ^ 4.11	* 63% ^ 3.84	* 47% ^ 3.43	* 53% ^ 3.59	* 67% ^ 3.79

Ability to be a good role model for kids	* 81% ^ 4.11	* 70% ^ 3.92	* 50% ^ 3.46	* 56% ^ 3.71	* 64% ^ 3.81
Amount of time spent together	* 73% ^ 4.11	* 73% ^ 4.05	* 75% ^ 3.96	* 64% ^ 3.84	* 52% ^ 3.43
Family's ability to be flexible	* 76% ^ 4.00	* 62% ^ 3.81	* 50% ^ 3.61	* 55% ^ 3.71	* 46% ^ 3.54
Quality of family communication	* 73% ^ 3.89	* 60% ^ 3.75	* 65% ^ 3.64	* 53% ^ 3.69	* 50% ^ 3.48
Family's ability to resolve conflicts	* 72% ^ 3.83	* 58% ^ 3.67	* 47% ^ 3.43	* 50% ^ 3.65	* 59% ^ 3.62
Way problems are discussed	* 65% ^3.78	* 54% ^ 3.66	* 40% ^ 3.29	*50% ^ 3.54	* 38% ^ 3.36
Family's ability to cope with stress	* 52% ^3.68	* 48% ^ 3.51	* 37% ^ 3.33	* 36% ^ 3.39	* 39% ^ 3.24

*Percentage is derived from adding the "very satisfied" and "extremely satisfied" responses.
^The average weight is a zero to five scale with five indicating a stronger satisfaction response.

FNC leaders had the most positive responses for eight out of eleven prompts based on

percentage and ten out of eleven prompts based on average weight. Overall, the CFIN non-

participant population had the lowest reported family life satisfaction. The FNC participants

consistently reported higher family life satisfaction than the CFIN pre population on all but two

elements. Again, to the extent that participation in a FNC has an effect on family life satisfaction,

this makes sense because the CFIN pre-population had by definition only attended one FNC

event and the FNC population had primarily attended multiple events over a longer period of

time. With the previously stated caution about comparisons between the CFIN pre and CFIN

post population, it is still worth noting that the increases in satisfaction with "the ability to share

positive experiences" (82% to 90%), the "amount of time spent together" (64% to 75%) and

"quality of communication" (53% to 65%), which are larger than those associated with the

external relationship changes, could all potentially be at least partially attributed to having

participated in at least six CFIN events. The "ability to share positive experiences" (69% to 90%)

and "family members' concern for one another" (79% to 92%) were essentially tied for being the

areas of family life where the responding parent had the highest level of satisfaction. The "way problems are discussed" (38% to 65%) and "family's ability to cope with stress" (36% to 53%) were consistently the second to last and last elements of family life when ranked by satisfaction.

Across all of the variables for which data was gathered in this study (youth nature experiences, family nature time, connection with nature, social action, environmental behavior, and families' external and internal relationships), FNC leaders had the most positive responses. FNC participants consistently followed the leaders and the CFIN non-participant group frequently had the least positive responses of all the study groups. The CFIN population had the most variability with regards to how their responses compared to the other groups.

On a scale from 0 (dissatisfied) to 5 (extremely satisfied), the overall individual response averages for this question on family life satisfaction for the different study groups were 3.63 for the CFIN non-participant group, 3.80 for the CFIN pre-survey group, 3.89 for the FNC participant group, and 4.07 for the FNC leader group. As shown in Table 28, statistical significance regarding parental satisfaction with family life between the study participant groups was found for comparisons between the CFIN non-participant group and FNC participants ($p = 0.024$), CFIN non-participants and FNC leaders ($p = 0.002$), and CFIN pre-survey participants and FNC leaders ($p = 0.032$). More specifically, for "the amount of time you spend together as a family" statistical significance was found between CFIN non-participants and CFIN pre-survey participants ($p = 0.029$), CFIN non-participants and FNC participants ($p = 0.0006$), and CFIN non-participants and FNC leaders ($p = 0.001$). For "family's ability to share positive experiences" statistical significance was found between CFIN non-participants and CFIN pre-survey participants ($p = 0.015$), CFIN non-participants and FNC participants ($p = 0.012$), and CFIN non-participants and FNC leaders ($p = 0.001$). For "your ability to effectively parent your

child(ren)" statistical significance was found between CFIN pre-survey participants and FNC

participants ($p = 0.037$), and CFIN pre-survey participants and FNC leaders ($p = 0.001$). These

results suggest that FNC participation has a significant positive effect on parental family life

satisfaction overall, particularly in the areas of spending time together, sharing positive

experiences, and a sense of parental efficacy.

Table 28. *Statistical Significance for Adult Family Life Satisfaction Comparisons (n = 334).*

Adult Family Life Satisfaction (n = 334)	
CFIN non-participant group and FNC participants	0.023
CFIN non-participants and FNC leaders	0.002
CFIN pre-survey participants and FNC leaders	0.032
Amount of time spent together as a family	
CFIN non-participants and CFIN pre-survey participants	0.029
CFIN non-participants and FNC participants	0.0006
and CFIN non-participants and FNC leaders	0.001
Family's ability to share positive experiences	
CFIN non-participants and CFIN pre-survey participants	0.015
CFIN non-participants and FNC participants	0.012
CFIN non-participants and FNC leaders	0.001
Ability to effectively parent your child(ren)	
CFIN pre-survey participants and FNC participants	0.037
CFIN pre-survey participants and FNC leaders	0.001

4.5 – Self-Reported Family Nature Club Effects

In addition to developing an understanding of the attributes of family nature clubs and

their leaders and participants, this research was driven by inquiry into the effects of being part of

a FNC. This section focuses on effects from the FNC leader and participant surveys, CFIN pre-

and post-surveys, and leader and CFIN participant interviews. It begins with a presentation of the

findings on the effects that leaders reported via surveys and interviews for themselves, their

families, and the participants in the FNCs that they lead. The effects directly reported by FNC

and CFIN participants in surveys are then presented, including the results from the effects

validation survey. The section concludes with a case study of CFIN that provides an in-depth

example of the effects of a specific FNC and for specific families and how the club design and

participant profile influences these effects.

4.5.1 - Effects for Leaders

In their survey, FNC leaders were asked to provide a narrative response about how

leading a FNC has affected them. Forty-five (45) leaders responded to this question. Each

response was closely reviewed and coded for emerging categories of effects, with most responses

indicating multiple effects. Table 29 presents the 14 primary effects identified from these leader

responses in general order of greatest frequency.

Table 29. *Summary of Effects of FNC Leadership.*

Effect Description
1. Enhanced social relationships (i.e., meeting new families, making friends)
2. Emotional well-being (i.e., joy, confidence, peace of mind, inspiration)
3. Gratitude for being a part of and/or witnessing the positive participant effects
4. Increased time spent outdoors, including visiting new natural areas
5. A sense of personal accomplishment and purpose around being a FNC leader
6. Personal learning about natural and opportunities to share this knowledge
7. Increased leadership experience and opportunities
8. An increased sense of connection to nature
9. Increased time with family and/or quality of family time
10. Opportunities for their children to learn and/or have leadership opportunities
11. Change in personal behavior (i.e., more creative, adventurous, socially active)
12. Physical well-being benefits (i.e., feel better, less sick, more energy)
13. Enhanced community visibility for the FNC, a cause, and/or the leader
14. Enhancement of work mission and/or career

The following are select illustrative quotes from the FNC leaders' survey responses

regarding the effects of leading a FNC.

- "Leading a Family Nature Club has had a very positive effect on me and my family, and my

  community. I am more purposeful in planning adventures for our family and others and

  really enjoy what I do. It can be a lot of work at times, but I enjoy organizing and inspiring

other families and look forward to the positive feedback I get from others. This is a positive 'force' in our family life." (L#23)

- "The most important aspect for me has been seeing children and their families taking part in activities which they would have never done without the support and encouragement of the group. There are many members of our group who find spending time in nature to be normal and part of their typical routine, but there are just as many families who are unsure and unfamiliar with how to introduce nature to their children and are uncomfortable exploring nature themselves. The club has allowed those families to find comfort in friendships formed through the club and has allowed them to have experiences which have enriched their lives and enhanced their relationships." (L#4)

- "Leading a family nature club enhances my work, my organization's mission, my positive contribution to the community, and my personal relationships!" (L#37)

- "This has become the most important activity I have done for my family and myself in the last four years. It brings me great joy organizing and getting families out into nature. I tell my kids all the time that being out in nature is good for your soul, your physical health, your mental health, your spiritual health and your overall happiness in life. It is the most important thing we do." (L#35)

- "It has changed our life! We [the club members] are family now, the children are brothers and sisters and their comfort and knowledge of nature, the environment and wilderness is phenomenal." (L#44)

- "I love doing this program. The children and parents who attend are so much more interested in their environment. Children notice weekly changes, track climate and seasonal changes, and benefit by what they are exploring with their adults." (L#38)

- "This work has given me a huge sense of purpose and a firmly grounded motivation to get more families outside more of the time. What was a small weekend volunteer project for me has become a full time job (though I am still a volunteer). My whole family has been involved in forming [this FNC] for the past six years, and my children have been given an enormous amount of leadership skill and opportunity as they have helped me lead this program. My oldest who is 13 has actually started leading activities for the club." (L#7)

- "I have found it highly rewarding most of the time; it makes me feel useful. It also makes me feel physically and emotionally better." (L#15)

- "It has become a part of my identity as a person. I love that I know the names of most of the native plants on my hikes and can share that knowledge with others on the hike." (L#25)

- "I am surprised at how the nature club has 'super-charged' my learning about the sustainable movement, and about my area." (L#29)

- "We've created great friendships and gone places we probably would have never taken our kids on our own." (L#1)

- "Being with young children out in nature has been pure joy, but I have been discouraged by low attendance rates." (L#13)

- "It's been a great way to spend time with my daughter and to really watch her thrive with the freedom to explore in nature." (L#24)

- "I've become more involved in the community and more interested in actively seeking change rather than just thinking 'oh it would be nice if someone did that'." (L#27)

Twenty FNC leaders participated in interviews that provided deeper insight into the personal, familial (if applicable) and participant effects reported in the surveys. During each of these interviews, the leaders talked about the benefits they received from leading their FNC. Several leaders that do not have children participating in their FNC specifically mentioned the personal impact of working with children. A leader that has been running a monthly FNC for the past two years shared that:

> *Facilitating the group strengthens me too and creates ripples that affect me personally and professionally. Kids help me to see things differently. I get to have my eyes opened through theirs and the more educators that are able to do that the stronger our whole system becomes.* (LASN)

A leader that has been running a FNC that meets twice a month for the past six years shared that:

> *One of the most fun things of all for me personally is to see the world, the natural world, through the eyes of the kids that I am with. I get to sort of experience their excitement, even over things that I have seen many, many times myself and I know exactly what it is,*

and it's not new to me. But to see their reaction to something they have never seen

before, it kind of reminds me of what it is like to be a little kid and full of the desire to

learn and the sense of wonder. It kind of rekindles my own sense of wonder. (LMBF)

Leaders with young children often cited their child or children as a primary motivator for starting the FNC and emphasized the positive impact for their children of being a part of the FNC leader family. A leader with a five year old shared that:

My son needs to be outside, he needs to explore. And the imagination that comes from

being in nature is incredible. It's awesome and if we didn't provide that outlet for him

I'm not sure where he would get it. He just loves it, and I just thrive off of what he loves.

During our events my son really takes on that leader role. In fact he asks all the time,

"Are we going hiking this weekend?" So it has been really great for him. (LADM)

A leader with an eight and a nine year old shared that:

It is important to acknowledge that the world has and needs different kinds of leaders.

Our oldest son is a leader outside. At school he is a good student, but he isn't a leader

there. The family nature club experience gives him a place to shine. (LJSC)

A leader whose seven year old has sensory challenges shared that:

He won't touch anything wet, sticky, etc. But in nature he is much more willing to contact

more textures, so in a real sense nature is therapy for him. He touches grass, will climb

trees, will go pond dipping. He and other kids will step outside their comfort zones when

they are in nature for the sake of the experience. (LABC)

Leaders whose children participated in their FNC also frequently talked about the positive

impact of leading a FNC for their family as a whole. A leader with an eight and a ten year old

shared that:

> *Leading all of this gives me good quality time with my kids. We have hiking club*
>
> *traditions and the hikes give us the chance to talk about things they like. We are also able*
>
> *to share stories about the things we experience on our hikes together. I think that all*
>
> *provides another added benefit on a family level.* (LSZM)

A leader with a three and a six year old shared that:

> *When my husband comes on outings with us it really is one of the only activities we do as*
>
> *a whole family and it's the only screen free family activity that we do.* (LSSM)

A leader with a one and a seven year old shared that:

> *It is very important for my son in particular to have a sense of community that isn't a part*
>
> *of team sports. I use the family nature club as a way of creating community for my family*
>
> *and I see that it does that for other families as well.* (LABC)

Overall, the 20 FNC leader interviews confirmed and elaborated on what was shared in

the leader surveys about the effects for the leaders and, if applicable, their families of being in a

FNC leadership role. A substantial portion of the leader interviews also focused on what they

observed about the effects for their FNC participants. Leader interview excerpts about participant

effects are integrated into the following section about effects for FNC participants.

4.5.2 - Effects for Participants

In their survey, FNC leaders were asked to reflect on their observations of the effects of FNC participation for the members of their club. Table 30 shows the responses that 50 FNC leaders provided to the question, "To what extent do you think the families in your club experience the following as a result of their participation: the opportunity to learn something new, the opportunity to get to know new people, an enhanced sense of connection with nature, and a greater sense of connection with their family?"

Table 30. *FNC Leader Perceptions on FNC Participant Effects (n = 50).*

	Almost all families	Many families	Some families	Not very many families	Almost no families	Total	Weighted Average
An enhanced sense of connection with nature	60.00% 30	34.00% 17	6.00% 3	0.00% 0	0.00% 0	50	4.54
The opportunity to learn something new	60.00% 30	32.00% 16	8.00% 4	0.00% 0	0.00% 0	50	4.52
The opportunity to get to know new people	52.00% 26	28.00% 14	18.00% 9	2.00% 1	0.00% 0	50	4.30
A greater sense of connection with their family	48.98% 24	30.61% 15	16.33% 8	4.08% 2	0.00% 0	49	4.24

The FNC leaders indicated that, as a result of their FNC experience, participating families: had an enhanced sense of connection with nature (60% almost all, 35% many); had the opportunity to learn something new (60% almost all, 32% many); had the opportunity to get to know new people (52% almost all, 28% many); and had a greater sense of connection with their family as a result of their FNC experience (49% almost all, 31% many). The weighted average of

the FNC leader responses for these four effects gave this same sequence in terms of the strength

of the effect. No FNC leaders indicated that none of the families participating in their FNC

experienced these effects.

FNC participants were asked to identify the extent to which (yes, somewhat, neutral, not

really, no) they had these same four primary experiences as a result of participating in their FNC.

The responses to this question by 147 FNC participants are shown in Table 31.

Table 31. *FNC Leader Perceptions on FNC Participant Effects (n = 50).*

		Yes	Somewhat	Neutral	Not really	No	Total	Weighted Average
	The opportunity to learn something new	75.51% 111	14.97% 22	7.48% 11	1.36% 2	0.68% 1	147	4.63
	The opportunity to get to know new people	70.07% 103	19.05% 28	7.48% 11	2.72% 4	0.68% 1	147	4.55
	An enhanced sense of connection with nature	63.95% 94	25.85% 38	8.16% 12	1.36% 2	0.68% 1	147	4.51
	A greater sense of connection with your family	44.90% 66	34.69% 51	14.97% 22	4.76% 7	0.68% 1	147	4.18

Respondents indicated that as a result of their FNC participation they had the opportunity

to learn something new (75% yes, 15% somewhat), the opportunity to get to know new people

(70% yes, 19% somewhat), an enhanced sense of connection with nature (64% yes, 26%

somewhat), and an enhanced sense of connection with their family (45% yes, 35% somewhat).

The one "no" response in each category came from the same person, who also indicated that her

family had attended more than 20 FNC outings and that "Our children love it!" so her responses

may have been inversed. The "not really" responses ranged from two (learning something new

and enhanced nature connection), to four (getting to know new people), to seven (a greater sense of connection with family), but each person that gave a "not really" response gave a variety of different responses across the four effect prompts, many of which were positive.

Using the summary response weights (on a scale of zero to five) for each experience, Table 32 compares the leader observations of participant experiences and the participants' self-report on these same four FNC effects.

Table 32. *FNC Leader and Participant Report of Participation Effects.*
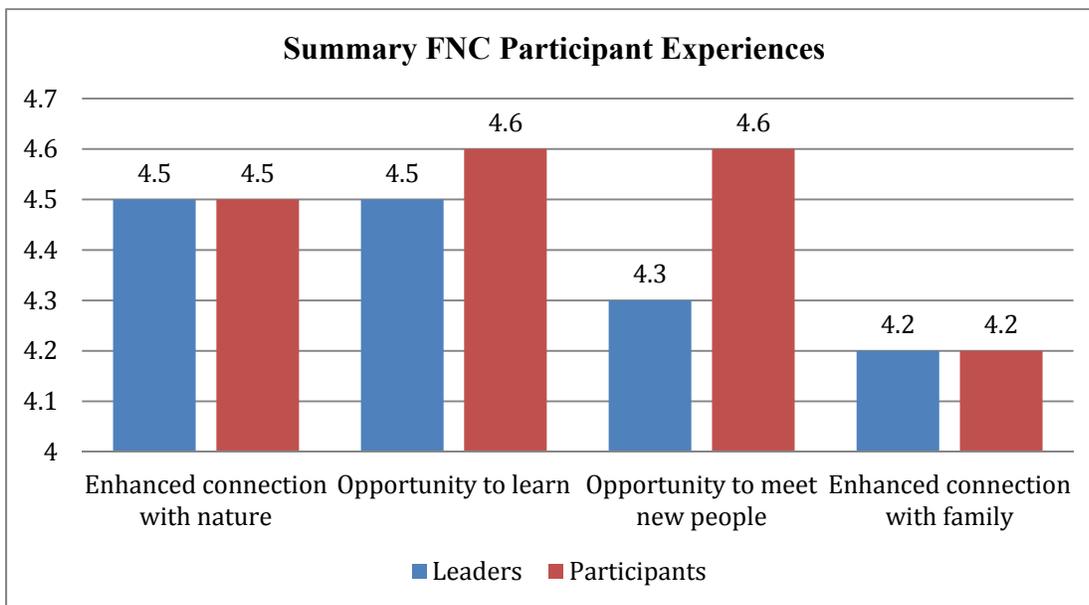
The FNC leaders and respondents gave the same weight to the experiences of enhanced connection with nature (4.5) and enhanced connection with family (4.2). Participants gave slightly higher weight to their experience of having had the opportunity to learn something new and substantially higher weight to their experience of having had the opportunity to meet new people than the FNC leaders anticipated based on their participant observations.

Effects of FNC participation (for the non CFIN group) were also investigated through a survey question about the major factors that led them to *keep participating* in their FNC, with the ability to select all the factors that applied, as shown in Table 33.

Table 33. *Major Factors for Continuing to Participate in a FNC (n = 170).*

Answer Choices	Responses	
To have fun	80%	136
To learn about places to take my child(ren) in nature	67%	114
The health and well being of my child(ren)	62%	106
To get quality time with my child(ren)	62%	105
To learn about nature	61%	103
Motivation to stay active as a family	51%	86
To meet new families	48%	81
The security of going out in nature with other people	26%	45
Other (describe below)	11%	18

Respondents indicated that they continued participating in their FNC because they have fun (80%), learn about nature and places to go in nature (61% to 67%), and find that it supports the health and well-being of their children and provides an opportunity for quality time with their children (62%). This question gave respondents the opportunity to provide a narrative response to elaborate on their answers and/or describe any "other" motivations for continued FNC participation. Coding of the 51 narrative responses brought forward several additional themes regarding families' motivations for continued FNC participation: creating a sense of community (i.e., a support network, knowing people with shared values), hands-on learning opportunities beyond a specific focus on nature (i.e., science, art, geography, etc.), increased environmental awareness and/or action, fostering a connection with nature (beyond just learning about it), opportunities for exploratory, creative free-play, enjoyment of the experience by children and adults, a sense of overall growth and well-being, and reduced barriers to having time outdoors (i.e., scheduled time, preparations by the leader, presence of other kids).

The following are selected quotes from the survey narrative responses that illustrate the above reasons families continue to participate in their FNC (both pre-identified and emergent):

- "My children and I are gaining so much by being so involved in our natural world. We have grown emotionally, socially, spiritually, intellectually and I have watched my children's self-confidence and focus increase and anxiety and stress decrease." (P#130)

- "The club leader is awesome with the kids. He takes time with them and answers any questions they have. He has made the club very enjoyable for my child!" (P#144).

- "To teach our child the benefits of participating in a positive healthy club activity and the value of contributing to the well-being of our environment." (P#6)

- "We homeschool and use it for physical education, science, art, socialization, and history/geography. We appreciate the benefits of being in nature for us as individuals (relaxation, health, etc.), as a family (adventures together, meeting other families), and for nature itself (because the more we feel a part of nature, the more we take care of it and encourage others to do the same). (P#62)

- "I love hiking but my four kids are 1 to 7 and it is a lot of work to take them by myself. Plus, my kids are happy when hiking with other kids but complain when we go as a family. The leader is good at finding family friendly hikes and letting us know what to expect." (P#111)

- "I believe that it is very beneficial for children to have a connection with nature. This will allow them to be more caring about others and the environment." (P#144)

- "To help my child (who has a disability) build a group of friends outside of school." (P#135)

- "To have access to biologists, ecologists, educators and activities that my children can learn from in a hands-on, interactive way." (P#163)

By way of comparison with and offering deeper insight into the above results, the participant survey asked respondents to share a narrative response about "what has been particularly meaningful for you and your family with regards to your participation in a family nature club." One hundred and forty-five (145) responses were provided to this question. Each response was closely reviewed and coded for emerging categories of effects, with most responses indicating multiple effects. Table 34 presents the 13 most common effects identified from these narrative FNC participant responses in general order of greatest frequency.

Table 34. *Analysis of Narrative Responses Regarding Effects of FNC Participation*.

Description of Effect
1.Sense of community (shared values, like-minded people, friendships)
2.The opportunity to learn something new
3.Fun/interest/friendships (variety, novelty, adventure, other kids/parents)
4.Spending time outdoors and learning about new places
5.An enhanced sense of connection with/comfort in nature
6.The opportunity to get to know new people
7.A greater sense of connection with family
8.Opportunities for free play (independence, creativity, exploration)
9.The passion, knowledge, guidance of the leaders
10.Norming/increased confidence/improved child behavior
11.Sense of accomplishment/wonder/break from the norm
12.Taking care of environment/nature
13.Sense of safety/presence of other adults

The following are quotes from these narrative responses, which were selected for their ability to illustrate the effects of FNC participation that are most meaningful for families.

- "It is awesome to learn from our leaders all about the birds and plants of our natural area. We are learning so much about the environment around us and able to identify the animals we see on a weekly or seasonal basis." (P#20)

- "My daughter has an innate interest for the flora and fauna present in nature. Participating in nature club activities reinforces her strong bond with nature." (P#22)

- "I have my hands full with a 4, 3, and newborn so going out with a group with or without my husband makes it more manageable and I feel safer all around. I know if I need help the other families will pitch in. Also, my kids are much happier to go on nature excursions and not whine where there are other children around. They all come up with ideas to learn in nature while playing together so they enjoy each other and learn from each other without parent involvement which is so important for independence, imagination and creativity. In addition, with other parents around we can pool our knowledge and all pitch in sharing information teaching the kids and each other. Being outdoors and learning in nature are absolutely essential all through life. We experience something that is healthy for our minds and our bodies, and which can't be obtained indoors. I want my children to grow up with nature as

part of their world, and have interactions as such be second nature (no pun intended). Having this group makes it easier, and makes me more confident to do so at a young age." (P#32)

- "Not being a particularly 'outdoorsy' person myself, doing activities with the nature club really helped me to observe other parents interactions and setting limits in nature and it helped me 'loosen up' a bit! Also, it helped me gain confidence to do more with my kids on my own outside of the club." (P#41)

- "We went to a stream and played in it for hours! The kids got to splash, get TOTALLY soaked in their clothes, crawl around under the branches hanging over the water, chase frogs and bugs, toss rocks, etc. It was a REAL nature excursion." (P#49)

- "My youngest son has autism and he seems to do better on days that we are outside exploring nature. He becomes focused, he listens and has less meltdowns. Also I love how excited both children get to explore and find treasures in nature. When we camp they learn to work together to accomplish a task. There is so much to learn out there and to do it in a natural play environment. They don't even realize they are learning." (P#114)

- "My family has experienced many unforeseen set-backs this year including medical, mental, financial and relational. All these things for anyone would be challenging and incredibly disruptive. If it had not been for learning what I have in the nature play group about the benefits of free outdoor exploration and play I do not think we would have made it through this year with minimal scaring. It has been instrumental in allowing my kids an escape and providing my children with the extra nurturing and support they need right now. The confidence and release of anxieties in particular has been the most meaningful." (P#118)

- "I love how excited about nature my child gets. Before we meet she is counting down the days until the next get together. Afterwards she talks for days about what she has learned. To see her eyes light up when she talks about everything is the best thing in the world." (P#122)

- "Our club leader always takes time to speak to each child individually and has so much patience as he educates the kids and adults about nature. This club has helped our very hyper son calm down. It has also allowed our family to connect in unique way." (P#130)

- "We have all learned incredible amounts of information about our local ecology and have made many connections within the community who share our same conservation goals. It is empowering and inspiring for everyone in our family but especially for our children. It gives

them hope and incentives to change the world instead of the hopelessness that comes with watching news and nature shows reporting only doomsday predictions." (P#156)

- "Having the opportunities to go out as a family (vs being split up as would happen in scouts, say) and enjoy the company of other like-minded families and to learn about nature. The boys learn so much from other children and engage in activities that they wouldn't if it was just our family." (P#158)

- "Sharing outdoor experiences with other families means the excitement of discovery, the natural play that spontaneously happens with other children in unstructured outdoor environments, and the learning we do from guests in different fields creates a sense of community and caring. Also, my husband enjoys spending time with my son and I this way, as when our son was younger and I was home taking care of him, we did a lot of outdoor activities with friends that my husband could not join in on as he was at work. So he is getting a glimpse into what we love about it!" (P#163)

- "As a foster father I don't have the same emotional attachment to the children in our care as my wife does. Participating in the [FNC] gives me a chance to bond with them in ways I hope they remember for the rest of their lives." (P#164)

- "The learning and retention of information has been neat to see. When we go for walks the kids point out things they recognize from what they've learned from their group leaders. Also, the longevity of connections with other families, and the time getting to know each other at camp has been great. The group leaders are wonderful and a big part of why we keep going." (P#169)

When FNC leaders were asked during interviews to share their observations about the effects of participation for the families in their club, the themes largely mirrored what was shared by the participants and offered some additional depth of insight.

When reflecting on the effects for children that participate in a FNC, there were several themes within what the leaders shared, including overall well-being for the children, giving children the chance to shine, and simply bringing childhood back.

- It gives the kids a sense of belonging. (LSZM)

- The kids develop a slow appreciation for the natural world by constantly having respect for the environment modeled around them. During our outings we always pick up trash and make sure that we leave spaces better than we found them. We also focus on appreciation for seeing the little things like ant trails and hummingbird nests. Even if these things are common, really seeing them is not. Just feeling comfortable and confident outside is huge for many kids. (LABC)

- Being in nature is powerful for all people at some level, but there are some kids where it provides them with something that they don't have elsewhere. When they are outside their imagination is free, and their arms are free, and their legs are free. There is one boy in particular who would be very challenging in a classroom situation and is the best herder I know and can find a snake faster than anything. He is a really great outdoor kid. I know his parents have said what a gift being able to be outdoors has been for him. (LKWC)

- Feedback from parents and teachers is that because it is so different from the traditional four wall classroom, a lot of kids that don't ordinarily engage or shine or star in school or sports or anything like that really have a great experience and do really step forward and classmates, teachers, and parents are really able to see them in a new and different light. And conversely children see their parents and teachers in a different light. (LTDO)

- One of the biggest benefits overall is bringing childhood back. Kids don't have the same opportunities to just get out and play like they used to. Family nature clubs create the context for that to happen by promoting free play time. Camping is one of the best ways to do this because there is so much down time. It is so important to let kids be kids, giving them unstructured time, time to make decisions, problem solve, take risks, and be creative. (LJSC)

The leaders that were interviewed also spoke deeply about the effect of FNC participation on familial well-being and connection.

- Before I started the group I saw that what everyone around me needed was an activity for the whole family. There is such a divide and conquer mentality "you take them there, and I'll take them here," but the parents are never together, the kids are never together, the neighbors are never together. There are so many advantages to teaching kids to deal with different ages and to be around their siblings and have common experiences and common memories. If you

don't have that common experience, if everything you do is age and gender divided there isn't much for the family to reminisce on. (LHKT)

- The feedback that I have gotten from the parents and grandparents is that this is great quality time spent together. It is not sitting in the house playing with toys, and it's not running around playing in the backyard. They really enjoy that opportunity to do something different, and they probably wouldn't do it if they were by themselves. (LMBF)

- Parents have told me that when their family talks about the best parts of their day, on days when they have been to a club event that experience is the biggest thing that gets shared. More often both parents are coming out with the kids and grandparents come too. Shared experience is so very important. They have shared memories and stories to share. (LASN)

- When families are together in nature there are so many teachable moments, but you don't think of them as teachable moments. They are just experiences that you are having, and that's really neat. Like, we went on a hike and there were four snakes that my son was able to get close to. Those are lasting memories. When you play Monopoly, yes it is fun, you are all doing it together, but I'm not going to remember anything about that game later. But my son will sit here and tell you everything he remembers about those snakes on that one hike. Being together in nature is a different atmosphere, because there is not anything else to interrupt us. The phone is not going to ring, I am not going to think "Oh I have to go put the laundry in the dryer." It is just us being with each other, being out in nature and there is nothing else to pull us away which is so easy to do when you are just sitting around the house. (LADM)

- The nice thing about the shared time in nature is that we're learning something new together. Even when we go back to the same place we are having this new experience together. It's not me saying let me take you to this place that I know that is special to me. No, it's special to us and the great thing about nature is that it's new every time. (LSSM)

- What family nature clubs bring to families is the opportunity to be mindful about your internal self and your family in a fast paced life. Experiencing themselves taking that minute to stop and be mindful about what is around them, what they hear, what they see, how their body feels. That is really powerful for the individual and the family. It brings calmness. Instead of shouting at your children you can take a deep breath and re-presence oneself in life and bring that into your parenting and your family. Not just the parents, the children are also

getting this. It is being exchanged and they are going away with something they didn't have when they got there. (LDMC)

In addition to closer family connections, during the interviews the leaders talked about a variety of ways that FNC participants experience broader connections, with the community, with the natural world, and, at times, with a more spiritual awareness.

- Because you have created this tribe where the parents all know each other pretty well and the kids all know the other parents pretty well you see parents inadvertently teaching other parents how to parent. I think to me, as someone who has studied teaching and families and kids that was one of the most interesting side effects [of the FNC] that I didn't count on. I didn't design it for that, but it has happened. We have three families that were bordering on divorce, and now it's completely off the table and part of it is that they have a support system now of other families in the context of family. (LHKT)

- The families that have been participating in our club over the past few years have become like family to each other. The kids see each other like brothers and sisters and when people aren't at events they are missed and they miss it. We have meaningful club traditions, like our May camping trip and solstice celebrations, that we all look forward to and also show up for each other in day to day life. We go to each other's birthday parties and help each other out. It has become a very intentional community of families that support and care for each other and it has all centered around spending time together in nature. (LMKA)

- When you are out in nature you can see how all life is connected. It is a hopeful thing. You are not alone, you are a part of something bigger, and you matter, you are a part of the chain. I think people have a core need to feel connected and like we belong and nature provides some of those elements. Knowing that you are part of something bigger than yourself is quite extraordinary and powerful. (LKWC)

- When families get into nature they feel amazed, inspired, freed as an individual and as a family and they can't thank people enough for getting everyone out. It is like an "ahha!" moment. They have been so busy in their life and now they are standing in nature and have a realization about the way they are operating their life. People really appreciate experiencing reality, as opposed to screens. (LDMC)

The leaders also consistently talked about learning as a meaningful effect of FNC participation during their interviews.

- It is so enriching to let kids lead their own learning, which is always interdisciplinary when exploring nature. Kids develop an amazing, creative, capacity for inquiry given the opportunity to explore nature without fear and in a social setting. (LASN)

- I truly believe in child-led experiences, where the child is motivated to learn based on exposure and experience. When you experience things with your whole body it is deep learning. It is like riding a bike. I think it is going to stick with them for their lifetime. Once they have gone off the trail there is no going back. (LASF)

- I think the first thing I noticed within the first year of forming the group was that men rarely have a time to be fathers together. Having experiences within the family context, the wife is there too, the boys and the girls are there, the whole family is there, and then they are seeing other men be dads, it creates a support system and learning opportunity that I cannot over emphasize the value of. (LHKT)

- The leader I inherited the club from was very calm and was a true leader in giving children lots of room to swing out and have a good radius and be safe at the same time. By doing it herself she showed all the other families how to do that too. I learned how to give my children room to explore from the previous leader and it has become part of my leadership style now as well as my broader parenting style. I see how letting children have freedom and make mistakes allows for more and deeper learning. (LDMC)

- Adults learning from adults and kids learning from kids has been huge. Everyone comes into it with their own level of knowledge and comfort and supports one another. (LMKA)

The interview question about the environmental effect of FNC participation led to a variety of thoughtful responses.

- We are cautious about exposure to negative or fear-based messaging about the environment. The fear about all the negative things happening to the environment colors their relationship to nature as negative for the rest of their life. Endearment and love come first and almost ensure care for the environment. (LASF)

- It is hard to know if the families that are participating in the environmental action events would have done that before anyway which is what attracted them to us, or whether they are doing it more now because of the [FNC] experiences they have had. We did do a survey two years ago this and got some really interesting answers about how hands-on environmental activities makes it real in a different way and how powerful it is. For example, we had a little girl who was only 5 or 6 who participated in a stream cleanup project coupled with an art project. After that experience she did her own YouTube video called "Only Rain Goes Down the Drain," where she had beavers complaining that their river was poisoned because someone had dumped something down a drain. So there are tangible examples of kids taking their learning and really running with it. Whether it is what they will do when they are adults I am not sure, but it seems like some kids have really taken this to their core. (LKWC)

- I think that the kids have gained a huge amount by doing things like creek clean up. We'll play games with plastic jugs, or take a piece of trash and imagine what a marine animal thinks it is, is it food? I think the parents have maybe had a bigger shift than the kids though because the kids are growing up in a world where at school and in the media polar bears and global warming are discussed constantly. I think with the kids I mostly have to address that conservation exhaustion issue, "Nothing is worth saving and nothing is worth connecting to be cause it's all going to die by the time I'm an adult," and get them to be fascinated by the Earth and nature rather than be afraid that if they connect it will just die anyway. So with environmental behavior what the kids need is actual connection where they want to save it because they think there is a purpose in saving it; they think there is hope left. The parents have changed quite a bit though. They will now pick up trash without me asking, on a hike most of them always remember to bring a trash bag. We go to the beach and they're picking up trash before they get in the water because they just can't stand the sight of it. They have connected enough to really want to help and the parents will now go out and do creek clean-ups without me. Having the parents' environmental behavior change is important because they control most of the household decisions. The kids don't control what kind of toilet paper you buy, they don't control much more than turning the water off when they brush their teeth and turning the lights off when they leave a room. Your goal with the kids is to get them to like it [the Earth], to get them to fall in love with it. Honestly I stay absolutely away from global warming, from destruction, and negative images in every possible circumstance

because they get that everywhere else. My goal is to make them love it so that when they hear all that stuff they can act on it with hope. Instead of acting on it because they feel like it's their civic duty, they can act on it because they want to act on it. (LHKT)

Bringing together all the FNC participation effects data from leader and participant surveys and interviews, the following seven effect categories comprising twenty distinct effects were identified.

Learning opportunities:

1. Learned about places to go in nature
2. Learned about the natural world
3. Learned from leaders and/or other families (about ways to be in nature, ways to be with kids, etc.)

Nature connections:

4. Been spending more time in nature
5. Developed a greater sense of connection with nature
6. Had an increase in environmental awareness and/or behavior

Family connections:

7. Been more physically active as a family
8. Had quality time together as a family
9. Developed a greater sense of connection as a family

Social connections:

10. Met new families / gotten to know new people
11. Developed a sense of community (friendships with like-minded people, etc.)
12. Felt a stronger overall sense of connection to the area we live in

Meaningful experiences:

13. Had fun, memorable (interesting, exciting, adventurous, novel, etc.) experiences
14. Experienced a sense of accomplishment and/or expansion of comfort zone
15. My child(ren) has enjoyed free play / playing with other kids (had the opportunity for independence, imagination, creativity, exploration, etc.)

Enhanced well-being:

16. My child(ren) has had experiences that have been positive for their behavior (problem solving, patience, sharing, independence, etc.)

17. Experienced an enhanced sense of well-being (relaxation, joy, confidence, doing something you love, etc.)

18. Had experiences that foster your sense of connection to something bigger (spiritual, religious, etc.)

Reduced barriers to getting out in nature:

19. Fewer barriers to getting out in nature (more prepared, experienced, comfortable, and/or leveraging the planning done by the FNC leader, etc.)

20. A greater commitment to spending time in nature (setting time in schedule, getting gear, such as play shoes, that make it more viable, etc.)

These effects were listed in a brief survey that was distributed in February 2015 to all the FNC leaders and participants, including those in CFIN, who had been engaged in previous elements of this research. The purpose of this survey was to validate the list of effects identified across a number of study populations and data collection tools, and to identify any notable hierarchy of effects. A total of 190 people FNC leaders and participants completed the effects validation survey, 150 were FNC participants (79%) and 40 were FNC leaders (21%).

The validation survey asked for the name of the participant's FNC. A total of 37 clubs was represented across the 190 responses, with the greatest number coming from CFIN (49). Other clubs that had more than ten respondents were the Northern Colorado Nature Tribe (17), Family Friendly Hikes (14), Family Adventures In Nature San Diego (11), Active AZ Families (11), and across six different groups, the Young Naturalists Clubs of British Columbia (18).

The validation survey also asked how many FNC events the respondent's family had attended, as shown in Table 35. Eight percent (8%) of the respondents had participated in one FNC event, 24% had participated in two to four events, 24% had participated in five to nine

events, 11% had participated in ten to fourteen events, 5% had participated in fifteen to nineteen

events, and 28% had participated in twenty or more events.

Table 35. *Effect Validation Survey - Number of FNC Events Attended (n = 190).*
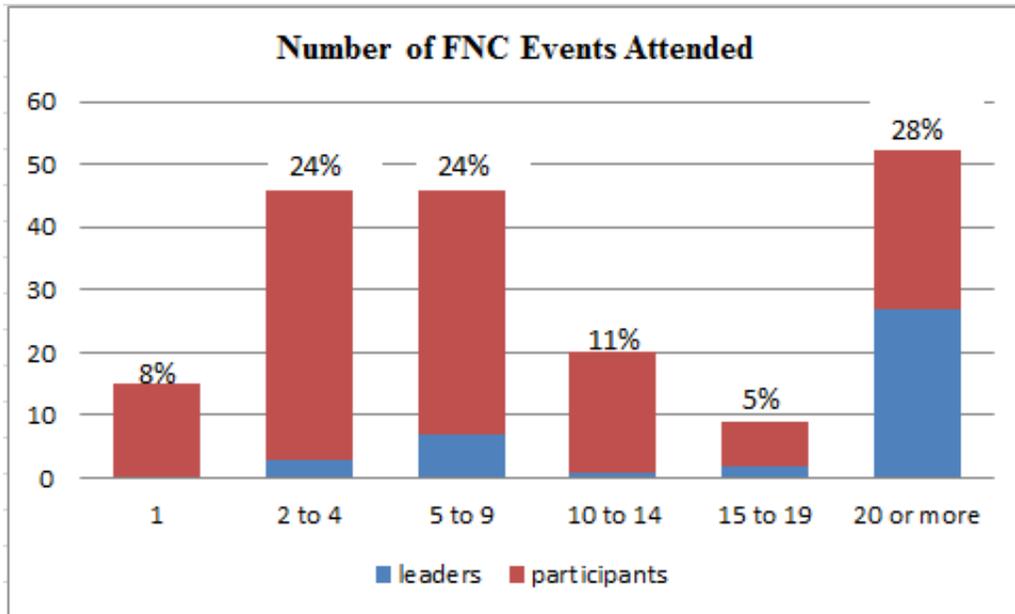
The primary question on the validation survey asked FNC participants to respond to the

prompt "As a result of my family's participation in a family nature club, I/we have" and then

lists the twenty primary FNC effects stated above, in that order, with four possible responses:

strongly agree, agree, neutral, and disagree. Table 36 provides the response category percentage

for each of the twenty effects.

Table 36. *FNC Effect Validation Survey – Effect Responses by Percentage (n = 190).*

FNC Participation Effects	Strongly Agree	Agree	Neutral	Disagree
1. Learned about places to go in nature	**79%**	18%	3%	0%
2. Learned about the natural world	61%	32%	7%	0%
3. Learned from leaders and/or other families	58%	33%	8%	1%
4. Been spending more time in nature	58%	32%	10%	0%
5. Developed a greater connection with nature	53%	33%	13%	1%

6. Increase in environmental awareness/behavior	43%	38%	18%	1%
7. Been more physically active as a family	47%	37%	15%	1%
8. Had quality time together as a family	65%	30%	4%	1%
9. Developed a greater family connection	48%	36%	15%	1%
10. Met new families/gotten to know new people	61%	25%	12%	2%
11. Developed a sense of social community	54%	29%	16%	1%
12. Felt a stronger connection to the area	59%	33%	7%	1%
13. Had fun, memorable experiences	**76%**	23%	1%	0%
14. Sense of accomplishment/greater comfort	55%	30%	13%	2%
15. Free play / playing with other kids	**74%**	19%	6%	1%
16. Positive experiences for child(ren)s behavior	56%	30%	13%	1%
17. Experienced an enhanced sense of well-being	61%	34%	5%	0%
18. Sense of connection to something bigger	39%	28%	27%	6%
19. Fewer barriers to getting out in nature	52%	30%	17%	1%
20. A greater commitment to time in nature	59%	26%	13%	2%

These data can also be illustrated as shown in Figure 37.

Table 37. *FNC Effect Validation Survey – Effect Responses by Percentage (n = 190).*
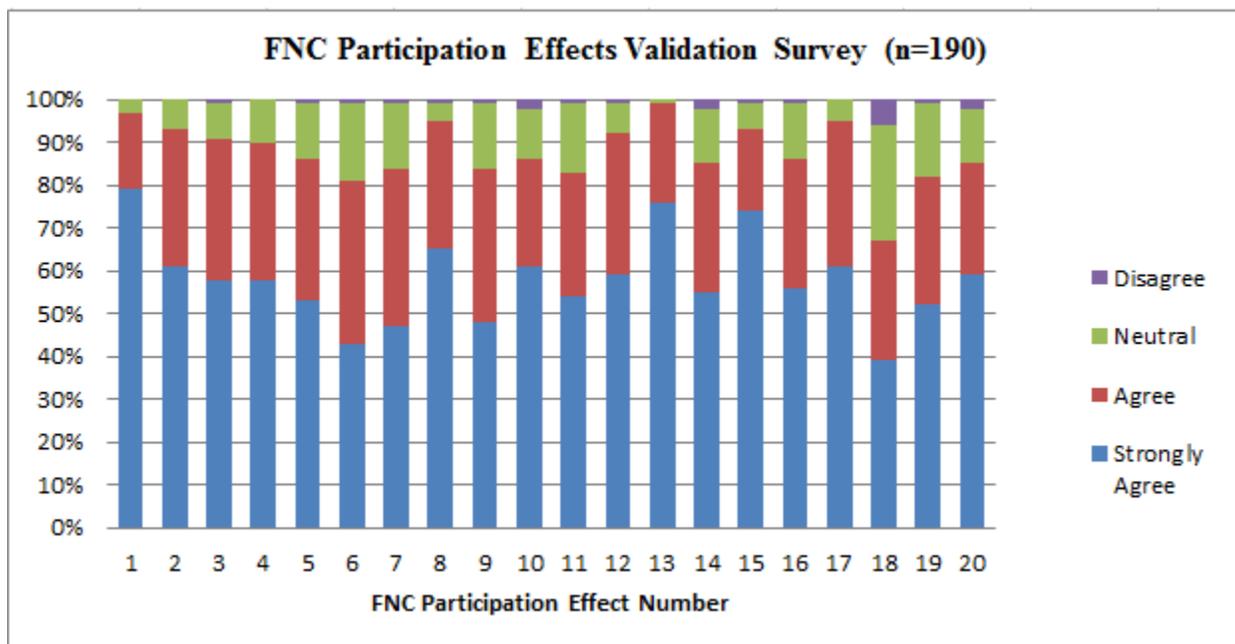
When combining both the "strongly agree" and "agree" responses, the following is the rank of the effects of FNC participation identified through this study:

1. Learned about places to go in nature (#1, 97%)
2. Experienced an enhanced sense of well-being (#17, 95%)
3. Had quality time together as a family (#8, 94%)
4. Had fun, memorable experiences (#13, 94%)
5. My child(ren) has enjoyed free play / playing with other kids (#15, 94%)
6. Learned about the natural world (#2, 92%)
7. Learned from leaders and/or other families (#3, 92%)
8. Felt a stronger overall sense of connection to the area we live in (#12, 92%)
9. Been spending more time in nature (#4, 90%)
10. Developed a greater sense of connection with nature (#5, 87%)
11. Met new families / gotten to know new people (#10, 87%)
12. Experiences that have been positive for my child(ren)s behavior (#16, 87%)
13. A greater commitment to spending time in nature (#20, 87%)
14. Experienced a sense of accomplishment and/or expansion of comfort zone (#14, 85%)
15. Been more physically active as a family (#7, 84%)
16. Developed a greater sense of connection as a family (#9, 84%)
17. Developed a sense of social community (#11, 83%)
18. Fewer barriers to getting out in nature (#19, 82%)
19. Had an increase in environmental awareness and/or behavior (#6, 81%)
20. Had experiences that foster our sense of connection to something bigger (#18, 67%)

The validation survey concluded by asking "what has been the most significant and/or meaningful effect of your family's participation in your family nature club?" One hundred and eight-one (181) people provided a narrative response to this question. The following are a sample of these responses, selected for their diversity and specificity:

- "One activity enjoyed by very different personalities offers us closeness and reconnection."

- "The club really brought us into greater connection with our area, others in the community, and each other. Having a specific destination point helped to make these events part of our family calendar and encouraged our regular participation. The thoughtful and dedicated approach of the facilitator in choosing great sites and providing detailed information each time out also served to make these events more accessible and also more enjoyable."

- "Probably most significant for us is that the group's prioritizes inclusivity, which results in a diverse group of participants (age, gender, race, economic means, etc.)."

- "It gave us the push to try camping! The kids loved it and we're going again this spring!"

- "We have found new places to explore as a family, which has made our family outings more interesting and something to really look forward to as a family. Because of this, we have also developed more of a connection to our LOCAL natural areas, which we weren't fully aware of or taking advantage of. Also, although we already spent a lot of time together in nature as a family, these experiences gave our children hands-on opportunities they might not otherwise have gotten (touching animals, visiting new nature centers and sites, scavenger hunts to find new and interesting things, interactions with experts and enthusiast who could talk at their level and make it interesting for them, interacting with others who are enjoying nature, etc.) that are extremely valuable to us."

- "One effect is an increased awareness and appreciation of nature and our environment. It also showed us the many remarkable nature activities in our area. The outings were not only educational, but fun."

- "Seeing my older child bond with other children that have a similar passion for being outside and getting dirty. I've seen him be a leader, and struggle with being led. I've seen him learn how to play safely outside, and experience new adventures that we probably wouldn't have done as a family on our own."

- "The biggest thing for us has been my increased confidence in getting outside (beyond going to the park) with my daughter. I wasn't raised in an outdoorsy family and didn't have a lot of nature experiences growing up. Because of our participation in the club, I know that my daughter and I can do a three-mile hike, follow a trail map, etc. In addition to our outings with the group, we have done a number of excursions on our own, some to sights that group had previously visited and some that I found through my own research. This confidence

helps me provide my daughter with the physical activity she needs to stay regulated and manage herself, and has given us lots of fun family memories."

- "It's nice to find an activity that embraces the entire family from parents to teenagers to kids. Our family has benefited from some truly quality time because of our club."

- "Being outdoors makes us happier as a family. We choose to go outside more and be part of nature. We are making better choices as a family as a result of this club."

- "Sense of pride when the kids completed a hike, or discovered something new in nature with their friends. For me, taking the time to just let them explore rather than "get there" has been so important! We slow down, go as far as we go, but see so much more."

- "We are a family that already loved being outside and spending time in nature together. Sometimes the kids really drag their feet but we have found with the nature tribe that they usually want to go and will be happy to get things ready to go because they get to spend time with other kids and not just their family. They get to free play with kids and explore in a way that they are not as likely to do with just their parents."

- "My kids now have an expectation to be in nature themselves (without prodding). They look forward to it and it is not competition for screen time, it is valuable to them by and for itself."

- "My daughter and I enjoyed one on one time while exploring the outdoors together. It took us away from technology and allowed undivided attention, play and exploration time."

- "Finding new places to explore nearby that we didn't know about and giving me a chance to feel comfortable hiking with my children as we go as a group."

- "The biggest effect for us would have to be that my daughter is a very shy person, but when it comes to nature she opens right up and will share all she knows and isn't afraid to ask questions. It has been great for her to be able to be around like minded individuals and to be able to learn from them as well as being able to share her knowledge."

- "Doing something healthy and good with my granddaughter while learning about nature and feeling its calmness. We are creating special memories of our time together."

- "Seeing my daughter learn to understand and appreciate nature, and then applying that to our everyday life. We are raising our children to be environmentally aware, and participating in a nature club helps my daughter to see and appreciate how important it is."

- "I find the most significant effect of our family's participation has been core fulfillment for all of us in the rich experience of nature coupled with a deep connection to other families while experiencing our new discoveries together."

- "The best parts have been enjoying company of friends on a routine basis, enjoying nature together while there and watching the kids grow, develop, get to know each other and experience independence, creative, natural play, friendships and connections with nature."

- "There have been so many significant and meaningful effects on our family it is nearly impossible to narrow it down to one. I guess I would say the most significant is that we spend a ton more time out in nature, which then provides all these other amazing benefits! My kids love being in nature; it is part of who they are."

- "We have made lifelong friends and get to accomplish social engagement, with exercise, with therapy, with meditation, and education. It all happens together."

- "We have developed this sense that we are part of nature. Therefore, we should expand our knowledge about nature and have active roles in keeping it safe."

- "There are immeasurable benefits from our participation in this club, but the broadest would be that the club makes it cool to hang out with our friends in nature and to learn about the interconnectedness of the natural world around us. My children have already acquired some specialized knowledge for which they gain recognition in their classes, thereby nurturing their leadership abilities and connecting them as a valuable contributor of our community."

- "Discovering a number of favorite 'wild' places to be and play; places that do not require 'stuff' or store bought 'props' or big expenses for fun."

- "Has given my son with special needs more real life opportunities to regulate himself in a real environment while dealing with multi-sensory input. He also practices social skills but has natural opportunities to pull back to solitude. A day in nature is our best therapy."

- "It gives us the opportunity to share, learn, and enjoy with our kids many valuable meanings such as respect, caring, love, compassion, and how to have a successful team!"

Out of the 190 responses, 21 people indicated that they disagreed with one or more of the twenty effects. Each of these people also indicated that they agreed with numerous effects and provided a narrative response about how participating in their FNC has been meaningful for their family. It seems that there are positive effects for all participants across diverse FNC designs.

4.6 - Contextualizing Effects: The CFIN Case Study

In March of 2014 my family began offering Columbia Families in Nature (CFIN) outings to our community in central Maryland. CFIN provides free, fun opportunities for families to spend time together in nature. On two or three Sunday afternoons a month, and occasional outings on other days of the week, CFIN outings take place at nearby natural areas. By connecting families with nature, the primary goals of CFIN are to: foster greater connection with nature and the community; increase environmental awareness and action; support the well-being of participants; and help strengthen family relationships.

Thirty-one CFIN outings were held in 2014 at a variety of natural areas, including public parks, farms, gardens, wildlife sanctuaries, and community open space trails, with few repeat visits. The foci of each two-hour outing were also diverse, ranging from free exploration and play, to active hikes, to structured, conservation focused events, such as tree planting and garden creation. During the fall, six outings were offered in addition to the standard Sunday afternoon events—four Friday morning nature walks and two evening "leaf parties" during which we helped prepare wildlife gardens at the homes of two participating families. Table 38 provides summary information about each of these events, including the location, activity, number of families participating, and the total number of people participating.

Table 38. *Columbia Families in Nature Outing Summary, 2014.*

#	Date	Location	Families	People
#1	March 23rd	Scales and Tales @ Lake Kittamaqundi	18	69
#2	March 30th	Snow Day @ Robinson Nature Center	7	24
#3	April 6th	Spring Woods Walk @ Kings Contrivance	24	85
#4	April 13th	Watershed Exploration @ Jackson Pond	9	34
#5	April 27th	Natural Scultpure Creation and Hike @ Wilde Lake	9	35
#6	May 4th	Gardening @ Miller Branch Library Children's Garden	13	44
#7	May 25th	Monarch Way Station Creation @ Faulkner Ridge	19	70
#8	June 1st	Hiking Safety @ Patapsco Park	14	46
#9	June 8th	Farm Tour and Strawberry Picking @ Gorman Farm	14	49
#10	June 22nd	Summer Celebration and Free Play @ Lake Elkhorn	30	100
#11	June 29th	Geocaching @ Howard County Conservancy	17	64
#12	July 13th	River Play @ Wincopin Trail - Middle Patuxent River	12	37
#13	July 20th	Wetlands Exploration @ Font Hill Park	28	102
#14	July 27th	Adventure Hike and River Swim @ Patapsco Park	20	70
#15	August 3rd	Junior Naturalist Training @ Rockburn Branch Park	21	75
#16	August 17th	Farm History Exploration and Hike @ West Friendship	12	45
#17	August 24th	Citizen Science Learning @ Kings Contrivance*	13	41
#18	September 14th	Native Species Planting @ Lake Elkhorn*	20	63
#19	Sept. 20-21	Camping @ Patapsco Hilton	21	78
#20	September 26th	Morning nature walk @ Trolley Trail	5	12
#21	October 5th	Fall Edibles Hike @ Middle Patuxent Environmental A	19	66
#22	October 10th	Morning nature walk @ Font Hill Wetlands	7	17
#23	October 19th	Fall Scavenger Hunt and Crafts @ Audubon Sanctuary	14	55
#24	*October 21st*	*Leaf Party*	*5*	*16*
#25	October 24th	Morning nature walk @ MPEA meadow	7	18
#26	*October 29th*	*Leaf Party*	*5*	*15*
#27	November 2nd	Tree Planting @ Alpha Ridge Park	14	50
#28	November 7th	Morning nature walk @ HoCo Conservancy	8	19
#29	November 16th	Hike and Games @ Rachel Carson Conservation Park	14	43
#30	December 7th	Hot Chocolate Hike @ Benjamin Bannker Park	18	53
#31	December 21st	Winter Solstice Celebration @ Centennial Park	20	63
Total			457	1558

A total of 133 distinct families participated in these 31 CFIN outings (another 52 families registered to participate in CFIN, but never attended an event). The totals in Table 38 show the sum of all the families and people who participated in CFIN outings in 2014, which includes repeat participation by many families. Cumulatively, in 2014 CFIN achieved 1,558 participant experiences and 3,272 hours of family time spent in nature.

Of the 133 participant families, total outing attendance was as follows: only one outing (44%), two outings (23%), three to five outings (11%), six to seven outings (11%), eight to ten outings (5%), eleven to thirteen outings (5%), and 13 or more outings (3%)[7]. Forty-three percent (43%) of the families had one child, 44% had two children, and 14% had three or more children. The participating families were 75% Caucasian, 9% Asian/ South Asian/Arab, 8% Hispanic/Latino, 6% African American, and 4% bi/multi-racial.

After each outing families were thanked for their participation and invited to provide feedback on their experience via a brief online survey, which asked three open-ended questions as well as one Likert Scale question about whether they experienced specific outcomes during the particular outing. Across all 31 outings, 110 outing specific responses were received to the feedback survey, as shown in Figure 16. Overall, 72% of these outing participants indicated that they definitely experienced a greater sense of connection with their family (22% responded "somewhat" to this prompt), 78% indicated that they definitely learned something new (15% responded "somewhat" to this prompt), 75% indicated that they definitely had an enhanced sense of connection with nature (18% responded "somewhat" to this prompt), and 54% indicated that they definitely had the opportunity to get to know new people (15% responded "somewhat" to this prompt). A response of "no" was never given and "not really" was indicated by 0% of the respondents with regards to an enhanced sense of connection with nature, 2% of the respondents with regards to experiencing a greater sense of connection with family and the opportunity to learn something new, and 4% of the respondents with regards to meeting new people.

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7 For the 67% of the families that attended one or two outings I do not have definitive group data as to why they did not participate in a greater number of outings. I do know that several families moved out of the area, some families dropped off during the winter months, perhaps due to cold and for some because the outings shifted to an earlier time of day that was challenging for the nap schedule of young children, and some of the families included in the 2014 count only started participating towards the end of the year. More broadly, the three primary barriers to FNC participation listed by the CFIN non-participants likely remain an issue for the families that were able to attend at least one event: time / schedule limitations and conflicts; the logistics of attendance; concern about participating in the event (given the wide variety of CFIN events, not all events are a good fit for all families).
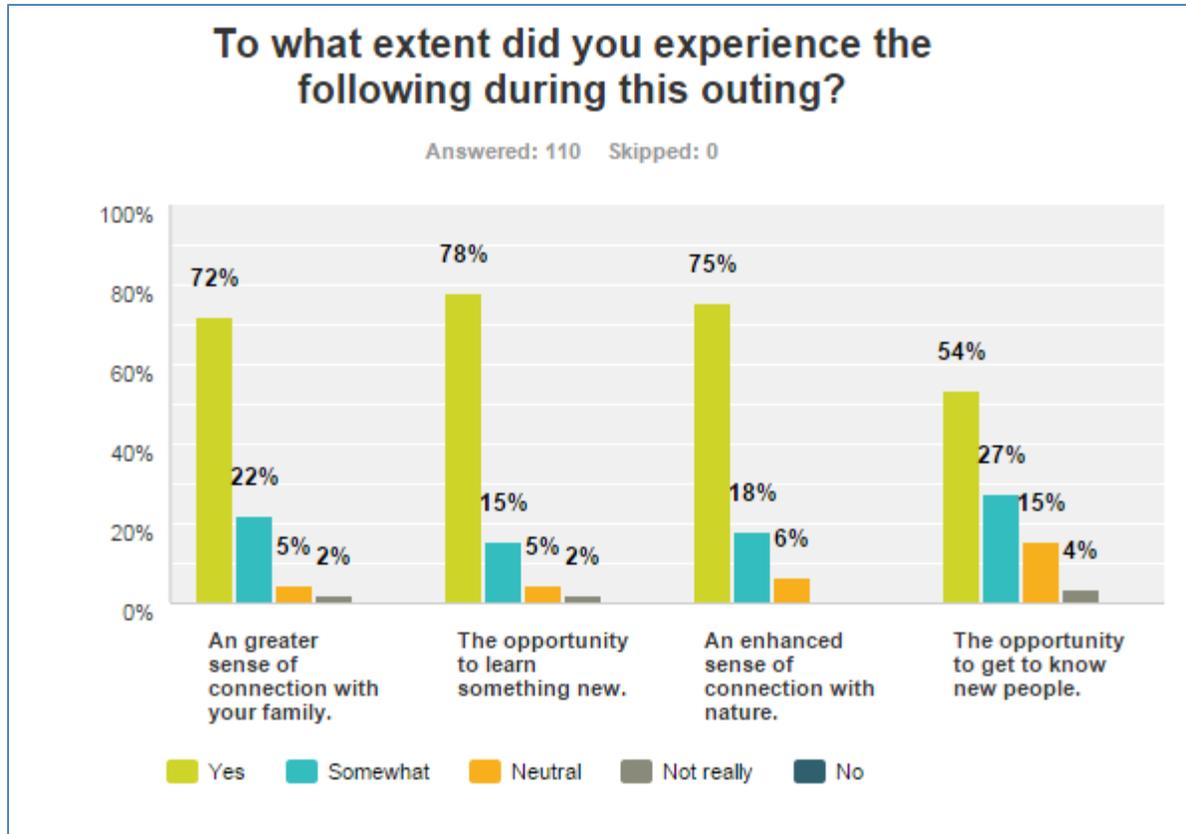
Figure 16. CFIN outing feedback form – participation effects.

Given the design of CFIN and the composition of the outing participants, these responses make sense to me as the club leader. Informal education opportunities are intentional during almost every outing. Whether it is being provided with some interesting information about a new place that we are visiting, a scavenger hunt of things to look for while we explore, taking out a field-guide to identify a plant or animal that we happened upon, or having a guest speaker with us to share their wisdom about a nature-related topic (i.e., animals, edible plants, gardening for wildlife, etc.). There is also a great deal of learning that occurs separate from anything that the leader can plan or provide – this is the learning that occurs from parent to parent and child to child, and it is some of the richest, organic learning that occurs during events. There are a few outings, such as the solstice celebrations, that are intended to be purely social events, but even

those offer some opportunities for learning for those who are interested. That said, for some

families, especially those with very young children that require a lot of attention, even if learning

opportunities are present, it can be hard to focus on and/or retain the information being shared.

The following are quotes from outing feedback related to learning:

- From the August 3rd junior naturalist 'training' – "I wish I had heard more of what the park
  rangers were saying - unfortunately I was busy chasing my three year old down the trail!
- From the October 5th fall edibles hike – "They really liked the scavenger hunt. The task of
  collecting items in nature really enhanced the learning experience."
- From the November 2nd tree planting - "We really enjoyed the activity as well as learning
  why we were doing it. Everyone assumes that planting trees is good - but few have a deep
  understanding of how impactful it is."

Fostering an enhanced sense of connection with nature is one of the primary purposes of

CFIN. This is designed to be achieved by: helping families develop a greater sense of place with

regards to the many natural areas in the community that they can visit; providing fun, accessible

information about each place that we visit and the plants and animals that live there; giving the

opportunity for free-play and exploration during each event; and, at some events, doing hands on

conservation projects. The extent to which a sense of connection with nature can be *enhanced*

during an outing depends on the sense of connection a family has prior to the experience. For

some new CFIN families, getting outside beyond the context of a playground or paved trail is a

very new and different experience. For other families spending time in nature is a common

occurrence and they are drawn to CFIN largely for the camaraderie. Several people noted that

they already have a pretty high sense of connection to nature and they were more focused on

learning and connecting with other people during the events. Even so, spending two plus hours

outside, often in a new place and engaged in a specific nature-focused activity, seems to cultivate

a sense of connection with nature for almost all CFIN participants. The following are quotes

from feedback related to connection with nature:

- From the July 13th river play outing – "I have never let my son play in a creek or river or anything like that before. I wouldn't have known if it was allowed, or safe, or what to do. So, for us this outing was a big deal, and he LOVED it! He seemed so happy and content and excited and interested and didn't want to leave. We've been talking about where else we can go to play in natural water this summer, it is his new favorite thing, so much more interesting than a pool, with all the rocks and sticks and critters to look for."

- From the September 14th native species planting outing – "It was interesting to see how excited our daughter was to get involved in planting the native species, at home sometimes she sees yard work as a chore but here she was asking us if she could plant more. Then when we went to throw the seed bursts into the fields, she was going on and on about how people don't notice how beautiful nature is and how much of a gift it is!"

- From the October 24th morning nature walk outing to a meadow – "I spend a lot of time out in nature with my kids, getting exercise and letting them play. But there is something about going out on these CFIN outings where we see nature with deeper eyes than we do when we are just out by ourselves. Maybe it is because I am not alone with my kids and solely responsible for them, maybe it is because the leader makes a point of drawing our attention to neat things, like the praying mantis egg cases today. Either way, we all come away feeling more grounded and connected to nature than we do during a lot of other outdoor time."

Fostering a greater sense of connection within families is also a primary objective of

CFIN. There are limited opportunities for entire families to spend time together actively engaged

in the same experience, especially in a regularly scheduled way. Depending on each family's

experience and the ages of the children, they may be interacting closely during all or most of a

given CFIN outing or the kids may be off playing and exploring with other children. In either

scenario, there are opportunities for shared attention, conversations are had, memories have been

made, and there is fodder for new family stories. The following are quotes from feedback related

to the sense of connection within the family:

- From the July 27th adventure hike and swim outing – "Yesterday's outing was great for our family - having 4 kids with ages spread out with the youngest being 6 and the oldest being 15 it's not easy to find an activity that will interest them all. Yesterday all 4 of the kids said they had a great time!" and "The walk back was tough but we worked together as a family and are proud that we were able to do it! It's something we'll be talking about for a while!"

- From the August 24th citizen science outing – "It was a great time spent together as a family. It gave us the opportunity to get outside our comfort zone and get dirty and wet and be silly."

- From the September 20-21st camping trip – "All four of us had a really, really good time. We enjoyed the group aspect and shared meal, as well as the hike and the animal presentation. We ended up pitching our tent in the backyard [they hadn't reserved a campsite at the park] when we got home and slept out there all night." and "I grew up hiking and camping with my family along rivers and waterfalls and the mountains so it was fun for me to take my family on this outing and share with them something I have always loved to do."

Fostering a greater sense of social community is an important part of the potential of FNCs and is also a goal of CFIN. However, in some ways the design of CFIN makes this more challenging than it may be for other FNCs. While some FNCs serve a closed group of families that consistently attend events together, CFIN is public and the families that participate in any given outing are different. Additionally, for some FNCs the smaller size (three to six families at an event) makes it easier for the group as a whole to engage one another. CFIN's Sunday outings tend to draw fifteen to twenty families, which makes it harder for me as the leader to facilitate an introduction between families and more challenging for families to get a sense of one another. Finally, FNCs that focus on children's free play and encourage parents to hang back and socialize amongst themselves offer a structure where connection between parents is easier to achieve. CFIN outings require parents to be responsible for their children and the events frequently have us on the move or engaged in an activity for a large portion of the time, so there is less opportunity for the parents to congregate amongst themselves. Depending on the outing,

and on the personality of the parent and the ages of their child(ren), people have shared feedback
about both how great and challenging it can be to get to know new people at CFIN outings:

- From the August 3rd junior naturalist training – "We already spend a lot of time outdoors as a
  family. Part of the appeal of this group is the chance to connect with other families who
  similarly value and want to experience nature. It is a bit hard to connect with others very well
  when chasing toddlers / preschoolers and/or going at their speed, so I haven't felt like I have
  gotten to know many people yet. But perhaps it is a function of going to more activities or
  initiating conversation more. But it helps to have a little down time (like at the end today), or
  a chance to interact with people with kids of similar ages."
- From the August 18th farm history exploration – "One of the most interesting parts of these
  hikes is getting to know different families in your neighborhood! Hearing the stories of what
  other families saw, found, experienced during their hike is enlightening. The look afterwards
  on kid's faces is priceless! Their flushed smiling faces, animated stories about their hike
  adventure, and showing their treasure finds is enough to keep each family and new found
  friend coming out on these hikes again and again!"
- From the November 16th hike and nature games outing – "I wish the outings were every
  week! It is very special to get out with multiple families. It really changes how we experience
  the outdoors, and we feel great all evening Sunday when we get home."

In addition to feedback about the effects of participating in CFIN events, which will be
discussed further later in this case study, what can be uniquely distilled from the 110 feedback
survey responses is that particular types of outings are particularly memorable and meaningful to
participants. The camping trip was a significant highlight for the families that participated, with
remarkable 'firsts' for many families. I had the memorable experience of going 'camp caroling'
for the first time, which was a child inspired night walk around the campsite waving glow sticks
and singing kid songs to everyone. The outings where we did a hands-on conservation project
also had a lot of meaning for participants. Families have taken ownership of the monarch
waystation that we created, coming back with their own milkweed plants to add to the plot and

making note of the presence of caterpillars and other insects. Outings that intensely used multiple

senses also seemed to be the most remarkable for participants – for example, those that included

the ability to see and/or touch animals, pick and eat berries, and immerse oneself in water. Figure

17 and 18 are the website advertisements from two popular 2014 outings.
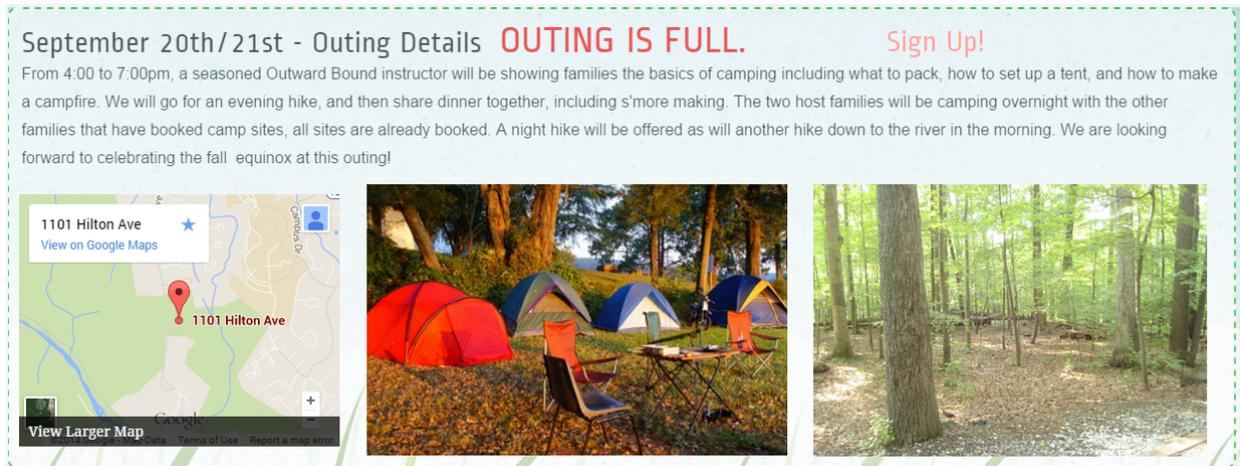
Figure 17. CFIN camping outing website advertisement.

Figure 18. CFIN tree planting outing website advertisement.

The images and quotes on the following two pages highlight some of the most

memorable experiences from the 2014 CFIN outings.

CFIN – Learning and Loving in Nature

"As always I love spending time with my child outdoors in nature. Learning about different sights along the way and hearing the different sounds of each outing location is a wonderful experience for us."

"CFIN helps our family spend quality together while learning about nature. We love it!"

"My family loved the ranger's animal presentation and being able to touch some of the critters. We spotted a bald eagle the next day and were able to talk about the similarities between it and the red-tailed hawk."

My kids loved the scavenger hunt. It was a wonderful, magical day!

"My son loves finding animal tracks! He looks for them each trip. He hopes to find a bear track!"
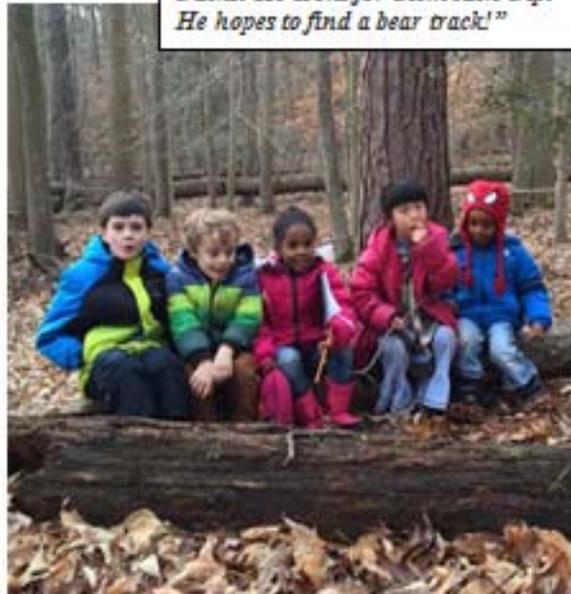
"We loved helping to plant the Monarch Way Station and were thrilled when we saw our first Monarch. Thank you for all you are doing to get children outdoors and loving Nature."

"My 15 month old daughter had so much fun raking the soil while we were planting. She got nice and dirty and loved every minute of it!"

After each family's *first* CFIN outing they were invited to participate in the comprehensive survey associated with this research. Eight-one parents representing distinct families completed this pre-survey, as described in sections 4.3 and 4.4. The criterion for being asked to complete the post-survey was participation in six CFIN outings. Twenty-nine of the 30 families that attended six outings prior to the end of 2014 completed the post-survey, as described in section 4.4. The responses to the questions about motivations for and effects of continued participation in CFIN, are shown in Table 39 and Table 40.

Table 39. *CFIN "Post" Participant Motivations for Continued Participation (n = 29).*

Answer Choices	Responses	
Learning about places to take my child(ren) in nature	89.66%	26
Having fun	86.21%	25
Getting quality time with my child(ren)	62.07%	18
Learning about nature	62.07%	18
Motivation to stay active as a family	58.62%	17
The health and well being of my child(ren)	55.17%	16
Meeting new families	37.93%	11
The security of going out in nature with other people	20.69%	6
Other (describe below)	10.34%	3
Total Respondents: 29		
Comments (7)		

Respondents indicated that they continued participating in their CFIN because they learn about places to take their children in nature (90%), have fun (86%), get quality time with their children (62%), learn about nature (62%), get motivation to stay active as a family (59%), and find that it supports the health and well-being of their children (55%).

Table 40. *CFIN Post Participant Perceptions on Effects (n = 29).*

	Yes	Somewhat	Neutral	Not really	No	Total
The opportunity to learn something new	86.21% 25	13.79% 4	0.00% 0	0.00% 0	0.00% 0	29
An enhanced sense of connection with nature	75.86% 22	20.69% 6	3.45% 1	0.00% 0	0.00% 0	29
A greater sense of connection with your family	65.52% 19	13.79% 4	17.24% 5	3.45% 1	0.00% 0	29
The opportunity to get to know new people	48.28% 14	27.59% 8	24.14% 7	0.00% 0	0.00% 0	29

When prompted with four summary effects of their participation in CFIN, all 29 CFIN post respondents (100%) indicated that they had the opportunity to learn something new, 97% had experienced an enhanced sense of connection with nature, 80% had a greater sense of connection with their family, and 76% had the opportunity to get to know new people. Twenty-eight of the CFIN families that completed post surveys participated in the study interviews as well, with the two non-interview participants being unavailable due to personal health issues. For the purpose of looking closely at the effects of participation in CFIN for specific families, the following are profiles of five diverse families that provide a comparison of their pre- and post-surveys, as well as highlights from their interviews.

Participant SB was a single, African American mother of a two year old, who has a bachelor's degree and is both a part time employee and a part time student in addition to being a homemaker. She indicated that playing in nature was part of her childhood and that she had some participation in a nature-based organization during her youth, but she was neutral as to whether she had a role model for nature appreciation. The reasons she cited for starting to participate in CFIN were: the health and well-being of her child, to learn about places to take her child, to have

fun, the security of going out in nature with other people, to learn about nature, and for motivation to stay active as a family. When selecting the reasons she continued participating in CFIN, getting quality time with her child was added to this list. She also noted that "we (mostly me) have become more comfortable with hiking (there and back) as well as the lasting excitement that my daughter has after the fact" as a motivation for continued CFIN participation.

In the post-survey, she stated that as a result of participating in CFIN outings, she has a greater sense of connection within her family, has had the opportunity learn, has an enhanced sense of connection with nature, and has had somewhat of an opportunity to get to know new people. She indicated that aside from CFIN events she and her daughter get outside two to three times a week for a total of approximately two hours. With regards to social action, for each of the eight prompts she indicated that she had not taken the action or was not sure if she had taken the action, with no change in responses between the pre- and the post- survey. Her environmental behavior ranged from very often (recycling and setting heating and air conditioning levels to save energy) to rarely (use public transportation and purchase used products) and all frequency options in between for the thirteen prompts, with no change between the pre and post surveys.

Her family satisfaction responses were "generally satisfied" across the eleven prompts, with the exception of being somewhat dissatisfied with the way problems are discussed. In the post survey she selected "very satisfied" for her family's ability to be flexible, share positive experiences, and the amount of time they spend together. She listed her family's external relationships as being very good for all, but relationships with extended family (below average) and connection with the natural world shifted from below average to average from the pre to post survey. With regards to the nature connectedness scale, she selected neutral for all five prompts in the pre-survey and "agree" in the post survey for "I have a deep understanding of how my

actions affect the natural world" and "my personal welfare is dependent on the welfare of the natural world." During her interview, SB shared that:

> *When I was younger I always liked nature, but then I started watching "10 Dangerous Bugs in the Wild" and things like that and started staying away from it. I don't want that for my daughter. I want her to recycle. I want her to love nature and say, "Let's go outside and play". I don't want her to become one of those zombie kids that are glued to a screen. I want her to have an outdoor experience that I feel a lot of kids aren't afforded because, either there are not the resources out there, or the lack of knowledge of how to go about it. Because we do want to protect our kids from things we are not sure of but I feel like with CFIN you allow us to have a guide, and say these are all of the safe things you can do. The people that you have had come in and speak with us, and the helpful hints or the little cards, you always give an explanation. I think it definitely brings out the best in my daughter for her level of learning and exploring. We had a play date yesterday and she was picking up rocks and trying to skip stones in the water. She loves that, just being outside. I feel like coming to your groups has really helped to foster that in her and when they do that at a young age it really helps it to blossom. So we love coming. I feel like it definitely brings us closer as family too because my daughter's father comes to the events sometimes. When we are playing together and learning these new things – those are the kinds of moments that bring you closer together. Also, I feel like we are not as afraid to go out and more willing to go to new places and try new things.*

Participant MH was a single, Caucasian mother of an adopted, hearing impaired five-year- old daughter from China. She has a master's degree and is both employed full-time and a homemaker. She indicated that playing in nature was not an important part of her childhood and

that she did not have a role model for nature appreciation. However, she had some experience with a nature-based organization during her youth. She made note that "I played outside a lot, but not in nature - mostly in suburban yards." The reasons she cited for starting to participate in CFIN were: to learn about places to take her child, to meet new families, and to have fun. These were the same reasons cited for her family's continued participation with the addition of learning about nature and motivation to stay active as a family. In the comments section regarding reasons for continuing to participate in CFIN she noted that, "We have learned a lot about cool places to go in the area. We have enjoyed meeting and talking with other families. I have become a lot more confident about going places and doing things outdoors with my daughter. I'm comfortable encouraging her to explore more, get dirty, get wet, etc. I know we can do a hike of a couple of miles, because we have done it before with the group. When I am looking for something to do with her, I am more likely than I was before to think of an outdoor activity, as opposed to a museum or other indoor event."

In the post-survey, she stated that, as a result of participating in CFIN outings, she has had the opportunity to meet new people, to learn something new, and has an enhanced sense of connection with nature, but that she has "not really" had a greater sense of connection with her daughter. She indicated that prior to CFIN, she and her daughter spent time in nature less than once a week for about two hours and that after six CFIN outings, they spent time in nature two to three times a week of three hours or more, aside from CFIN events. With regards to social action, her responses were largely consistent from the pre-survey to the post- survey and ranged from "over a year ago" for attending a meeting or contacting a politician or media to express her views, to "in the past year" for signing a petition, donating time or money, and volunteering, to "frequently" for joining an internet group related to a cause of interest. Deliberately buying or

boycotting products due to ethical concerns changed from having been done over a year ago to being done in the past year between the pre- and post-survey. Across the thirteen environmental behavior prompts, in the pre-survey she selected often or sometimes for all but walking to destinations, using public transportation, composting, turning off the tap, and natural parenting practices, for which she selected rarely or never. In the post-survey several responses changed: switching off electrical appliances when not in use and purchasing energy and water saving products changed from "sometimes" to "often" and walking to destinations and using public transportation changed from "rarely" to "sometimes" (she and her daughter moved to a more dense area of town).

Her family satisfaction responses in the pre-survey ranged from "very satisfied" to "somewhat dissatisfied" across the eleven prompts. In the post-survey, there were three areas of positive change: the degree of closeness between family members shifted from very satisfied to extremely satisfied, the amount of time spent together as a family shifted from generally satisfied to very satisfied, and family member's concern for each other shifted from very satisfied to extremely dissatisfied. In the pre-survey she listed her family's external relationships as good for extended family and parent's peer friendships, average for friendships with other families, and below average children's peer friendships, family connection with community, and family connection with the natural world. In the post-survey, family connection with community and family connection with the natural world increased to average. With regards to the nature connectedness scale, she selected "agree" in both the pre and post survey for "I have a deep understanding of how my actions affect the natural world" and "my personal welfare is dependent on the welfare of the natural world" and "disagree" for "I often feel a sense of oneness with the natural world around me" and "I often feel a kinship with animals and plants". Her

response to "I think of the natural world as a community to which I belong" changed from

"neutral" to "agree". During her interview, MH shared that:

I have lived here for a number of years but we have been to places with CFIN that I

didn't even know existed. I think now we are a little more adventurous or open to doing

new things. I didn't grow up in an outdoorsy sort of family. So I don't know that I would

have naturally been inclined to let her play in the water, or something like that, or some

of the other activities we have done in CFIN. It has broadened my definition of what is

acceptable or appropriate. I think the connection to other families is nice as well. Even

though we have lived here a long time I feel like I don't know that many people. We

haven't connected with anybody outside of the outings but we are starting to know some

familiar faces which is nice. It is just nice to be out with other families and see people

interact with their kids and how they encourage them in different activities. I have also

given her more leeway. She is a very enthusiastic and confident child by nature, but it is

nice to see her have different ways to express that and be comfortable exploring the

natural environment in different settings.

Participant PB was a married, Hispanic mother of a two- year old and a five year old,

who has a doctoral degree and is both employed part-time and a homemaker. She was neutral

about whether playing outside in nature was an important part of her childhood, generally agreed

that she had a role model for nature appreciation, and did not participate in a nature-based

organization during her youth. The reasons she cited for starting to participate in CFIN were: to

learn about places to take her children, to have fun, to get quality time with her children, to learn

about nature, and for motivation to stay active as a family. These were the same reasons cited for

her family's continued participation and she also stated the importance of "feeling part of a

community that shares important values with us, being playful, observant and caring, and knowing that we are part of something bigger."

In the post survey she stated that as a result of participating in CFIN outings she has had a greater sense of connection with her family, the opportunity to learn something new, an enhanced sense of connection with nature, and somewhat of an opportunity to get to know new people. She indicated that prior to CFIN she and her family spent time in nature two to three times a week for about three hours and that after six CFIN outings they spent time in nature two to three times a week for about seven hours, aside from CFIN events. With regards to social actions, in the pre-survey her responses were that she had not engaged in five of the eight prompts and in the post-survey her responses for each of these actions was that she had engaged in the activity in the past year. Across the thirteen environmental behavior prompts, in the pre-survey she selected very often or almost always for seven prompts, often for one prompt, sometimes for three prompts, rarely for using public transportation, and never for composting. These responses stayed largely the same in the post-survey with purchasing local and/or organic foods shifting from sometimes to often and setting the air conditioning and heat to be energy efficient shifting from often to almost always.

Her family satisfaction responses in the pre-survey ranged from "very satisfied" to "somewhat dissatisfied" across the eleven prompts, with very satisfied being the primary response. In the post-survey there were three areas of positive change: the family's ability to cope with stress shifted from somewhat dissatisfied to generally satisfied, the quality of communications between family members shifted from generally satisfied to very satisfied, and the amount of time spent together shifted from generally satisfied to very satisfied. In both the pre- and post-surveys, she listed her family's external relationships as very good for extended

family and friendships with other families, good for children's peer friendships, parent's peer

friendships, and family connection with the natural world, and average for the family connection

with the community. With regards to the nature connectedness scale, she selected "agree" for all

five prompts in the pre-survey and in the post-survey these answers remained the same with the

exception of "I think of the natural world as a community to which I belong", which changed

from agree to strongly agree. During her interview, PB shared that:

> *We are not from this area so we do not know all of the options that there are. We like*
>
> *being outside but sometimes you get into a routine and we go to the same playgrounds at*
>
> *the same parks. So being a part of CFIN has really opened up a lot of possibilities for us.*
>
> *It is also really nice to have a little sense of community and I feel that it is important for a*
>
> *bunch of families. You do a lot of field work for us too. You know where we're going and*
>
> *we don't have to think about where we are going, because you have been there. You know*
>
> *the good spots to go swimming. And you introduced us to geo-caching, which we use to*
>
> *do a lot of exploring on our own now. I feel like I am starting to notice how much we*
>
> *benefit from feeling part of something bigger. That this is our planet, this is our*
>
> *community, we coexist with all of these species. It teaches you a lot about life, about*
>
> *yourself, and about the life cycle. There are so many lessons you can teach the kids with*
>
> *nature. The more we are outside the more we realize this importance of taking care of the*
>
> *environment. You can learn so much from just being outside and seeing that we are*
>
> *coexisting and we all need to take care of each other. One thing I have really found is*
>
> *that I need that community connection and that environment connection. I need to feel*
>
> *like we are a part of something bigger. I feel that being a part of CFIN is like the perfect*
>
> *mid-point for making this happen with our family. My husband likes that we are outside*

and we are moving and I love that we are outside and we are connecting with nature and

we are connecting as a family. This is the one activity that moves us all even though we

have different interests. I feel like this is something that we both agree is good and it is

important and we all enjoy it.

Participants WS and NS are a married African American couple, who are parents to a

three year old and a five year old. Both have graduate degrees and are employed. The father,

WS, completed the pre- and post-surveys and both parents participated in the interview. WS

noted that playing in nature was not an important part of his childhood and that he did not have a

role model for nature appreciation, but he generally agreed that he participated in a nature-based

organization during his youth. He stated that, "I went to YMCA camp every summer for two

weeks from like age 8-12. Other than that my outside experience growing up in Chicago was

riding my bike around the neighborhood or playing on the block. My grandparents had a place

on a lake in Michigan that we would go out to a few times a year over the summer and fish." The

reasons he cited for starting to participate in CFIN were: to learn about places to take his

children, to have fun, the security of going out in nature with other people, and to learn about

nature. These were the same reasons cited for his family's continued participation, with the

addition of meeting new families and motivation to stay active as a family. In the post-survey, he

also noted that they are motivated by, "having fun/learning activities for the kids to participate in

on a weekly basis. I've done more this summer in nature than I've done my entire adult life."

In the post-survey, he stated that as a result of participating in CFIN outings he has a

somewhat greater sense of connection with his family, somewhat of an opportunity to get to

know new people, and he definitely learned something new and had an enhanced sense of

connection with nature. He indicated that, prior to CFIN, their family spent time in nature once a

week for about an hour and that after six CFIN outings, they spent time in nature two to three

times a week for about six hours, aside from CFIN events. With regards to social activities, in the

pre-survey his responses were "have not, but may" for five of the eight prompts, "over a year

ago" for signing a petition, "in the past year" for contacting a politician or media, and

"frequently" for joining an internet group related to a cause of interest. Donating time or money

and changing behavior in other ways related to a cause of interest both shifted from "have not

but may" to "in the past year" between the pre and the post survey. Across the thirteen

environmental behavior prompts, in the pre-survey he selected almost always or very often for

five prompts, often for two prompt, sometimes for three prompts, and rarely for using public

transportation and walking to destinations and never for composting. These responses stayed

largely the same in the post-survey with switching off electric appliances shifting from often to

almost always.

His family satisfaction responses in the pre-survey were primarily "generally satisfied"

across the eleven prompts, with "very satisfied" being selected for the degree of closeness

between family members, the amount of time spent together, and the family's ability to share

positive experiences. In the post-survey there were two areas of positive change: family members

concern for each other and his ability to be a positive role model for his children shifted from

generally satisfied to very satisfied. In both the pre- and post-surveys, he listed his family's

external relationships as good for extended family, friendships with other families, children's

peer friendships, and parent's peer friendships, and average for family connection with

community. In the post-survey, the family connection with nature shifted from average to good.

With regards to the nature connectedness scale, he selected "neutral" or "agree" for all five

prompts in the pre-survey and in the post-survey these answers remained the same with the

exception of "my personal welfare is dependent on the welfare of the natural world", which

changed from neutral to agree. During their interview, WS and NS shared:

When we moved out here there were so many things to do in Howard County that are

family centered and I wanted to get outside more and get the kids involved in nature. I

happened to see your flyer and that was it. We signed up for your events and a few other

things in the neighborhood, but your activities are really what stuck. CFIN is kind of our

thing now. It is so much fun and we learn so much. They're learning and for them I think

it is second nature. They'll grow up having it, but for us it is brand new. I look at it like I

only have one shot at raising them properly and I want to expose them to as much as I

can. I look at a lot of our friends and they say "we are never going camping, or we are

never going outside, we're just going to sit inside all day." I don't want them to see us

doing that. I just want to lead by example and expose them to as much as possible. We

invited some friends to go to the park with us recently and one of the kids turned over a

rock and there were these really huge earth worms. Our kids were the only ones that

jumped in and picked them up. All of the others were like "Ewww!" We exposed them to

this through you, and they are so comfortable in that environment, it is amazing. And our

kids bond together over this stuff a bit more too. To have an awareness now of native

versus invasive plants and animals is also amazing, because before we started doing the

hikes with you I had no idea about that stuff. Now I am so aware of it. When I walk

around and I see the plants that we have and the ones the neighbors have, so many are

not native and we are going to set up a garden that is good for butterflies soon. The kids

are really excited about the milkweed and the monarch butterfly and helping them.

Usually after some of the activities that we do, we ask them questions to see if they

understood what we were doing or why we were doing it. So I think that they have an

understanding now that trees provide oxygen and you know we give them carbon dioxide

and it's important to have trees and stuff like that. The other cool thing is that we'll see

people go off of the trail and pick berries. Before we started with CFIN we were

wondering how they know which ones to eat and which one not to eat, and now we know!

Also, now we have an understanding that there are two venomous snakes in MD and

there are 27 species of snakes. I mean we wouldn't have known that stuff. All of these

things that we're doing, it is helping them to understand that there is a consequence for

everything else. I want them to be able to know that. I think it was maybe in the spring,

we were talking about trying to get some weeds up and our daughter is so aware of stuff

now she said "We can't use pesticides because of the earth worms in the ground." It kind

of opens our eyes. I don't know if you've noticed but we're black. Typically our culture is

not an outdoorsy culture. All of the stuff that we are doing we talk to our friends about it

and they are like "What? Black people don't go camping", and I'm like, "Yes we do."

They say "Black people don't go hiking" and I'll say "Yes we do."

Participant RA was a married Caucasian man with a nine year old, a seven year old, and

a newborn. He has a doctoral degree and is employed full time and his wife is a full-time

homemaker. He was neutral about whether playing in nature was an important part of his

childhood, whether he had a role model for nature appreciation, and whether he participated in a

nature-based organization during his youth. The reasons he cited for starting to participate in

CFIN were: the health and well-being of my children, to learn about places to take my children,

to meet new families, to have fun, and to learn about nature. These were the same reasons cited

for his family's continued participation, with the additional notation that "meeting and

interacting with other families in the area who care about nature and outdoor experiences" is the

primary motivation.

In the post-survey, he stated that, as a result of participating in CFIN outings, he has a

greater sense of connection with his family and an enhanced sense of connection with nature and

that he has had somewhat of an opportunity to learn something new and meet new people. He

indicated that their family spent time in nature four to six times a week for about six hours in

total and that this stayed the same after six CFIN outings, with the addition of CFIN events. With

regards to social activities, in both the pre and post survey he indicated that he frequently

changes his behavior due to concern about a cause of interest. The other seven activity prompts

were consistently noted as having been done in the past year. Across the thirteen environmental

behavior prompts, his responses were almost always for all but using public transportation,

walking to destinations, and composting, which were noted as being done sometimes. These

responses stayed the same in the post-survey.

His family satisfaction responses in the pre-survey were "very satisfied" across the eleven

prompts. In the post-survey all the responses shifted to "extremely satisfied," with the exception

of the family's ability to cope with stress, resolve conflicts, and discuss problems, which

remained "very satisfied". He listed the family's external relationships as good for all five

prompts in the pre-survey. In the post survey the family's relationship with extended family and

with the natural world increased to "very good". With regards to the nature connectedness scale,

he selected "strongly agree" for all five prompts in both the pre and post survey. During his

interview, RA shared:

> *I think the biggest effect for us is that it kind of invited us into a community of people that*
>
> *were thinking about stuff in some similar ways. That was a big deal for us being here for*

less than a year, feeling a little uncomfortable with the suburban feel of life, which we

just aren't used to coming from our little farm in a more rural area. To a find a group

like this that is oriented around families and nature, right in the title, in Columbia was

almost too perfect. It has changed our outlook in terms of feeling like we're situated, we

feel like we belong to an extent. So that's been one big change. The other part is having

that destination point roughly every Sunday (even on Sunday's when we don't do CFIN

we usually do something like it), that regularity that specific time in our busy lives where

we are carving out nature time has been really useful for us. So on the surface, my family

has definitely benefited from the network and having those regular gatherings. Doing it

on a Sunday seems to add that sense of reverence for a journey forward and that is a nice

subtle part that wasn't specifically intended. We go to these places, some of them are

pristine some of them are more well-worn, but they are all places that have that majesty

to them, either subtle or grand. Yet we get to interact with it. We are participating and

co-creating it as we go and that is something I see come through with a lot of the

families. You can see on some of the more ambitious hikes people feel like they have

never quite done something like this before. I think that is an amazing thing because you

find out that the journey isn't just going out there, it is also the internal journey. You are

moving the map of your own self at the same time as you are moving on the map. And I

have seen folks definitely finding that. When you can see them get to the top of that thing

and they are kind of glowing a bit. They have dug a little deeper, both in terms of their

comfort zone of where they are willing to go outside and what they are willing to subject

themselves to. Those are great lessons. You can't teach those lessons if you really set out

to teach them. But you can teach them if they're bundled with this kind of swirling

gathering of families and fun and nature. Because we're not just dumping the kids, and making somebody else in charge for the day, we're all there doing it together. It's interesting because it is like a retreat feeling, it's a break from your normal routine, but yet you've got your whole brood with you. I think for me, just more on a personal level, I see it as any time we are doing things like this in nature we are providing a huge psychological counter balance to the intensity of the world we live in. Which tends to be extremely denaturalized and routinized in how we meet the world--the resources we consume, the way nature exists in careful cultivated boxes if at all anymore. This is like one of those moments, among other nature experiences, where you go and you see it in more of its full dimensions, and that is an important counter balance psychologically. Just to remind yourself that spaces like that still exist, that they're accessible. That wherever you live, there is something like that in your backyard, you don't have to go far away to some Grand Canyon, perfect vista to have a majestic experience. You can walk up the street to a park and there are things like that there. I think that is a really important factor, and I can say that on more of a personal level, but I see it in my own family as well. That there's a feeling of there being space to catch your breath a bit and then you come back and meet that everyday world that you exist in, knowing that you can make that kind of back and forth movement throughout the rest of your life. I want to pass along to you how much it has meant to us as a family. This has really been a powerful thing for us, we feel so blessed to have found it and so grateful that you all create the container. I want to acknowledge how much effort it takes to do that. I just want you to know that at least in our case it is totally paying off.

For each of the other 22 CFIN families, other than my own, that participated in an interview a brief summary of their most unique and significant effect is provided below—each family's experience is noteworthy and helps to ground all the study data in lived experiences.

- A married, mixed ethnicity couple with an eight year old daughter shared: *It has stimulated us to do more around our own home, to take care of our yard and the piece of land that we can care for. Especially since we went to the native planting event at the lake we are really aware of this. Instead of just picking plants that are pretty we want to think about what is local, and what is beneficial for animals and the planet. The being outside part is important and good, but we are also really appreciating the knowledge that we are gaining. But at the same time we are appreciating a bit more that we don't have to be experts to get our hands dirty and do something – we are feeling braver.*

- A married Caucasian woman who has her PhD in environmental science and is a mother of four children [her 15 year old youngest son volunteers to help at CFIN events] shared: *A unique benefit of CFIN activities is that they are gender neutral, accessible to children of all ages, and intended for the whole family to actively participate. As a parent of older children, it's a great pleasure to see young families with small children discovering nature and natural places to play for the first time-it lifts my spirits. It's an additional pleasure to see my son helping kids climb over logs, step around or through mud puddles, and gather items for scavenger hunts. My son likes being a volunteer with the group, being outside and enjoying nature while helping the community. It is also a good social connection point, it is something I can bring up and talk to almost anyone about – it gives you an entry point to talk about things that matter to you without saying anything politically charged.*

- A married Caucasian mother of a three year old son, who has a professional degree and works part time shared: *I appreciate the sense of community in a usually rather solitary activity. But the biggest benefit is that being a part of CFIN makes me walk my talk. I like to think I am a dedicated nature person, but in reality it is hard to get outside with work and having a young child. You make it easy for us to show up to new places to do new things- it's a positive cycle.*

- A married Caucasian mother of a two year old, who is a full-time homemaker shared: *I know that we all feel better after being outside, our mood and everything. From the time he was a newborn, when nothing else worked you could just walk outside and it was like a miracle. There's something out there that just makes him happy, that is as natural to him as breast feeding. We actually are different outside, our whole attitude changes and we feel like we can breathe. Getting out to CFIN outings helps me be able to go out to more places with him more often and for longer because I have more knowledge of where to go and what to do.*

- A married Caucasian mother of a nine year old son and seven year old daughter, who is a full time homemaker and employed part time shared: *My son is on the autism spectrum, so I am always watching to see how he is socializing. At the CFIN gatherings he seems to do pretty well. Also, I think because there are so many adults there, maybe I am giving him some more space. Because when you are with a group, as a parent that brings my anxiety level down. I think my kids are more comfortable playing outside in a less structured setting and for my husband and me it is just really nice to know that other families are interested in doing this.*

- A married Caucasian couple that has a five year old daughter and two year old son shared: *We find that when we are outdoors the kids tend to squabble a little bit less, because it is not a possession thing. When we are in the house it's all about you've got a toy I want it even if*

it's your toy, I want it. If we have two of them and they're identical I still want the one you have. But when we're outside and when we're on the hikes and stuff like that they're off and doing their own things, and looking at things, or sometimes even showing each other things. Someone said that being in nature is a great equalizer and way to calm the air. It's true.

- A married, Caucasian mother of a five year old son and a two year old daughter, who was an environmental educator and is now a full-time homemaker shared: *It is important to get them out into the woods and next to water bodies and show them these areas that are so beautiful and so much fun to be in. Then we can tell them this is why we turn our faucets off when we are brushing our teeth, this is why we recycle our mail once they can start to make that connection. It is important to me for them to really learn about and care about and value the natural world and the environment and hopefully have that be part of their ethic.*

- A married, Caucasian mother of a five year old son, who works part time and is a full time homemaker shared: *I definitely think we would not have gone out as much or have done as many varieties of things this summer without CFIN. We would have gone to the pool, but we certainly wouldn't have gone hiking, which hasn't been my thing, ever. It has been nice to do that kind of stuff together. It is kind of awesome to see what he can do when he is outside. I think that it has done a lot for his confidence in new situations and to a certain extent mine as well. Certainly he has shown me he can do stuff that I didn't know guys his age could do.*

- A married, Asian mother of a nine year old son, who has a PhD and is employed full time shared: *We go on CFIN outings to be with nature and learn about different places that we can easily visit, get exercise, and get away from the electronic devices. It also helps me to have a different angle for learning more about him [her son] and what he knows, because sometimes it is really hard to get information out of him.*

- A married, Caucasian mother of a five year old son, who works part time and is a full time homemaker shared: *What really kept us coming was that previously when we go outside, we go out just for exercise and for fresh air but this gives us more of a purpose for going outside and really engaging with the environment and learning about different things and different seasons of the year. We didn't have the initiative to research it on our own, but it is great to have it given to us in an interactive and family friendly way we can all do together. Because you can kind of just by pass everything in nature when you are just going for a walk and your like "Oh, it's pretty out", but you don't really see the details. Now we do more.*

- A married, Caucasian mother of a four year old and one year old, who has a graduate degree related to natural resources, works part-time and is a full-time homemaker, shared: *The two things that I think are probably most noteworthy in terms of changes are that we've been able to go see some new places that we never would have even thought about or known about, so that has been very exciting for us. Then the other thing is having it be more of a learning experience which we have been trying to figure out how to do, because we just kind of go out and hike and we enjoy it and we have a lot of fun but it's been really neat to be out with different people who know different things about nature, and finding out about the wildlife, the plants, and just the history of the local area and that kind of thing.*

- A married, Caucasian father of a four children under five years old, who is employed full time and whose wife is a full -time homemaker, shared: *Unless you are going outside with a purpose you are just kind of meandering around and enjoying it. With the CFIN activities you have a deeper appreciation. Our kids aren't school age yet, so it is cool to expose them to this sort of learning early. When they get to school they won't just be seeing nature in a text book, they will already know what an indigenous sparrow looks like. So that is very cool.*

- A married, Caucasian mother of a five year old daughter, who is a full-time homemaker, shared: *My husband and I consider ourselves outdoorsy people, but I would say that the biggest impact is that I have seen how our daughter can enjoy the outdoors where before she didn't want to do anything with it. I can see the things that she enjoys doing, not just walking but stopping and looking, throwing sticks and climbing on rocks. She likes to do it with other kids and now she gets that going out in nature can be fun and will get excited to go to CFIN.*

- A married, Caucasian mother of a three year old daughter, who is a full-time homemaker, shared: *Going on different outings with you has helped us get out and explore things differently than we necessarily would have and we have also explored different areas that we haven't ever been to before. She also likes being outside and dirty more than she used to before. I have to catch myself sometimes because I will start to say "Oh, be careful you're going to get dirty", but then I remind myself it is okay for her to get dirty. Also, with the outside time there is more exploration and I think creativity and imagination for her.*

- A married, Caucasian mother of three and one year old sons, who is employed full time in the conservation field, shared: *CFIN gives us a chance to see at least some of the same people over and over again and develop bonds. So, one of the things that I love is that my kids are learning how to be friends and how to interact with other kids.* In reference to the tree planting event that she helped to coordinate on county park land, she shared that "*I had a great time showing my family part of what I do. It made me happy seeing people work hard together to get the planting done.*"

- A married, Asian mother of three children between nine and four, who works part-time and is a full-time homemaker, shared: *So the kids are always around me but we never have this time when I am completely free just to spend time with them. So CFIN was this time where all I*

have to do is walk with my kids and look at nature, and so that was very good for me and for

them. For them too I think it is a very different type of nature. We live in the suburbs, so there

is asphalt, there is grass, there is nothing like woods. So with CFIN, the unpaved path is

almost a little bit outside of their comfort zone—they are getting the chance to get their feet

wet in the puddle or creek and climb on rocks, which is good.

- A married, Caucasian mother of a five year old daughter, who works full-time as an

  environmental educator, shared: *It is just sad in a way that we need to have a family nature*

  club, that parents aren't just doing this on their own anymore, that we don't live in a society

  or a time where you just let your kid go outside and explore the woods in your backyard.

  Times have changed, so I think this is the next best thing that is available for kids to be able

  to have those deep and meaningful connections with nature. I see that kids want to be

  outside, see the birds, splash in streams, explore things they have never seen before and ask

  questions. This is a great way for families to provide those opportunities in a safe and

  supportive environment. Everything I have learned academically plays out in all of the

  outings we have been to. The kids are happy to be there and I think that encourages the

  families to do it more.

- A married, Caucasian mother of a five year old son and two year old daughter, who works

  full-time, shared: *For me, connection to nature has been something that has fed me*

  throughout my life on a spiritual level and with confidence in myself and that is something I

  want for my kids. Also, being outside just shifts our interactions with each other and our

  focus in a really positive way. As my kids get older and more independent nature is a very

  healthy place to be learning about the dynamic balance between freedom and responsibility.

  I find that if I can step back a bit I can let some of these teaching things happen naturally

where I am not the bad guy and it is actually healthy for them to be like "Oh, I wasn't paying attention and got my shoes really wet, this kind of sucks." It is nice to be out with a group of families to see how other parents and kids interact and grow in these ways too.

- A married, Hispanic mother of five year old and two year old daughters, who has a doctoral degree, works part-time and is a homemaker, shared: *It would be very difficult for me to do what we do with CFIN by myself. I would have had to plan things, find these places and that would have been a lot of work – most of it would never have happened. Now, after coming to the events we are learning and relaxing and it is a great bonding experience – it is a feel good activity. I just think she likes having the quality time with me, I think that is the improvement, my relationship with her. There were happy times of things we would do just me and her. She definitely wants to be outside more, and I feel more comfortable with letting her be outside more by herself because now I know she knows how to handles herself outside.*

- A single, African American mother of an eight year old boy, who is a full-time homemaker and also works part time, shared: *We had not previously gotten out in nature like this. Not on a regular basis, and certainly not in-depth. So this has been very wonderful. My son has learned so much about nature, I have learned so much about nature. We used to walk down to the river, look at it and walk back up. Now we actually take the time to look at the different plants and pick up these little shells. Now we are actually involved. And wading in the river, I never would have let him wade in a creek or river, but he does it and he was the type of boy that would think that is "icky", but he actually gets into the mud now and gets into the rivers. It has been good for both of us. I wanted him to be able to go out and not be afraid like me, to not be afraid of things out there in nature. I'm telling you this nature stuff is really great! How could you walk away now that you are a part of nature? It is like we bonded with it.*

The experience of sitting down to conduct interviews with each of these families was one of my personal highlights of this study. By the time they had attended the six outings that made them eligible to do the post-survey and the interview, they had certainly become familiar faces with names that I remembered. However, as has been mentioned by many FNC participants, it can be hard to have sustained conversations and connections with other parents during events when you are responsible for your children in a new area and in a larger group setting. This reality was amplified for me in the club leader role. Fortunately my husband participated in 30 of the 33 outings in 2014 and willingly took primary responsibility for watching at least one of our two children. Even so, orchestrating the group logistics and experience required me to keep moving amongst the group and I rarely had the chance to hold the length or depth of conversation I would have liked to have had with the families participating in each outing. For the interviews, I met many of the families at their own homes. The change in location and uninterupted time gave me the opportunity to have enjoyable, meaningful conversations that often delved into many topics beyond the focus of this study. The connection I now have with these families, begun through CFIN and my research, is truly enriching and rewarding.

When I think about my own family's journey with CFIN, there is so much to share for each of us and for our family as a whole. Our daughter had just turned one when we held our first outing. She was walking in the wobbly way of early toddlers, but the midafternoon outing time often meant that she was fast asleep in her "pouch" in her carrier on my stomach for the entire experience. In the past year she has not only been a part of all 33 official CFIN outings, she has gone with me on all of the pre-hikes that I do for each event. In her second year of life, my daughter has gone on at least one substantial outdoor adventure a week, in addition to our regular time outdoors. I am keenly aware that this is more nature immersion than many people

get in their entire childhoods and it is something for which I am deeply grateful. With all this

experience she has become one of the most confident, adventurous, independent, curious, nature

explorers on our outings. She is quite sure that she can keep up with all the big kids and do just

about anything herself. She has a deep love of worms, wants to touch just about any insect or

animal she sees, and as her language abilities grow it is a delight to hear her talk about the details

she notices of the world around her. Seeing the world through her eyes is beautiful, and funny.

Our son was four when CFIN started. He had grown up playing outside around our

house, at the playgrounds in the neighborhood, and in the woods down the street and has always

been intrepid and inquisitive. However, he has serious asthma and allergy issues, so I had a

tendency to keep him very close and there were many days that we just did not go out to play

because it was too hot or too cold or he was not feeling well enough. I am deeply grateful that he

seems to be getting more robust health-wise each year and we have learned how to manage his

issues with more confidence. We have also helped him to learn how to keep himself safe and,

through the expereince of so many CFIN outings, allowed him an increasingly large space to

freely roam and explore when we are in nature together. It has become normal to us, but in

contrast to many other kids who are just starting out with nature-play, his physical and mental

abilities when navigating the natural environment are remarkable. He easily scrambles rocks,

walks across logs, reads trail blazes, identifies common plants and animals, and generally seems

very much at home in nature. He loves the social aspect of the CFIN outings and gets quite

excited when it is a CFIN day, wanting to know which of his nature friends will be there. He is

naturally very extroverted and enjoys welcoming families when they arrive at the events. Early

on he would shout "Mom! Our customers are here!" when a car would pull up. Now he knows to

call them our friends or our guests, but he is still just as eager and proud to be in a leadership

role. We have had a lot of opportunities to talk about what it means to be a leader in the context

of our family's role with CFIN. Early on he was convinced that it meant he should be at the front

of the hike or the first in an activity. He has begun to understand that being a leader means

helping other people to have their best possible experience. He has become an ever more

confident, adept, and conscientious kid, in part because of CFIN. His knowledge of nature,

especially animals, and our effect on it is often surprising in its depth and accuracy.

My husband's role in CFIN is more subtle than my own, but absolutely essential. He

gives me the mental and physical space to prepare for and lead the events by being responsible

for our kids. He is also really conscientious about the safety of the group during each outing,

keeping an eye on the children at large and helping to guide them to better choices when needed.

If I am at the front of the line of a hike he will often take up the "caboose" role to ensure that no

one is left behind. He is also an excellent source of immediate feedback on how each outing

went, as we debrief in the car on the way home. Having spent three months camping by himself

in the national parks of the west, he has a very deep connection with nature that nourishes his

well-being on all levels. This was one of our initial points of connection many years ago. Being

out in nature in an often large and unruly mass of families is very different than the solitude he

might optimally seek in nature, but nonetheless, I can see that the CFIN experiences are

rejuvenating for him. When 'interviewed' about what has been notable and/or meaningful for

him about our family's commitment to CFIN, he shared:

> As a family we have benefited significantly by sharing in the experience of bringing a
>
> family nature club to life in our community. As the husband of the club leader and father
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> of two children participating in each event I had a unique perspective on the project. As a
>
> husband, it was a blessing to be able to support my wife in this effort – to see her truly

doing something she loves and to work to help solve the challenges that go along with taking 20 families on a two-mile hike. As a parent, it has been a great experience to observe our children growing and learning in close contact with nature – each of our children has significantly expanded their interest and appreciation for nature from spontaneously inspecting the smallest plant to sitting in silence as a nearby deer was discovered. CFIN has been part of half of our daughter's life and she demonstrates a boundless curiosity for the outdoors and a fearless spirit that readily goes off trail. Our five year old son has had his innate leadership skills come to the fore as he continually took great pride in guiding participants and highlighting each interpretive experience along the trail. As a couple, CFIN has given us the opportunity to work together for the greater good. I often serve in a utility role during events; with large numbers of young children in nature there is no shortage of instances where a hand is needed to walk a log or transition from bridge to trail. Participants appreciate that there are multiple "chaperones" on the trail actively helping to keep their children safe or to show them something special. After an event is over, we regularly debrief on how the event went and what lessons could be learned and recount numerous parent-child-nature experiences we observed during the event. The family participation aspect of implementing CFIN goes beyond our own fulfillment and increased closeness to nature. I also believe that the presence of our two children provides other parents with motivation and comfort and encourages their participation in CFIN. The effort of loading up kids, a backpack of snacks and water, and the usual cadre of kid-related items can be daunting for the most determined parent. Because we are leading the group and managing our own two young children I feel that participants are less likely to see "managing the kids" as a viable

excuse to not participate in an event. I think there is an authenticity to our family offering

this to other families in the community that resonates.

For me, the experience of leading CFIN has been immeasurably rewarding. Perhaps most

significantly, it is helping me to create the life I envisioned for my family--one in which we have

a close relationship with both the natural world and our social community. Prior to CFIN, we

would spend a good amount of time outdoors because that is important for our individual and

familial well-being, but it was in the same handful of places. Now we know about and go to so

many different natural areas in our community and experience them with a much deeper level of

awareness than we would have if we were not actively seeking to gather information to share

during CFIN outings. We are asking questions that we may not have before and, in the process of

sharing the answers, the information has become part of our retained knowledge. What is in

bloom, what is that sound, what kind of tracks are those, is this edible? Where we previously had

a few families that we would get together with in the area, our social network has grown

tremendously. There are several dozen families that have come to enough CFIN outings that our

families recognize each other readily, at outings and in the community, and we have a rich set of

shared experiences from which to develop broader friendships. Our son's 5th birthday party

invitation list was comprised of about half CFIN families and our line up of holiday cards

included quite a few smiling faces from our CFIN friends. Being the leader of CFIN has also

given me a unique foundation for broader community engagement. I have been asked to talk with

a number of groups about the work I am doing with CFIN and am now known as someone who

can consistently deliver large groups of people to natural areas, something that is challenging for

many organizations in the conservation field to do. It took me days to prepare for the first CFIN

outing, for which I hired a professional nature guide because I was worried about leading 60

people on a hike. I have become so familiar with the process of preparing for and leading CFIN

events that it takes me an hour to prepare the day of an event and I am comfortable leading

groups of 100 people on outings. Leading CFIN has been a tremendous personal and

professional growth opportunity and I hope to sustain and build upon it for years to come.

For our family as a whole, we often do not spend the CFIN outings all together, given our

efforts to lead the larger group. However, the time spent at the outings is good for each of us

individually, which is good for our family. On Sunday evenings everyone is enthused by the

experiences of the day, giving us lots of good fodder for conversation. Having burned up a lot of

energy, the kids are more calm and also hungry for a good dinner and ready for sleep when

bedtime comes. Our kids are young, but even so, the CFIN experiences are becoming part of our

individual and familial identity and a vibrant part of our family story. As they grow older, I am

happy to know that CFIN will continue to be a place where we can be actively engaged in

experiences together and with a community of families that share common interests. CFIN is

also a way that our family can work together to make a difference in our community and for the

environment. It is often-used expression that a family that plays together, stays together. I think

that a family that plays in nature together, while also working together for the greater good, is

going to have deep and lasting benefits. I can see and feel that being true for us already.

CHAPTER 5: DISCUSSION AND CONCLUSION

This study was motivated out of inquiry into how people come to care about and take care of the natural environment on which we depend. The focus on family nature clubs (FNCs) was inspired by a robust body of research that has identified three primary life experiences that facilitate proenvironmental behavior (PEB)—time spent in nature (especially during childhood), social support (especially role models for nature appreciation), and participation in an organization that fosters experiential learning about the natural world (Chawla, 2006; Chawla, 2009; Chawla & Derr, 2012; Cheng & Monroe, 2012; Pruneau et al., 2006; Wells & Lekies, 2012). This study used ecological psychology (Gibson, 1979; Reed, 1996; Zylstra et al., 2014), attachment theory (Ainsworth, 1978; Bowlby, 1988) family systems theory (Bowen, 1985; Zabriskie & McCormick, 2003) and community psychology (Pretty et al., 2006; Rappaport, 1977) to create a framework for understanding how these experiences can come together in the form of FNCs to foster PEB as well as individual, familial, and community well-being.

This research was both exploratory and descriptive in purpose and design and brought together the methodologies of ethnography, case study, and action research to answer three primary questions: *1) What are common design frameworks for family nature clubs?; 2) What are the characteristics of the people who are leading and participating in family nature clubs?; and 3) What are the effects of being a part of a family nature club on individual, familial, social, and ecological well-being?* The study population for this research was the leaders in and participants of family nature clubs registered with the Children & Nature Network (C&NN), including *Columbia Families in Nature (CFIN)*, which I started in my community in Maryland as the action research portion of this study. With the C&NN FNC population, leaders completed a survey and were invited to be interviewed, and participants completed a survey. With the CFIN

population, direct observation, pre- and post-surveys, and interviews were used. A CFIN non-

participant population was also engaged in this study through the completion of a survey.

The results of this study include data from: 47 FNCs, 348 unique in-depth surveys, 48 in-

depth interviews (20 leaders, 28 CFIN participants), 190 effect validation survey responses,

direct observations of 133 families that participated in 31 CFIN outings in 2014, and my

experience of designing, launching, and leading a new family nature club. Quantitative data

analysis was done using Excel for descriptive statistics and t-tests and Python for regression

analysis. Qualitative data from the interviews and surveys were analyzed using an open coding

process to identify common themes. This chapter provides a discussion of the study's key

findings, implications, and limitations as well as suggestions for future research.

5.1 - Discussion of Key Findings

Shortly after launching CFIN, I met a woman in my community who offered to share her

tips and resources from the group she led here in Columbia thirty years ago when her kids were

young. At the time she did not specifically call what she was doing a family nature club, but the

goals and structure of her group were essentially the same. Building on the ongoing efforts of

people dedicated to serving children and families in their communities, the concept of FNCs

gained recognition and popularity with Richard Louv's 2005 book "Last Child in the Woods:

Saving our Children from Nature Deficit Disorder" and the subsequent 2006 founding of C&NN.

In this study, 10% of the participating FNCs started prior to 2005 and 40% of the FNCs were

launched between 2005 and 2011, with a notable uptick in 2008, the year in which "Last Child in

the Woods" was republished. The remaining 50% of the FNCs represented in this study were

formed between 2012 and 2014. Looking at larger trends, 137 FNCs were registered in the

C&NN movement directory in December of 2012, 192 were registered in June of 2014, and 222

were registered in April of 2015. Over the course of these 28 months, 85 new FNCs were

registered, reflecting a 38% increase in the total number of clubs. Clearly there is growing

momentum for the creation of new FNCs. However, in 2014 the U.S. Geological Survey

recognized 35,000 cities and towns. If one were to assume that each of the 222 FNCs is located

in a different city or town in the U.S., which is not the case (some towns have more than one

club and some of the 222 FNCs are not based in the U.S.), then only 0.6% of the cities or towns

in the U.S. have a FNC[8]. Clearly there is also tremendous opportunity to grow the number of

communities served by a FNC.

      The results of this study on the effects of FNC participation for individual, familial,

social, and environmental well-being have compelled me to believe that every community would

benefit from having a FNC. Therefore, this presentation of the key findings is organized to foster

and support action in that direction. The first section discusses results related to the practice of

growing the FNC movement. The second section discusses findings on the reported effects of

leading and participating in a FNC. The third section discusses results related to the attributes of

study participants in the areas of nature experience, family relationships, and environmental and

social action and the significance of FNC participation in these areas.

5.1.1 – Considerations for Growing the FNC Movement

      This section presents three study findings that are especially relevant for leaders seeking

to create or sustain a FNC and understand how to motivate people to participate in FNCs in a

way that is informed by familial and demographic barriers to engagement.

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[8] It is also true that not all FNCs are registered with C&NN. I am anecdotally aware of several dozen FNCs that are not registered, but do not have a way to quantify the total number of unregistered clubs in existence or to quantify the number of FNCs that have existed but are no longer active, such as the one located in Columbia, Maryland three decades ago.

FNCs Can Be Designed for any Context. By definition, FNCs have the purpose of connecting children and their families with nature on a regular basis. The way in which FNCs are designed to meet that common purpose varies significantly, depending on the context within which they operate and the specific goals of the leaders. Looking across the 47 FNCs represented in this study, some were located in small towns while others were in large cities, some were a project of a larger organization while others were independent, some were open to the public while others were set up for a private group, some clubs primarily frequented one location while others prioritized variety in event locations, some clubs had a focus on environmental education while others focused on child-led free play, some clubs were intentionally kept small while others had grown so large that offshoots or sub-clubs had developed to manage demand and group size. The different FNC structure and design elements and considerations described by study participants have been organized into the matrix presented in Table 41, which is a useful starting place for people interested in creating a FNC as well as a useful frame of reference for current FNC leaders who are interested in understanding different options sustaining their club.

Table 41. *Family Nature Club Structure and Design Elements.*

Organizational Leadership Structures	*Organization*	Part of organization	Under an umbrella	Independent
	Leader compensation	Paid leader	Membership fees/grants	Volunteer Leader
	Leader structure	Single leader	Volunteer support	Co-leaders
Participant Engagement	*Access*	Public group, no requirements	Open to public with registration	Private group
	Size	Large	Medium	Small
	Cost	Free	Cover own costs	Membership fee
Event Structures	*Frequency*	Frequent (weekly)	Regular (1-3 per month)	Infrequent (quarterly)
	Location	One location	A few regular locations	A range of rarely repeated locations
	Activity	Structured / educational format	A variety of activities types	Informal / child-led free play

It is important to note that these FNC elements do not need to line up based on the columns in Table 41. For example, a FNC could be part of an organization, with a single volunteer leader, that is free for participants, but only available to a moderately sized private group, and meets twice a month at one location for child-led free play. This flexibility in FNC organizational and leadership structures, participant engagement strategies, and event structures makes it possible to design a FNC that fits the context and meets the needs of essentially any community and also fits the capacity and interests of the leader(s). It is important to recognize that these FNC design choices have a direct impact on participation levels and participant effects.

Motivations for leading and participating in FNCs. The 52 FNC leaders who participated in this study were asked to identify the major factors that motivated them to start and/or take a leadership role in their FNC. The most frequently selected motivation for this group of leaders was to be a part of the movement to reconnect children and nature (88%). Other motivating factors identified by the majority of the FNC leaders were: to have fun (73%), filling a need in the community (65%), the health and well-being of my child(ren) (60%), to meet new families (50%), and to learn more about nature (50%). Across all the FNC contexts and designs represented by these FNC leaders, for each person there was a clear articulation of personal passion for their role. The 170 FNC participants who participated in this study were also asked to indicate the major factors that led them to join their FNC. The most frequently selected motivator for this group of participants was to have fun (87%). Other motivating factors identified by the majority of the FNC participants were: to learn about places to go in nature (78%), the health and well-being of my child(ren) (72%), to learn about nature (65%), to meet new families (61%), to get quality time with my child(ren) (60%), and for motivation to stay active as a family (54%).

For both the leaders and participants, having fun was at the top of the list of motivations for involvement with a FNC. This finding aligns with internal evaluations conducted by the Young Naturalist Club of British Columbia in which they found the most important and distinctive element of the club experience to be having fun outdoors. Similarly, research on family camps found that families were motivated to participate in camp experiences primarily to have a fun and relaxing experience, to enjoy a peaceful outdoor atmosphere, and to spend quality time with family (Garst et al., 2013). These insights on family camp participation also align with the interest expressed by both FNC leaders and participants to spend time in and learn about nature as well as support the health and well-being of their children. Additionally, during the interviews conducted in this study, one of the most commonly discussed motivations attributed to participation was the unique opportunity provided by FNCs for the entire family, regardless of children's age or gender, to regularly spend time actively engaged in an enriching experience together with other families. This unique attribute of FNCs is partially reflected in the survey selections of being motivated by getting quality time with children, staying active as a family, and meeting new families. Understanding what motivates people to lead FNCs can help inspire and encourage future leaders and understanding what motivates people to participate in a FNC can help leaders to effectively communicate about their club to recruit participants.

Learning from barriers. Barriers to FNC participation show up at the level of the individual family as well as in larger demographic trends. Additionally, interviews with FNC leaders identified several barriers for starting and sustaining FNCs.

Family level barriers. The CFIN non-participant population provided detailed narrative feedback on the barriers to their participation. The three primary barriers to participation were*:*

1. *Time / schedule limitations and conflicts* (i.e., parents have heavy works schedule, the family is over scheduled in general, events conflict with nap time of younger children and other activities of older children, weekend travel, etc.).

2. *The logistics of attendance* (i.e., getting it on the calendar, needing to commit in advance, how very hard it can be to get out the door with kids, proximity, weather, etc.).

3. *Concern about participating in the event* (i.e., babies may not be old enough, limitations in how much young kids can do in a day, activities not geared towards preteens, special needs, social concerns for parents about being new to a group, etc.).

These findings align with research suggesting that families, particularly those with young children, as is typically the case with FNC participants, face significant challenges to engaging in active forms of leisure with the entire family (Agate et al., 2011; Bittman, 2002; Jackson, 2005). In addition to the issues of time and money that are frequently mentioned in leisure constraints literature (Reis et al., 2012; White, 2008), barriers such as limited access, information and appropriate infrastructure may prevent families from engaging in leisure activities that take place away from home (Agate et al., 2011; Brown et al., 2001). Outdoor recreation activities can create further challenges for family engagement as they may require, or be perceived as requiring, specific skills and knowledge for safe participation (Claxton & Perry-Jenkins, 2008; Freeman & Zabriskie, 2002; Reis et al., 2012). FNC leaders can benefit from awareness of these barriers as they schedule, plan, and communicate about their events to prospective families. Additionally, as described in the effects section below, if families can successfully be recruited to show up at FNC events, it is highly likely that they will end up having a reduction in barriers to future FNC participation and family time in nature overall.

Participant Demographic Barriers. The 47 FNCs represented in this study represent

approximately 25% of the FNCs registered with C&NN at the time of data collection. When

comparing the demographics across the participants groups in this study, the following trends

emerge, which are believed to reflect the broader C&NN FNC participation trends based on a

2013 assessment of registered FNCs (Swaisgood, 2013):

- *Gender:* The large majority of study participants were women in each group (87% to 95%).

- *Age:* The average age of the responding parent was in the upper 30s to lower 40s.

- *Ethnicity/race:* The large majority of the study participants were Caucasian across all groups

  (66% to 86%). Hispanic, Asian, and African American participants comprised between 2%

  and 10% each.

- *Relationship status:* The large majority of study participants were married (89% to 95%).

- *Education:* The large majority of study participants held a college degree (83% to 96%),

  between 39% and 66% also had a graduate degree.

- *Income:* The most common household income selection (for non-CFIN participants) was

  $50,000 to $100,000, followed by a fairly equal distribution of families making less than

  $50,000 and between $100,000 and $150,000.

Research suggests that family leisure becomes a central focus for mothers with children

at home (Reis et al., 2012), which may illuminate why mothers (as opposed to fathers) primarily

self-selected to participate in this study. More broadly, these demographic data suggest that there

may be barriers to FNC participation for single parents, other than Caucasian families, and

families with more limited formal education and economic means. Constraints to family leisure

created by parenting arrangements as well as time, access, and financial limitations may partially

explain these barriers. Cultural barriers may also influence "non-participation in specific

activities or at specific settings, especially when the natural environment and unstructured

activities are involved" (Reis et al., 2012, p.316). Developing a better understanding of cultural

barriers to FNC participation is a recommended area for future research. In the interim, FNC

leaders can benefit from an awareness of the value of and barriers to demographic diversity when

designing their FNC activities and outreach strategy.

  FNC Barriers and Challenges. In the course of the interviews with FNC leaders, several

themes emerged regarding club-level challenges, particularly for independent FNCs. These

primarily included pragmatic issues such as the need for insurance, time and financial constraints

for volunteer leaders, and how to transition FNC leadership when needed (e.g., the leader family

moves or their kids age out of the club). This is an area recommended for future research. In the

interim, the results of this study may help leaders consider a variety of frameworks for their FNC

design and apply for grants to support their efforts. Additionally, models such as the Young

Naturalist Club in Canada, a non-profit organization that offers significant structural support for

the FNCs under its auspices, could be applied in the U.S. to increase the number of FNCs as well

as their longevity.

5.1.2 – Numerous Positive Effects are Reported by FNC Participants and Leaders

  This section presents the effects of being a part of a FNC as reported by both leaders and

participants, as well as specific effects reported by FNC leaders. Bringing together all of the

quantitative and qualitative FNC participation effects data from leader and participant surveys

and interviews, seven effect categories were identified: *enhanced overall well-being; enhanced*

family connections and well-being; enhanced social connections; meaningful experiences;

increased knowledge of and connection with nature; more time spent in nature; and greater

environmental and social action. Within these categories, twenty distinct effects were identified

and presented to all study participants in a final validation survey, which received 190 responses.

When combining the "strongly agree" and "agree" survey responses, the following is the rank of

FNC specific participation effects:

1. Learning about places to go in nature (97%)
2. Experiencing an enhanced sense of well-being (95%)
3. Quality time together as a family (94%)
4. Fun, memorable experiences (94%)
5. Child(ren) enjoying free play / playing with other kids (94%)
6. Learning about the natural world (92%)
7. Learning from leaders and/or other families (92%)
8. A stronger overall sense of connection the area (92%)
9. More time spent in nature (90%)
10. A greater sense of connection with nature (87%)
11. Meeting new families / getting to know new people (87%)
12. Having experiences that are positive for my child(ren)s behavior (87%)
13. A greater commitment to spending time in nature (87%)
14. Experiencing a sense of accomplishment and/or expansion of comfort zone (85%)
15. Being more physically active as a family (84%)
16. Developing a greater sense of connection as a family (84%)
17. Developing a sense of social community (83%)
18. Having fewer barriers to getting out in nature (82%)
19. An increase in environmental awareness and/or behavior (81%)
20. Having experiences that foster our sense of connection to something bigger (67%)

In addition to these twenty effects, which were conveyed by both FNC participants and

leaders, data from the leader surveys and interviews indicates that FNC leaders experienced six

additional beneficial effects:

1. Gratitude for being a part of and/or witnessing the positive participant effects.
2. A sense of personal accomplishment and purpose around being a FNC leader.
3. Increased leadership experience and opportunities.

4. Opportunities for their children to learn and/or have leadership opportunities.

5. Change in personal behavior (i.e., more creative, adventurous, socially active).

6. Enhancement of work mission and/or career and/or community visibility.

These effects of FNC leadership and participation may help to inspire the engagement of new leaders and offer existing leaders with meaningful data to support their efforts. Having a clearly defined and demonstrated set of positive effects associated with FNC participation may inform FNC design decisions by illuminating the best possible outcomes that specific designs can help to foster and provide leaders with data that can be leveraged to recruit participants as well as seek organizational and/or financial support for FNCs. As with other programs, the effects of specific FNCs depend on the goals set and design used (Chawla & Derr, 2012).

5.1.3 –Significant Effects for Nature Experience, Relationships, and Behavior

In addition to understanding how FNCs can be designed, what motivates and limits participation and what the effects are for FNC leaders and participants, this study gathered data on specific attributes of four distinct populations of people (FNC leaders, FNC participants, CFIN participants, and CFIN non-participants) with regards to their experiences in nature, family relationships, and environmental and social behavior. FNC participation was found to have statistically significance effects for many of these attributes as presented below.

Youth Nature Experiences have Lasting Effect on Connection with Nature and PEB.
A total of 337 study participants completed the *youth nature experience triad* section of their respective surveys, which referenced the research on life experiences that foster PEB to offer the prompts: 1) playing outside in nature was an important part of my childhood; 2) as a child there was at least one adult (parent, grandparent, etc.) that spent time with me outside and helped teach me an appreciation for nature; and 3) during my youth, I participated in an organization that had a nature and/or environmental focus.

FNC leaders had the highest response level for playing outside being an important part of their childhood (95%) and having a role model for nature appreciation (68%). Participation in an organization that had a nature and/or environmental focus was indicated by 46% of the FNC leaders. The FNC participants also indicated that playing outside was an important part of their childhood (83% for FNC, 80% for CFIN) and slightly more than half (56% for FNC, 59% for CFIN) indicated that they had a role model for nature appreciation. The participant response rate for involvement in a nature-focused organization was approximately the same as for FNC leaders (46% for FNC, 41% for CFIN). The level of agreement with these three prompts on youth nature experience followed the same order or significance found in Chawla's (2006) research on life experiences that foster environmental action. In her study of active environmentalists, 77% reported spending time in nature as a child, 64% reported having a close, positive adult role model for nature appreciation, and 55% reported participation in a nature-based organization. Overall, this FNC population had stronger agreement about having played in nature as a child than Chawla's group, especially the FNC leaders. The FNC leaders also had a slightly higher agreement with having had an adult role model for nature appreciation than Chawla's group, while the FNC participants had a somewhat lower level of agreement. All of the FNC study participants had a lower level of agreement with having participated in a nature-based organization during their youth than Chawla's group. These results suggest that in addition to fostering PEB, this triad of youth nature experiences is influential for adults choosing to lead FNCs and/or participate in a FNC with their family.

The youth nature experiences of the entire study population were also analyzed as an independent variable that may influence the other response variables. Using linear regression, an increasingly positive, but not statistically significant, relationship with the youth nature

experience triad was found for family satisfaction ($p = 0.749$), social action ($p = 0.124$), and

current family time spent in nature ($p = 0.077$). Statistically significant relationships were found

between the youth nature experience triad and the respondent's sense of connection to nature (p

< 0.001) and level of environmental action ($p = 0.03$). These data show a very significant

correlation between the positive strength of study participants' youth nature experiences triad

score and their score with regards to their current sense of connection with nature. These data

also show a significant correlation between the positive strength of study participants' youth

nature experiences triad score and their current household environmental behavior score. These

results support existing research as summarized and discussed below.

Youth nature triad and connection to nature (p = <0.001$). Numerous studies have linked

positive experiences in nature during childhood with the development of a lasting emotional

connection with the natural world (Chawla, 2009). Couple these early experiences in nature with

role models for nature appreciation and participation in an organization that provides the

opportunity for direct engagement in and learning about nature, and a person is likely to develop

a lasting sense of connectedness with nature. For example, experiences such as cultivating

naturalist skills and working on environmental restoration projects have been found to be

particularly beneficial in fostering connectedness with nature because they are often facilitated

by people who model care for the natural world and because they involve attentiveness to nature

in an active embodied way, which has been shown to be especially poignant for fostering

connectedness with nature (DeLange et al., 2010; Schultz, 2011; Young, 2010; Zylstra, 2014).

Youth nature triad and environmental action (p = 0.03$). Numerous studies on life

experiences that lead to adult PEB have found "strikingly consistent findings. The greatest

commonality among all findings is the importance of time spent outdoors in natural habitats

during youth" (Wells & Lekies, 2012, p. 206). In addition to regular experiences in nature, many

of these studies also found that the presence of close companions in and role models for nature

appreciation and participation in a nature based organization are significant antecedents of PEB

in adulthood (Chawla, 2006, 2007, 2009; Chawla & Derr, 2012; Edmondson, 2006; Farmer,

2011; Phenice & Griffore, 2003; Wright & Wyatt, 2008).

The results of this study on FNCs offer additional evidence that youth nature experiences

may have a long-lasting positive influence on adults' sense of connection with the natural world

as well as PEB. Although not statistically significant, the relationship between the youth nature

experience score and amount of reported family time in nature ($p = 0.077$) also suggests that the

parents' experiences in nature during their own youth influences the amount of time that they

spend in nature with their own children, creating a positive cycle of youth nature experiences.

FNC participants spend significantly more time in nature than the U.S. average. A

total of 353 study participants provided data on the frequency and duration of family time spent

in nature. The study population that most often spent daily family time in nature was FNC

leaders (33%). The rest of the study groups indicated that their most common frequency of

family time spent in nature was two to three times per week (32% to 38%). CFIN non-

participants indicated that they had the lowest frequency of family time in nature of all the

groups. The study population that spent the greatest quantity of time in nature was also FNC

leaders, for whom 28% spent more than eight hours of family time in nature per week and

another 54% indicating that they spent between three and eight hours of family time in nature per

week. CFIN participants had the second highest quantity of family time spent in nature per week,

with 28% spending three to four hours and 25% spending five to seven hours of family time in

nature per week. The non-CFIN FNC participants most frequently selected that they spent two

hours of family time in nature per week (21%), with another 53% indicating that they spent

between three and more than eight hours of family time in nature. CFIN non-participants

indicated that they had the lowest quantity of family time in nature of all the groups, with 35%

indicating that they spent an hour or less of family time in nature each week. The quantity of

time spent in nature for FNC participants is particularly remarkable when compared to estimates

that the average child in the U.S. engages in seven minutes or less of unstructured outdoor play

each day, which equates to less than an hour a week (Juster et al., 2004; Rideout, 2010).

Family time spent in nature was also analyzed as an independent variable that may have

an influence on other response variables. Using linear regression, a statistically significant

relationship was found between family time in nature and three of the other response variables:

connection to nature ($p = 0.007$), environmental action ($p = 0.021$), and social action ($p = 0.027$).

The relationship between family nature time and family satisfaction is positive, although not

statistically significant within this sample ($p = 0.07$). These data show a very significant

correlation between the quantity of time a family spends together in nature, in hours per week,

and the responding parent's sense of connection with nature, the family's household

environmental behavior, and the responding parent's social action. The CFIN pre- and post-

surveys suggest that in addition to spending more time in nature as a part of FNC events, families

were also spending more time in nature on their own because they were more familiar with

places to go and comfortable with how to prepare and what to do in nature with their child(ren).

These results support existing research as summarized and discussed below.

Time in nature and connection to nature (p = 0.007). Although nature connectedness is a

stable individual trait, it develops and can change based on one's experience with nature

(Vinning, et al., 2008), meaning the more time an individual spends in nature, the more

connected they may feel with nature and the more concern they may feel for the natural world

(Mayer & Frantz, 2004; Nisbet et al., 2009; Zylstra et al., 2014).

Time in nature and environmental action (p = 0.021). Across many dozens of studies

time spent in nature has been found to be the one the most significant life experiences that

predicates PEB (Chawla & Derr, 2012; Wells & Lekies, 2012). Outdoor recreation, such as that

experienced with FNCs, has also specifically been associated with PEB in numerous studies

(Bustam, 2003; James, Bixler, & Vadala, 2010; Nord, Luloff, & Bridger, 1998).

Time in nature and social action (p = 0.027). Time in nature in the context of FNC

participation often includes elements of hands on environmental education and creates a behavior

setting in which the social norm is for people to engage with nature in an experiential,

appreciative, and caring manner. Additionally, one of the most commonly reported effects of

spending time in nature in the context of a FNC is the creation of a sense of community, which

has been found to be a significant catalyst for community participation, increasing both

individual and collective action (Prezza et al., 2001; Simon et al., 1998). Overall, time in nature

as a part of a FNC may cultivate an increased sense of self-efficacy and awareness that results in

increased levels of social action by the participating parent(s).

Time in nature and family satisfaction (p = 0.07). Decades of research on recreation and

leisure patterns among families have provided substantial evidence for the positive relationships

between family leisure and family well-being outcomes (Hawkes, 1991; Orthner & Mancini

1991). In particular, a direct relationship has been found between strong, successful, cohesive

families and participation in outdoor recreation (Agate & Covey, 2007; Freeman & Zabriskie,

2002; Garst et al., 2013; Taylor et al., 2006). FNCs create an opportunity for fields of promoted

action, in which families actively engage in joint attention towards their natural environment.

The results of this study suggest that the more time a parent spends in nature with her or his child(ren), the greater the parent's connection to nature and also the greater their environmental and social behavior, which may be attributed to the increase in the parent's sense of connection to the environment in which they live. This effect on adult behavior is important, since these parents are the current decision makers in their household. Based on the finding of statistical significance between youth experiences in nature and adult sense of connection with nature and environmental behavior, it bodes well too for the long-term effects on the children in these households where there is more family nature time.

FNC Participation Fosters Parent Satisfaction with Family Life. A total of 334 study participants completed the family life satisfaction section of their respective surveys which asked "How satisfied are YOU with the following [eleven] elements of your family life?" Overall, FNC leaders consistently had the most positive responses regarding their family satisfaction and the CFIN non-participant population had the lowest reported family life satisfaction. The FNC participants, most of whom attended multiple FNC events over a period of time, also consistently reported higher family life satisfaction than the CFIN pre population, which, by definition, had only attended one FNC event. The CFIN post population reported notable increases in satisfaction with 'the ability to share positive experiences', the 'amount of time spent together', and 'quality of communication', which could be attributed to having participated in at least six CFIN events. The ability to share positive experiences (69% to 90%) and family members' concern for one another (79% to 92%) were the areas of family life where the respondents had the highest level of satisfaction. The way problems are discussed (38% to 65%) and family's ability to cope with stress (36% to 53%) were consistently the second to last and last elements of family life when ranked by satisfaction. On a scale from 0 (dissatisfied) to 5 (extremely

satisfied), the overall individual response averages for this question on family life satisfaction for

the different study groups were 3.63 for the CFIN non-participant group, 3.80 for the CFIN pre-

survey group, 3.89 for the FNC participant group, and 4.07 for the FNC leader group.

Statistical significance regarding parental satisfaction with family life between the study

participant groups was found for comparisons between the CFIN non-participant group and FNC

participants ($p = 0.024$), CFIN non-participants and FNC leaders ($p = 0.002$), and CFIN pre-

survey participants and FNC leaders ($p = 0.032$). More specifically, for the amount of time you

spend together as a family statistical significance was found between CFIN non-participants and

CFIN pre-survey participants ($p = 0.029$), CFIN non-participants and FNC participants ($p =

0.0006$), and CFIN non-participants and FNC leaders ($p = 0.001$). For family's ability to share

positive experiences statistical significance was found between CFIN non-participants and CFIN

pre-survey participants ($p = 0.015$), CFIN non-participants and FNC participants ($p = 0.012$), and

CFIN non-participants and FNC leaders ($p = 0.001$). For your ability to effectively parent your

child(ren) statistical significance was found between CFIN pre-survey participants and FNC

participants ($p = 0.037$), and CFIN pre-survey participants and FNC leaders ($p = 0.001$). These

results suggest that FNC participation has a significant positive effect on parental family life

satisfaction overall, particularly in the areas of spending time together, sharing positive

experiences, and a sense of parental efficacy.

FNC Participation Enhances Familial Relationships with Nature, Friends and

Community. A total of 334 study participants completed the survey question about their

family's external relationships in the areas of family connection with nature, children's peer

friendships, parent's peer friendships, friendships with other families, family connection with

community, and relationships with extended family. The FNC leaders had the most positive

responses for five of the six relationship areas and the CFIN non-participant group had the least

positive responses overall. With regards to family connection with nature, FNC leaders had the

highest score for this entire question, with 90% responding that their relationship was good or

very good. The FNC participants were tied for the second highest overall response to this

question for their sense of having a good family connection to nature (81%). The FNC

participants consistently reported better external relationships than the CFIN pre population for

all but extended family. The CFIN post population reported modest increases in "family

connection with nature", and "family connection with community", which could potentially be

attributed to having participated in at least six CFIN events. On a scale from 0 (poor) to 5 (very

good), the overall individual response averages for this question on external relationships for the

different study groups were 3.53 for the CFIN non-participant group, 3.85 for the CFIN pre-

survey group, 4.08 for the FNC participant group, and 4.17 for the FNC leader group.

Statistical significance regarding the quality of external familial relationships between the

study participant groups was found for comparisons between the CFIN non-participant group and

the CFIN pre-survey participants ($p = 0.039$), CFIN non-participants and FNC participants ($p =$

0.0003), CFIN non-participants and FNC leaders ($p = 0.0006$), CFIN pre-survey participants and

FNC participants ($p = 0.013$), and CFIN pre-survey participants and FNC leaders ($p = 0.025$). No

statistical significance was found between FNC participants and FNC leaders ($p = 0.49$). More

specifically, for "friendships with other families" statistical significance was found between

CFIN non-participants and FNC participants ($p = 0.011$) and CFIN non-participants and FNC

leaders ($p = 0.024$). For "family connection with community" statistical significance was found

between CFIN non-participants and FNC participants ($p = 0.002$), CFIN non-participants and

FNC leaders ($p = 0.00009$), CFIN pre-survey participants and FNC participants ($p = 0.037$), and

CFIN pre-survey participants and FNC leaders ($p = 0.002$). For "family connection with the natural world" very substantial statistical significance was found across all study group comparisons: CFIN non-participants and CFIN pre-survey participants ($p = 0.007$), CFIN non-participants and FNC participants ($p = 0.0000002$), CFIN non-participants and FNC leaders ($p = 0.0000000004$), CFIN pre-survey participants and FNC participants ($p = 0.0006$), CFIN participants and FNC leaders ($p = 0.0000007$), FNC participants and FNC leaders ($p = 0.003$).

These results suggest that FNC participation has a significant positive overall effect on the relationships that participating families have with nature, peers, other families, and their community. This effect is particularly significant for developing friendships with other families, more significant still for developing a sense of connection between families and the communities they live in, and of dramatic significance for every incremental measure of increased FNC participation for the family's sense of connection with the natural world.

FNC Participation has a Significant Effect on Sense of Connection with Nature. A total of 334 study participants completed the section of their respective surveys about sense of connection to nature. For all five nature connectedness prompts, FNC leaders had the highest level of agreement. The prompt that garnered the highest overall agreement was "I think of the natural world as a community to which I belong," to which 95% of FNC leaders agreed. For the FNC and CFIN participants, the prompt that garnered the greatest was "my personal welfare is dependent on the welfare of the natural world." The CFIN non-participant group most strongly agreed (91%) with the prompt stating "I have a deep understanding of how my actions affect the natural world." The prompts that received the lowest level of agreement were "I often feel a sense of oneness with the natural world around me" followed by "I often feel a kinship with animals and plants." On a scale from 0 (strongly disagree) to 4 (strongly agree), the overall

individual response averages for the different study groups were 2.96 for the CFIN non-

participant group, 2.94 for the CFIN pre-survey group, 3.15 for the FNC participant group, and

3.58 for the FNC leader group.

Statistical significance in the sense of connection with nature between the study

participant groups was found for comparisons between the CFIN pre-survey participants and the

FNC participants ($p = 0.024$), CFIN pre-survey participants and FNC leaders ($p = 0.000003$), and

FNC participants to FNC leaders ($p = 0.0004$). Although not statistically significant, the

comparison between the CFIN non-participant group and the FNC participant group, showed a

notable difference in sense of connection with nature *($p = 0.083$)*. There was negligible difference

between the CFIN non-participant group and the CFIN pre-survey group *($p = 0.902$)*, which had

the primary distinction of attending one FNC event. These results suggest that FNC participation

has a significant effect on the responding adult's sense of connection with nature with greater

degrees of significance associated with greater FNC engagement. However, it is interesting to

note that the level and extent of statistical significance for this question, which provided five

specific prompts related to connectedness with nature that the adult survey responded to based on

their own perceptions, is less substantial than the responses for the previously described one-part

question about the family's sense of connection with nature.

FNC Participants Report Significantly More Pro-Environmental Behavior. A total

of 346 study participants completed the section of their respective surveys about household

environmental behavior, in which they were asked to indicate how often their family takes was

13 different actions. For eleven out of the thirteen environmental behavior sub-prompts, FNC

leaders had the greatest level of reported action. For ten of the environmental behaviors, the

CFIN non-participant group has the lowest level of reported action. There was consistency across

all the participant groups for the most common and most uncommon environmental behaviors.

Recycling (89% to 96%), turning off the lights when not in use (83% to 94%), and turning off

the tap while brushing teeth (66% to 81%) were the three most frequent environmental

behaviors, in that order. Composting (18% to 24%), walking to destinations (16% to 24%), and

using public transportation (0% to 8%) were the three least frequent environmental behaviors in

descending order—reflecting institutional external barriers to these behaviors. The frequency of

the seven environmental behaviors in between the top and the bottom varied widely between the

study groups in terms of rank and percentage and/or weight.

On a scale from 0 (never) to 5 (almost always), the overall individual response averages

for the different study groups were 3.03 for the CFIN non-participant group, 3.37 for the CFIN

pre-survey group, 3.52 for the FNC participant group, and 3.67 for the FNC leader group.

Statistical significance in the reported household environmental behaviors between the study

participant groups was found for comparisons between the CFIN non-participant group and the

CFIN pre-survey participants (p = 0.010), CFIN non-participants and FNC participants (p =

0.00004), CFIN non-participants and FNC leaders (p = 0.0001), and CFIN participants and FNC

leaders (p = 0.049). No statistical significance was found between CFIN participants and FNC

participants (p = 0.134), and FNC participants and FNC leaders (p = 0.292).

These results suggest that the CFIN non-participant comparison group had significantly

lower reported levels of environmental behavior than the other study groups, that there was a

significant increase in reported environmental behavior between CFIN pre-survey participants

and FNC leaders, but that there was not a significant difference in environmental behavior

between FNC participants and leaders. This relative leveling effect could be attributed to the fact

that the large majority of the survey respondents were well-educated women, two demographic

factors that have consistently been found to influence environmental attitudes and behavior

(Kollmus & Agyeman, 2002). It is important to note that this analysis does not specifically parse

out the economic or social and cultural factors that influence PEB and these results do not

describe directional influence with regards to whether people with a greater propensity for PEB

are more likely to participate in FNCs or whether FNC participant effects PEB – both are likely

to be true to varying degrees.

      FNC Participants Report Engagement in Social Action. A total of 346 study

participants completed the section of their respective surveys about social action, in which they

were asked to indicate how their experience with or willingness to take eight different actions for

causes that were of personal interest to them. For six out of the eight social action sub-prompts,

FNC leaders had the greatest level of reported action. For the FNC leaders and participants and

the CFIN pre survey group, the sub-prompt that received the highest level of agreement in terms

of people indicating that they had taken the action "frequently" or "in the past year" was the

catch-all option of "change your behavior in any other way out of concern for a cause of

interest". The most popular social action for both the CFIN post-group and CFIN non-participant

group was "donate time or money or raise funds for a cause of interest." The study groups were

very consistent in their commitment to "deliberately buy or boycott products due to ethical

concerns" (66% to 68%) and "sign a petition" (61% to 66%). The actions that people participated

in the least across all participant groups were "contact a politician, civil servant, and/or media to

express your views" (32% to 49%) and "attend a related hearing, meeting or rally" (24% to

38%). The lowest score for any social action prompt for any group is "attending a meeting" for

the CFIN non-participant group, which perhaps speaks to an overall challenge for this particular

population in attending extracurricular events.

On a scale from 0 (would not) to 4 (frequently), the overall individual response averages

for the different study groups were 2.44 for the CFIN non-participant group, 2.38 for the CFIN

pre-survey group, 2.42 for the FNC participant group, and 2.60 for the FNC leader group. No

statistical significance was found in the responses between these four study groups. These results

suggest that there was not a significant relationship between FNC participation and the forms of

social action included in the study surveys. This finding is in alignment with previous research

that found that individuals who were associated with environmental groups had engaged in

individual PEB such as recycling, but most had not engaged in broader social action (Angelique

& Quimby, 2010). However, involvement in community groups has been found to be associated

with increased civic involvement and increased sense of community has been found to generate

communal efficacy, responsibility, and concern (Albanesi et al., 2007). Perhaps FNC

participation would be shown to be related to social action if the data was controlled for duration

of participation and sense of community. It is interesting to note that in the demographics

section, FNC leaders were substantially more likely to indicate that volunteerism was a primary

responsibility (41% compared to 19% for FNC participants, and 16% for non-participants),

which may reflect their work as a FNC leader and can be considered a form of social action.

Summary of Significant Patterns and Effects. Across all of the variables for which

data was gathered in this study (youth nature experiences, family nature time, families' internal

and external relationships, connection with nature, environmental behavior, and social action),

FNC leaders consistently had the most positive responses. FNC participants consistently

followed the leaders and the CFIN non-participant group frequently had the least positive

responses of all the study groups. This pattern suggests that increased involvement in a FNC

fosters increased, cascading positive effects. Table 42 details all of the statistically significant

study results.

Table 42. *Statistically Significant Effects from Associated with FNC Participation.*

Statistically Significant Relationships associated with FNC Participation		
Comparisons	***n***	***p***
Youth Nature Triad and Connection to Nature	306	<0.001
Youth Nature Triad and Environmental Behavior	314	0.031
Family Time in Nature and Connection to Nature	249	0.007
Family Time in Nature and Environmental Behavior	256	0.021
Family Time in Nature and Social Action	254	0.027
Adult Family Life Satisfaction (n = 334)		
CFIN non-participant group and FNC participants		0.023454
CFIN non-participants and FNC leaders		0.002249
CFIN pre-survey participants and FNC leaders		0.031564
Amount of time spent together as a family		
CFIN non-participants and CFIN pre-survey participants		0.02866
CFIN non-participants and FNC participants		0.00056
and CFIN non-participants and FNC leaders		0.00128
Family's ability to share positive experiences		
CFIN non-participants and CFIN pre-survey participants		0.01502
CFIN non-participants and FNC participants		0.01217
CFIN non-participants and FNC leaders		0.00134
Ability to effectively parent your child(ren)		
CFIN pre-survey participants and FNC participants		0.03738
CFIN pre-survey participants and FNC leaders		0.00138
Quality of Family's External Relationships (n = 334)		
CFIN non-participants and the CFIN pre-survey group		0.03897
CFIN non-participants and FNC participants		0.00029
CFIN non-participants and FNC leaders		0.00054
CFIN pre-survey participants and FNC participants		0.01319
CFIN pre-survey participants and FNC leaders		0.02489
Friendships with other families		
CFIN non-participants and FNC participants		0.01102
CFIN non-participants and FNC leaders		0.02400
Family connection with community		
CFIN non-participants and FNC participants		0.00169

CFIN non-participants and FNC leaders	0.00009
CFIN pre-survey participants and FNC participants	0.03722
CFIN pre-survey participants and FNC leaders	0.00178
Family connection with the natural world	
CFIN non-participants and CFIN pre-survey participants	0.00722
CFIN non-participants and FNC participants	0.0000002
CFIN non-participants and FNC leaders	0.0000000004
CFIN pre-survey participants and FNC participants	0.00056
CFIN pre-survey participants and FNC leaders	0.0000007
FNC participants and FNC leaders	0.00348
Adult Sense of Connection with Nature (n = 334)	
CFIN pre-survey participants and the FNC participants	0.02362
CFIN pre-survey participants and FNC leaders	0.000003
FNC participants to FNC leaders	0.00044
Household Pro-environmental Behavior (n = 336)	
CFIN non-participant group and the CFIN pre-survey participants	0.01039
CFIN non-participants and FNC participants	0.00004
CFIN non-participants and FNC leaders	0.00011
CFIN pre-survey participants and FNC leaders	0.04960

5.2 - Implications of the Findings

Research about environmental learning and behavior can best support the development of

"coherent narratives that can be meaningfully applied in practice" when it is guided by a

theoretical framework (Chawla & Derr, 2012, p.549). This study used ecological psychology,

attachment theory/family systems theory, and community psychology to frame exploration of the

potential effects of FNCs for social and environmental well-being. This section turns to these

theories and associated concepts to further discuss and contextualize the unique potential and

implications of FNCs identified by this research.

5.2.1 - The unique potential of FNCs

By definition, FNCs have the purpose of connecting children and their families with

nature on a regular basis. While each FNC is unique, this type of community program offers

significant potential for fostering both environmental and social well-being. Mirroring the

literature review provided in Chapter 2, this section positions the results of this research within

the areas of individual PEB, nature experiences, family connections, and clubs and community.

Pro-Environmental Behavior. A robust body of research suggests three primary

personal factors that influence PEB: *knowledge*, *self-efficacy*, and *affective motivations*.

Environmental knowledge can lead to improved environmental awareness and attitudes, which

may potentially change behavior. Self-efficacy relates to self-perceptions about the ability to take

needed action and successful bring about change, with a greater sense of efficacy fostering PEB.

Motivation is the reason for a behavior, including PEB, and includes a variety of factors such as

values and responsibilities—affective motivations, those rooted in emotions, often are given

greater priority. The ways in which FNCs have been found to foster these factors are highlighted

throughout this section.

Reviews of over 100 studies on the development of PEB (Chawla & Derr, 2012) have

also identified three primary life experiences that foster a long-term, active environmental ethic,

each of which are intrinsic to the purpose and design of FNCs. First, essentially every type of

environmental behavior, from recycling to environmental careers, has been linked by research to

a childhood spent playing in nature. A sustainable world, in which people care for the natural

environment, is predicated on children having regular access to nature and continuing this access

through the life-course. Second, social support for the development of a caring relationship with

the natural environment is critically important. From early childhood through adulthood, people

benefit from guides who share in nature experiences with them, model care for the natural world,

and help them develop their environmental knowledge. Third, regular experiences with a nature-

based organization that offers reoccurring opportunities to learn through action provides youth

and adults alike the opportunity to practice the skills of active environmental citizenship. FNCs

bring children and their adult caregivers into nature together on a regular basis in the company of

a leader that models ways to appreciatively and meaningfully connect with nature. Thus FNC

experiences fulfill the three primary life experiences that foster a long-term environmental ethic,

for both children and adults.

This study found the *youth nature experience triad* to have long-lasting effects on

connection with nature and PEB. Statistically significant relationships were found between the

youth nature experience triad of the participating adults and their sense of connection to nature

($p < 0.001$) and level of environmental action ($p = 0.03$). This study also found that people who

participate in FNCs report: spending more time in nature (90%); having learned about nature

from the FNC leaders and/or other families (92%); and having an increase in environmental

awareness and/or behavior (81%). FNC participants in study reported spending significantly

more time in nature than the U.S. average of less than an hour playing outside each week--

approximately 80% of FNC participants in this study spent two or more hours of family time in

nature a week and approximately a third of the families reported spending five or more hours of

family time in nature each week. Comparisons between study groups found statistically

significant increases in reports of household PEB (e.g., CFIN non-participant group vs. FNC

participants, $p = 0.00004$), with FNC leaders having the greatest reported levels of PEB.

Time in Nature. The field of ecological psychology and related concepts such as primary

experiences, affordances, sense of place, and connectedness with nature help to provide a

framework for understanding how and why time in nature throughout the lifespan, as is provided

by FNCs, is so memorable and has such a strong influence on PEB and on human well-being.

Primary experiences emphasize "learning about the world first hand through one's own actions in it, rather than second hand as others represent it" (Chawla, 2007, p. 153). One of the most essential elements of FNCs is direct, primary experiences of engagement with the natural world. This study found that 94% of FNC participants and leaders reported having fun, memorable experiences as an outcome of their participation. Perhaps the increasing rarity of primary experiences in nature makes the opportunities provided by FNCs particularly notable.

Affordances are significant properties of the environment which are defined by the relationship between the environment and an organism (Chawla, 2007). When people are able to interact with the natural world, have satisfying, self-efficacy supporting experiences with engaging affordances a positive cycle is created in which they are motivated towards further exploration and the effortless learning about the natural world that occurs with such experiences (Kyttä, 2004, 2006). FNCs create a prime opportunity for people, especially children, to interact with new affordances in a comfortable, encouraging environment. This study found that 85% of the FNC participants and leaders reported experiencing a sense of accomplishment and/or expansion of comfort zone as an outcome of their participation, which is the exact outcome engagement with new affordances would suggest.

Sense of place describes characteristics of a particular place that make it special and unique in its own right as well as the human relationship to a particular place in which they have an authentic sense of attachment and belonging. Depending on their design, FNCs introduce families to a small number of places with which they become intimately familiar or introduce families to explore a wide variety of natural areas in their community – either scenario fosters a sense of place. This study found that 97% of the FNC participants learned about places to go in

nature as a result of their club involvement and 92% reported a stronger overall sense of connection to the area that they live in.

Connectedness with nature develops through time spent in nature and ultimately becomes "a stable state of consciousness comprising symbiotic cognitive, affective, and experiential traits that reflect, through consistent attitudes and behaviors, a sustained awareness of the interrelatedness between one's self and the rest of nature" (Zylstra et al., 2014, p. 1). This study found that 87% of FNC participants and leaders reported having a greater sense of connection with nature as an outcome of their club involvement. Statistical analysis also found FNC participation to have a very significant positive effect of sense of connection with nature both for the responding parent and for the family as a whole, with greater degrees of significance associated with greater FNC engagement.

Physical and mental well-being. A substantial and rapidly growing body of research has found that, in addition to fostering PEB, regular contact with nature and a sense of connectedness with nature is important for human physical, cognitive, psychological, emotional, and social well-being (Ewert, Mitten, & Overholt, 2014). This study found that as a result of their FNC involvement: 95% of the FNC participants and leaders reported experiencing an enhanced sense of well-being; 87% reported experiences that were positive for their child(ren)'s behavior; 84% reported being more physically active as a family; and 67% reported having experiences that fostered their sense of connection to something bigger (i.e., the natural world).

Overall, this study found time in nature to be significantly related to connection to nature ($p = 0.007$), environmental action ($p = 0.021$), and social action ($p = 0.027$) and is positively related to family satisfaction.

Family Connection. Integrated with ecological psychology, attachment theory and family systems theory offer a framework for understanding the important role of family in both environmental and human well-being. Many of the strategies known to promote healthy and resilient youth and families are rooted in the deep connection that develops when parents engage with their children with warmth and consistency (Ginsburg & Jablow, 2006). Studies on strong families also indicate that both quality and quantity of time are necessary to create a family identity, enhance communication, and build family strengths. Leisure activities, especially those outdoors, have been found to be directly related to the quality of family life and family strength. Family outdoor leisure activities, such as FNCs, are therefore a field of promoted action that offer a prime opportunity for joint attention, social learning, and self-efficacy, setting the stage for enhanced connection and care within the family, which creates a secure base for connection and care for natural world.

Fields of promoted action describe situations in which children's engagement with their surroundings is supported, and potentially directed or joined, by people such as their parents and teachers—an experience that conveys that nature is to be enjoyed and valued. FNCs are a field of promoted action. Having children and adults actively engaged in exploring the natural world together has many positives, for the individuals, for their relationships, and for the natural environment. Additionally, the increased comfort and confidence gained through the fields of promoted action offered by FNCs may increase the likelihood that participating children will be allowed to play and explore in nature independently (fields of free action) as well when they are of an age to do so. Indeed, recent research by McFarland and colleagues (2014) found a positive relationship between parental experiences in and attitudes towards nature and the amount of time their children actually spend in outdoor free play.

Joint attention is a developmentally significant way in which people are able to attend to an aspect of their environment in unison with significant others, which is an important part of the process of developing the secure parent-child relationship described by attachment theory and of learning that the natural world is to be appreciated and cared for. For example, research by Matthews (1992, p.326) noted the importance of "a contagious attitude of attentiveness on the part of those adults who have meaningful relationships with the child". This study found that as a result of their FNC involvement, 84% of the FNC participants and leaders reported developing a greater sense of connection as a family, which can at least partially be attributed to their time spent in fields of promoted action in which they were engaged in direct, joint attention towards the affordances of the natural environment.

Social learning explains human behavior in terms of continuous reciprocal interactions between cognitive, behavioral, and enviromental influences in which people learn through observing other's behavior, attitudes, and outcomes of those behaviors (Bandura, 1997). For example, family values toward nature are a strong predictor of children's connection to nature and their interest in environmentally friendly practices (Cheng & Monroe, 2012; Kals et al., 1999). FNCs create abundant opportunities for social learning within and between families and from the leader. This study found that as a result of their FNC involvement, 92% of the FNC participants reported that they had learned from leaders and/or other families. This learning was described as being about the natural world, about how to prepare for and enjoy family time spent in nature, and about ways to effectively parent their children.

Family leisure is recognized as being significant part of family life which contributes to family well-being (Agate et al., 2007; Dodd et al., 2009). The core and balance model of family leisure suggests that family's need a relatively equal mix of core family leisure, which provides

regular and predictable family experiences that increase personal relationships and family closeness or cohesion and balanced family leisure, which provides novel, challenging, and often unpredictable experiences that a context in which families develop adaptive skills (Zabriskie & McCormick, 2001). FNCs have a unique potential to fulfill both core and/or balance activities, depending on the way they are structured, with all of the associated benefits for family functioning. This study found that as a result of their FNC involvement, 94% of the FNC participants and leaders reported that they had quality time together as a family.

Shared nature experiences offer an "opportunity for families to put into practice the most important components of strong, healthy relationships—sensitive interactions, affective sharing, joint problem-solving, interdependence, and, free from the many distractions of most households, emotional availability to each other" (Erickson, 2009, p. 8). Studies have consistently found a direct relationship between strong, successful, cohesive families and participation in outdoor recreation (Freeman & Zabriskie, 2002). FNCs are, by definition, a form of family-focused outdoor recreation. This study found that as a result of their FNC involvement: 90% of the FNC participants and leaders reported that they spent more family time in nature; 87% reported a greater level of commitment to continuing to spend more time in nature; and 82% reported having fewer barriers to getting out in nature as a family. These findings suggest that FNC participation can foster a positive cycle of increased likelihood that families will engage in outdoor recreation, with the FNC group and independently.

Overall, this study found that FNC participation had a significant positive effect on parental family life satisfaction, particularly in the areas of spending time together, sharing positive experiences, and a sense of parental efficacy.

Clubs / Community

A FNC is type of community, a term that can be defined as "a group or network of persons who are connected to each other by relatively durable social relations that extend beyond immediate familial ties, and who mutually define that relationship as important to their social identity and social practice (James et al., 2012). From ecological, sociological, and psychological perspectives substantial research has demonstrated peoples' basic need to belong as a valued member of a community (Hollings, 2001; Zylstra et al., 2014). Communities that create a behavior setting for environmentally conscientious social norms, offer the opportunity for experiential environmental education, and foster community engagement and a sense of personal and collective efficacy set the stage for personal and community PEB and well-being. FNCs have the potential to fulfill each of these conditions and experiences.

Sense of community is a central tenant of community psychology and has been defined as a feeling that members have of belonging and that members matter to one another and to the group as well as a shared belief that members' needs will be met through their commitment to be together (McMillan & Chavis, 1986). Sense of community has wide resonance and significance because of its influence on social attachment among individuals, social engagement and community participation, and impacts on mental and physical health. Sense of community also provides an important framework for understanding related concepts such as social networks and social capital. This study found that as a result of their FNC involvement 87% of the participants and leaders reported getting to know new people and families and 83% reported developing a sense of social community. In study interviews, a sense of community was one of the most passionately described effects of participation in more well-established FNCs.

Behavior settings are "customary patterns of behavior in designated places where people gather to engage in particular activities at particular times. These settings are constituted by the

coordinated actions of the people there, as well as the affordances of the place that support these actions" (Barker, as cited by Chawla, 2007, p. 152). Each behavior setting informs the roles specific people take, whether it is a relatively passive role as a recipient of an experience or, more optimally for learning, as an "active functionary" who has the ability to influence some part of the setting or experience and act upon observed consequences (Barker, 1968). As noted by Barker and explained by Chawla (2007, p.152), some of the "best predictors of people's actions include the behavior settings that they occupy, for people quickly learn the programs for different settings and take up appropriate roles". For example, in a FNC, participants may quickly understand that families are expected to actively explore nature together, be responsible for their own children while also working together to watch out for the group, engage one another, and leave each place better than it was found (e.g., picking up litter). This study found that 94% of the FNC participants and leaders reported that their children enjoyed the opportunity for free play in nature with other children at club events. This suggests that as a behavior setting, one of the important attributes of FNCs is that they foster the opportunity for children to freely play in nature together, which in turn creates an opportunity for exploration of affordances and social learning amongst peers.

Experiential environmental education programs create a learning community that is of particular relevance when considering the development of PEB. FNCs offer a form of experiential outdoor environmental education, often informally, but sometimes with greater intention and structure. There are several consistent characteristics of environmental education programs that are most likely to effectively promote PEB: extended duration in or repeated exposure to nature; direct, experiential learning that connects to real, local issues; involvement in projects; the use of familiar and easily accessible sites; sensory experiences that make interaction

with nature more real and memorable; relationships with peers and adults; novelty of

experiences; freedom to choose activities; and opportunities learn and practice the skills needed

for PEB (Chawla & Derr, 2012; James & Bixler, 2008; Stern et al, 2008; Wells & Lekies, 2012;

Zint, 2012). With ongoing participation, FNCs have the potential to offer all of these

experiences--families participate in hands-on activities, visit familiar natural settings over

multiple time-periods, learn and discover new aspects of the natural world, work with others, and

have opportunities to make genuine contributions. This study found that as a result of FNC

involvement, 92% of the FNC participants and leaders reported that they had learned about the

natural world and 81% reported an increase in household environmental awareness and behavior.

Community engagement and efficacy is fostered by the sense of community that can

come, in part, from participating in an organization, club, program or other community group.

For example, a sense of community has been found to be a significant catalyst for community

participation, increasing both individual and collective action (Prezza et al., 2001). This study

found that across all of the nature experience, relationship, and behavior variables for which data

was gathered, FNC leaders, the people who dedicate their time, energy and resources to offering

a family nature club to their community, consistently had the most significant positive responses.

This pattern suggests that FNC leaders have a sense of self-efficacy that fosters their willingness

and ability to engage in a leadership role with their community and that, in turn, this role has

numerous positive effects for the FNC leader, their family (if applicable), and their community.

Mental and physical health is directly and intricately tied to our interactions with others

and the health of our communities. At the community level, the ability of meaningful social

contact and positive social cohesion to mediate and moderate socioeconomic disadvantage and

associated health problems have been well documented (Browning & Cagney, 2003). Social

epidemiologists have also demonstrated how community connections, belonging, networks, cohesion, and social capital play a significant role in mental and physical health outcomes. As noted in the mental and physical health portion of the "nature" section, this study found that, as a result of their FNC involvement, 95% of the FNC participants and leaders reported experiencing an enhanced sense of well-being and 67% reported having experiences that fostered their sense of connection to something bigger. These two reported experiences could be attributed to time spent in nature, increased family connection, or a greater sense of community, most likely they can be attributed to a combination of many of the positive experiences of FNC participation.

Overall, this study found that FNC participation has a significant positive overall effect on the external relationships of participating families, especially with regards to developing friendships with other families and a sense of connection with community.

Social movements. Given that environmental crises, such as climate change, and the divide between people and the natural world are growing environmental and social problems, there is an urgency to scale up existing individual, familial, and community-level efforts to address these issues. Social movements can be broadly understood as collective action by people with a common purpose and solidarity in creating social change. One element of the sustainability social movement is the effort to help people reconnect with the natural world, both for the well-being of people and because experience in nature is a direct path to PEB. As a leader in this movement, C&NN promotes FNCs as a form of self-replicating social change. FNCs play an important role in the sustainability social movement in four ways. First, FNCs offer all three of the life experiences shown to foster long-term PEB, for both children and adults. Second, this study has shown FNCs to create the conditions for numerous individual, familial, community and environmental benefits, all of which foster sustainability. For example, the majority of FNC

participants report that they have taken social action, such as signing a petition, buying or

boycotting particular products, and other behavior change, out of concern for a social or

environmental cause of interest. Third, the social networks created through FNC participation

play a crucial role in the process of individual participation in social movements (Klandermans,

1997). Fourth, FNCs can be created in and be made accessible to any community with minimal

cost for leaders and participants. The findings of this study on the frameworks for FNC design

and motivations for and barriers to FNC participation are intended to help make this vehicle for

social change more readily replicable. The following statement by Chawla & Derr (2012, p. 528)

sums up the powerful potential for FNCs to foster a successful sustainability social movement:

>Just as positive experience in nature feed a motivation to protect the natural world,
>
>satisfying experiences in the course of taking action fuel engagement. People are drawn
>
>to act because they come to care for intrinsic qualities of nature, particular places, or the
>
>well-being of people who are affected by the environment because they internalize social
>
>norms of environmental responsibility, and because they develop an identity of
>
>connection to nature.

5.2.2 - Practical applications

Parents, educators, environmental organizations, family-services providers, land owners,

local governments, community planners, health-care professionals and others interested in

individual, familial, community, and environmental well-being should take note of the findings

of this study. FNCs are a low cost, high impact way for individuals or organizations to foster

significant positive outcomes. The range of design options for FNCs makes them flexible enough

fit essentially any context and this research suggests that every community would benefit from

having a FNC. Appendix K offers a FNC development guidebook based on this research.

5.3 - Limitations of the Study

In their 2012 literature review, *Children and Nature: Following the trail to environmental attitudes and behavior,* Wells and Lekies called for future research to include practitioner-researcher partnerships that increase methodological rigor by employing practices such as measurement before and after program participation and use of a comparison group that does not take part in the program. In *The Development of Conservation Behaviors in Childhood and Youth*, Chawla & Derr (2012) called for research to be guided by a theoretical framework and to include a concurrent mix of quantitative and qualitative methods, especially case studies and observational methods, which can help to validate the common reliance on self-reported data. Chawla & Derr (2012) also referenced a literature review by Zint (2012) that emphasizes the importance of using measurement tools that are established and reliable, controlling for experimenter expectancy by having a neutral person conduct analyses, and documenting how programs are implemented. This study was designed with these recommendations in mind, using: a theoretical framework (ecological psychology, attachment theory/family systems theory, and community psychology); both quantitative (pre- and post-surveys leveraging existing measures) and qualitative (interviews and direct observation) methods with a variety of participant groups (including a comparison group); third party analysis for interviews and select quantitative data; and an in-depth case study of a FNC that included implementation documentation. However, as with all studies, there are limitations that should be recognized when considering these results. Of particular note are the self-selection of participants, the potential for reporting biases, and short time-frame between the pre- and post-survey responses.

5.3.1 - Self-selection of participants

Across all study groups, the participants in this research self-selected their involvement. Of the 151 FNC leaders that were invited to participate in the study, 52 (34%) decided to complete the leader survey. The FNC leaders were asked to invite their participants to complete a study survey as well, which garnered 170 responses. Of the 133 families that attended at least one CFIN event in 2014, 81 (61%) completed the pre-survey. Out of the population of people who expressed interest in participating in a CFIN event but never showed up, 45 comparison group surveys were completed. In total 348 adults volunteered to participate in this research – a population that was predominantly female (90%), Caucasian (82%), married (92%) parents in their upper 30s to lower 40s, that are highly educated (41% had a college degree and another 43% had a graduate degree), and affluent with at least 29% making more than $50,000 per year and at least another 31% making more than $100,000 per year. In each of these categories, the study population is not representative of the overall adult U.S. population. Additionally, studies have shown that people who are female, Caucasian, and have received more formal education generally report higher levels of environmental awareness and sense of connection with nature (Fisher et al., 2012; Roberts, 1996). This limits the generalizability of these results to other populations that may participate in FNCs. However, for populations that have fewer socio and economic advantages, the effects of FNC participation could feasibly be greater than for the population captured in this study.

5.3.2 - Reporting Biases

Self-report survey and interview methods bring the potential for participant responses that are not completely accurate. Such response biases can have a notable effect on the validity of research data and can be caused by a number of factors, such as the phrasing of survey

questions, the demeanor of the researcher, or the desires of the participant to be a good

experimental subject and to provide socially desirable responses (Podsakoff et al., 2003). While

the potential for reporting bias could not be eradicated in the online surveys, efforts were made

in their design to minimize the likelihood of this issue, including the option of anonymity and

carefully phrased questions and response options. To the extent that reporting biases may have

been an issue in this research, social desirability bias is likely to have been most relevant for the

personal questions related to family cohesion and satisfaction and for the CFIN population given

their direct contact with the researcher. However, the 29 pairs of CFIN pre and post-survey

responses suggest a high level of response reliability. The interviews were based on the most

significant change (MSC) approach, which purposely solicits success stories in order to identify

what programs, such as FNCs, can achieve at their best and foster such positive outcomes.

5.3.3 - Duration

As Chawla & Derr (2012) noted, ideally researchers would be able to observe study

participant's behavior over long periods of time. However, this type of longitudinal tracking is

onerous and therefore it is rarely achieved. In this study, for the broader FNC population people

were asked to report on their environmental behaviors as well as other behaviors, experiences,

and attributes of interest in a one time-survey. This portion of the study did not include a

mechanism for long-term follow-up. For the CFIN case study, direct observation was conducted

during outings (which did not allow observation of at home behaviors) and a pre-post survey

structure was used to assess the effect of FNC participation. Parents were invited to complete the

post-survey after attending six outings, which was the time equivalent of approximately twelve

hours of family time in nature spread out over the course of six to nine months. This was the

same threshold for being invited to participate in an interview. CFIN has continued past the end

of the formal study period for the purposes of this dissertation. Therefore, it may be viable to

engage participants after a more substantial duration of participation and time to develop a more

robust understanding of how cumulative and lasting the effects of FNC participation may be.

5.4 - Recommendations for Future Research

This study touched on many areas of inquiry, including, but not limited to, environmental

behavior, connectedness with nature, significant life experiences, family functioning, community

building, social action, environmental education, self-efficacy, and social movements. Future

research could build on the specific findings of this study in any of these areas. This section

focuses on three broad recommendations for future research that retain the original study focus

on understanding the potential for FNCs and the effects of FNC participation: additional research

designs, the inclusion of children's voices; and additional insights into diversity and growth.

5.4.1 - Research Design

As discussed in the limitations section above, longitudinal studies offer important insights

into the sustained effects of programs such as FNCs, particularly with regards to an intended

outcome of developing PEB in participating households. Continuation of the CFIN case study

offers a prime opportunity to gather this data over the course of months and, potentially, years.

Additionally, as new FNCs are launched there is an opportunity to capture initial data from

participating families as was done with CFIN and then to issue a post-survey at designated

experience thresholds or time parameters. Having the opportunity to compare data across several,

optimally diverse, FNC case studies in which this type of data was collected would offer great

depth and, potentially, validity to the results of this research. Additionally, further developing the

comparison group used in the CFIN case study and/or creating a distinct comparison group to set

up a more experimental research design would offer a new layer of data that could better

illuminate the causal relationship between many of the effects of FNC participation that were

found in this research. Another approach would be to issue immediate pre and post surveys

before and after CFIN or other FNC activities that were designed to explore specific effects such

as environmental awareness (e.g., tree planting), connectedness with nature (e.g., swimming in a

river), or family cohesion (e.g., working together in family teams to complete scavenger hunts).

5.4.2 - Children's Voices

While this research incorporated the experiences of children through direct observation

and inquiry about children's experiences in questions to their parents and/or primary caregivers,

it would be beneficial to conduct additional research that specifically and directly seeks to

capture the experience of the children participating in FNCs – in their own 'voice'. Researchers

seeking methods that elicit the voices of youthful participants often turn to visual approaches,

especially drawing, which offer a different way of revealing experiences and perspectives while

at the same time democratically involving children as 'producers of knowledge' (Elden, 2012).

Drawing methods are often very successful because producing or engaging with images is often

part of children's everyday lives, and is experienced as fun while allowing the complexities of

children's narratives on research topics relevant to their lives to emerge (Elden, 2012). Drawing

techniques from the fields of conservation and sociology could be adapted to address questions

related to the effects of FNC participation. For example, to assess a child's awareness of and

connection with nearby nature, they could be asked to make a picture of their backyard—a task

that could be done before and after a specified number of FNC events. Alternatively, to assess a

child's perception of family relationships, the 'concentric circle technique' could be used, in

which the child draws her/himself in the inner circle, and then draws the people who take care of

and are important to them in the surrounding circles (Mason & Tipper, 2008). For quantitative

inquiry, the connection to nature index is a promising tool for measuring children's affective attitudes toward nature and predicting their interest in participating in nature-based activities and performing environmentally friendly practices in the future (Cheng & Monroe, 2012). This tool is best suited for children aged eight to ten years old and would provide the greatest insight in the context of a longitudinal study designed to explore how FNC participation effects children's sense of connection with nature, how this connection changes over time, and how it influences long-term interest in PEB.

5.4.3 - Diversity and Growth

The CFIN case study had the greatest ethnic/racial diversity of the participant population for this research. Columbia is a diverse community and engaging the full diversity of the community was intentional to the design of this FNC. However, as previously discussed, the overall study population was disproportionately Caucasian, affluent, educated, women when compared to the US population. Further research on FNCs that specifically focuses on increasing the diversity of the perspectives captured would add additional insight into what motivates and prohibits people's participation and what the effects are of FNC participation. This could come in the form of specifically soliciting participation from families of diverse background as well as fathers in addition to mothers, when applicable. If the demographics of this study are representative of the demographics of FNCs overall, then there is much progress to be made in having a more diverse participant base. Research on the barriers to participation for different groups would be very beneficial in helping to successfully engage more diverse audiences in FNC participation. Additionally, different FNC leadership and design frameworks have been identified in this study, as have challenges for FNC leaders. Further inquiry into how to help more people start and sustain FNCs in their communities is warranted.

5.5 - Conclusion

Richard Louv has said *"What if more and more parents, grandparents and kids around the country band together to create family nature clubs? What if this approach becomes the norm in every community?"* This study helps to answer this question, finding that FNCs bring the following benefits to the people and communities that they serve:

- **FNC participation fosters learning opportunities; nature, family and social connections; meaningful experiences; enhanced well-being; and reduced barriers to time in nature.** More than twenty distinct positive outcomes have been identified for FNC leaders and participants including: learning about places to go in nature (97%); an enhanced sense of emotional well-being (95%); quality family time (94%); fun, memorable, playful experiences (94%); learning about, connecting with (92%), and spending more time in nature (90%).

- **The three youth nature experiences associated with FNC participation (time in nature, in the presence of close role models for nature appreciation, and participation in an organization that offers direct learning opportunities) have a long-lasting effect on connection with nature and PEB.** Statistically significant relationships were found between the youth nature experiences of the adult participants and their current sense of connection to nature ($p < 0.001$) and level of environmental action ($p = 0.03$).

- **FNC participants spend significantly more time in nature than the U.S. average** of less than an hour playing outside each week--approximately 80% of FNC participants in this study spent two or more hours of family time in nature a week and approximately 35% spent five or more hour hours of family time in nature a week (in addition time with their FNC).

- **Family time spent in nature was found to be significantly related to connection with nature** ($p = 0.007$), environmental action ($p = 0.021$), and social action ($p = 0.027$) and is also positively related to family satisfaction.

- **FNC participation has a very significant positive overall effect on parental family life satisfaction**, particularly in the areas of spending time together, sharing positive experiences, and a sense of parental efficacy.

- **FNC participation has a very significant positive overall effect on the external relationships of participating families**, especially with regards to developing friendships with other families and a sense of connection with community.

- **FNC participation has a very significant positive effect on sense of connection with nature both for the parent and for the family as a whole**, with greater degrees of significance associated with greater FNC engagement.

- **FNC participants report significantly more PEB than the non-participant comparison group**, with FNC leaders having the highest reported levels of household PEB.

- **The majority of FNC participants report that they have taken social action**, such as signing a petition, buying or boycotting particular products, and other behavior change, out of concern for a cause of personal interest.

- **Across all of the nature experience, relationship, and behavior variables for which data was gathered in this study, FNC leaders consistently had the most significant positive responses**. FNC participants consistently followed the leaders and the CFIN non-participant comparison group almost always had the least positive responses of all the study groups. This pattern suggests that increased involvement in a FNC fosters cascading positive effects.

In addition to identifying these positive effects of FNCs, the results of this study include pragmatic information that can be used by leaders in the movement to reconnect people and nature, including:

- Development of a framework for strategically and flexibly designing FNCs to meet the needs and goals of unique community contexts, including a guidebook to launching a new FNC (see Appendix K).

- Identification of the primary motivations for people to lead and participate in FNCs—fun, the well-being of children, and learning about nature are primary themes. FNCs offer a unique opportunity for entire families to enjoy reoccurring experiences together with other families.

- Identification of familial, demographic, and club level barriers to FNC participation and growth—families are time constrained, FNCs are predominantly enjoyed by educated, affluent, Caucasian families, and many FNC leaders would benefit from having additional support from an organization that can facilitate some of the logistical demands of FNCs.

Having just passed CFIN's one year anniversary, I continue to be deeply inspired and motivated by the powerful potential of bringing families together in nature. By creating conditions for people to learn to care for the environment, FNCs also offer important opportunities for families to connect with one another as well as their social and ecological communities. During our first CFIN outing I watched children and adults gather together around the stumps of trees chewed down by beavers to get a closer look at the tooth marks. The simple joy that came from sharing in this discovery was contagious. In ways both planned and unplanned, such experiences have been a part of every outing—sometimes it is a toad that crosses our path, other times it is the discovery of a log that bounces when a group of kids jump on it or the first taste of ripe wild raspberries. Each time the smiles on the faces of the children and adults alike suggest that the bonds of connection and caring are growing—between family members and between the families and the natural world. I am filled with confident hope that such experiences, replicated and expanded over time, will bring participants closer to each other and motivate their sustained care for the natural world. My observations as a FNC leader, participant and researcher suggest that this just may happen.

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APPENDIX

Appendix A: CFIN Outing Registrant Preparation Email Example

Hi Everyone!

Thank you for signing your family up to be a part of this Sunday's Columbia Families in Nature outing to the Rachel Carson Conservation Park. The following are details about this event intended to help you make the most of it.

Who/When/Where: Twenty families have signed up to be a part of this outing, which will be held from 2:00 to about 4:00pm at the Rachel Carson Conservation Park (**22201 Zion Road, Brookeville MD**). This park is about 25 minutes from downtown Columbia and we are planning a full hike for this event, so please plan to arrive by 2pm. Please see the image below (removed) for guidance to the parking area - we will gather at the park kiosk next to the parking lot.

What: Rachel Carson Conservation Park is comprised of 650 acres in a beautiful rural part of Montgomery County. Jennifer Chambers, author of Best Hikes with Kids: Washington DC, The Beltway & Beyond, will lead us on a moderate ~3 mile loop hike through an mature forest and meadow and along the Hawlings River--this is one of the hikes featured in the book. The Park is densely populated by numerous species of wildlife, high quality forest and features spectacular rock out-cropping throughout the park. As we hike we will play some games about forest ecosystems and make observations of nature's preparation for winter. The trails on this hike are not stroller friendly, so if you have children that are not likely to be able to complete the full hike on their own, please consider bringing some sort of carrier for them. Copies "Best Hikes with Kids" will be available for purchase and signature.

Coming Prepared: Sunday is going to be chilly, with a high in the mid 40s. Please make sure your family is dressed in warm layers that include a winter coat, hat, gloves, etc. If you have long underwear, now would be a good time to break them out :-). Please be sure you have ample water and snacks for your family on this hike. Water and restrooms are NOT available at the park, so please plan accordingly. Sneakers or hiking boots are a must and it would be nice treat to pack a warm beverage in a thermos.

Notes for first time participants: Please check in at the Columbia Families in Nature sign. Parents will be responsible for their children during the entire outing and will be supported in finding age appropriate opportunities to engage them in the activities and area. There is a frequently asked questions page and coming prepared page on our website that I recommend taking a quick look at.

Please let me know if you have any questions. If you know you won't be making it or have any questions the day of **please** email me or call my cell phone. I look forward to seeing familiar faces, meeting new families and having a lot of fun exploring together!
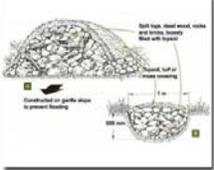
Best regards,

Chiara

Appendix B: CFIN Outing Scavenger Hunt

Columbia Families in Nature Bingo – Find...

something in every color[1] of the rainbow to collect in your bag

A groundhog[2] burrow	Someone who lives in the same town (or Columbia village)	The remains of a deer	Someone who has been to at least three CFIN outings	A snake hiburnaculum[3]
At least three kinds of flowers[4]	Milkweed[5] seed pod. Bring one home to plant the seeds	Praying mantis egg case[6]	Red berries. What is the ONE kind you can eat?[7]	A nut or seed. Do you know what it is?[8]
BIRDS! Who do you see?[9]	The purple martin apartment[10]	The bird blind by the pond. What do you see?	Bird boxes. Who are they for?[11]	A bird's nest. Whose was it?[12]
Mullein[13]	Something soft or smooth	Bat houses[14]	Something rough, bumpy or pointy	Dogbane[15]
Someone with the same # of kids in their family	Horsenettle[16]	A hornet's nest[17]	Pokeweed berries[18]	Someone with a birthday in October

Numbered field notes and fun facts!

1. **Colors** - There is a light blue colored berry out right now on the mile-a-minute vine, which is a highly invasive plant – it can grow up to six inches in a day! Watch out for the tiny thorns on the plant!

2. The **groundhog** (aka woodchuck, whistle-pig, or land-beaver**)** is a rodent that belongs to the group of large ground squirrels known as marmots. Groundhogs are excellent burrowers, using burrows for sleeping, rearing young, and hibernating. The average groundhog has been estimated to move 5,500 lb of soil when digging a burrow. Their burrows usually have two to five entrances, providing groundhogs their primary means of escape from predators.

3. A **hiburnaculum** is a shelter used by various kinds of animals (often for hibernation) such as bears, bats, marmots, and snakes. There is a snake hiburnaculum by the gatehouse on this property. Common snakes here include the black ratsnake, gartersnake, and ring-neck snake.

4. **Flowers** you may spot include: thistle (purple), Queen Anne's lace (white), smartweed (pink), aster (white), and goldenrod (yellow).

5. **Milkweed** is the only food source of the monarch butterfly, which is in serious decline due to a decrease in milkweed along its migration route between the US and Mexico. Planting milkweed seeds in your yard or nearby park helps!!

6. The **praying mantis** is a beneficial predatory insect. The only insect that can turn its head and look over its shoulder, mantis lie in wait for their food and when close enough, snap it up with their strong forelegs. Mantis have huge appetites, eating various aphids, mosquitoes, caterpillars and other soft-bodied insects. In autumn the female will lay her eggs before she dies with the frost. She often deposits them on a branch or twig, but also leaves them on walls, fences and eaves. Each egg case is about the size of a dime and contains approximately 200 baby mantis.

7. **Red berries** - There are many kinds of red (and other colored) berries along this walk. It is fun to learn about what wild foods we can eat, but very important to ONLY eat things you are 100% sure of. The autumn olive berry is the only berry on this walk that you can pick from the tree and eat (it has freckles all over its skin), but there are plants/berries that look similar, such as bush honeysuckle. If you are going to forage, make sure you know the difference between plants that your kid know to only eat wild things that you have approved.

8. **Nuts and seeds** – Look for lots of walnuts on the ground (big green/yellow balls) and plant seeds.

9. **BIRDS!** - You may see red-shouldered hawks and turkey vultures soaring above the property. Also look for blue jays, crows, goldfinches, chickadees, tufted titmice, flickers, and song sparrows.

10. **Purple martins** are the largest North American swallow. These aerial acrobats have speed and agility in flight, and when approaching their housing, will dive from the sky at great speeds with their wings tucked. Purple martins had a severe population crash in the 20th century due to the release and spread of European starlings in the US. Starlings and house sparrows compete with martins for nest cavities. Where purple martins once gathered by the thousands, by the 1980s they had all but disappeared. People are putting up gourd houses to help them rebound.

11. **Bird boxes** – On this Audubon sanctuary there are bird boxes specifically built for bluebird, tree swallows, wood ducks, owls, and kestrels. Many of them have predatory barriers built in.

12. **Bird nests –** even though the bird boxes are made for specific species, quite often the nests found inside belong to other species that aggressively take them over. For example, many of the bluebird boxes have house sparrow or starlings nests inside of them, which are invasive species.

13. **Mullein** (aka velvet plant) is an invasive flowering plant in the figwort family. It is native to Europe and Asia and is frequently used in herbal medicine for respiratory tract, skin, veins, and gastrointestinal tract issues.

14. **Bats** - Maryland has ten species of bats. Some reside in Maryland all year long, and some migrate through in the spring and fall. Some species of bats live in groups called colonies and others live by themselves or in small families. Bats are the only mammals that can fly and are more closely related to people than to mice. They are in serious decline due to white nose syndrome – a fungal infection that kills hibernating bats.

15. **Dogbane** (also known as Indian hemp) is native to North America, is a food source for the larvae of some Lepidoptera species like the mouse moth and Queen butterfly.

16. **Horsenettle** – The yellow globes on this plant look inviting, a bit like cherry tomatoes, but ALL parts of the plant are poisonous due to the presence of solanine - one of the plant's natural defenses. Ingesting the fruit can cause abdominal pain, circulatory and respiratory depression, or even death.

17. **Hornets nest** – No activity has been seen here for a while, but it is always a good idea to stay back from such nests.

18. **Pokeweed** is a large semi-succulent native plant that can grow up to 10 feet high. Parts of this plant are highly toxic to humans, but the purple berries are a good food source for songbirds such as the northern cardinal, brown thrasher, and northern mockingbird and can be used to make a brilliant dye.

Appendix C: CFIN Pre-Survey Invitation

Hi Elizabeth,

It was great to meet you and your family this past Sunday - thank you for being a part of our third Columbia Families in Nature outing! By way of follow-up, I want to share a bit with you about why I started this family nature club and extend an invitation.

I moved to Columbia during elementary school and grew up playing in the woods and streams near my house. College and work took me away from the area for about ten years, and it was great to move back home with my husband in 2008. Our son Bryce was born in 2009 and our daughter Sasha joined the family in 2013. In addition to being a full-time mom, I am working on my PhD in Sustainability Education through a low-residency program. Needless to say, life is very full these days! Getting outside is one of our favorite ways to spend family time together. We often visit the same woods I grew up in and I can't help but notice that there aren't as many other kids playing outside as I recall from my childhood. It turns out that this is a national trend.

Starting Columbia Families in Nature has been a way for me to bring together my personal and academic interests. Columbia Families in Nature is the 187th family nature club to register with the Children & Nature Network--a national organization dedicated to helping connect all children to nature. One of their initiatives is to support people in starting family nature clubs, which gather children, families, friends and community members together to enjoy nature on a regular basis. My PhD research is focused on learning about the effects of family nature clubs on familial, community, and ecological well-being.

You are invited to be a part of this research. However, engaging in my research is <u>completely voluntary</u> and has no bearing on your participation in Columbia Families in Nature outings.

The first phase of my research is a survey designed to be taken before or right after a family participates in their first Columbia Families in Nature outing. The survey will take approximately 20 minutes to complete and all of the information you provide will be absolutely <u>confidential</u> - your name and contact information is not required. The families that complete the survey will receive a thank you gift of a hard-cased, two lens magnifying glass at their first outing.

Taking the first survey also makes your family eligible to take a second survey this fall after you have attended six Columbia Families in Nature outings. All families that complete the second survey will be invited to receive a *free, professional family photo shoot* in nearby nature this fall. You will also be entered into a drawing to win great prizes such as a $100 gift card to Acorn Naturalist.

If you are interested in being a part of this research, I hope you will find 20 minutes this week (I will close the survey on Saturday night) to visitwww.surveymonkey.com/s/CFINpre_survey4-6. The survey questions will be about different aspects of your individual and family life, with sections on outdoor activity, household practices, relationships, and demographics. I know your time is very valuable, as is the information you can share!

Ultimately, the information shared by participants in Columbia Families in Nature will be aggregated with information I will be gathering from participants in the other approximately 190 family nature clubs across the country. I hope to get several hundred survey responses that, together, will help paint a picture of the families participating in nature clubs and the effects of their participation on family, community, and ecological connections and well-being. I believe that this research is important for both families and the natural world and hope you will be a part of it! If you choose to take the survey and have any questions before or after, please don't hesitate to contact me.

Thank you very much for taking the time to read this email and consider this invitation!

Warm regards,

Chiara

Appendix D: Columbia Families in Nature Pre-survey PDF

Columbia Families In Nature_Initial Survey

Introduction, Instructions, and Informed Consent

*1. Thank you very much for taking this survey! Its purpose is to gather information about some of the characteristics and experiences of people who have an interest in participating in family nature clubs, such as Columbia Families in Nature. The survey should only be completed by adults participating in Columbia Families in Nature outings with one or more children they are responsible, in full or in part, for raising. The survey questions will be about different aspects of your individual and family life, with sections on outdoor activity, household practices, relationships, and demographics.

There are 22 primary questions in this survey - some of which have sub-questions. It should take approximately 20 minutes to complete all of the questions. If you cannot complete the survey at one time you can close it and come back to it later on the same computer - you will be brought back to where you left off. If you have any issues progressing through the survey, please make sure you have fully completed each question.

Please do your best to provide accurate responses to the questions without taking too much time to get it just right. Your responses should be based on your own perspective, you don't need to try to guess how your family members might respond. Additionally, if you have more than one child and some of them are not participating in this or other activities asked about in the survey, that is ok! Questions should be answered based on the family members that are involved in a given activity.

We know that your time is very valuable - the information you share is also very valuable! In appreciation, everyone who completes this survey will receive a gift of a high powered, hard-cased pocket magnifying glass that their family can use during their explorations of nature. Please pick up this gift at your next Columbia Families in Nature outing! Additionally, completion of this survey and participation in six outings makes you eligible to participate in a follow-up survey this fall. People who complete the follow-up survey will receive a free professional family photo shoot and be entered into a raffle to win additional prizes.

Your participation in this survey is **COMPLETELY VOLUNTARY.** Your responses are confidential and your name and contact information are not required. Reports of the results of this survey will not include any personally identifying information. If you have any questions about this survey, please contact Chiara D'Amore at

Columbia Families In Nature_Initial Survey

chiara@columbiafamiliesinnature.org.

Please confirm your agreement to participate in this survey by selecting yes or no below.

○ Yes

○ No

Family Nature Club Information

*2. What is your relationship to the child(ren) you are planning to bring to CFIN outings?

○ Mom

○ Dad

○ Guardian

○ Grandparent

○ Other (please specify below)

If you selected "other" please provide additional details here.

> [text field]

*3. What are the ages and genders of the children that you are planning to bring to CFIN outings?

	Age	Gender
Child #1	[▼]	[▼]
Child #2	[▼]	[▼]
Child #3	[▼]	[▼]
Child #4	[▼]	[▼]
Child #5	[▼]	[▼]
Child #6	[▼]	[▼]

If there is anything else you would like to share about your children (multiples, step-children, adoptions, etc.) please feel free to do so. Also, if you are planning to participate in CFIN with more than six children that you are raising, please provide the requested information on the additional children here.

> [text field]

Columbia Families In Nature_Initial Survey

*4. Please indicate whether the following experiences were part of YOUR OWN childhood.

	Strongly agree	Generally agree	Neutral	Generally disagree	Strongly disagree
Playing outside in nature was an important part of my childhood.	○	○	○	○	○
As a child there was at least one adult (i.e. parent, grandparent, teacher, etc.) that spent time with me outside and helped teach me an appreciation for nature.	○	○	○	○	○
During my childhood, I participated in an organization that had a nature and/or environmental focus (i.e. Scouts, camps, school clubs).	○	○	○	○	○

If you would like to provide any additional information, please do so here.

Outdoor Activity Information

*5. About how often has your FAMILY done the following activities in the past year?

	Never	One time	A few times	Often	Very often
Take a walk outside	○	○	○	○	○
Visit a park or outdoor recreation area	○	○	○	○	○
Play outside (e.g. fly a kite, build forts, play games)	○	○	○	○	○
Relax in natural area (e.g. forest, field, edge of lake)	○	○	○	○	○
Watch nature (e.g. animals, the sky, wind in trees)	○	○	○	○	○
Wade, swim, or boat in a natural water body (e.g. stream, pond, ocean)	○	○	○	○	○
Take care of a garden	○	○	○	○	○
Do outdoor house work (e.g. mow, rake leaves, landscaping)	○	○	○	○	○
Exercise or play sports outdoors (e.g. running, biking, team sports)	○	○	○	○	○

If you would like to provide any additional information, please do so here.

Columbia Families In Nature_Initial Survey

✱6. About how much time does your FAMILY spend together in nature in an average WEEK, weather permitting.

	Frequency	Total Time
Family time in nature	[▾]	[▾]

If you selected "other" or would like to provide any additional information, please provide that information here.

[   ]

7. If you have kids that are old enough to play outdoors independently, about how much time do THEY spend in nature in an average WEEK, weather permitting. This time should be separate from any family time you included above. If this is not applicable to you, please skip this question.

	Frequency	Total Time
Kid time in nature	[▾]	[▾]

If you selected "other" or would like to provide any additional information, please provide that information here.

[   ]

Household Practices Information

These questions ask about your family's practices in areas such as leisure, environment, and community/social involvement. Please respond as accurately as you can. There are no right or wrong answers. Thank you!

Columbia Families In Nature_Initial Survey

✳ 8. This question is about activities your family may do together. The examples just provide ideas of what may be included in a category. Please think about the past year when responding to the frequency part of the question. For the satisfaction part of the question, please indicate how satisfied YOU typically are with the experience of family's participation in the activity. For example, indicate whether family meals are satisfying or not to be a part of rather than your satisfaction with the frequency of family meals.

DOES YOUR FAMILY -

	Participation Frequency	Satisfaction
Have meals together (e.g. breakfast, lunch, dinner)	[▼]	[▼]
Participate in home-based indoor activities together (e.g. games, music, hobbies, cooking, reading)	[▼]	[▼]
Participate in home-based outdoor activities together (e.g. gardening, walks, games)	[▼]	[▼]
Participate in outdoor adventure activities together (e.g. hiking, camping, swimming, boating, biking)	[▼]	[▼]
Participate in sporting activities together (e.g. going to the pool, bowling, skating)	[▼]	[▼]
Participate in media-based activities together (e.g. watching TV, video games, movies, computer time)	[▼]	[▼]
Participate in religious/spiritual activities together (e.g. church, worship, meditation)	[▼]	[▼]
Participate in social activities together (e.g. parties, fairs, concerts, visiting local attractions)	[▼]	[▼]
Attend other family members' activities together (e.g. sporting events, performances, Scouts)	[▼]	[▼]

If you would like to provide any additional information, please do so here.

[text box]

Columbia Families In Nature_Initial Survey

*9. The following are a variety of ways that people can take social action. Please indicate YOUR experience with or willingness to take these actions for causes that are of personal interest to you.

	Would not	Not sure	Have not, but may	Over a year ago	In the past year	Frequently
Sign a petition	○	○	○	○	○	○
Deliberately buy or boycott products due to ethical concerns	○	○	○	○	○	○
Attend a related hearing, meeting or rally	○	○	○	○	○	○
Contact a politician, civil servant, and/or media to express your views	○	○	○	○	○	○
Donate time or money or raise funds for a cause of interest	○	○	○	○	○	○
Join an internet group related to a cause of interest	○	○	○	○	○	○
Participate in a voluntary organization related to a cause of interest	○	○	○	○	○	○
Change your behavior in any other way out of concern for a cause of interest	○	○	○	○	○	○

If you wish to provide any additional information please do so here.

Columbia Families In Nature_Initial Survey

*10. The following are a variety of ways that people can take environmental action. How often does your FAMILY take these actions?

	Never	Rarely	Sometimes	Often	Very often	Almost always
Recycle	○	○	○	○	○	○
Turn off lights when not in use	○	○	○	○	○	○
Purchase organic and/or local foods	○	○	○	○	○	○
Switch off electrical appliances when not in use	○	○	○	○	○	○
Set heating and air conditioning levels to save energy	○	○	○	○	○	○
Walk to destinations	○	○	○	○	○	○
Use public transportation	○	○	○	○	○	○
Turn off the tap when brushing teeth	○	○	○	○	○	○
Compost kitchen and/or yard waste	○	○	○	○	○	○
Purchase energy and/or water-saving products	○	○	○	○	○	○
Purchase used and/or recycled products	○	○	○	○	○	○
Purchase/use green products, such as cleaners	○	○	○	○	○	○
Use natural parenting practices	○	○	○	○	○	○

If you would like to provide any additional information, please do so here.

Relationship Information

These questions ask about a variety of your family's relationships - from parent-child to family-community. Please respond as accurately as you can. There are no right or wrong answers. Thank you!

Columbia Families In Nature_Initial Survey

＊11. Please indicate your agreement with the following statements about your family.

	Strongly disagree	Generally disagree	Undecided	Generally agree	Strongly agree
Family members are involved in each others lives.	○	○	○	○	○
Family members feel very close to each other.	○	○	○	○	○
Family members are supportive of each other during difficult times.	○	○	○	○	○
Family members express affection to each other.	○	○	○	○	○
Family members consult other family members on important decisions.	○	○	○	○	○
Family members like to spend some of their free time with each other.	○	○	○	○	○
Although family members have individual interests, they still participant in family activities.	○	○	○	○	○
Our family has a good balance of separateness and closeness.	○	○	○	○	○
Family members discuss their ideas and beliefs with each other.	○	○	○	○	○
Family members express their true feelings to each other.	○	○	○	○	○

If you would like to provide any additional information, please do so here.

Columbia Families In Nature_Initial Survey

*12. How satisfied are YOU with the following elements of your family life?

	Very dissatisfied	Somewhat dissatisfied	Generally satisfied	Very satisfied	Extremely satisfied
The degree of closeness between family members.	○	○	○	○	○
Your family's ability to cope with stress.	○	○	○	○	○
Your family's ability to be flexible.	○	○	○	○	○
Your family's ability to share positive experiences.	○	○	○	○	○
The quality of communication between family members.	○	○	○	○	○
Your family's ability to resolve conflicts.	○	○	○	○	○
The amount of time you spend together as a family.	○	○	○	○	○
The way problems are discussed.	○	○	○	○	○
Family members concern for each other.	○	○	○	○	○
Your ability to be a good role model for your child(ren).	○	○	○	○	○
Your ability to effectively parent your child (ren).	○	○	○	○	○

If you would like to provide any additional information, please do so here.

*13. How would you characterize your family's relationships in the following areas?

	Poor	Below average	Average	Good	Very good
Relationships with extended family	○	○	○	○	○
Friendships with other families	○	○	○	○	○
Children's peer friendships	○	○	○	○	○
Parent's peer friendships	○	○	○	○	○
Family connection with community	○	○	○	○	○
Family connection with natural world	○	○	○	○	○

If you would like to provide any additional information, please do so.

Columbia Families In Nature_Initial Survey

✱14. Please indicate your level of agreement with the following statements.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I often feel a sense of oneness with the natural world around me.	○	○	○	○	○
I think of the natural world as a community to which I belong.	○	○	○	○	○
I often feel a kinship with animals and plants.	○	○	○	○	○
I have a deep understanding of how my actions affect the natural world.	○	○	○	○	○
My personal welfare is dependent on the welfare of the natural world.	○	○	○	○	○

If you would like to provide any additional information, please do so here.

Demographic Information

This is the last section of the survey! It focuses on gathering essential demographic information and the answers should be quick and easy to provide. Thank you!

✱15. What is your gender identification?

[▼]

✱16. What is your birthday?

MM   DD   YYYY

Please provide your full birthday - it will be used to link this survey to the post survey you may be invited to participate in later this year. It is also how you will be able to claim your participation gifts.

[   ] / [   ] / [   ]

✱17. How many children (biological or adopted) do you have?

[▼]

If you would like to provide any additional information, please do so here.

✱18. What is your ethnicity / race?

[▼]

If you would like to provide any additional information, please do so here.

Columbia Families In Nature_Initial Survey

*19. What is the highest level of formal education that you have completed?

[▾]

If you would like to provide any additional information, please do so here.

[   ]

*20. What is your relationship status? Please select the choice that most directly applies.

[▾]

If you would like to provide any additional information, please do so here.

[   ]

*21. What was your pre-tax HOUSEHOLD income last year?

[▾]

If you would like to provide any additional information, please do so here.

[   ]

*22. Which of the following describes your familial, economic, or personal engagements and/or responsibilities? You can select that all that apply.

- [ ] Homemaker
- [ ] Degree seeking student
- [ ] Employed part time
- [ ] Employed full-time
- [ ] Self-employed
- [ ] Active armed services / veteran
- [ ] Not employed, looking for work
- [ ] Not employed, NOT looking for work
- [ ] Retired
- [ ] Full or part time care giver for a family member in special need
- [ ] Volunteering / community service
- [ ] Disabled, not able to work

If you would like to provide any additional information, please do so here.

[   ]

Conclusion

Columbia Families in Nature_Initial Survey

23. Do you have any other thoughts about your family and/or your interest in participating in Columbia Families in Nature that you would like to share?

24. If you are willing to be contacted with follow-up questions please provide your name and email address. This is completely optional. This information will not be shared and no personally identifying information will be included with any reporting of the results of this survey.

Name:

Email Address:

Appendix E: Columbia Families in Nature Post-Survey PDF

Columbia Families in Nature_Post Survey

Introduction, Instructions, and Informed Consent

*1. Thank you for being such an active participant in Columbia Families in Nature (CFIN)! You have been invited to complete this "post survey" because you previously completed the "pre survey" and your family has attended at least six outings since this family nature club began.

As a reminder, the purpose of these surveys is to learn about the potential effects of participation in family nature clubs. There are 18 primary questions in this survey - some of which have sub-questions. Most of the questions are the same ones you responded to in the initial survey regarding different aspects of your individual and family life, with sections on your participation in CFIN, overall outdoor activity, household practices, and family relationships.

Please do your best to provide accurate responses to the questions without taking too much time to get it just right. Your responses should be based on your own perspective, you don't need to try to guess how your family members might respond. Additionally, if you have more than one child and some of them are not participating in this or other activities asked about in the survey, that is ok! Questions should be answered based on the family members that are involved in a given activity.

It should take approximately 15-20 minutes to complete the questions. If you cannot complete the survey at one time you can close it and come back to it later on the same computer - you will be brought back to where you left off. If you have any issues progressing through the survey, please make sure you have fully completed each question.

I know that your time is very valuable - the information you share is also very valuable! Completion of this survey by October 1st earns your family a free professional photo shoot and you will also be entered into a raffle to win additional prizes. Once you complete the survey you will be sent an email to schedule your photo shoot on one of two dates in October.

Your participation in this survey is **COMPLETELY VOLUNTARY**. Your responses are confidential and your name and contact information are not required. Reports of the results of this survey will not include any personally identifying information. If you have any questions about this survey, please contact me at

Columbia Families in Nature_Post Survey

chiara@columbiafamiliesinnature.org.

Thank you!

Chiara

Please confirm your agreement to participate in this survey by selecting yes or no below.

- ◯ Yes
- ◯ No

2. What are the major factors that led you to JOIN Columbia Families in Nature? You can choose all that apply.

- ☐ The health and well being of my child(ren)
- ☐ To learn about places to take my child(ren) in nature
- ☐ To meet new families
- ☐ To have fun
- ☐ The security of going out in nature with other people
- ☐ To get quality time with my child(ren)
- ☐ To learn about nature
- ☐ For motivation to stay active as a family
- ☐ Other (describe below)

Other (please specify)

Columbia Families in Nature_Post Survey

3. What are the major factors that have led you to KEEP PARTICIPATING in Columbia Families in Nature? You can choose all that apply.

- ☐ The health and well being of my child(ren)
- ☐ Learning about places to take my child(ren) in nature
- ☐ Meeting new families
- ☐ Having fun
- ☐ The security of going out in nature with other people
- ☐ Getting quality time with my child(ren)
- ☐ Learning about nature
- ☐ Motivation to stay active as a family
- ☐ Other (describe below)

Other (please specify)

[text box]

*4. What has been particularly meaningful for you and your family with regards to your participation in Columbia Families in Nature.

[text box]

5. To what extent have you experienced the following as a result of your participation in CFIN?

	Yes	Somewhat	Neutral	Not really	No
A greater sense of connection with your family	○	○	○	○	○
The opportunity to learn something new	○	○	○	○	○
An enhanced sense of connection with nature	○	○	○	○	○
The opportunity to get to know new people	○	○	○	○	○

Other (please specify)

[text box]

Page 3

Columbia Families in Nature_Post Survey

Outdoor Activity Information

*6. About how often has your FAMILY done the following activities in the past year?

	Never	One time	A few times	Often	Very often
Take a walk outside	○	○	○	○	○
Visit a park or outdoor recreation area	○	○	○	○	○
Play outside (e.g. fly a kite, build forts, play games)	○	○	○	○	○
Relax in natural area (e.g. forest, field, edge of lake)	○	○	○	○	○
Watch nature (e.g. animals, the sky, wind in trees)	○	○	○	○	○
Wade, swim, or boat in a natural water body (e.g. stream, pond, ocean)	○	○	○	○	○
Take care of a garden	○	○	○	○	○
Do outdoor house work (e.g. mow, rake leaves, landscaping)	○	○	○	○	○
Exercise or play sports outdoors (e.g. running, biking, team sports)	○	○	○	○	○

If you would like to provide any additional information, please do so here.

*7. About how much time does your FAMILY spend together in nature in an average WEEK, weather permitting.

	Frequency	Total Time
Family time in nature	[▼]	[▼]

If you selected "other" or would like to provide any additional information, please provide that information here.

8. If you have kids that are old enough to play outdoors independently, about how much time do THEY spend in nature in an average WEEK, weather permitting. This time should be separate from any family time you included above. If this is not applicable to you, please skip this question.

	Frequency	Total Time
Kid time in nature	[▼]	[▼]

If you selected "other" or would like to provide any additional information, please provide that information here.

Columbia Families in Nature_Post Survey

Household Practices Information

These questions ask about your family's practices in areas such as leisure, environment, and community/social involvement. Please respond as accurately as you can. There are no right or wrong answers. Thank you!

*9. This question is about activities your family may do together. The examples just provide ideas of what may be included in a category. Please think about the past year when responding to the frequency part of the question. For the satisfaction part of the question, please indicate how satisfied YOU typically are with the experience of family's participation in the activity. For example, indicate whether family meals are satisfying or not to be a part of rather than your satisfaction with the frequency of family meals.

DOES YOUR FAMILY -

	Participation Frequency	Satisfaction
Have meals together (e.g. breakfast, lunch, dinner)	▼	▼
Participate in home-based indoor activities together (e.g. games, music, hobbies, cooking, reading)	▼	▼
Participate in home-based outdoor activities together (e.g. gardening, walks, games)	▼	▼
Participate in outdoor adventure activities together (e.g. hiking, camping, swimming, boating, biking)	▼	▼
Participate in sporting activities together (e.g. going to the pool, bowling, skating)	▼	▼
Participate in media-based activities together (e.g. watching TV, video games, movies, computer time)	▼	▼
Participate in religious/spiritual activities together (e.g. church, worship, meditation)	▼	▼
Participate in social activities together (e.g. parties, fairs, concerts, visiting local attractions)	▼	▼
Attend other family members' activities together (e.g. sporting events, performances, Scouts)	▼	▼

If you would like to provide any additional information, please do so here.

Columbia Families in Nature_Post Survey

*10. The following are a variety of ways that people can take social action. Please indicate YOUR experience with or willingness to take these actions for causes that are of personal interest to you.

	Would not	Not sure	Have not, but may	Over a year ago	In the past year	Frequently
Sign a petition	○	○	○	○	○	○
Deliberately buy or boycott products due to ethical concerns	○	○	○	○	○	○
Attend a related hearing, meeting or rally	○	○	○	○	○	○
Contact a politician, civil servant, and/or media to express your views	○	○	○	○	○	○
Donate time or money or raise funds for a cause of interest	○	○	○	○	○	○
Join an internet group related to a cause of interest	○	○	○	○	○	○
Participate in a voluntary organization related to a cause of interest	○	○	○	○	○	○
Change your behavior in any other way out of concern for a cause of interest	○	○	○	○	○	○

If you wish to provide any additional information please do so here.

Columbia Families in Nature_Post Survey

*11. The following are a variety of ways that people can take environmental action. How often does your FAMILY take these actions?

	Never	Rarely	Sometimes	Often	Very often	Almost always
Recycle	○	○	○	○	○	○
Turn off lights when not in use	○	○	○	○	○	○
Purchase organic and/or local foods	○	○	○	○	○	○
Switch off electrical appliances when not in use	○	○	○	○	○	○
Set heating and air conditioning levels to save energy	○	○	○	○	○	○
Walk to destinations	○	○	○	○	○	○
Use public transportation	○	○	○	○	○	○
Turn off the tap when brushing teeth	○	○	○	○	○	○
Compost kitchen and/or yard waste	○	○	○	○	○	○
Purchase energy and/or water-saving products	○	○	○	○	○	○
Purchase used and/or recycled products	○	○	○	○	○	○
Purchase/use green products, such as cleaners	○	○	○	○	○	○
Use natural parenting practices	○	○	○	○	○	○

If you would like to provide any additional information, please do so here.

Relationship Information

These questions ask about a variety of your family's relationships - from parent-child to family-community. Please respond as accurately as you can. There are no right or wrong answers. Thank you!

Columbia Families in Nature_Post Survey

*12. Please indicate your agreement with the following statements about your family.

	Strongly disagree	Generally disagree	Undecided	Generally agree	Strongly agree
Family members are involved in each others lives.	○	○	○	○	○
Family members feel very close to each other.	○	○	○	○	○
Family members are supportive of each other during difficult times.	○	○	○	○	○
Family members express affection to each other.	○	○	○	○	○
Family members consult other family members on important decisions.	○	○	○	○	○
Family members like to spend some of their free time with each other.	○	○	○	○	○
Although family members have individual interests, they still participant in family activities.	○	○	○	○	○
Our family has a good balance of separateness and closeness.	○	○	○	○	○
Family members discuss their ideas and beliefs with each other.	○	○	○	○	○
Family members express their true feelings to each other.	○	○	○	○	○

If you would like to provide any additional information, please do so here.

Columbia Families in Nature_Post Survey

*13. How satisfied are YOU with the following elements of your family life?

	Very dissatisfied	Somewhat dissatisfied	Generally satisfied	Very satisfied	Extremely satisfied
The degree of closeness between family members.	○	○	○	○	○
Your family's ability to cope with stress.	○	○	○	○	○
Your family's ability to be flexible.	○	○	○	○	○
Your family's ability to share positive experiences.	○	○	○	○	○
The quality of communication between family members.	○	○	○	○	○
Your family's ability to resolve conflicts.	○	○	○	○	○
The amount of time you spend together as a family.	○	○	○	○	○
The way problems are discussed.	○	○	○	○	○
Family members concern for each other.	○	○	○	○	○
Your ability to be a good role model for your child(ren).	○	○	○	○	○
Your ability to effectively parent your child (ren).	○	○	○	○	○

If you would like to provide any additional information, please do so here.

*14. How would you characterize your family's relationships in the following areas?

	Poor	Below average	Average	Good	Very good
Relationships with extended family	○	○	○	○	○
Friendships with other families	○	○	○	○	○
Children's peer friendships	○	○	○	○	○
Parent's peer friendships	○	○	○	○	○
Family connection with community	○	○	○	○	○
Family connection with natural world	○	○	○	○	○

If you would like to provide any additional information, please do so.

Columbia Families in Nature_Post Survey

✱15. Please indicate your level of agreement with the following statements.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I often feel a sense of oneness with the natural world around me.	○	○	○	○	○
I think of the natural world as a community to which I belong.	○	○	○	○	○
I often feel a kinship with animals and plants.	○	○	○	○	○
I have a deep understanding of how my actions affect the natural world.	○	○	○	○	○
My personal welfare is dependent on the welfare of the natural world.	○	○	○	○	○

If you would like to provide any additional information, please do so here.

Conclusion

✱16. What is your birthday?

MM DD YYYY

Please provide your full birthday - it will be used to link this survey to the pre-survey you completed earlier this year. It is also how you will be able to claim your participation gifts.

17. If you are willing to be contacted with follow-up questions please provide your name and email address. This is completely optional. This information will not be shared and no personally identifying information will be included with any reporting of the results of this survey.

Name:

Email Address:

18. Do you have any other thoughts about your family's participation Columbia Families in Nature that you would like to share?

Appendix F: C&NN Family Nature Club - Survey Communication Plan

Surveys: Open June 15th to September 15th

1. One survey for the leaders of family nature clubs
2. One survey for the participants in family nature clubs

Communications channels:

- C&NN direct email to family nature club leaders
  - Initial Content: *See page below*
  - Schedule:
    - Initial email: Send on May 15th
    - Follow-up email: June 16th *(try to target people who haven't responded)*
    - Final reminder email: July 15th *(try to target people who haven't responded)*

- Posting on C&NN Connect
  - Initial Content:
    - A significant study is being conducted on family nature clubs, an important element of the Children & Nature Network's (C&NN) efforts to connect all children, their families and communities to nature. This independent study is being conducted by a PhD candidate at Prescott College and will survey family nature club leaders and participants and use the results to help understand some the effects of club participation. We encourage those who are leading and participating in family nature clubs to take ~20 minutes to complete their respective surveys. Both C&NN and the primary researcher appreciate that your time is very valuable. The information you share is also very valuable as it can help strengthen the case and support for family nature clubs! There is a gift of appreciation for the ten (10) clubs with the greatest response rate. For more information and to access the surveys, please visit www.nurturednature.org.
  - Schedule:
    - Initial post: May 15th
    - Follow-up post: June 16th
    - Final reminder: July 15th

- Facebook posts from C&NN
  - Initial Content:
    - A significant study is being conducted on family nature clubs, an important element of the Children & Nature Network's (C&NN) efforts to

connect all children, their families and communities to nature. This independent study is being conducted by a PhD candidate at Prescott College and will use surveys of family nature club leaders and participants to help understand some of effects of club participation. We encourage those who are leading and participating in family nature clubs to take ~20 minutes to complete their respective surveys. Both C&NN and the primary researcher appreciate that your time is very valuable. The information you share is also very valuable as it can help strengthen the case and support for family nature clubs! There is a gift of appreciation for the ten (10) clubs with the greatest response rate. For more information and to access the surveys, please visit www.nurturednature.org.

- o Schedule:
    - ▪ Initial post: May 15th
    - ▪ Follow-up post: June 16th
    - ▪ Final reminder: July 15th

**

C&NN Initial Direct Email Content:

A significant study is being conducted on family nature clubs, an important element of the Children & Nature Network's (C&NN) efforts to connect all children, their families and communities to nature. This independent study is being conducted by a PhD candidate at Prescott College and will use surveys and interviews with family nature club leaders and participants to help understand some of the effects of club participation. As a leader of a family nature club registered with C&NN, we encourage you to: 1) complete the leader survey; and 2) ask the participants in your family nature club to complete the participant survey.

For both club leaders and participants the survey has 28 questions about different aspects of the respondent's individual and family life, with sections on family nature club involvement, outdoor activity, household practices, family relationships, and demographics. It should take approximately 20 minutes to complete all of the questions.

Both C&NN and the primary researcher appreciate that your time is very valuable. The information you share is also very valuable as it can help strengthen the case and support for family nature clubs! In appreciation, the ten (10) family nature clubs with the greatest survey response rate (including that of the club leader) will receive a $50 gift certificate to Acorn Naturalist to be able to buy supplies to enrich your club activities. In addition, the researcher has offered to share aggregate data with club leaders about the responses received from their club members.

Your participation in this study is **completely voluntary**. We do hope that you will complete the leader survey as well as encourage the families participating in your club to complete the survey designed for them. The leader survey is available at www.surveymonkey.com/s/CNN_FNC_Leaders until July 31st. The following is a template you can customize to communicate with your club participants about this opportunity:

A significant study is being conducted on family nature clubs, an important element of the Children & Nature Network's (C&NN) efforts to connect all children, their families and communities to nature. This independent study is being conducted by a PhD candidate at Prescott College and will use surveys and interviews with family nature club leaders and participants to help understand some of the effects of club participation. I have completed the survey designed for club leaders and encourage you to complete the survey for club participants, which is available at www.surveymonkey.com/s/CNN_FNC_Participants.

This survey has 28 questions about different aspects of the respondent's individual and family life, with sections on family nature club involvement, outdoor activity, household practices, family relationships, and demographics. It should take approximately 20 minutes to complete all of the questions. The Children & Nature Network, primary researcher, and I appreciate that your time is very valuable. The information you share is also very valuable as it can help strengthen the case and support for family nature clubs! In appreciation, the ten (10) family nature clubs with the greatest survey response rate will receive a $50 gift certificate to Acorn Naturalist to be able to buy supplies to enrich your club activities. It would be great if INSERT CLUB NAME HERE is one of the clubs to win this gift of appreciation!

If you have any questions about this study you are invited to email Chiara D'Amore at cdamore@prescott.edu.

Thank you,

_____

Appendix G: C&NN Family Nature Club Leader Survey

C&NN Family Nature Club LEADER Survey

Introduction, Instructions, and Informed Consent

*1. Thank you very much for taking this survey! Its purpose is to learn about some of the characteristics and experiences of people who have started and/or currently lead family nature clubs. In addition to questions about your club, the survey will ask about different aspects of your individual and family life, with sections on outdoor activity, household practices, family relationships, and demographics. As a leader of a family nature club your role in helping to connect children, families and communities with nature is important, which is why it is significant to learn more about the group of people that start and/or lead clubs.

There are 28 primary questions in this survey - some of which have sub-questions. It should take approximately 20 minutes to complete all of the questions. If you cannot complete the survey at one time you can close it and come back to it later on the same computer - you will be brought back to where you left off. If you have any issues progressing through the survey, please make sure you have fully completed each question.

Please do your best to provide accurate responses to the questions without taking too much time to get it just right. Your responses should be based on your own perspective, you don't need to try to guess how your family members might respond. Additionally, if you have more than one child and some of them are not participating in this or other activities asked about in the survey, that is ok! Questions should be answered based on the family members that are involved in a given activity.

We know that your time is very valuable - the information you share is also very valuable! In appreciation, the ten (10) family nature clubs that have the leader (you) respond to this survey and have the greatest response rate to the family participant survey will each receive a $50 gift certificate to Acorn Naturalist to be able to buy supplies to enrich your club activities. You will also have the option at the end of the survey to receive aggregated data from the participants in your nature club that complete the largely parallel participant survey.

Your participation in this survey is **COMPLETELY VOLUNTARY**. Your responses are confidential and your name and contact information are not required. Reports of the results of this survey will not include any personally identifying information. If you have any questions about this survey, please contact Chiara D'Amore at

C&NN Family Nature Club LEADER Survey

cdamore@prescott.edu.

Please confirm your agreement to participate in this survey by selecting yes or no below.

○ Yes

○ No

Family Nature Club Information

These questions focus on learning about your family nature club and the role you play in the club.

*2. Please tell us about your family nature club.

Name of the club (I.e. Columbia Families in Nature):

State the club is in (I.e. Maryland):

Year the club was founded:

Approximate number of families receiving communications (list serve, Facebook, etc.):

Average number of families at events:

How often does your club have an event:

3. Please tell us about your leadership in the club. Please select all that apply. Are you the:

☐ Club founder

☐ Current and only club leader

☐ Current co-leader

☐ A parent volunteer

☐ An employee of an organization that is leading the club (I.e. conservation group, park, nature center, etc.)

If you are not the founder, when did you get involved in the club? If you are a co-leader, how would you briefly characterize the shared leadership of the club? If you are part of an organization, what is the organization's name?

C&NN Family Nature Club LEADER Survey

4. What are the major factors that brought you to lead a family nature club? You can choose all that apply.

- ☐ Filling a need in the community
- ☐ To be a part of the movement to reconnect children and nature
- ☐ To further the mission of an organization I am part of
- ☐ The health and well being of my child(ren)
- ☐ To learn about places to take my child(ren) in nature
- ☐ To meet new families
- ☐ To have fun
- ☐ The security of going out in nature with other people
- ☐ To get quality time with my child(ren)
- ☐ To learn more about nature
- ☐ For motivation to stay active as a family
- ☐ As part of my job
- ☐ Other (describe below)

Please describe other factors or resources that motivated your club leadership.

5. How has leading a family nature club affected you?

6. To what extent do you think the families in your club experience the following as a result of their participation?

	Almost all families	Many families	Some families	Not very many families	Almost no families
A greater sense of connection with their family	○	○	○	○	○
The opportunity to learn something new	○	○	○	○	○
An enhanced sense of connection with nature	○	○	○	○	○
The opportunity to get to know new people	○	○	○	○	○

C&NN Family Nature Club LEADER Survey

*7. Please indicate whether the following experiences were part of YOUR OWN childhood.

	Strongly agree	Generally agree	Neutral	Generally disagree	Strongly disagree
Playing outside in nature was an important part of my childhood.	○	○	○	○	○
As a child there was at least one adult (i.e. parent, grandparent, teacher, etc.) that spent time with me outside and helped teach me an appreciation for nature.	○	○	○	○	○
During my youth, I participated in an organization that had a nature and/or environmental focus (i.e. Scouts, camps, school clubs).	○	○	○	○	○

If you would like to provide any additional information, please do so here.

8. Do children that you are raising participate in some or all of the family nature clubs outings that you lead?

○ Yes

○ No

Outdoor Activity Information

The questions on this page focus on the outdoor activity of your own family. Please respond as accurately as you can. There are no right or wrong answers. Thank you!

C&NN Family Nature Club LEADER Survey

*9. About how often has your FAMILY done the following activities in the past year?

	Never	One time	A few times	Often	Very often
Take a walk outside	○	○	○	○	○
Visit a park or outdoor recreation area	○	○	○	○	○
Play outside (e.g. fly a kite, build forts, play games)	○	○	○	○	○
Relax in natural area (e.g. forest, field, edge of lake)	○	○	○	○	○
Watch nature (e.g. animals, the sky, wind in trees)	○	○	○	○	○
Wade, swim, or boat in a natural water body (e.g. stream, pond, ocean)	○	○	○	○	○
Take care of a garden	○	○	○	○	○
Do outdoor house work (e.g. mow, rake leaves, landscaping)	○	○	○	○	○
Exercise or play sports outdoors (e.g. running, biking, team sports)	○	○	○	○	○

If you would like to provide any additional information, please do so here.

*10. About how much time does your FAMILY spend together in nature in an average WEEK, weather permitting.

	Frequency	Total Time
Before participating in the club	[▼]	[▼]
At your club outings	[▼]	[▼]
After beginning participation in the club (not including club time)	[▼]	[▼]

If you selected "other" or would like to provide any additional information, please provide that information here.

C&NN Family Nature Club LEADER Survey

11. If you have kids that are old enough to play outdoors independently, about how much time do THEY spend in nature in an average WEEK, weather permitting. This time should be separate from any family time you included above. If this is not applicable to you, please skip this question.

	Frequency	Total Time
Before participating in the club		
After beginning participation in the club (not including club time)		

If you selected "other" or would like to provide any additional information, please provide that information here.

Household Practices Information

These questions ask about your family's practices in areas such as leisure, environment, and community/social involvement. Please respond as accurately as you can. There are no right or wrong answers. Thank you!

C&NN Family Nature Club LEADER Survey

*12. This question is about activities your family may do together. The examples just provide ideas of what may be included in a category. Please think about the past year when responding to the frequency part of the question. For the satisfaction part of the question, please indicate how satisfied YOU typically are with the experience of family's participation in the activity. For example, indicate whether family meals are satisfying or not to be a part of rather than your satisfaction with the frequency of family meals.

DOES YOUR FAMILY -

	Participation Frequency	Satisfaction
Have meals together (e.g. breakfast, lunch, dinner)		
Participate in home-based indoor activities together (e.g. games, music, hobbies, cooking, reading)		
Participate in home-based outdoor activities together (e.g. gardening, walks, games)		
Participate in outdoor adventure activities together (e.g. hiking, camping, swimming, boating, biking)		
Participate in sporting activities together (e.g. going to the pool, bowling, skating)		
Participate in media-based activities together (e.g. watching TV, video games, movies, computer time)		
Participate in religious/spiritual activities together (e.g. church, worship, meditation)		
Participate in social activities together (e.g. parties, fairs, concerts, visiting local attractions)		
Attend other family members' activities together (e.g. sporting events, performances, Scouts)		

If you would like to provide any additional information, please do so here.

C&NN Family Nature Club LEADER Survey

*13. The following are a variety of ways that people can take social action. Please indicate YOUR experience with or willingness to take these actions for causes that are of personal interest to you.

	Would not	Not sure	Have not, but may	Over a year ago	In the past year	Frequently
Sign a petition	○	○	○	○	○	○
Deliberately buy or boycott products due to ethical concerns	○	○	○	○	○	○
Attend a related hearing, meeting or rally	○	○	○	○	○	○
Contact a politician, civil servant, and/or media to express your views	○	○	○	○	○	○
Donate time or money or raise funds for a cause of interest	○	○	○	○	○	○
Join an internet group related to a cause of interest	○	○	○	○	○	○
Participate in a voluntary organization related to a cause of interest	○	○	○	○	○	○
Change your behavior in any other way out of concern for a cause of interest	○	○	○	○	○	○

If you wish to provide any additional information please do so here.

C&NN Family Nature Club LEADER Survey

*14. The following are a variety of ways that people can take environmental action. How often does your FAMILY take these actions?

	Never	Rarely	Sometimes	Often	Very often	Almost always
Recycle	○	○	○	○	○	○
Turn off lights when not in use	○	○	○	○	○	○
Purchase organic and/or local foods	○	○	○	○	○	○
Switch off electrical appliances when not in use	○	○	○	○	○	○
Set heating and air conditioning levels to save energy	○	○	○	○	○	○
Walk to destinations	○	○	○	○	○	○
Use public transportation	○	○	○	○	○	○
Turn off the tap when brushing teeth	○	○	○	○	○	○
Compost kitchen and/or yard waste	○	○	○	○	○	○
Purchase energy and/or water-saving products	○	○	○	○	○	○
Purchase used and/or recycled products	○	○	○	○	○	○
Purchase/use green products, such as cleaners	○	○	○	○	○	○
Use natural parenting practices	○	○	○	○	○	○

If you would like to provide any additional information, please do so here.

Relationship Information

These questions ask about a variety of your family's relationships - from parent-child to family-community. Please respond as accurately as you can. There are no right or wrong answers. Thank you!

C&NN Family Nature Club LEADER Survey

*15. Please indicate your agreement with the following statements about your family.

	Strongly disagree	Generally disagree	Undecided	Generally agree	Strongly agree
Family members are involved in each others lives.	○	○	○	○	○
Family members feel very close to each other.	○	○	○	○	○
Family members are supportive of each other during difficult times.	○	○	○	○	○
Family members express affection to each other.	○	○	○	○	○
Family members consult other family members on important decisions.	○	○	○	○	○
Family members like to spend some of their free time with each other.	○	○	○	○	○
Although family members have individual interests, they still participant in family activities.	○	○	○	○	○
Our family has a good balance of separateness and closeness.	○	○	○	○	○
Family members discuss their ideas and beliefs with each other.	○	○	○	○	○
Family members express their true feelings to each other.	○	○	○	○	○

If you would like to provide any additional information, please do so here.

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*16. How satisfied are YOU with the following elements of your family life?

	Very dissatisfied	Somewhat dissatisfied	Generally satisfied	Very satisfied	Extremely satisfied
The degree of closeness between family members.	○	○	○	○	○
Your family's ability to cope with stress.	○	○	○	○	○
Your family's ability to be flexible.	○	○	○	○	○
Your family's ability to share positive experiences.	○	○	○	○	○
The quality of communication between family members.	○	○	○	○	○
Your family's ability to resolve conflicts.	○	○	○	○	○
The amount of time you spend together as a family.	○	○	○	○	○
The way problems are discussed.	○	○	○	○	○
Family members concern for each other.	○	○	○	○	○
Your ability to be a good role model for your child(ren).	○	○	○	○	○
Your ability to effectively parent your child (ren).	○	○	○	○	○

If you would like to provide any additional information, please do so here.

*17. How would you characterize your family's relationships in the following areas?

	Poor	Below average	Average	Good	Very good
Relationships with extended family	○	○	○	○	○
Friendships with other families	○	○	○	○	○
Children's peer friendships	○	○	○	○	○
Parent's peer friendships	○	○	○	○	○
Family connection with community	○	○	○	○	○
Family connection with natural world	○	○	○	○	○

If you would like to provide any additional information, please do so.

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*18. Please indicate your level of agreement with the following statements.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I often feel a sense of oneness with the natural world around me.	○	○	○	○	○
I think of the natural world as a community to which I belong.	○	○	○	○	○
I often feel a kinship with animals and plants.	○	○	○	○	○
I have a deep understanding of how my actions affect the natural world.	○	○	○	○	○
My personal welfare is dependent on the welfare of the natural world.	○	○	○	○	○

If you would like to provide any additional information, please do so here.

Demographic Information

This is the last section of the survey! It focuses on gathering essential demographic information and the answers should be quick and easy to provide. Thank you!

*19. What are the ages and genders of your children?

	Age	Gender	Do they participate in family nature club activities?
Child #1	▾	▾	▾
Child #2	▾	▾	▾
Child #3	▾	▾	▾
Child #4	▾	▾	▾
Child #5	▾	▾	▾
Child #6	▾	▾	▾

If there is anything else you would like to share about your children (multiples, step-children, adoptions, etc.) please feel free to do so. Also, if you have more than six children, please provide the requested information on the additional children here.

*20. What is your gender identification?

▾

*21. In what year were you born (i.e. 1979)?

Birth year

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*22. What is your ethnicity / race?

[▼]

If you would like to provide any additional information, please do so here.

[   ]

*23. What is the highest level of formal education that you have completed?

[▼]

If you would like to provide any additional information, please do so here.

[   ]

*24. What is your relationship status? Please select the choice that most directly applies.

[▼]

If you would like to provide any additional information, please do so here.

[   ]

*25. What was your pre-tax HOUSEHOLD income last year?

[▼]

If you would like to provide any additional information, please do so here.

[   ]

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*26. Which of the following describes your familial, economic, or personal engagements and/or responsibilities? You can select that all that apply.

☐ Homemaker

☐ Degree seeking student

☐ Employed part time

☐ Employed full-time

☐ Self-employed

☐ Active armed services / veteran

☐ Not employed, looking for work

☐ Not employed, NOT looking for work

☐ Retired

☐ Full or part time care giver for a family member in special need

☐ Volunteering / community service

☐ Disabled, not able to work

If you would like to provide any additional information, please do so here.

Conclusion

Thank you for sharing your time and information! It is greatly appreciated! These last two questions are optional and provide additional opportunities for engagement with this research.

27. If you are interested in being interviewed as a part of this research please provide your name and email address. This is completely optional. This information will not be shared and no personally identifying information will be included with any reporting of the results of this survey.

Name:

Email Address:

C&NN Family Nature Club LEADER Survey

28. Would you like to receive aggregate data from the participants in your family nature club that complete the largely parallel participant survey? If so, you must provide your name and email address in the comment section below if it was not provided as a part of the previous question.

○ Yes

○ No

Name and email address:

The results of this research will be shared with the Children and Nature Network in the spring/summer of 2015. As a family nature club leader and participant in the study you will be notified when study report is available. Thank you again for your contribution to this research and all of your work to help connect children, families and communities with nature!

If you have not done so already, please invite the participants in your family nature club to take the survey designed for that group. The following is a template you can customize to communicate with your club participants about this opportunity:

Dear [Name of Your Club Member]

I was recently invited to participate in an independent study that may help strengthen the case and support for family nature clubs such as INSERT YOUR CLUB NAME HERE.

I have completed the survey designed for club leaders and I encourage you to complete the survey for club participants, which is available until August 15th at www.surveymonkey.com/s/CNN_FNC_Participants.

By volunteering to complete this survey, you will share very valuable information as well as make yourself and [INSERT CLUB NAME HERE] eligible to win gift cards of appreciation. It should take no more than approximately 20 minutes of you time. For more information about this study please visit www.nurturednature.org.

Thank you,

YOUR NAME
YOUR CLUB

Appendix H: Interview Informed Consent Form

Family Nature Club Research
Leader Interview Informed Consent Form

Introduction: You are being invited to participate in an interview as part of a study on the effects of participation in family nature clubs due to your leadership of a family nature club and completion of the research survey in which you indicated interest in being interviewed. The information in this form is provided to help you decide whether to proceed with the interview. If you choose to complete an interview you will be asked to sign this consent form. Your participation in this study is voluntary. You may decide to not begin or to stop the study at any time.

What will happen during the interview? The main purpose for the interview is to learn from you about your family nature club, your experiences as a family nature club leader, and your observations regarding the effects of participation in your family nature club for yourself as a leader and for club members. The interview is expected to take between thirty and sixty minutes. Interviews will be recorded so I am able to analyze them for patterns and themes. The aggregate findings from the interviews will be written up in my dissertation. The primary interview topics include:
1. Initial discussion about your club and your leadership role.
2. Reflecting on your leadership of your family nature club, describe the most significant changes resulting from participation in the club for you (and your family if applicable) and for the families participating in the club.
3. Anything else you would like to share with me that I have not asked you about.

What are the costs, risks, and benefits of participation? Aside from your time, there are no costs associated with taking part in the study and there is no anticipated risk associated with participation. All interview participants will be personally emailed a copy of the final research report in the summer of 2015. In addition, you may find there to be personal benefits to sharing about your experiences and observations as a family nature club leader. Your participation in this study will help create a greater understanding of the effects of family nature clubs, which may serve to increase support for family nature clubs in the future and also have broader societal and ecological benefits.

Will the information that is obtained from me be kept confidential? All personal information gathered as a part of your participation in this study, such as name, organizational affiliation, and contact information will be kept confidential. You will not be identified in any report of study results.

Whom can I contact for additional information? You can obtain further information about the research from the principal investigator (doctoral candidate) Chiara D'Amore at cdamore@prescott.edu. If you have questions concerning your rights as a research participant, have general questions, concerns or complaints, or want to talk to someone other than the principle investigator, you may contact the Human Subjects Committee Chairperson, Dr. Denise Mitten, for this study at dmitten@prescott.edu.

Your Signature: By signing this form, I affirm that I have read the information contained in the form, that the study has been explained to me, that my questions have been answered and that I agree to take part in this study. I do not give up any of my legal rights by signing this form.

_____
Name (Printed)

_____   _____
Participant's Signature   Date signed

<u>THANK YOU</u> so much for your time!

Appendix I: Full FNC Leader Interview

Chiara: What was the catalyst for starting your family nature club?

Leader: The story is actually really funny, but I never tell anyone the tory because it just sounds funny. I had at the time in 2008 a 3 year old and I had a 7 year old. A neighbor walked out and asked me if I would start an outdoor group for families. I said no, I had a 7 year old and a 3 year old. Then the very next day a different friend said the same thing. So it was two in two days, so something is telling me something. I decided you know, actually that wouldn't be that hard and it could be great fun. Before I started the group I saw that what everyone around me needed was an activity for the whole family.

Chiara: I see that too.

Leader: You take them there, and I'll take them here. Divide and conquer. But the parents are never together, the kids are never together, the neighbors are never together. There are so many advantages to teaching kids to deal with different ages and to be around their siblings and have common experiences and common memories that when their older and they don't live in the same house they can go back to their shared relationship. I think that that is so important and having that common experience has the basis for an adult relationship with your sibling. If you don't have that common experience, if everything you do is age and gender divided you don't have much reason to reminisce with you siblings.

Maybe 2 years into having this group I decided to get backpacks for the kids. That way the kids could start to learn to carry their own gear. Instead of earning some silly thing, I thought well they could earn a compass to go in the backpack. Or they could earn a knife that they could use while their camping. Or they could earn a fire starter. Etc… I wanted them to earn things to put in their backpack that would then be helpful to them outdoors.

Chiara: How are you funding the purchase of the backpacks?

Leader: The families just paid for them. I got a deal from REI on them and then the parents buy them. People just paid for what they did. If we went camping and I got 6 campsites for $25 each and 6 families went, each family would pay $25 dollars. I kept they cost very low and people would just pay for what they did at first. I decided a couple of years ago to just become my own entity, form my own LLC so I can buy insurance. The group was growing really fast. My waiting list had grown to a three year waiting list at one point. I couldn't possible let more people in at that point we had 30 families and a 3 year waiting list, which was crazy. As you might imagine, even if only half the people come you are still camping with 60 people, which is my limit on camping. Unless you have an enormous group sight and interns and help which now we do, I could not lead with more than 60 people. So we were getting to the point where every camp out was 60 people. It was working and going fine, but we still had this two year waiting list. Then last summer we got 3 big awards. When that happened started getting 5 people a week, 5 people a day at times, and at the lowest 5 people a month asking to join the group. So suddenly our exposure was enormous so that is when I was like, I have to have liability insurance, and it has to be good. It has to be protecting me, because now I have people in groups that I do not know, because I am more likely to get sued. That is when I formed the LLC. As soon as I found out that I was getting those awards I formed an LLC and got insurance probably within two weeks of

find out about the award. So then I formed three groups last August as a pilot to see which way the formed groups works best. One person approached me and she formed a preschool group in her area. She already had a group, dates, a curriculum, etc., and so I was like sure! So that was that. Her group is still clicking along well. Then I formed a group at two Montessori schools where I knew a teacher, or my kids were at school. So it was low hanging fruit, but still with community I knew well enough. I tried several things forming those three groups. One was a failure and the other two did really well. Now, the preschool group is the same group over and over and they are doing great. They are not really growing, because they don't want anyone else, it is big enough. The other group has 35 families in it, it is enormous! I had to get a second leader who is a field biologist and used to be the education director at the education center. The other leader who is the original leader is a classroom teacher. Those two are well able to handle it. I go and help with their stuff when it is difficult. This weekend I am going to go help out with their skills class. Their families are just awesome. They are up for anything, they are super enthusiastic, and the parents are super involved. Now we have about 10 other groups on top of that that have formed in various ways, certainly organically. Kind of when it happened last year was when people would email me and say I would like to join your club because I saw the article about you guys in the newspaper. I typed up a response that I then sent out to everyone who emailed me and said "If you don't currently have a group in your area, and you would like to start your own group please email me back and I will let you know what's involved." Out of that email I got 28 other people saying that they would like to look into forming a group. So 20 of those people are currently running groups.

Chiara: That is really cool.

Leader: It was very organic, how it grew last year. I was really not totally prepared for it to grow as quickly as it did because it was those awards that just increased it so fast. I had planned on growing it this year not last year. Then leading up through the year last year, as the groups were performing and as I was training leaders and getting people set up, etc. I realized that the number one thing for me was just the amount of paperwork. So I decided I had to make it digital and make all of the liability waivers & calendars digital. Then we made the calendars password protected because a lot of families were concerned about essentially saying we're going to have these cute kids that you see on this website at this park at this time.

Chiara: Interesting.

Leader: That was a big problem for some families and that is the big reason I did not do Meet Up. It is because we have too high of attendance, and if I were going to meet it on Meet Up we would have 700 people show up probably. Maybe not, but we wouldn't know if we were going to have 700 people show up. Because we had to much exposure for where we were in growth last year, and so announcing we are going to the park was opening a can of worms and I didn't even know what was in that can. Then we also have some child advocate lawyers in our group and I have someone that works for child protective services in the group and they were like you cannot do that. So we have only publicly announced events when I don't say what time and what date, or I don't say where. So on the website you can see what the next three events are but they specifically leave out critical information so you couldn't necessarily find us form the website.

Maybe the other thing that I use that is really different from everyone else is that we focus a lot on science. We have older kids than anyone else, I don't know that for sure, but that was the

impression that I got. For whatever reason I am gaining middle schoolers rather than losing them which was really surprising to me. I think they are awesome and super fun so I am thrilled to have middles schoolers around, I think it is a total riot. Especially girls and boys who are trying to figure out their stuff together, it is so funny. Mine has a lot more science stuff because I have the older kids I think. We been very careful to have a lot of open ended time to just play in the mud and build fairy houses and whatever, but usually each activity has kind of a lesson to it that will go on for 10-15 minutes to a couple of hours. Then the rest of the time is playing. So there's the lesson and then there is science to be had but it isn't like I am saying everybody be quite and listen now.

Chiara: Talks about some of the CFIN outings where lessons have been tied in, but managing the kids through those lessons.

Leader: It has taken us some time, but it is different because we have a critical mass of older kids that sometimes the younger kids want to listen because they want to be like the older kids. So that is why having that type of exchange really helps. If you have a group of 13 year old girls listening, then the 9 year old boys are not going to go play in the mud because they want to show off to the 13 year old girl. So you suddenly have this mass who is listening, so the other kids think it is something cool to do and they come over to try to be like the big kids. The problem is when the big kids fool around because then the whole group falls apart. So basically I put an incentive program in place. I put in an incentive program where, I did it for a variety of reasons. The first was that I was noticing that the kids who had been in my group for 6 years (from 3 years old to 9 years old) could identify a chipping sparrow on the wing; they could identify different larva, etc… They can tell you all of this really serious science, and what I wanted to have was two things. One was an incentive for the older kids to stay in instead of leaving and two; I wanted the kids to be able to put this on a middle school or high school or college application. So I tried to come up with something that would sound official enough and representative of what they were actually doing enough that they could include participation in our FNC on an application. Because they are doing something real and they are doing something worthy and it will separate them from other candidates. In the world of kids having resume writing by the age of 12, it really separates them out. They deserve it because they do really know different things than the other kids their age. So I created the Junior Ecologist Program. Right now the curriculum is fairly flexible, it is fairly open ended. You just have to write three sort of papers demonstrating that you understand 5 different ecological topics. I don't care what they are but you have to had experienced them. You can go experience them on your own with your family, you can have it with me, or you could have it with me on a trip, or with our FNC. It is just that you turn in some work that demonstrates knowledge to me than I will give you credit for it. We were already doing journals. About 99% only doodle in them, but there is that 1% that really uses and like them. It is all voluntary that the older kids can feel like they are getting science. Then once they've done that for a couple of years I am starting to give them leadership where I am having the oldest kids now teach lessons to the younger kids. So this weekend we are doing outdoor skills because they love it. We have one 13 year old teaching shelter building; we have one 13 year old teaching fire making. We have a 13 year old teaching orienteering, and we have two 13 year olds and one 16 year old helping me lead a paddle trip. So by putting them in a position of leadership you are giving them skills that you are also getting the younger kids to see why they would want to stay in the group through middle school. Also, kids learn better from other kids. They learn better from 13 year olds than they ever could from me. So I creating

Junior Ecologist, it is kind of flexible. I have one more board member who is so into it that she cried when I told her about it. She wanted to do Eagle Scout so badly but she couldn't because of her gender. So I decided to create something similar because, if you picture Ecology there is almost no one in the country doing it. There are Junior Naturalist Programs, but that is species education that is not about understanding ecological concepts. That what the kids are already getting, but I just wanted to give them credit for getting it.

Chiara: That is really cool.

Leader: That came out of it. I think that is why I am getting the middle schoolers, and I have two high schoolers this year. That has been really interesting, that is where our group is a little different because I have this layer of ecology and teaching going on that is beyond the playing, but the playing is definitely still there. There is still a ton of playing, but when they are doing the outdoor skills and they think they are doing science they are more likely to play because you have kind of directed to play for 10 minutes to get them to loosen up and put the phone away. Then they kind of interact with their peers a little more. These are kids who are used to being on screens. When they come into the group half of them have no idea how to play. They don't even remember. So getting them to focus on one thing together, it is like (this is going to sound bad) training dogs. You want dogs to get along and play, you have to lock them side by side first with a common goal and then they'll play. Same idea with teenagers, if you lock them side by side and give them a common goal for 10 minutes then they will play with no problem.

Chiara: Interesting. What would you say the affect have been for family dynamics, for the kids, for the parents perceptions of the kids abilities?

Leader: For families, I think it is different than for middle schoolers. For families, which is the easiest place to start, when you camp as a family with other families and you do it with the same families time over time you really get to know other families and you get to see how they interact with their children. How they discipline their children, how they don't discipline their children. How they feed their children, what time they put their kids to bed, how their children talk to each other. How they interact as a family. Interestingly what I have seen is families all supporting each other through being better at all of that. When you camp you see the good bad and the ugly. If a kid is acting like a fool around the fire, you see the parent that doesn't react at all and then you see six other parents stand up and tell that kid "That is fire, and it is dangerous!" Because you have created this tribe where the parents all know each other pretty well and the kids all know the other parents pretty well you see parents inadvertently teaching other parents how to parent. I think to me, as someone who has studied teaching and families and kids that was one of the most interesting side effects that I didn't count on. I didn't design it for that, but it has happened. We have three families that were bordering on divorce, and now it's completely off the table and part of it is that they have a support system now of other families in the context of family. Men get to go out with men for lunch at work, or guy's night out. Women get to go out for women's night out, or play group, but it is very rare for several whole entire families to go out together. So having that support, is learning. If you see a parent consistently yelling at their kid, and then you see that kid consistently yelling at their friends, that parent gets the feedback without anyone necessarily saying anything. Like "Whoa, I am the only one here doing that!" I guess I could call it positive peer pressure.

Chiara: It is setting new norms.

Leader: It is setting new norms, because in prehistoric times humans were in villages or in groups where they got to see everything. They got to see who eats dinner when, what they feed their kids, etc… but now with closed doors and neighbors many feet away you don't ever get to see what's really going on.

Chiara: I have you heard you mention camping a couple of times. Do you think that is happening just within the context of camping? Or does it happen in the context of the outings overall and camping has an added bonus of addressing the overnight stuff and longer hours?

Leader: I think camping is the most obvious time it happens because you have an extended period of time and you're dealing with that bed time dinner part. And the night waking, the one thing everyone realizes is that if someone says their baby sleeps through the night they are either A) lying B) they don't have a baby monitor or C) they have a really out of the ordinary child. Everyone has a child that has woken up the rest of the campsite at least once, so it's having that support of "okay, my kid is not the only one." So camping is the most obvious place you see it, but it certainly happens anywhere. Even if you go to a restaurant with two other families, you are going to see different parent techniques. The biggest thing it does, it actually increases everybody's bag of tricks. Whenever someone asks "What's your key to discipline" I say having a bigger bag of tricks than your kids do. If you have more resources to figure out how to get your kids to behave how you want them to behave than you are going to win that battle. If they have more resources, they win. So just having more options to try nothing works twice almost, so having other parents around you and seeing how they discipline just gives you a bigger bag of tricks.

Chiara: That is one of the things I am trying to help facilitate, is creating the connection between families.

Leader: I think the first thing I noticed within the first year of forming the group back when it was only 8 families was that men rarely have a time to be fathers together. With Boy Scouts they kind of do, but it isn't all the men, and they don't have the whole family, they only have one or two of their boys at a time. So it is not really the same thing. But having it within the family context, the wife is there too, the boys and the girls are there, the whole family is there, and then their seeing other men be dads, it creates a support system that I cannot emphasize the value of. It's just amazing to see how the men get to actually be together in the context of being dads. So that's rare right? They rarely hang out with their families all together.

Chiara: I think that is one of the most powerful things about a family nature club. It is a unique opportunity for families to be together as an entire unit (if that's what they choose) and not be separated by things like being in an observer role.

Leader: That is the other thing, I only require one parent, but I would say that is it rare that only one parent comes.

Chiara: I have a lot of one parent dynamics in my FNC.

Leader: We have people who don't have a spouse. But to have one take the day off is become more and more rare because they want to see each other, which is interesting. That's the other reason I don't deal with Meet Up, is that I would like the groups to be consistent over time so that it build community. If you open it up to Meet Up, you dilute that potentially. There is always

a little bit of in flow and out flow, but the core group is always there. The core of my group has been in my group for seven years. So these kids were toddlers and now they are teenagers.

Chiara: That is powerful. What do you see in terms of parent-child dynamics?

Leader: The interesting thing is as these kids become middle schoolers, I cannot tell you how far form nature we have diverged. I cannot tell you how many of these families in my group have asked me how to teach their kids sex ed, and had me pull their kids teeth out. That part is also interesting because you are dealing with community building and family dynamics and this family peer pressure is teaching parenting. As the kids become middle schoolers I have become even more of the expert because that is the age I taught. Things like that have been fascinating as the kids all hit puberty and they start to all act weird because they are middle schoolers. Helping the parents support each other through this middle school thing is the other part. Middle schoolers tend to become so involved in their sports, or in their music, or dance or whatever their chosen activity is that they spend less and less time with their family. Their homework load goes up exponentially; they spend less and less time as a family unit. By having the middle schoolers stay in our FNC we become one of the only things that a middle schooler will still do connected with the whole family, including the younger siblings, but most importantly with the parents. So helping the parents accept having their middle schooler around them, and having the middle schooler accept having their parents around them and sharing common experiences, because middle schoolers really aren't ready to be separated from their parents. Helping them feel leadership by teaching knot tying, but also feel connected with their family through common experiences is, I think, really, really important. There are just so few places that a middle schooler is asked to be around their own family.

Chiara: Other than the dinner table.

Leader: And half of the time they are running upstairs to do homework, or their friend is texting them at the table. Whereas if you are in a creek and going to get wet, guess what you are going to leave in the car, your phone. You can kind of like create these situations where the kids have to talk to their parents.

Chiara: What would you speak to in terms of any sort of effect on environmental awareness and behavior?

Leader: A part of play has been interesting. We have three or four kids in the group who literally hulled up in a book, were getting in trouble in school because they would either read or find some way to get a screen into their classroom, even in elementary school, and were just absolutely divorcing themselves form the world. Just holding up, putting up a wall, and through our FNC they've gotten to be friends with the other kids and now they're coming outside seeking it. They're seeking other kids to play with because they've been convinced that playing outside is more fun that playing their video games. That was shocking and super exciting. So I think that is part of it, just getting them to open their eyes, getting them to engage, getting them to put the book or video game down for 6 seconds to actually engage and notice what is around them, and teaching them the tools to notice what's around them. Environmental knowledge I think that the kids have gained a huge amount by doing things like creek clean up. We'll play games with plastic jugs, or take a piece of trash and imagine what a marine animal thinks it is, is it food? I think the parents have maybe had a bigger shift than the kids because the kids are growing up in

a world where at school and in the media polar bears and global warming is discussed constantly. I think my biggest challenge is getting the kids not to cry every time they see a polar bear. I think with the kids I most have to address that conservation exhaustion issue, "Nothing is worth saving and nothing is worth connecting to be cause it's all going to die by the time I'm an adult", and getting them to be fascinated by earth and nature and getting them to be fascinated by a stink bug that's on their window. With this Costa Rica trip we took over the summer, the whole purpose the whole reason I came up with doing it was that I saw kids cry every time they saw a polar bear or a panda. These kids need to go somewhere where they can see that there is still biodiversity on this planet and the game is not lost. They need to see that first hand, they need to feel what it feels like to be in a rainforest and actually be scared of the wild life for 6 minutes, because there is so much wild life and seeing [some type of animal] crawl above their heads, real live ones that are out in the wild not in a preserve even. I think fighting that conservation exhaustion is most important with the kids, and not giving them permission not to connect. Rather than be afraid that if they connect it will just die. So with environmental behavior I don't think with the kids they don't have to actually fight it as much because they've gotten that from every angle. What they need is actual connection where they want to save it because they think there is a purpose in saving it; they think there is hope left. With the parents its environmental behavior, the parents have changed quite a bit. They will now pick up trash without me asking, on a hike they always remember to bring a trash bag. We go to the beach and they're picking up trash before they get in the water because they just can't stand the sight of it. They have connected enough to really want to help. The parents will now go out and do creek clean-ups without me, which is interesting. I think that they're more environmental about water usage. I think the parents' behavior has changed the most because the kids don't control that kind of stuff. The kids don't control what kind of toilet paper you buy, they don't control much more than turning the water off when they brush their teeth and turning the lights off when they leave a room. Your goal with the kids is to get them to like it, to get them to fall in love with it. Honestly I stay absolutely away from global warming, from destruction, and negative images in every possible circumstance because they get that everywhere else. My goal is to make them love it so that when they hear all that stuff they can act on it with hope. Instead of acting on it because they feel like it's their civic duty, they can act on it because they want to act on it. Half of the kids that just zone into their devices, part of it is that when they look around them they see the world dying and warming up and hurricanes and tsunamis and they don't want to connect because it's scary. So I see that as my job. I see my main job as making these kids ecologically literate so they can understand what people are talking about and beyond that it is just teaching them to fall in love, which is a pretty darn good job.

Appendix J: FNC Participation Analysis

FNC participants were asked to select the year in which they started participating in their
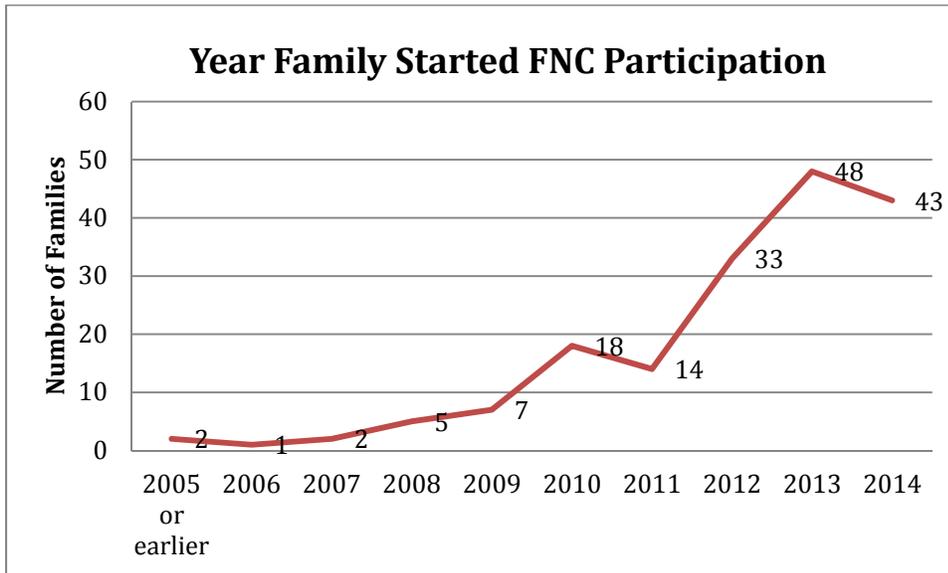
FNC, as shown in Figure 19 below.

Figure 19. FNC Participant Report of Initial Club Participation (n=170).

Looking at these start year data, 53% of the families started participating in a club in

2013 to 2014, 27% started participating in 2011 to 2012, and 22% started participating between

2005 and 2010, with a more than doubling of participants in 2010 over 2009. These participation

results map closely to the club launch data provided by FNC leaders, in which half of the clubs

(26) were formed between 2012 and 2014. This makes sense given that most FNC participants

in this study were recruited by the leaders of FNCs represented in this survey.

The frequency of participation in FNC events is shown in Figure 20. Of the170

participant respondents to this question, 14% had been to one FNC event, 18% had been to two

to four events, 16% had been to five to seven events, 9% had been to eight to ten events, 7% had

been to eleven to thirteen events, 9% had been to between fourteen and nineteen events, and 27%
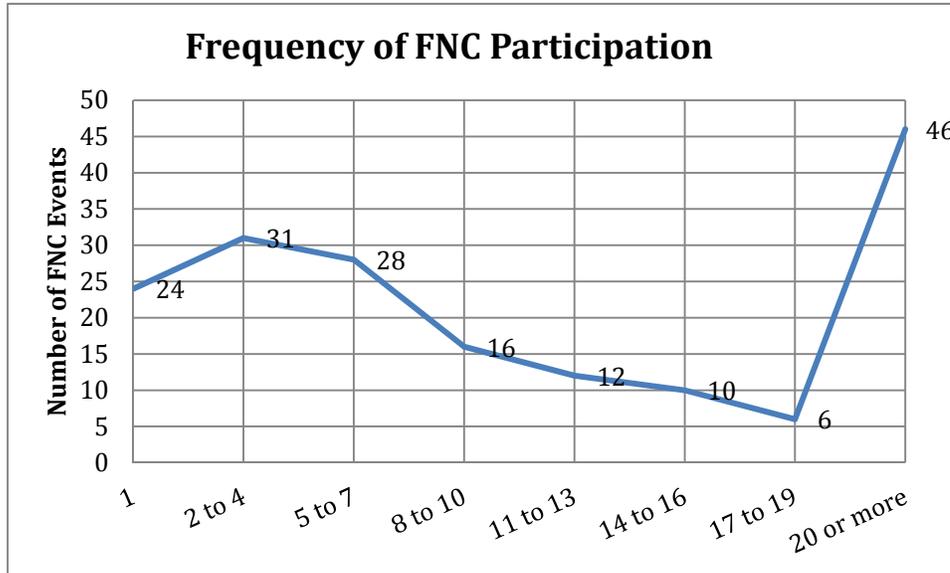
had been to twenty or more events.

Frequency of FNC Participation

Figure 20. FNC Participation Report of Total FNC Event Attendance (n=170).

When exploring the relationship between when a family started participating in their FNC and the total number of FNC events they have been to, a positive trend was found between duration and participation, as shown in Figure 21. In other words, overall, the longer people had been participating in their FNC, the more total events they had attended.
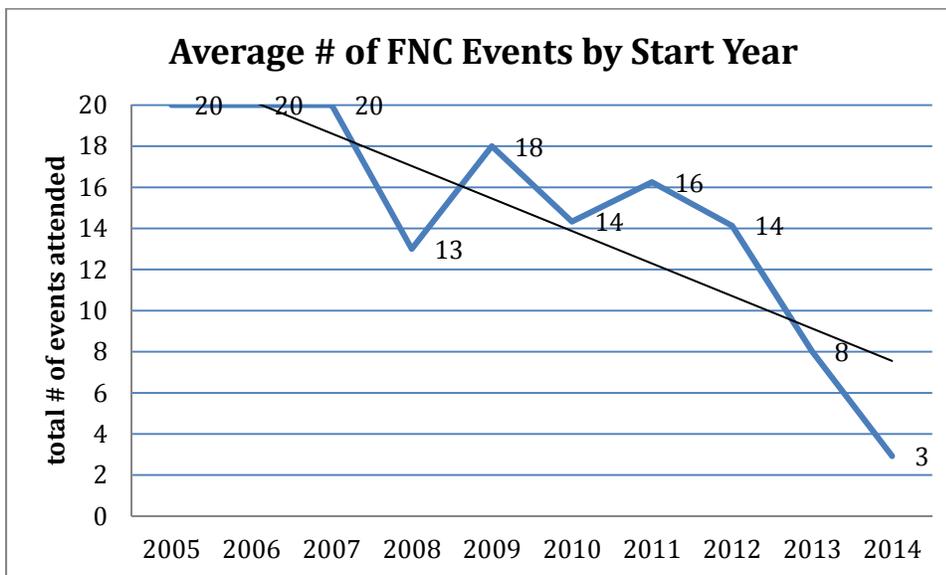
Average # of FNC Events by Start Year

Figure 21. FNC Participant Start Year and Total Number of Events Attended.

Detailed data for this comparison between FNC start year and total event participation is provided in Table 43. For example, it is important to note that for 2005 and 2006 each there was only one respondent and there were two respondents for 2007. All four of these individuals had been to twenty or more FNC events. Conversely, the 2014 average is effected by 18 out of 41 respondents having had attended only one FNC event to date.

Table 43. *Detailed Response Data FNC Start Year and Total Event Participation.*

	Total Number of Events							**Total Responses**	**Average # Events**
	1	**3**	**6**	**9**	**15**	**18**	**20**		
2005							1	1	20
2006							1	1	20
2007							2	2	20
2008	1			1	1		2	5	13
2009			1				6	7	18
2010		2	2	3	1	1	9	18	14
2011			2		3	1	6	12	16
2012		1	7	4	3	1	14	30	14
2013	4	10	11	7	2	2	5	41	8
2014	18	17	4	1		1		41	3

Appendix K: Family Nature Club Development Guidebook

Spring 2015

Acknowledgments

This guidebook was written by Chiara D'Amore, a doctoral candidate in the Sustainability Education Program at Prescott College, a Toyota-Audubon TogetherGreen Fellow, and founder of Columbia Families in Nature. Her research focuses on the personal, social, and environmental effects of family nature club participation and time spent in nature more broadly. Chiara has more than a decade of experience working as an environmental consultant and has a Master's degree in Environmental Science and Engineering as well as Bachelor's degrees in Biology and International Studies.

This guidebook was inspired, in part, by the Children & Nature Network's Nature Clubs for Families Toolkit, which Chiara used to develop her family nature club.

Introduction

Research clearly links childhood time spent enjoying nature with care for the natural world. Add the presence of role models for conservation and participation in a nature-based organization to time spent exploring nature, and you have three of the most significant experiences that foster a life-long conservation ethic (Chawla & Derr, 2012, D'Amore, 2015).

Family nature clubs (FNCs) offer an important opportunity to bring these three experiences together by providing a consistent venue for families to spend time together enjoying and learning about nature. Experiencing nature with the important adults in their lives also gives children a sense of well-being and the confidence to connect with the world around them.

> **"If children do not attach to the land, they will not reap the psychological and spiritual benefits they glean from nature, nor will they feel a long-term commitment to the environment, to the place."**
>
> **~Richard Louv**

By definition, FNCs have the purpose of connecting children and their families with nature through direct experience on a regular basis. The way in which FNCs are designed to meet that common purpose varies significantly, depending on the context within which they operate and the specific goals of their leaders. Overall, FNCs offer low-cost, simple way for individuals and organizations to foster significant positive social and conservation outcomes.

This guidebook includes easy-to-implement, research-based, and field-tested resources to help you start a FNC in your community and/or within your organization. Contents of the guidebook include:

- **Benefits of Starting a FNC**
- **FNC Design Guide**
- **Outreach and Communications Strategies**
- **Event Planning Considerations**
- **Event Activity Suggestions**
- **Tips for Sustained Success**
- **FNC Planning Worksheet**
- **FNC Checklists**
- **Examples and Templates**
- **Additional Resources**

Benefits of Starting a FNC

When considering starting a FNC, it is helpful to understand the likely benefits for your organization (if applicable), the leader(s) of the FNC, and club participants.

Benefits for the Organization

A FNC is a great way to increase exposure and visibility for the hosting organization in their local community. A recurring, family-focused event is likely to attract current organization members as well as new families that may later join the organization. Promoting family-friendly events in the local media can also increase awareness about the organization among members of the local community.

Benefits for Club Leader(s)

Research on family nature clubs has identified numerous positive effects for club leaders (D'Amore, 2015). The most commonly reported benefits include enhanced personal relationships, increased well-being, more time spent outdoors, a sense of personal accomplishment, learning about nature, increased leadership opportunities, and satisfaction from teaching people about and helping people connect to nature. By all accounts, leading a family nature club is very enjoyable and gratifying.

Benefits for Participants

Research on family nature clubs has identified more than 20 positive effects for club participants (D'Amore, 2015). These benefits can be organized into seven categories of benefits for both parents and children: learning opportunities, enhanced connection with nature, positive effects for family dynamics, stronger social connections, meaningful and memorable experiences, enhanced personal well-being, and reduced barriers to spending time in nature. There are many additional physical, emotional, and intellectual benefits of spending time in nature that are achieved by participating in a family nature club. For example, research shows that time spent in nature can improve overall psychological well-being, reduce Attention-Deficit/Hyperactivity Disorder (ADHD), and reduce health problems, such as those associated with childhood obesity.

FNC Design Guide

Family nature clubs hold events in natural outdoor settings, are geared toward family participation, and are designed to develop positive connections with nature through direct, reoccurring experience. Beyond that, the specific structure of clubs varies to suit the context in which they are created. The following are key elements to consider when designing your FNC.

1. Define your purpose
Having a clear purpose will help to inform many other FNC design decisions, such as audience and event structure. For example, do you want to offer an opportunity for families to play in nature together, educate diverse audiences about natural resources, foster a greater sense of local community, or get engagement on conservation projects?

2. Determine who will lead the FNC
FNC leadership can be the responsibility of one person or group of co-leaders with specific responsibilities. Interest, availability, and club design decisions (i.e., event frequency and location) will inform what makes the most sense for your context.

3. Identify your audiences
Consider whether there are particular audiences from your broader community that you are interested in engaging (i.e., at risk youth, cultural groups) or organizations that you would like to collaborate with (i.e., schools, community centers). The audiences you identify will affect your communications strategies and the number of people that participate in your events.

> Family nature clubs are as diverse as the communities they serve. Some are located in small towns while others are in large cities, some have focus on environmental education while others focus on child-led free play, some are intentionally kept small while others have grown so large that offshoots or sub-clubs are developed to manage demand and group size. For example, in a rural Pennsylvania community the library has a club that meets on their property every Thursday evening for an hour to read a seasonal book and play. In an urban California area a club meets each weekend to take a hike at local parks. In a suburban Maryland community, families gather every other weekend at a different place to play, explore, learn, and do conservation projects.

4. Determine event frequency and time
It is important to establish a consistent schedule for your FNC events so families can make it a reliable, recurring part of their schedules. Event frequency can range from quarterly to weekly; the most common is once or twice a month. In addition to picking a frequency, you will want to identify a set day and time of the week that events will be held. Keep in mind that the day and time of the week will affect who is able to attend.

5. Determine Event location(s)
If are starting a FNC as a part of an organization that owns property, you could hold all FNC events there or choose a hybrid approach in which you hold some events at your property and others at natural areas in the community. If your organization, if applicable, does not own property, which is the case for many FNCs, identify local natural areas where you can hold events for a minimal fee or no fee. Some clubs pick just a few locations to visit over and over again, developing a close connection with particular places. Other clubs make a point to visit new areas at almost every outing, exposing participants to as many outdoor places in the community as possible.

Outreach and Communications Strategies

Depending on your FNC purpose and audience, your outreach and communications strategies may vary. The following outreach and communications strategies will help you build a broad base of FNC participants.

1. Engage community partners
Look for organizations in the community that share your interest in youth, families, and conservation and ask them to help you spread the word. Send them the club announcement and give them club fliers/postcards described below. Think broadly on this one, from pediatrician offices and schools to groups for moms and outdoor enthusiasts to local parks and other conservation organizations. Engaging local organizations and inviting them to support and be a part of your FNC is very important for growing your club.

2. Build an online presence
Web sites and social media feeds are the primary ways people will obtain information about your FNC events. These online tools also allow you to share photos of your events (be sure to have participants sign photo release forms before posting pictures of them online.) Consider creating a Facebook page specifically for your FNC to share information and engage attendees in conversations. You can also create Facebook "events" that will allow people to share your event through their own social networks. Instagram can be used to publish event photos right from your phone or tablet.

3. E-mail an announcement
An e-mailed FNC announcement can be a versatile outreach tool. With minor modifications, the same content can be sent to organization members (if applicable), local media outlets, community allies (more on that below), and more. All your communications materials should include the "who, what, where, when, and why" of your FNC and events and links to your online platforms. You can use some of the language in this guidebook's "Introduction" to explain the need for – and benefits of – your FNC.

4. Create printed materials
A simple, eye catching flier or postcard can engage new audiences. Post them in stores, community centers, libraries, coffee shops, and other community gathering places. Printed materials should direct interested families to your Web site or social media page to learn more about your FNC. See the "Examples and Templates" section of this guidebook for more ideas.

5. Stay in touch
Maintain a list of people interested in your FNC, including allies and previous event participants. You can use tools such as Excel, Eventbrite, or Signup Genius to easily manage this. Send a brief monthly or quarterly e-mail update that includes upcoming FNC events and links to youth-focused resources available on your Web site and other family-friendly sites. See the "Additional Resources" section at the end of this guidebook for suggestions.

Event Planning Considerations

Depending on your FNC's purpose, audience, and location, there are a variety of things to consider when planning an event.

1. Event style or approach
Each FNC tends to have something of a style or approach that, guided by the purpose and audience, which influences the way events are designed. Some clubs have events that are very informal while others follow a consistent structure. Some are focused on child-led play while others have educational objectives. Some prioritize physical activity while others do not cover much distance. Some specifically stay very local and others go further afield. Many clubs intentionally offer a variety of event and activity types. It is helpful to determine the type of events your FNC will offer and communicate this to prospective participants.

2. Cost considerations
It is important to be clear about whether there is a fee to participate in FNC events. Many FNCs are free, some ask participants to cover their own costs (if there are any costs associated with a particular event), some have a small per-event fee, and some require an annual membership fee. Fee structures will influence participation in FNC in a variety of ways.

3. Event locations
If all of your events will be held on one property, you can consider ways to help FNC participants connect meaningfully with that land (for example, by focusing on seasonal changes). If you plan to hold some or all of your events on property owned by other entities, start by making a list of the places that would be of interest (such as parks, farms, and nature centers). Determine whether certain places would be better suited to certain seasons (e.g., water-based play during the summer and indoor nature centers during the winter) and to certain participant groups based on terrain, travel distance, and other physical considerations. Contact the property owner/manager at the beginning of your event planning process to let them know what you would like to do and to lock down a date before you announce it publicly. Different levels of coordination are required with different property owners. Ask about existing nature-based programs that may be a fit for your FNC – you may not have to set up your own activity.

4. Participant registration
Consider whether you want families to pre-register for events or drop in the day of an event. For planning purposes, it is often easier if pre-registration is required, particularly if there is a fee involved, but the importance of this depends on the way your events are structured. There are a variety of ways to have people pre-register for an event, from asking them to e-mail the FNC leader or post to your Facebook or Meetup group page to using easy online tools such as Survey Monkey, Eventbright, or Signup Genius to capture names and contact information.

5. Event communications
Post sufficient details about your events to your Web site and social media pages to ensure potential attendees understand the event and any associated fees and physical requirements. If people are required to sign-up in advance and you are able to capture e-mail addresses, you will be well served by sending a reminder e-mail a few days in advance to registered attendees with details about the event and any suggested preparations (such as what to wear or bring).

6. *Liability/safety considerations*

Most family nature clubs require participants to complete a liability waiver. (A template is included in the "Examples and Templates" section of this guidebook.) It is important to clearly communicate what each event will entail, so people can determine whether it is a good fit for their family, and provide detailed preparation guidance in advance of the event. We recommend that you keep a first aid kit handy as well as other safety equipment suitable for the terrain (such as a flotation device for an event near a lake or river).

Event Activity Suggestions

Once you have a broad plan for the "when" and "where" of your FNC events and a general approach for the types of events you want to offer, you will need to hone in on a specific plan for each event.

At its most basic, families show up to FNC events and explore and play in nature together. If you would like more structured events featuring specific activities and/or learning objectives, there are a variety of places to get inspiration.

A number of organizations offer resources focused on engaging youth in the outdoors, such as the Children & Nature Network, Nature Explore, Nature Rocks, Take a Child Outside, and other related organizations (see the Additional Resources section for links). Some of these resources are organized by the age of the participants and others are organized by the type of activity or area of inquiry (such as soil, air, woods, waters, wildlife).

FNC activities could include:

- Walking in the woods
- Photo scavenger hunts
- Bird watching
- Planting a garden
- Looking for bats at dusk
- Building a nest or den with natural materials
- Visiting a farm
- Berry or apple picking
- Creek exploration
- Live animal presentations
- Campfires and marshmallow roasting

As with all elements of your club design, consider your purpose, audience, and available locations when selecting activities. Some general tips are to

- Prioritize fun
- Allow some time for free play
- Focus on experiences that use multiple senses (e.g., water play or picking berries)
- Foster social interaction among participants

Tips for Sustained Success

Getting people to show up

> "I believe family nature clubs help break down barriers to getting out in nature and also get "nature" back on the family calendar – a real challenge in today's over-scheduled world. If we can help families connect to nature and to each other, we've achieved our main goal." Janice Swaisgood, <u>Family Adventures in Nature</u>

- **Schedule events in advance and regularly:** Having your FNC events on the same day(s) each month and announcing the events far in advance will help families get club events on their calendars.
- **Pre-registration:** This helps you plan adequately for events and gives people a sense of accountability for showing up, especially if you request cancellation notification.
- **Send pre-event e-mail:** Sending an e-mail reminder a few days before each event helps families feel excited and prepared and increases the likelihood that they will show up. Include weather-specific information on what to expect and how to dress in every pre-event reminder.

Managing events

- **Pre-visit new places:** Ensure the location is appropriate for your planned event before announcing it. This visit also ensures that you know where to take breaks or look for critters and can tell participants in your pre-event e-mail what to expect.
- **Something to do while waiting:** Pick a location where children can play while you wait for everyone to gather and/or have something for them to do while waiting (such as blowing bubbles or making a simple craft).
- **Welcome participants:** Welcome people warmly into the group and help them connect with each other. Name badges and scavenger hunts can be useful tools to encourage socializing.

Getting people to keep coming

- **Nurture confidence:** Encourage parents to slow down and follow their children's interests, and encourage everyone to explore, ask questions, and share their knowledge.
- **Keep it fun:** The big goal of your event is to get families excited about enjoying nature and inspired to do it more often. So relax and have fun!
- **Send follow-up notes, post pictures:** A thank you e-mail after each outing is a nice touch, especially if you invite constructive feedback that can help you in planning future events. Posting photographs on your social media platform and encouraging participants to do the same is a good way to build interest in future events.

Reaching new audiences

- **Word of mouth:** This is one of the best ways for people to learn about your FNC. Create a welcoming, positive experience for families and invite them to bring their friends to future events. Give them a FNC flier to post in an area they frequent and invite them to share their photos to your social media sites.
- **Media outreach:** Invite local reporters to an event that you anticipate will have a good turnout, photo opportunities, and an engaging story.

FNC Planning Worksheet

The following prompts and space can be used to beginning planning your FNC.

FNC Design

Club name:

Club purpose:

Leader(s):

Intended audience (e.g., organization members, community families, pre-school aged children):

Event frequency:

Event day and time:

Event location(s):

Communications and Outreach

Online platform(s) (website, Facebook, Meetup, etc.):

List of community resources/allies:

Event Planning

Event approach (informal, free-play focused, conservation projects, learning-objectives, etc.):

Participation costs (if any):

FNC Checklists

Things to do before launching your FNC
- o   Set up a Web page, Facebook page, and any other online feeds
- o   Set up participant registration pages (if applicable)
- o   Develop liability and photo release forms
- o   Set dates and locations for several months of events
- o   Create and distribute announcement e-mails and printed materials

Things to do before each event
- o   Develop a basic plan for each event
- o   Pre-visit the event location
- o   Communicate the event plan with the property owner/manager (if applicable) and coordinate as needed
- o   Advertise the event and direct families to pre-register (if applicable)
- o   Send a reminder e-mail to registered families with event details (two days in advance)
- o   Prepare any event materials (name badges, scavenger hunts, sign-in sheets, etc.)
- o   Refresh leader materials (backpack with first aid kit, field guides, binoculars, etc.)

Things to do at the event:
- o   Have a clear place for people to check in
- o   Either check off people's names if they pre-registered, or add them to the list of attendees
- o   Make sure the liability and photo release is completed for each family
- o   Hand out any onsite materials (i.e., name badges, maps, scavenger, hunts)
- o   Have something to keep the kids occupied or a place for them to play while waiting
- o   Gather everyone together to kick the event off – introduce yourself and any other leaders for the activity and let people know what to expect (i.e., route, timing, things to notice)
- o   Interact with attendees and encourage them to interact as a family and within the group
- o   Have fun and take pictures!

Things to do after each event
- o   Send thank you e-mails to participants--include information about the next few events, encourage them to share pictures and positive experiences on social media, and invite them to provide you feedback on the event, if desired
- o   Send a thank you e-mail to property owner/point of contact (if applicable)
- o   Post photos from the event to your Web site/social media pages
- o   Update your Web site/social media pages to focus on your next event
- o   Post "testimonials" to your Web site/social media pages if you gather feedback
- o   Send out a monthly email to contacts letting them know about upcoming events
- o   Post notices about relevant activities and events in the community and/or things to notice in nature (i.e., flowers in bloom, birds migrating) as a way to keep the conversation going

Additional Resources

Resource Organizations

- Children & Nature Network (www.childrenandnature.org)
- Nature Explorer (www.natureexplore.org)
- Nature Rocks (www.naturerocks.org)
- Take a Child Outside (www.takeachildoutside.org)

Examples of Family Nature Clubs

- Columbia Families in Nature
  (www.columbiafamiliesinnature.org)
- Family Adventures in Nature San Diego
  (http://quetallsd.wix.com/familyadventures)
- Prairie Loft Family Outdoor Club
  (www.prairieloft.org/Prairie_Loft/Prairie_Loft_Home.html)
- Austin Families in Nature (http://familiesinnature.org/benefits-of-a-family-nature-club)
- Izaak Walton League Family Adventures in Nature (FAN) Club (www.iwla.org/fanclub)

For links to other family nature clubs, check out the Children & Nature Network club directory (www.childrenandnature.org/directory/clubs).

Books

- Cornell, Joseph. (1999). *Sharing Nature with Children II.* Dawn Publications.
- Dunlap, Julie & Kellert, Stephen. (2012). *Companions in Wonder: Children and Adults Exploring Nature Together.* MIT Press.
- Leslie, Clare (2010). *The Nature Connection: An Outdoor Workbook for Kids, Families, and Classrooms.* Storey Publishing.
- Louv, Richard. (2008). *Last Child in the Woods: Saving our Children from Nature-Deficit Disorder.* Algonquin Books.
- Louv, Richard. (2012). *The Nature Principle: Human Restoration and the End of Nature-Deficit Disorder.* Algonquin Books.
- Van Noy, Rick. (2008). *A Natural Sense of Wonder: Connecting Kids with Nature Through the Seasons.* University of Georgia Press.
- Ward, Jennifer. (2008). *I Love Dirt: 52 Activities to Help You and Your Kids Discover the Wonder of Nature.* Trumpeter.
- Young, Jon. (2010). *Coyotes Guide to Connecting with Nature.* Owlink Media.

Cited Research

- Chawla, L. & Derr, V. (2012). "The development of conservation behaviors in childhood and youth." In S. Clayton (Ed.), Oxford Handbook of Environmental and Conservation Psychology. New York: Oxford University Press.
- D'Amore, C. (2015). Dissertation forthcoming.

Examples and Templates

Announcements

A basic FNC announcement can be modified for a variety of uses. The following example is targeted towards an ally organization.

"I want to share an update relevant to ALLY ORGANIZATION NAME. A family nature club is being launched to provide free, fun, community oriented opportunities for families to spend time together in nature. *On two Sunday afternoons a month, from 2 to 4pm*, CLUB NAME outings will take place in natural areas in and around YOUR COMMUNITY. These outings will emphasize play time in nature and also include hands-on environmental education and conservation activities. The first CLUB NAME event will be on EVENT DATE AND DESCRIPTION.   You can learn more at INSERT YOUR ONLINE PLATFORM(s)."

Flier

Two types of fliers can be useful for advertising your FNC. One is a basic club information flier that can be widely distributed and the other is an event specific flier, which is helpful to share with event participants.

Registration form

A registration form should capture several key pieces of information: the names of all family members, the ages of children, an email address for a primary adult contact, and the anticipated date of the family's first FNC event. It is helpful to use an online registration process where the family can provide this information before their first event in such a way that it will feed into a database you can easily manage and then for subsequent outings they can sign-up more simply by just indicating that their family will attend. This type of registration process can include the liability and photo release forms (templates provided below) as well. For an example, visit www.surveymonkey.com/s/CFINreg.

"Thank you for your interest in participating in CLUB NAME outings! This is a family nature club being offered by the [ORGANIZATION OR GROUP if relevant] to [STATE PURPOSE HERE].

You only need to complete this form before your first outing. It should take less than five minutes. Families that do not complete this online form in advance will need to complete a paper form with the same information at the beginning of their first outing - so doing it here will save everyone time! Registration is required so we are able to effectively plan events. For future events you will just need to submit a quick sign-up form on the website or club Facebook page and check in at the event.

Please provide the following contact information for yourself and any other adult expected to participate in FNC events with you (i.e. spouse, partner, grandparent, etc.) if applicable.

- Your first name:
- Your last name:
- Your email:
- Other adult's first name:
- Other adult's last name:
- Other adult's email:

What is the first name and age of the children participating in FNC events with you? Please include all children likely to participate in FNC events. At each event you will have an opportunity to indicate who is actually present.

- Child 1 – Name & Age
- Child 2 – Name & Age
- Child 3 – Name & Age
- Child 4 – Name & Age
- Child 5 – Name & Age
- Child 6 – Name & Age

What is the date of the FIRST FNC event you are planning to attend?"

Waiver and Release from Liability:

Customize the following waiver and release form liability based on the specifics of your FNC. This type of waiver can be completed online in advance of outings and cover all event participation or be added to a hard copy sign in sheet that people complete at their first event or each event they attend.

"My aforementioned family members and I, as well as any additional guests that we bring to an event, are voluntarily participating in FNC events and activities. I understand that there is a certain amount of risk associated with the physical activity of visiting natural areas, including personal injury and/or damage to personal property. If necessary, I have obtained all medical clearances for members of my family (and guests) to participate in these activities and take responsibility for the health and safety for myself and each person that I bring to FNC events (i.e. bringing any needed medical supplies such as inhalers and closely supervising my children).

By participating in FNC events, I assume any risk and waive any claims of damage to personal property, personal injury, or death of myself or the family members, including children and guests, who I am responsible for bringing to FNC events. I have signed this Agreement freely, voluntarily, under no duress. The selection of the "yes" option below is proof of my intention to execute a complete and unconditional WAIVER AND RELEASE of all liability to the full extent of the law. I am 18 year of age or older and mentally competent to enter into this waiver."

Photo Release

Customize the following photo release based on the specifics of your FNC. A photo release can be completed online in advance of event participant and cover all future events or be added to a hard copy sign in sheet that people complete at their first event or each event they attend.

"I grant FNC NAME the right to take photographs of me, my family members and any guests during outings that we participate in as a part of this family nature club. I agree that FNC NAME may use such photographs for any lawful purpose, including, for example, print or electronic publicity, illustration, advertising, and web content. I have read and agree to the above [have check box that says "yes" or a place for signature].

FAQs (web content)

Customize the following frequently asked questions based on specifics of your FNC. This is great content to include on your online platform.

What is [FNC NAME]? We are a family nature club! It is our goal to gather children, families, friends, and community members to share outdoor adventures and experience the benefits of time spent together in nature.

Is there a fee to join? No! We are a free group and there is no membership fee. In some cases, however, there may be a small fee required to cover the cost for specific events. Full detail about any fees will always be outlined upfront in the event details.

Are FNC NAME Club outings just for kids and their parents? ALL family members are

welcome! We love having moms, dads, grandparents, aunts/uncles, neighbors, etc. come out with the special kids in their lives.

Do we need to have much experience with outdoor activities? No! Come as you are, just wear sturdy shoes, weather appropriate clothes, and bring water and a snack for your family. We will take care of the rest and help you learn what you want to know about getting outdoors as a family as we go. Please review the details for each outing to see if it is a good fit for your family.

Can children attend events by themselves? No. FNC NAME requires that adults stay with their children at all times. We encourage you to come prepared to make memories with your kid(s).

This sounds great! How do I get involved? It's easy! Either register on the contact us page of this site to receive event invitations, or follow us on Facebook to do the same.

Coming Prepared (web content)

Customize the following event preparation guidelines based on specifics of your FNC activities. This is great content to include on your online platform.

Clothing and Shoes:
Everyone should be dressed for the weather in clothes and shoes that are comfortable enough to move in and are OK to get dirty. The weather can change quickly so wear or pack layers and bring rain gear if it may be needed. It is a good idea to have a spare set of clothes and shoes in the car in case they are needed.

Water and Food:
Each family member needs to have their own full water bottle. Snacks will be helpful for keeping energy up and little bellies happy during outings. Trail mix, dried fruit, energy bars, cheese slices, crackers, and sliced veggies all make good snack options.

Backpack:
In addition to water and snacks, fill it with: sunscreen, insect repellent, hats and sunglasses, tissues, a small garbage bag, and any medication your family may need (such as an inhaler and small first aid kit). Other items you may want to bring are: binoculars, magnifying glass, field guide, a camera, a small container for each child to use to collect nature "treasures", and a towel or small blanket. Older kids may want to wear their own packs too! If you have little ones that may tire quickly, a baby carrier will work better than a stroller unless it is able to go "off-road".

Be ready to have fun, get dirty, and enjoy nature and each other!

Pre-Event Email:

The following is an example of an email that can be sent to pre-registered participants two days in advance of a forthcoming FNC event. The specific details should be customized.

"Thank you for signing your family up to be a part of the FNC NAME outing to Sandy Point State Park this Sunday! The following details about this event are intended to help you make the most of it, so please be sure to read them.

Who/When/Where: Ten families have signed up to be a part of this outing, which will be held from 2:00 to 4:00pm at Sandy Point State Park (100 East College Parkway, Annapolis, MD 21409). There is a $3 per car fee to enter the park**. We will gather at the nearby playground by the beach. Please see the attached park map.**

What: Sandy Point State Park is comprised of 786-acres along the Northwestern shore of the majestic Chesapeake Bay. The park's beaches and picnic areas are well known for their breathtaking scenic water views that overlook one of Maryland's true treasures. Wildlife viewing and bird watching are favorite pastimes for many park visitors. Sandy Point's location on the Eastern Flyway makes it an ideal location for viewing a large variety of woodland, marsh and migratory waterfowl. We will enjoy a mix of activities with our group, including time at the playground, walking on the beach and along marsh trails, looking for birds, flying kites, etc.

Coming Prepared: The high in Annapolis on Sunday is supposed to be around 46 - nice for this time of year! There is a slight chance of rain, but it doesn't look like it will be coming into the area until the evening. Please dress in weather appropriate layers including a wind breaker/rain repellent layer and sturdy, mud tolerant shoes. If you have them, this is a good outing to bring kites, binoculars, and a camera. There are bathrooms in the park, but the refreshment kiosks are closed for the season, so bring your own water and snacks.

Notes for first time participants: Please check in with me when you arrive--I'll be the one with the sign-in clip board. Parents will be responsible for their children during the entire outing and will be supported in finding age appropriate opportunities to engage them in the activities and area. There is a frequently asked questions page and coming prepared page on our website that I recommend taking a quick look at.

Please let me know if you have any questions. If you know you won't be able to attend the event please email me or call my cell phone. I look forward to having a lot of fun exploring together!

Warm regards,

Club leader