With Green in Mind: Formative Influences on Ecological Mindedness

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With Green in Mind: Formative Influences on Ecological Mindedness

Abstract
This study investigates the formative experiences that nurture ecological habits of mind in youth. The study builds on the ecological habits of mind defined by Moroye and Ingman: caring, a sense of interconnectedness, and ecological integrity. A combination of methods was used in this study: in-depth phenomenologically based interviewing, and educational criticism and connoisseurship. Data collection included two interviews each with five teenagers, one interview each with the teens' mothers, photographing of artifacts, and a focus group with six additional teenagers. Observations and interpretations were filtered through ecological and aesthetic lenses.

Several key findings emerged. First, it is proposed that three qualities of ecological mindedness be added to those already defined: imagination, active engagement, and self-efficacy. Second, a review of the data revealed that the values of ecologically minded teens include relationship, commitment, and growth. Third, formative influences on the teenagers included experiences in nature (including place, play, and aesthetic experiences), experiences with animals, adult mentorship, community, peer and sibling influence, religion, and story. The aesthetic dimensions of learning (connections, risk-taking, imagination, sensory experiences, perceptivity, and active engagement) were all found to be present in the experiences of the teens; it is proposed that crafting nature-oriented learning experiences with these dimensions in mind helps to nurture ecological mindedness. This study has implications for environmental and ecological education as well as education in general, including implications for teacher education. The values and experiences of the teens help inform the recommendations that educators provide opportunities for natural aesthetic experiences as well as ecological mentoring.

Document Type
Dissertation

Degree Name
Ph.D.

Department
Curriculum and Instruction

First Advisor
P. Bruce Uhrmacher, Ph.D.

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Third Advisor
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Keywords
Aesthetic education, Ecological education, Ecological habits of mind, Ecological mentoring, Ecological mindedness, Teacher education

Subject Categories
Education | Other Education
Publication Statement
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WITH GREEN IN MIND:
FORMATIVE INFLUENCES ON ECOLOGICAL MINDEDNESS

A Dissertation

Presented to

the Faculty of the Morgridge College of Education

University of Denver

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

by

Shannon Burgert

November 2013

Advisor: P. Bruce Uhrmacher, Ph. D.
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Acknowledgements

I am grateful to so many people who provided guidance and support as I undertook this dissertation. Dr. Nicholas Cutforth, Dr. Kimberly Hartnett-Edwards, and Dr. John Kayser provided helpful suggestions and encouragement in my study. I was fortunate to have the guidance of Dr. Christy Moroye—few doctoral candidates are lucky enough to find someone as excited about their dissertation as they are, and I found that in Christy. I am enormously grateful for the wisdom of Dr. Bruce Uhrmacher, my advisor and mentor—thank you for pushing me and believing in me. I am indebted to the delightful participants in this study who allowed me a window into their amazing lives.

I am thankful beyond words toward my friends and family. Though there are far more friends who provided support than I have space to name, I would be remiss to not acknowledge a few, in particular: Dr. Amber Kim, for reading my work and providing valuable feedback; Dr. Caitlin Lindquist, for shining the flashlight from ahead, helping me sidestep multiple hurdles; Dr. Kathryn Bass and Joel Bass, for helping me to slow down and stay nourished; David Gray, who knew that most important was to get me outside; and Cara Mentzel, for daily doses of laughter, love, and perspective (if warped). For never doubting it was in me, thank you to my family—particularly to my sister Heather, whose support was unwavering as I defended, and to my father, who took me to the mountains and pointed to the stars.

This study is dedicated to my students, who give me great purpose and joy. Though I always give you my best, may this study help make that a little better.
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“The answer must be, I think, that beauty and grace are performed whether or not we will or sense them. The least we can do is try to be there” (Dillard, 1994, p. 287).
Chapter One: Introduction and Overview

“When we try to pick out anything by itself, we find it hitched to everything else in the universe” (Muir, 1911, p. 211).

Introduction

Naturalist John Muir suggests that everything is connected. We see this in ecosystems, as organisms and their environments are so intertwined that a kink in the web affects all the rest. Connections also dwell among our decisions and actions, as they are reflected—whether we know it or not—in countless impacts, both positive and negative. So too are our experiences connected to who we become, which is never static.

The human connection to the earth is changing, and it has become, in large part, a relationship of apathy and dominance of man over nature (Hutchison, 1998; Orr, 1992). David Hutchison (1998) writes, “We have gradually eroded the life systems and ecological processes of the planet to such a degree that our present ways of living are no longer viable” (p. 9). Richard Louv, author of the national bestseller Last Child in the Woods (2008), asserts, “Increasingly, nature is something to watch, to consume, to wear—to ignore,” and he warns of the effects of nature deficit disorder—the negative impacts on growing children and the environment that stem from an absence of nature in children’s lives (p. 2). This despite a 1989 declaration by the United Nations Convention on the Rights of the Child that a child’s basic educational rights include respect for the

Hutchison (1998) notes:

It is argued that the current public debate concerning the future of education, with its largely limited focus on the school as a site of economic renewal, ignores a much more substantive problem related to the deepening environmental impasse and the role of the human in disrupting the ecological stability of the planet. (p. 1)

David W. Orr (1992) agrees. He contends:

By failing to include ecological perspectives in any number of subjects, students are taught that ecology is unimportant for history, politics, economics, society and so forth. And through television, they learn that the earth is theirs for the taking. The result is a generation of ecological yahoos without a clue why the color of the water in their rivers is related to their food supply, or why storms are becoming more severe as the planet warms. The same persons as adults will create businesses, vote, have families, and above all, consume. (pp. 85-86)

Orr (2004) insists that “all education is environmental education. By what is included or excluded, students are taught that they are a part of, or apart from the natural world” (p. 12). By compartmentalizing our curriculum, keeping children inside and apart from the larger world, and dismissing the impact of our decisions on the environment by its lack of consistent inclusion in the curriculum, we cultivate a population that is environmentally illiterate and thus environmentally destructive. We give children no reason to appreciate and value nature.

Though there are a plethora of strong arguments to protect the environment, probably chief among them is that our own well-being is tied to the plight of the earth. Our physical and mental health—our own survival—is at stake. (Though shouldn’t the plight of the earth itself—of all its beauty and grace, whether or not we’re there to see it—be enough?)
Bowers (1999) argues that in part our problem as a society stems from deep cultural assumptions:

These modern assumptions include viewing change as progressive in nature, intelligence and creativity as attributes of the autonomous individual, science and technology as the source of empowerment, and the commodification of all areas of community life as the highest expression of human development. These assumptions are also responsible for the introduction of more than 60,000 chemicals into the environment, the depletion of fisheries and forests, changes in the carbon cycle in ways that contribute to global warming, and the loss of both species and cultural diversity. (p. 162)

Weston (2004) observes that though many of us know of, and can speak of, the plundering of the earth, it is not something that sits deep inside us:

Officially we acknowledge that of course we are animals, that of course we are living beings among other forms of life on a vast and still largely unknown planet, and therefore that of course we are putting ourselves as well as much of the rest of the living world in danger as we appropriate and consume more and more of that world for our own ends. Whether we actually believe or feel any of these things in our heart of hearts, however, is quite another thing. (p. 32)

Though our current ecological crisis reflects our values as a society, the realm of education bears the weight of change. Orr (2004) notes, “Schooling is only an accomplice in a larger process of cultural decline. Yet, no other institution is better able to reverse that decline” (p. 25).

The No Child Left Inside Act (NCLI), last proposed in 2011, reflects the gravity of current trends. The act advances the conviction that environmental education is essential to creating a responsible citizenry that is cognizant of and prepared to meet the significant challenges to the environment and related human health issues (H.R. 2547, 2011). The Colorado Environmental Education Plan (CEEP), a more local and specific roadmap, states:

Colorado’s environment, economy, and communities depend on informed citizens who can make decisions about air and water quality; the health of farms, ranches,
forests and wildlife; how to meet energy and other resource needs; how to create and sustain healthy communities; and how to provide opportunities for residents to partake in the state’s natural beauty while protecting it for future generations. (Colorado Department of Education, 2012, p. 6)

While NCLI and CEEP are critical in assuring the provision of necessary experiences and knowledge to youth, they do not address how students develop the inner traits that help them care, the traits that will carry students from having the requisite skills and knowledge to doing something with them. We need to move beyond environmental education in schools to embrace ecologically sensitive theories of child development.

Given the role that we place on schools to shape the skills and character of our society as well as the responsibility of our future, education needs to adopt an ecological consciousness. Studying the paths that help to develop ecological habits of mind in students may provide new routes to nurturing these traits in children and thus develop a more ecologically minded citizenry.

**Significance of the Study**

Hence, this study of formative influences on ecological mindedness is important for a variety of reasons. First, little research has been done on what ecological mindedness is (Moroye & Ingman, in press). It follows, then, that the movement of ecological education has been unable to answer the question of how a child develops ecological habits of mind. There is related literature: There is some research interviewing adults on how they developed a proclivity toward environmental action (Chawla, 1998; Chawla, 1999; Chawla & Derr, 2012; Corcoran, 1999b; Palmer, 1998). There is a significant body of research on how and why the field of education should embrace an ecological framework (Bowers, 2001; Colorado Department of Education, 2012; H.R. 2547, 2011; Hutchison, 1998; Louv, 2008; Moroye & Ingman, in press; Orr, 2004; Selby,
There is also an increasingly loud and convincing voice advancing the belief that people develop their affinity for nature—and thus develop a sense of protectiveness of it—by spending time in nature during their youth as well as having adult mentorship (Carson 1956/1998; Cornell, 1998; Hutchison, 1998; Louv, 2008; Palmer, 1998; Sobel, 1996).

However, there is a gap in the literature with regard to asking youth to retrace their paths into ecological mindedness. If we want to create a citizenry mindful of the environment, we must understand how children come to ecological beliefs and then carry them through their lives. Finally, by investigating how students develop ecological habits, we may gain insight into whether or not such experiences hold value for education in general.

Despite the dark words that begin this paper, there is also great reason for hope. For all of us do have a natural affinity toward the earth that begins in childhood. We do have a battle in front of us, one that is worth taking on. The decisions we make and the actions that follow have impacts—it is all “hitched,” as Muir articulates it. We must decide, with knowledge and intention, what impacts we are willing to tolerate and what values we must hold and nurture in our youth.

**Research Questions and Definitions**

Three questions guide this study:

1. **What are the values of teenagers who are ecologically minded?**

2. **What childhood experiences contribute to the development of ecological mindedness in teenagers?**
3. **What is the significance of the experiences of ecologically minded students for education in general?**

Below I explain the origin and significance of each question, with an accompanying clarification of terms. An explanation of how each question is answered is found in Chapter Three.

1. **What are the values of teenagers who are ecologically minded?**

   “Value” refers to something that is freely and thoughtfully chosen from among alternatives, something that has a positive quality for the person who holds it, and that is pervasive—a pattern—in our lives (Raths, Harmin, & Simon, 1966). Ernest Callenbach (2005), simply, says, “Values are basic ideas that guide us in how we should behave” (p. 46). Dietz, Fitzgerald, and Shwom (2005) suggest that an interview approach to studying values has been neglected.

   I refer to ecological mindedness and ecological habits of mind as synonymous. I draw on the definition of ecological mindedness offered by Moroye and Ingman (in press): a habit of mind comprised of, and through, three qualities: ecological care, interconnectedness, and ecological integrity. In this study student and parent participants were chosen based on students’ self-identified interest in and values toward preserving the environment.

2. **What childhood experiences contribute to the development of ecological mindedness in teenagers?**

   I looked for manifestations of stated experiences by my student and parent participants who exemplify ecological mindedness. I was mindful of any unstated or implicit messages or factors that surfaced during the course of this exploration. Of
question is which experiences that students have—and that parents and others provide—contribute to developing ecological mindedness. I address this issue during data analysis.

3. **What is the significance of the experiences of ecologically minded students for education in general?**

Certainly everyone falls on a continuum of ecological mindedness, ranging from environmentally destructive to fully embodying and acting on ecological values. This study aimed to explore experiences that contribute to students’ values on the latter end of this continuum. (See Figure 1 for a visual representation of this continuum; I remained open to modifying this continuum based on what the data revealed.)

**Figure 1: Continuum of Ecological Mindedness**

- No ecological care
- No interconnectedness
- No ecological integrity
- Ecological care
- Interconnectedness
- Ecological integrity

What experiences lead to this end of the continuum?
I have gained insight into the experiences that teenagers find meaningful, and I have come to appreciate the lessons that those experiences might offer to education so that we might nurture those qualities in other students.

**Overview of Methodology**

In this study I blend two established methods of qualitative research: interviewing, to capture the experiences and stories of my student participants, and educational criticism and connoisseurship, to reveal the patterns and themes that those stories render.

Interviewing is a method used to elicit the stories and lived experiences of participants. By putting their experiences into language, participants reveal the meaning attached to those experiences (Hatch, 2002; Seidman, 2006).

Educational criticism and connoisseurship (henceforth referred to as educational criticism) was developed largely by Elliot Eisner (1998) as a method of inquiry intended to improve education. Connoisseurship, the art of appreciation, requires that the researcher have sufficient knowledge of education to observe its subtleties. Criticism, the art of disclosure, involves an appraisal of the observed phenomenon. The intent in educational criticism is to expand perception and enhance understanding, always toward the goal of educational improvement.

The above methods of research match the aim of my study: to improve the field of education by understanding the experiences of students that lead to the development of ecological habits of mind.
Prelude to the Chapters

In this study I present the stories of five students, as shared with me by the students and their families, with an aim to provide insight into meaningful formative influences on ecological mindedness. In Chapter Two, I offer a review of the literature that provides context for my study, including a brief description of ecology, an explanation of ecological mindedness, and an overview of environmental and ecological education. In Chapter Three I present my approaches to the study. I provide an explanation of my methodology: interviewing and educational criticism and connoisseurship. I also outline my conceptual frameworks for the study: I use an ecological lens as well as an aesthetic lens developed by Uhrmacher and Moroye (Moroye & Uhrmacher, 2009; Uhrmacher, 2009). In Chapter Four I share the stories of my participants. I include an aesthetic interpretation of their experiences and influences relating to ecological mindedness. Finally, in Chapter Five, I connect the portraits, respond to the research questions, and discuss evaluation and themes that emerged from the research. I suggest implications for education and recommendations for further research.
Chapter Two: Review of the Literature

There are many facets of ecological education, which Smith and Williams (1999) define as "an emphasis on the inescapable embeddedness of human beings in natural systems" (p. 3). Because my aim in this study is to focus on the development of ecological mindedness, my intention in this literature review is to lay out research appropriate to ecological mindedness and ecological education. I will focus briefly on ecology itself, including a discussion of place and social justice, before moving into an overview of habits of mind and ecological mindedness. Finally, I will discuss education—specifically environmental education, ecological education, and life paths that lead to environmental action. Because my focus is not on psychology, I will only touch on this research as it applies to environmental education.

Ecology

Ecology, simply, is the interrelatedness of organisms and their environment.

It is easy to approach this from a solely scientific perspective, as rich as that is in itself. But "interrelatedness" is significant: it carries with it value and dependency, an inextricably linked relationship. And "organisms," of course, include humans.

Selby (2000) elaborates on "ecology," listing its basic principles:

strength in diversity; continuous movement and fluctuations; energy flows, cycles, and undulations; countless forms of partnership; coevolution through the processes of creation and mutual adaptation; the tensile dynamic between the assertive and integrative tendencies of any organism, sub-group, or sub-system. (p. 91)
The vivid language, though scientific, assists the reader in envisioning the rich interconnectedness had between organisms and earth. Ecology, for the purpose of this paper, includes the fulfilling relationship that humans can have with nature. However, Capra (2005) argues,

Because living systems are nonlinear and rooted in patterns of relationships, understanding the principles of ecology requires a new way of seeing the world and of thinking—in terms of relationships, connectedness, and context—that goes against the grain of traditional Western science and education. (p. 20)

Capra explains that contextual and systemic thinking requires a shift in perception from the parts to the whole, from objects to relationships, from objective knowledge to contextual knowledge, from quantity to quality, from structure to process, and from contents to patterns.

Elaine G. Schwartz (1999) writes, “Ecological literacy begins in childhood when we delight in a sense of kinship with the living world. The goal is not just a comprehension of how the world works, but, in the light of that knowledge, how we come to live our lives” (p. 103). Schwartz touches here on what E.O. Wilson coined “biophilia,” an affinity for earth and the life that resides with it.

Ecology, in this paper, further refers to “deep ecology,” a term created by Arne Naess and George Sessions in 1984. In contrast to a stay-the-course, anthropocentric, and short-term ecology movement with quick-fixes1, proponents of the deep ecology movement “look for long-term solutions, engage in deep questioning, and pursue

1 “Shallow ecology” refers to the reliance on technical fixes to environmental problems to support the planet for human-centered interests (Drengson & Devall, 2008). It does not delve into fundamental questioning of the way humans operate in relationship to the earth and instead focuses on efforts such as recycling, driving fuel-efficient vehicles, and saving the rainforests because of their value to humans.
alternative patterns of action. They strive to build sustainability” (Drengson & Devall, 2008, p. 26).

The platform of deep ecology, written by Næss and Sessions (1984), is as follows:

1. The well-being and flourishing of human and nonhuman life on Earth have value in themselves (synonyms: inherent worth, intrinsic value, inherent value). These values are independent of the usefulness of the nonhuman world for human purposes.

2. Richness and diversity of life forms contribute to the realization of these values and are also values in themselves.

3. Humans have no right to reduce this richness and diversity except to satisfy vital needs.

4. Present human interference with the nonhuman world is excessive, and the situation is rapidly worsening.

5. The flourishing of human life and cultures is compatible with a substantial decrease of the human population. The flourishing of nonhuman life requires such a decrease.

6. Policies must therefore be changed. The changes in policies affect basic economic, technological, and ideological structures. The resulting state of affairs will be deeply different from the present.

7. The ideological change is mainly that of appreciating life quality (dwelling in situations of inherent worth) rather than adhering to an increasingly higher standard of living. There will be a profound awareness of the difference between big and great.

8. Those who subscribe to the foregoing points have an obligation directly or indirectly to participate in the attempt to implement the necessary changes.

It should be noted that after Næss and Sessions developed this platform, Næss suggested that what he was able to articulate in “eight points requiring about 200 words should not be taken too seriously” (Drengson & Devall, 2008, p. 318), intimating that such a short treatment does not do justice to such a movement, nor should the term “movement” devalue other long-standing, historically important movements. The phrase
has been criticized for suggesting a dichotomy void of intermediate positions (Palmer, 1998). Nevertheless, the term “deep ecology” and its premises have been long-lasting ideals. It speaks to the obligation of humans to look beyond recycling, driving fuel-efficient cars, and buying local food to thinking more deeply about the way we live our lives and the impacts our decisions have on our communities, other organisms, and the earth.

It is hard to think of ecology without immediately thinking of the need to protect it—to protect the earth, its organisms, and their relationships—because when thinking about the earth, its degradation is hard to avoid. David Sobel (1996) laments that “Nature has become just another subject, rather than an imminent context for our lives” (p. vi). Apathy toward the environment is dangerous, given that very few of us who do care live up to Næss’ and Sessions’ tenets of deep ecology. Not caring means even “shallow ecology” is not achieved.

Some have become not only neutral and apathetic regarding nature, but fearful of it, for unfortunately biophilia has its opposite: biophobia. Chawla and Derr (2012) write that

children 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. (p. 529)

Apathy toward nature, or worse—fear of the woods, fear of dangerous animals, fear of weather exposure—none of these help the case that we need to make a profound shift in the way we do business as human beings on earth. Smith and Williams (1999) write,
“The welfare of human societies is contingent on our ability to conform to ecological principles that appear to govern activities of nonhuman communities” (p. 2). This will only happen, they argue, when we work in concert with nature rather than exploit it.

So what can a good relationship with the earth look like? Næss exemplifies a model relationship one might have with nature. Næss, a Norwegian philosopher and writer, enjoyed a deep communion with the earth, and one of his goals was to inspire people to develop their own ecosophies, a concept combining ecology with sophia, wisdom (Drengson & Devall, 2008). Næss was particularly enamored with earth’s mountains. Næss climbed, lived on, honored, and protected mountains the world over. But Næss was known to be a careful and patient observer of anything in nature; he could long be distracted by insects on trails and or pick a less “spectacular” camping spot out of those available, explaining that we can find wonder even in places that don’t at first stand out (Drengson & Devall, 2008).

Næss had a relationship with nature that might be comparable to a relationship with another person, a relationship which Davis, Green, and Reed (2009) suggest those who feel biophilia might experience. The authors point out that Thoreau experienced such a relationship, calling himself “part and parcel” of nature. In a 1995 interview, Næss shared his emphatic view that earth—not just the organisms that inhabit it—is alive:

You have in biology a good definition of an organism being alive, and something else being not alive. But the term ‘being alive’ has a vastly more comprehensive sense among ordinary people. For instance, the greatest slogan they used in northern Norway in a big direct action, the greatest slogan was the following: Let the river live! Let the river live, ha! Not: Letting us have the pleasure to go fishing there and to look at it and so on. They said: Let the river live. So there, to be alive, the river was alive. That is how many so-called ordinary people feel it with natural… mineral, the mineral kingdom, what is there. So, biology has good
reasons to define alive so-and-so, but it has no effect on the mind of people. It is just a speciality. As just a science, it has very little to do with human life [sic]. (van Boeckel, 1995)

Næss emphasizes that this is not his view alone, but that of “ordinary people.”

Næss continues, explaining that a mountain isn’t at risk of dying in the way that a river might be: “I don’t say: let the mountain be alive, because whatever is done, I feel the mountain would only be hurt, diminished, in a certain sense, but still alive” (van Boeckel, 1995).

**Place.**

“It feels as if this place itself has remembered what I have forgotten, as if my own memory, my own raising, some of my own life, is stored up in these trees for safe keeping” (Jardine, 2009, p. 155).

Place is integral to ecology, and it is worth elucidating here.

Næss’ example of his communion with mountains is a segue into the importance of place in ecology. Næss’ attachment to mountains largely defines his connection to nature; in particular, Næss felt a kinship with the mountain Hallingskarvet. Næss, whose father died when he was one, explains that Hallingskarvet was a father to him, because “in understanding the kindness of mountain, you can always find protection [sic]” as well as advice (van Boeckel, 1995). He also attributes dignity and benevolence to his beloved Hallingskarvet:

Only a mountain you can get me that view with this fantastic horizon, and where you feel also powerful, at the same as you are very, very small, that is important philosophically. That the less you are in relation to the surroundings, the stars and the mountain, the more you intensely feel that you somehow symbolically get part of it. You get greater. You get on par with it. You get to feel good with it. So, the tinier you are, the more in some sense you are together with something great and therefore, get something of that greatness [sic]. (van Boeckel, 1995)
Beyond having a relationship with nature, one can link his or her identity to a place. Davis et al. (2009) note that there is evidence of a stronger connection between individuals’ self-identity and the natural world than between individuals’ self-identity and the constructed world. Noddings (2005) contends that the loss of place can result in severe emotional consequences. She writes, “For many Navajos, moving away from one’s original location is equivalent to losing one’s identity” (p. 59). Some attachment needs might be achieved through connection to a place, just as they might in an interpersonal relationship (Davis et al., 2009). Culture, stories, religion, and language are intimately associated with place (Bowers, 1999; Smith & Williams, 1999).

Louise Chawla (1999) has studied life paths that have led environmentalists to their work. The highest-ranking source of commitment cited by study participants was “experience of natural areas.” More specifically, the top two sub-areas listed are a childhood home or vacation place set in a rural landscape and “attachment to valued family land, such as a farm” (p. 18). Further, Chawla notes, “The special places that stood out in memory, where people formed a first bond with the natural world, were always part of the regular rhythm of daily life,” and sometimes outdoor settings even served as a refuge from stresses indoors (p. 19). The degradation of place was one reason cited for environmental action.

Gruenewald and Smith (2008) discuss the effect that a lack of “place” might have, noting that some people only “reside,” rather than “inhabit,” a place, developing little or no connection to it. This lack of place—“placelessness”—is associated not only with the environment, but also with alienation from, and lack of interaction with, other people and
community (p. xvi). Noddings (2005) additionally points out the frequent political conflict over the loss of place.

Focusing on children, Gruenewald and Smith (2005) write, “By connecting to and appreciating places, children and youth begin to understand and question the forces that shape places; they develop a readiness for social action, and, with the proper adult guidance, the skills needed for effective democratic participation” (p. xx). And jumping ahead to education for a moment, Gruenewald and Smith note that more “permeability” in school walls is required if place-based education is to work (p. xx).

Orr (2005b) asserts, “knowledge of a place—where you are and where you come from—is intertwined with knowledge of who you are. Landscape, in other words, shapes mindscape” (p. 93).

**Social justice and ecofeminism.**

When speaking of ecological literacy, one also inherently speaks of social justice and ecofeminism (Bowers, 2001; Corcoran, 1999a; Drengson & Devall, 2008; Merchant, 1996; Noddings, 2005; Schwartz, 1999; Selby, 2000; Smith, 2004). Ecological values are critical to preserving the environment, but they also are critical to preserving culture and place; exploitation of the environment and those who are marginalized, including women, is linked. Bowers (2001) writes:

Any definition of social justice that does not take account of how human demands on the natural environment are affecting the lives of future generations is fundamentally flawed. Indeed, it seems incomprehensible to write about social justice for women, minorities, and the economic underclass without considering the ways in which the Earth’s ecosystems are being rapidly degraded. (p. 3)

The “not-in-my-backyard” response to environmental commodification and exploitation by the affluent means that when the environment is affected, it is
disproportionately the environment of the poor (Bowers, 2001; Noddings, 2005). The poor have a smaller and thus less influential voice, and they are unable to ward off the unthinkable amount of exploitation of their place.

Lanza (2005) writes that there is sometimes a divide between the traditional environmental movement and the environmental justice movement, often, she says, because

for too long people of color, low-income people, and youth have been forgotten or intentionally marginalized from efforts to heal ecological systems, revitalize cities, and conserve precious resources. Outreach efforts are often culturally inappropriate because target populations are minimally represented in environmental fields. (p. 225)

Selby (2000) argues that there are different shades of “green” in environmental literacy, and that many of our efforts in preserving the environment fall under green of lighter shades. He writes, “Those embracing a dark green philosophy also recognize ‘green’ to be more than a synonym for ‘environmental.’ They view issues of culture, development, environmental and social justice, equity, health, and peace to be seamless and inseparable” (p. 89). Interestingly (and unfortunately) a search of multicultural literature—replete with discussions of power inequities—does not reveal any mention of the ecological crisis and its effects on the disenfranchised (Schwartz, 1999, p. 104).

At issue is domination, according to Carolyn Merchant (1996). She argues that many of the problems in our society stem from domination by those in power—women are dominated by men, the poor are dominated by the privileged, and the earth is dominated by humans. Ecofeminism stages its foundation on the premise that oppression of all kinds is connected. Diamond asserts:
In an ecofeminist vision, there is no such thing as a struggle for women’s rights separate from a struggle to repair the living systems of the earth that sustain life, or a struggle for gender equality that can be divided from a struggle for equality along lines of race, culture, economics, ancestry, relation, sexual orientation, or physical ability. (as cited in Schwartz, 1999, pp. 104-105)

Relating these issues to education means recognizing the systemic domination ingrained in our industrialized society, questioning the deep assumption inherent in such a system, and focusing on the value of culture and place in an ecological context. Bowers (2001) suggests that

An eco-justice pedagogy should have as its main focus the recovery of the capacity of different cultural groups to sustain traditions that contribute to self-sufficiency, mutual support, and symbolic expression. In short, it should stress relationships and skills that make dependence on consumerism less necessary. What must be reversed is the way basic needs in health, nurturing, education, entertainment, leisure, work, community relationships, and so forth are increasingly defined and met by the purveyors of commodities and expert systems. (p. 7)

In an increasingly globalized society, we must appreciate the variety and the value of worldviews, not as a course to achieve our own success, but because they are valuable to the ecology of our lives. We must recognize the impact of environmental exploitation on the earth, but also in the context of social justice.

**Ecological Mindedness**

Ecological mindedness is a tricky term to define but one that is beginning to gain ground as a way to describe ecological ways of thinking and being. Though behaviors that predict environmental concern as well as life paths that lead to environmental work are well studied (though by no means exhausted), research on ecological mindedness is in its infancy. Summon and Google searches of ecological mindedness and ecological habits
of mind yield very little that have any relevance to this study; the few that inform the study are referenced.

Related areas of research include the psychology of behavior and dispositions, what ecological education should look like, and life paths that lead to environmental action, though I will address these only briefly, without exhausting the literature.

Two works best inform my study. First, David Hutchison, in Growing Up Green: Education for Ecological Renewal (1998), discusses the importance of early and middle childhood in developing a relationship with nature and thus a commitment to the earth.

Second, Christy Moroye and Ben Ingman (in press) drew on the work of John Dewey and Moroye’s own research into the practices of ecologically minded teachers to identify three traits that exemplify ecological mindedness. I will build on their work to define ecological mindedness.

Before moving into a discussion of ecological mindedness, I will address some research on mindedness and behavior, as I chose participants largely based on their outward expressions of their environmental and ecological beliefs. Ultimately, it is outward behavior that we hope positive habits of mind influence.

**Habits of mind and behavior.**

“Every experience is a moving force” (Dewey, 1938/1997, p. 38).

As mentioned earlier, I use the terms “mindedness” and “habits of mind” interchangeably. For the purpose of this study, “mindedness” and “habits of mind” are defined as intentional habits, including some frequency of action. The Oxford English Dictionary defines minded as “habitually thinking, inclined to think, or capable of
thinking in a specified manner” (Minded, 2013). The term “habits of mind” is sometimes used interchangeably with “dispositions” (Katz, 1993; Mooney, 1997), and so it is useful to draw on the qualities that define dispositions to help define habits of mind. Resnick defines a disposition as “a habit of thought, one that can be learned and, therefore, taught” (as cited in Katz, 1993, Thought processes and dispositions section, para. 2). Katz and Raths suggest that while dispositions require attention, “with practice and experience the acts may appear to be spontaneous, habitual, or even unconscious” (as cited in Katz, 1993, Habits and Dispositions section, para. 1). Katz notes that the construct of a disposition suggests broad, characteristic behavior rather than behavior that is specific. While I do not use the term “disposition” in this paper, I draw on the above concepts of a disposition to frame “mindedness” and “habits of mind.”

Heimlich and Ardoin (2008) write, “In essence, few behaviors are conscious and most are learned habits” (p. 219). The authors also note that actions usually stem from beliefs: “First, it must be explicitly noted that people act in ways that are usually consistent with how they express their values, beliefs, understandings, culture, socialization, enculturation, upbringing and training. Behaviors are not static” (p. 230). Heimlich and Ardoin stress that a desired behavior must be specific and paired with an appropriate learning event; a desired behavior removed from the learning circumstance is less likely to emerge.

In environmental education there is an interesting balance: On one hand educators hope to make students’ habits toward environmental protection become automatic. On the
other, they want students to think critically. As Heimlich and Ardoin (2008) note, these are disparate aims:

Although it may appear that environmental educators want conservation actions to become causuistic—or automatic and socially reinforced—environmental education also encourages critical thinking, which runs contrary to the subconscious aspect of causuistic behaviors. With critical thinking, we desire behaviors to be post-conscious rather than subconscious. This means that one’s actions should be conscious enough that individuals are able to identify a behavior that can or should change when situations or circumstances change. … Moving beyond causuistic, thoughtful behavior includes the ability to change behaviors based on skills of transfer, knowledge and attitude. (p. 220)

John Dewey (1938/1997) emphasizes a key proposition: experience plays into and even predicts behaviors; moreover, as a person assimilates experiences, he becomes a different person, thus encountering new experiences differently than he might have before. Dewey writes,

The basic characteristic of habit is that every experience enacted and undergone modifies the one who acts and undergoes, while this modification affects, whether we wish it or not, the quality of subsequent experiences. For it is a somewhat different person who enters into them. (1938/1997, p. 35)

Dewey adds, “It covers the formation of attitudes” (p. 35), further connecting experience to the formation of one’s state of mind. Though “attitude” and “habit of mind” might have different nuances in definition, they both relate to a tendency or inclination.

By choosing students who behave in ways that appear to be ecological in nature, I could expect that they hold beliefs and values that are in accord with ecological mindedness. There are limitations inherent in studying habits of mind, because they do reach deeper than outward behavior—mindedness is about how we think. Regardless, this study aimed to find connections between what I was able to glean about students’ habits of mind and their childhood experiences. I examined the question: What is the effect of
their formative experiences on who they are, making them available to yet new experiences?

**Qualities of ecological mindedness.**

As a foundation for this study, I use the work of Moroye and Ingman. In “Ecological Mindedness Across the Curriculum” (in press), the authors lay out three themes that demonstrate ecological mindedness: ecological care, interconnectedness, and ecological integrity. The three qualities “are both characteristics of the experience (as had by students) as well as resulting sensibilities fostered in those who undergo such an experience” (Moroye & Ingman, in press). The authors drew these traits out of the literature and looked to Moroye’s research to find evidence of each in teachers’ practices.

In setting a framework for their study, Moroye and Ingman (in press) use a tenet of John Dewey’s; namely, the qualities of ecological mindedness they pursue need to be educative (rather than non-educative or mis-educative). The authors follow the two criteria Dewey extends as necessary for an experience to be educative: continuity and interaction.

Continuity means, essentially, that for an experience to be educative, it must connect to future experiences in a meaningful and positive way.

Given the aims of environmental and ecological education, to foster sustainable actions in everyday life, it is particularly important that we consider continuity so that students and teachers comprehend the connection between the experiences educators facilitate and the lives students lead. Environmental education is, after all, intended to inform behaviors *outside* of school perhaps more so than *in* school. (Moroye & Ingman, in press)
Interaction refers to an equal relationship between the content and the learner. Dewey (1938/1997) argues that education traditionally places too much emphasis on the subject to be learned and not enough on the inner learner.

In the context of environmental education, interaction relates to the ways in which students’ belief systems and past experiences regarding sustainability are brought into the experience as viable contributions to be discussed, evaluated, challenged, nurtured, and confirmed. (Moroye & Ingman, in press)

In elucidating the first quality, ecological care, Moroye and Ingman (in press) build on the work of Nel Noddings (1992), who proposes that schools should be organized around centers of care. Noddings describes six types of caring, and Moroye and Ingman use the three types of care most relevant to ecological education: care for self; care for animals, plants, and the earth; and care for strangers and distant others.

Care for self, involving the physical, spiritual, occupational, and recreational aspects of a person’s life, is important in itself, but also as a precursor to caring for anyone or anything else. “By evaluating their own lives, their own choices, the world at large, and the connections between self and other, students are learning a valuable skill—to understand that care for self prepares us to care for others and the world” (Moroye & Ingman, in press). Caring for animals, plants, and the earth is an unambiguous quality necessary for ecological care. This includes being cognizant of, and caring about, the impacts of our decisions and lifestyles on others, including the earth and all its organisms. In caring for strangers and distant others, we are compelled to find connections between ourselves and others we do not know. This trait is important to ecological care because if we do not care for others around the planet, we are not attending to the relationship among “organisms” inherent in ecology. Moroye and Ingman quote Smith: “The task for
educators concerned about addressing the health of social and natural systems could well lie in establishing the conditions that support the manifestation of care” (Smith, 2004, p. 77).

Interconnectedness, another attribute of ecological mindedness, essentially signifies the “acknowledgement of various and eclectic notions of the relationships among all things” (Moroye & Ingman, in press). The authors turn here to Næss and his Gestalt philosophy. Næss asserts that rather than being defined by what distinguishes us from the “other,” we are defined by our relationships with others. The authors refer us to Schultz: “[he] argued that the ways in which people develop relationships with the natural environments depend on ‘the degree to which they view themselves as interconnected with nature’ (p. 391)” (Moroye & Ingman, in press). A further discussion of this is included, above, in the section “Ecology.” Moroye and Ingman note the usefulness of juxtaposition in convincing the reader of the interconnectedness of all entities. They write,

This interconnectedness is evident through experiencing the rhythm of simultaneous difference and oneness. To perceive the world as juxtaposed and to embrace the stark contrast of, for example, beauty and despair, we are awakened to a deeper level of knowing and begin to understand things in their fullness—as constituting an interconnected web. (Moroye & Ingman, in press)

Moroye and Ingman explain that ecological integrity, the third theme in ecological mindedness, is not a trait that stands on its own, but instead is exemplified through ecological care and the acknowledgement of interconnectedness. The authors note that integrity itself is a default quality of ecological mindedness. They present ecological integrity as “the alignment of beliefs and actions, which materialize as
dispositional qualities resulting from a comprehension of interconnectedness and ecological care” (Moroye & Ingman, in press).

Though I began with the three qualities of ecological mindedness developed by Moroye and Ingman, I left open the possibility that additional areas may emerge. In the literature I found evidence for empathy, humility, self-efficacy, willingness to adapt, imagination, tolerance for ambiguity, and the ability to become engaged or immersed (Chawla, 2012; Heimlich & Ardoin, 2008; Palmer, 1998; Sobel, 1996). Some of these qualities may be more salient, such as Moroye and Ingman’s ecological care, particularly for animals, plants, and the earth. Some may be more elusive. As mentioned earlier, there is certainly a continuum for ecological mindedness. In Chapter Four I offer evidence, based on my data analysis, that imagination, engagement, and self-efficacy are qualities to include on that continuum.

**Education**

“All through school … I had been given maps of life and knowledge on which there was hardly a trace of many of the things that I most cared about” (E. F. Schumacher, as cited in Jickling, 2009, p. 164).

Aims in schools vary widely. In large part, though, the ultimate goal in education today is to produce students with “twenty-first century skills” who can succeed in a global world. Labaree writes,

Regardless of what is happening in the world, American schools since the 1980s have remained snared in the belief that their primary purpose is to prepare all children to compete successfully in the race for social mobility and contribute to U.S. economic domination. (as cited in Smith, 2004, p. 73)
This goal is well intentioned, if short-sighted, and many of the penultimate goals—such as developing critical thinking skills—are in accord with ecological awareness. But “‘preparation’ is a treacherous idea,” says Dewey (1938/1997). He explains:

In a certain sense every experience should do something to prepare a person for later experiences of a deeper and more expansive quality. That is the very meaning of growth, continuity, reconstruction of experience. But it is a mistake to suppose that the mere acquisition of a certain amount of arithmetic, geography, history, etc., which is taught and studied because it may be useful at some time in the future, has this effect, and it is a mistake to suppose that acquisition of skills in reading and figuring will automatically constitute preparation for their right and effective use under conditions very unlike those in which they were acquired. (p. 47)

Ironically, most schools cut children off from the world in which we expect them to succeed. Dewey emphasizes “the organic connection between education and personal experience” (1938/1997, p. 25). We are cultivating students who have a high degree of knowledge, but not a keen and perceptive sense of the earth. Moreover, Orr (2004) points out that the degradation of the earth “is largely the results of work by people with BAs, BSs, LLBs, MBAs, and PhDs. … education is no guarantee of decency, prudence, or wisdom. … It is not education, but education of a certain kind, that will save us” (p. 7).

For Orr, and for this study, that education embraces ecological values. Even many of those who care deeply about the earth do not have the kind of education that helps them understand the impacts of their decisions on the environment or on their communities. And education matters greatly in directing children regarding what to value.

education: “Environmental education deals with values. Many school systems regard this as dangerous ground, and many teachers (particularly in the natural sciences) are not trained to teach values. … Yet no lifestyle or educational system is value-free” (as cited in Palmer, 1998, p. 78).

Again, Orr (2004) professes, “All education is environmental education. By what is included or excluded, students are taught that they are part of or apart from the natural world” (p. 12). Moroye (2005) expands on Orr’s assertion:

If this is true, then everything that happens in a school speaks. The way a school deals with trash, buys food, mediates the natural environment, organizes outdoor activities, and uses and reuses paper and materials all communicate implicit and explicit values about the environment. (p. 124)

Unfortunately, most schools (intentionally or not) exclude the natural environment; the value of the earth is made clear through its absence.

In considering school reform, it is appropriate to take into account five dimensions of education that Elliot Eisner refers to as the “ecology of schooling.” Eisner argues that any discussion of school reform must take these domains into account. They are the intentional, which refers to goals or aims; structural, meaning how content is organized and scheduled; curricular, pertaining to what is taught; pedagogical, referring to how the content is taught or mediated; and evaluative, concerning assessment (Pinar, Reynolds, Slattery, & Taubman, 1995). Eisner emphasizes that a change in one element impacts all, though often the links between these dimensions are not taken into consideration in reform efforts.
The evolution of environmental education.

For the purpose of this study, I am focusing on ecological education. I will first describe the evolution of environmental education, which has much overlap, and is sometimes used synonymously with ecological education. I will draw a distinction between the two in an effort to delineate, as Selby (2000) refers to them, different “shades of green.” (Some authors cited in this review, however, do not make such a distinction. At times quotations will refer to “environmental education,” clearly intending a deeper and broader term than I will use here—one that is in line with what I call ecological education.)

My discussion of environmental education will provide a foundation on which to situate ecological education. While the goals of environmental education are admirable, my discussion in part focuses on where environmental education (as a “lighter shade of green”) falls short of nurturing children who become stewards of the earth and its communities in many forms.

The history of environmental education.

The field of environmental education developed from multiple roots.

Some individuals are credited with early philosophies that preceded environmental education. Philosopher Jean-Jacques Rousseau, in Emile, suggested that the environment should be a focus of education. Scientist and educator Louis Agassiz maintained that his students should learn directly from nature, rather than books. The nature study movement, defined by Wilbur Jackman in 1891 when he wrote Nature Study
for the Common School, took students outside with an integrated learning approach (McCrea, 2006); it is recognized as a significant precursor to environmental education.

Outdoor education, taking teaching and learning outside, emerged in the 1920s. While environmental education certainly does not take place exclusively (or in some cases much at all) outside, outdoor education is considered a forerunner to environmental education (Disinger, 1983). Additional educational movements are credited as precursors or companions to environmental education: resource-use education, focused on economics and geography; progressive education, holistic and responding to the needs of children; resource management education, professionalizing such fields as soil conservation, urban and regional planning, and environmental engineering; and population education, recognizing the relationship between population and environment (Daudi & Heimlich, 2002).

The “Dust Bowl” of the 1930s is also recognized as a precursor to environmental education because it gave rise to the movement of conservation education, focused on creating awareness of environmental issues and the importance of resource conservation; conservation education was by nature interdisciplinary (Daudi & Heimlich, 2002), and it is recognized as a significant antecedent to environmental education as well (Disinger, 1983). However, also identified as a precursor to environmental education was increased public attention to issues of pollution and energy demands.

Highly visible signs of environmental deterioration such as major oil spills and flammable rivers, and less visible problems such as the symptoms of widespread chemical exposure that Rachel Carson described in her 1962 book, Silent Spring, put the effect of environmental quality on humans in the spotlight. (Archie & McCrea, 1998, para. 2)
Environmental degradation also helped highlight the impact that humans have on nature.

Though the definition of environmental education continues to evolve, in 1969 William B. Stapp and his students at the University of Michigan wrote the seminal “The Concept of Environmental Education” in the first issue of *The Journal of Environmental Education*, including an early definition of environmental education. Stapp (1969/2005) writes, “The Supreme Court decision regarding the one-man, one-vote concept, enabling the increasing urban majority to acquire greater powers in decision-making, makes it imperative that programs developed for urbanites be designed with them in mind” (p. 34). He maintains that individuals from both urban and rural areas need assistance in understanding the environment, including its problems and relationships, as well as how they might make an impact in solving environmental issues. Stapp continues,

> This new approach, designed to reach citizens of all ages, is called ‘environmental education.’ We define it in this way: Environmental education is aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution. (p. 34)

In 1970 the U.S. Congress passed the National Environmental Education Act, authorizing the creation of an Office of Environmental Education and a National Advisory Council for environmental education. (The act was criticized for rejecting funding proposals connected to outdoor education, nature study, and conservation education.) On April 22 of that year, 20 million people celebrated the first Earth Day.

International conferences quickly heightened the focus on and the urgency of environmental education. Recommendation 96 stemming from the 1972 Stockholm Conference on the Human Environment “called for the development of environmental
education as one of the most critical elements of an all-out attack on the world’s environmental crisis” (Heimlich & Daudi, 2002, p. 15). The 1975 Belgrade Charter, outlining a structure for environmental education, developed this goal statement:

The goal of environmental education is to develop a world population that is aware of, and concerned about, the environment and its associated problems and which has the knowledge, skills, attitudes, motivations, and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones. (as cited in Heimlich & Daudi, 2002, p. 15)

Many goals and guiding principles still used today by environmental educators were developed at the United Nations Educational, Scientific, and Cultural Organization’s (UNESCO’s) Intergovernmental Conference on Environmental Education in Tbilisi, Republic of Georgia, in 1977. The Tbilisi Declaration states the aims of environmental education:

a) to foster clear awareness of, and concern about, economic, social, political and ecological interdependence in urban and rural areas; (b) to provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment; (c) to create new patterns of behaviour of individuals, groups and society as a whole towards the environment. (UNESCO, 1978, p. 26)

The Tbilisi Declaration further presented five broad objectives:

- Awareness: to help social groups and individuals acquire an awareness of and sensitivity to the total environment and its allied problems.
- Knowledge: to help social groups and individuals gain a variety of experience in, and acquire a basic understanding of, the environment and its associated problems.
- Attitudes: to help social groups and individuals acquire a set of values and feelings of concern for the environment, and the motivation for actively participating in environmental improvement and protection.
- Skills: to help social groups and individuals acquire the skills for identifying and solving environmental problems.
Participation: to provide social groups and individuals with an opportunity to be actively involved at all levels in working toward resolution of environmental problems. (UNESCO, 1978, pp. 26-27)

Since the Tbilisi Declaration, the language used in definitions of environmental education has shifted and objectives have been finessed. “Yet the educational goals presented in the environmental education literature since the late 1970s are remarkably consistent” with the five broad objectives listed above (Archie & McCrea, 1998, Educational Goals of Environmental Education section, para. 1).

A highly attended 1992 United Nations Conference on Environment and Development in Rio de Janeiro, Brazil, (the “Earth Summit”), produced Agenda 21 and The Rio Declaration, documents that together provided principles and a blueprint for a sustainable future. A key outcome of the conference was the recommendation that environment and development be integrated in both formal and informal education (Palmer, 1998). Though it fostered little international agreement and raised more questions than it answered, “Rio mattered because it did a great deal towards raising public awareness of the need to take action” (Palmer, 1998, p. 75).

Environmental education has been claimed by a variety of groups with varying agendas. Stakeholders in the field include formal educational institutions at different levels aiming to develop and share instructional materials and pedagogy, environmental activists intent on dispersing pro-environmental messages, governmental agencies hoping to plug and gain support of their missions, and businesses and industries aiming to justify and clarify their standings on environmental issues (Disinger, 2005).

Palmer (1998) explains that it has been generally accepted since the 1970s that education with regard to the environment consists of three core “threads”: education
about, from, and for the environment. Education about the environment refers to investigation that is cognitive in nature, with a goal of acquiring information. Education from the environment focuses on the environment as a resource, particularly as a medium of inquiry, to enhance learning. Education for the environment centers on the environment itself as an area of concern, with students developing attitudes and values that support an environmental ethic.

Limitations of environmental education.

Environmental education aims to fill students with knowledge about the earth. While this is commendable and important, it is not enough. Environmental education is often simply a school subject, not a concept instilled and infused throughout the educational experience. Further, Williams and Taylor (1999) point out, knowledge of the environment does not necessarily transfer into behavioral changes or provide the skills necessary to address local issues. Environmental education at its best might nurture the traits that exemplify ecological mindedness, but without explicitly aiming for such heights, it is unlikely that environmental education will reach many students in this way.

To change the way school “speaks,” as Moroye puts it above, we need to change the way we do business in schools. Environmental education as simply a school subject does not do this. “The worry, to put it generally, is that importing the usual modes of teaching into environmental education risks reproducing the very disconnection from the larger world that was the problem in the first place” (Weston, 2004, p. 35).

Another concern about environmental education is that it excludes social and cultural issues that should be encompassed in a study of the earth; conversely, social
studies is denatured, so the connectedness of the two arenas is not acknowledged (Selby, 2000).

Smith and Williams (1999) discuss the shortcomings of environmental education by juxtaposing it with ecological education, including their aforementioned definition of ecological education:

Marginalized when offered, classes in environmental education focus on scientific analysis and social policy—not cultural change. They approach issues related to the degradation of the environment as problems capable of being solved through the collection of better data, the framing of regulatory legislation, or the development of institutional procedures aimed at reducing waste. … Missing in most of these efforts, however, is a recognition of the deeper cultural transformations that must accompany the shift to more ecologically sustainable ways of life. … For us, ecological education connotes an emphasis on the inescapable embeddedness of human beings in natural systems. (pp. 2-3)

A final concern about environmental education is that it can tend toward the anti-aesthetic, sharing with children devastation of the earth in hopes that they will share our urgency in wanting to protect it; however, many researchers argue that this tactic is incongruous with early and middle childhood, and it may in fact result in very different outcomes than intended (Cornell, 1998; Davis et al., 2009; Louv, 2008; Sobel, 1996; Weston, 2004). Feeling little power to intervene in the earth’s mistreatment, and feeling as if they’re inheriting a “dirty” world, students may dissociate themselves from environmental issues (Weston, 2004). Sobel (1996) writes,

If we fill our classrooms with examples of environmental abuse, we may be engendering a subtle form of dissociation. … My fear is that our environmentally correct curriculum will end up distancing children from, rather than connecting them with, the natural world. (p. 2)

Further, by dwelling on environmental messages, we run the risk of desensitizing children to such messages (Heimlich & Ardoin, 2008).
Instead, proponents of ecological education argue that children should first be given space to develop a connection with nature (Cornell, 1998; Davis et al., 2009; Louv, 2008; Sobel, 1996; Weston, 2004). Cornell (1998) writes, “My greatest concern is that children have joyous first experiences with the natural world. This way, their associations with the natural world begin on a happy note, and will always be fond ones” (p. 99). Sobel (1996) adds to this: “What’s important is that children have an opportunity to bond with the natural world, to learn to love it, before being asked to heal its wounds” (p. 9).

“Greening” schools—recycling, composting, saving energy—is not enough. As Selby (2000) spells it out, greening schools only qualifies as a lighter shade of green, and this is often the extent of school change that occurs in conjunction with environmental education.

Weston (2004) adapts a line from John Dewey: he explains that to teach nature in the classroom, as a human-centered book subject, is to make “the very place where children are sent to discover the Earth the one place in the world where the Earth barely shows up at all” (p. 34).

**Ecological education.**

“We cannot win this battle to save species and environments without forging an emotional bond between ourselves and nature as well—for we will not fight to save what we do not love” (Gould, 1994, p. 40).

So how do we develop not only a love for the earth, but ecological mindedness, in children? More specifically, Kiefer and Kemple (1999) ask, how do we begin transitioning schools from training children to perpetuate an unsustainable consumer-oriented, technologically-fixated society to nurturing the
inborn curiosity, natural wonder, and creative passion of all children in finding their own niche in the ecological web? (pp. 30-31)

These are questions in part unanswered, and they are the larger purpose of this study. However, much work has been done laying out what ecological education should look like.

First, Smith (2004) suggests that we turn from manufacturing and industrial analogies—suggesting that human attributes, or “products,” can be manufactured and measured—to agricultural metaphors, recognizing that our tasks are “more akin to those of a thoughtful organic farmer than an engineer” (p. 91). Our principles must follow.

Smith and Williams (1999) suggest seven principles of ecological education:

- Development of personal affinity with the earth through practical experiences out-of-doors and through the practice of an ethic of care
- Grounding learning in a sense of place through the study of knowledge possessed by local elders and the investigation of surrounding natural and human communities
- Induction of students into an experience of community that counters the press toward individualism that is dominant in contemporary social and economic experiences
- Acquisition of practical skills needed to regenerate human and natural environments
- Introduction to occupational alternatives that contribute to the preservation of local cultures and the natural environment
- Preparation for work as activists able to negotiate local, regional, and national governmental structures in an effort to adopt policies that support social justice and ecological sustainability
- Critique of cultural assumptions upon which modern industrial civilization has been built, exploring in particular how they have contributed to the exploitation of the natural world and human populations (pp. 6-7)
Care, place, connection, culture, social justice—all of these are themes that repeatedly surface in an ecological context.

At its best, argues Palmer (1998),

Environmental education is not simply about ‘saving the whale’ or indeed ‘saving the world.’ It is equally about the development of an appreciation of the wonders and beauty of the world, and of a sense of wanting to save it—in short, the development of ecological thinking or of an environmental ethic. (p. 267)

Says Palmer (1998), environmental education incorporates not only the scientific but other dimensions as well, including the economic, political, spiritual, social, and aesthetic.

If we want to nurture environmental sensitivity—an awareness of and care for the needs of the environment—in our students and create environmental stewards, we must hold to Dewey’s standards of positive growth and experiences that are educative, including continuity and interaction. Dewey (1938/1987) writes, “What [a student] has learned in the way of knowledge and skill in one situation becomes an instrument of understanding and dealing effectively with the situations which follow. The process goes on as long as life and learning continue” (p. 44). Educators are responsible to provide the kind of situations and environments—the kind of education—that we need kids to have.

Dewey writes,

A primary responsibility of educators is that they not only be aware of the general principle of the shaping of actual experience by envoirning conditions, but that they also recognize in the concrete what surroundings are conducive to having experiences that lead to growth. (p. 40)
Bob Jickling (2009) asks, “If this kind of experiential learning is so important, why does it generally seem to circle the perimeter of education? Why does it seem marginalized? Or, ‘othered’?” (p. 168).

Orr (2004) also outlines a set of educational principles, suggesting how we might rethink education to be more attentive to the connection between the plight of the environment and our own. These principles are necessary for ecological literacy.

Orr’s (2004) first tenet has already been introduced: “all education is environmental education” (p. 12). Orr stresses, as an example, that a study of economics without mention of the laws of thermodynamics or ecology teaches students that there is no connection between physics, ecology, and economics. Orr contends that this is “dead wrong,” and that this fractionalization is representative of the entire curriculum.

Second, Orr insists, “The goal of education is not mastery of subject matter but mastery of one’s person. … one uses ideas and knowledge to forge one’s own personhood” (p. 13). We should not be filling minds, but nurturing the development of our children.

Third, Orr says, “knowledge carries with it the responsibility to see that it is well used in the world. … Knowledge of how to do vast and risky things has far outrun our ability to use it responsibly” (p. 13). This takes us back to Orr’s disturbing observation that the degradation of the earth is in large part due to the work of the most educated. How can we best use what we know, and grow our learning in a positive direction?
Fourth, asserts Orr, “we cannot say that we know something until we understand the effects of this knowledge on real people and their communities” (p. 13). This speaks to social justice. Orr writes,

I grew up in Youngstown, Ohio, which was largely destroyed by corporate decisions to “disinvest” in the economy of the region. In this case MBA graduates, educated in the tools of leveraged buyouts, tax breaks, and capital mobility, have done what no invading army could do: They destroyed an American city with total impunity and did so on behalf of an ideology called the “bottom line.” But the bottom line for society includes other costs: those of unemployment, crime, higher divorce rates, alcoholism, child abuse, lost savings, and wrecked lives. (p. 13)

Orr alleges that what was taught in the economics and business schools lacked any discussion of values or repercussions on humans, communities, and the environment.

Orr draws from William Blake in outlining his fifth principle: “It has to do with the importance of ‘minute particulars’ and the power of examples over words. Students hear about global responsibility while being educated in institutions that often spend their budgets and invest their endowments in the most irresponsible things” (pp. 13-14).

Hypocrisy is rife in educational institutions; students need role models—the institutional level included—who carry integrity throughout their practice.

In his last principle, Orr suggests that “the way in which learning occurs is as important as the content of particular courses” (p. 14). The hidden curriculum includes lectures that breed passive learning and indoor teaching that suggests learning only happens indoors. “Campus architecture is crystallized pedagogy that often reinforces passivity, monologues, domination, and artificiality” (p. 14). This is not what we are after in ecological education.
Weston (2004) suggests that to rethink and revive education, “the real work lies at the level of *social* ‘reconstruction’”; we need to reconceive the social context of education, breaking down walls and setting school in the community rather than set aside from the “great common world” (p. 36). Students need greater purpose and meaning in their education.

Recognition of the social context of education is apparent in the tenets laid out in the Tbilisi Declaration (UNESCO, 1978). The following is a more expansive (and ecological) vision for environmental education: “The ultimate aim of environmental education,” according to the Tbilisi Declaration, “is to enable people to understand the complexities of the environment and the need for nations to adapt their activities and pursue their development in ways which are harmonious with the environment” (p. 12). The declaration emphasizes that all levels of formal education as well as informal education are critical to education on the environment. It is noteworthy that the declaration also stresses the need for awareness of the “economic, political and ecological interdependence of the modern world so as to enhance a spirit of responsibility and solidarity among nations” and that it must adopt a holistic (and yet local) perspective that encompasses social and cultural aspects of specific problems. “It is therefore inherently interdisciplinary” (UNESCO, 1978, p. 12).

The No Child Left Inside Act affirms that time spent out of the classroom for learning during the school day is critical to the intellectual, emotional, and physical health of children and that providing students with quality opportunities to directly experience the natural world can improve students’ overall readiness to learn and academic performance, as well as self-esteem, personal responsibility, community involvement, personal health (including child obesity issues), and understanding of nature. (HR. 2547, 2011)
Teacher Ed Good elaborates on intimacy and nature, as they relate to ethics:

The thing that builds an ethical human being, an ethical child, is not reasons, but feelings. The energetic base of morality is compassion which requires being in touch with things, feeling empathy. That’s not just environmental ethics, it’s any ethics. And you cannot feel empathetic toward something until you’re intimate with it somehow. Intimacy is the key word here. (as cited in Smith & Williams, 1999, p. 42)

Aldo Leopold agrees: “We can be ethical only in relation to something we can see, feel, understand, love, or otherwise have faith in” (as cited in Jickling, 2009, p. 168). Ethics here can be likened to ecological integrity.

At this point, we are a long way from the principles and ideals of ecological education, despite the recognition even by members of Congress that American children are experiencing “nature deficit disorder.” But the principles set forth by proponents of ecological education are not negotiable, for the sake of both our children and the earth. Leopold asks, “If education does not teach us these things, then what is education for?” (as cited in Orr, 2004, p. 15).

**Life paths.**

“Just as ecosystems are more resilient when they contain an abundance of species that can form diverse adaptations to change, so is the future more hopeful if diverse paths lead people into environmental commitments” (Chawla, 1998, p. 19).

An area of some research is the topic of life paths—backgrounds and experiences—that lead to environmental commitment. In all studies reviewed for this paper, unless otherwise noted participants were environmentalists involved in a broad range of fields from wilderness protection to urban planning.
Out of all sources noted by environmentalists, most studies found that spending time in a natural environment—particularly a keenly remembered, wild place—and mentoring by an adult (typically a family member) were the two most common antecedents to environmental sensitivity (Chawla, 1998; Chawla, 1999, Corcoran, 1999b; Cornell, 1998; Sobel, 1996).

Palmer (1998) studied influences and formative experiences affecting educators’ pro-environmental behavior. She writes that experiencing the outdoors, particularly in early childhood, was by far the category with the highest response. Formal education courses was a distant second—this mostly reflected higher education–level courses rather than “school courses.” In another study, Palmer (1998) sought to learn about changes in attitude and feelings of responsibility toward the environment in the local community. Palmer writes,

In response to a question ‘What would you identify as the single most important influence or experience that has affected your attitude to our responsibility towards (a) animals and (b) the environment?’ only 9 out of 182 subjects (5 per cent) cited education as the single most important influence affecting their attitudes and sense of responsibility toward animals, and 25 subjects (13 per cent) cited it as the single most important influence affecting attitudes and responsibility towards the environment in general (pp. 133-134).

The same population rated television documentaries, media images, personal experience with animals and nature, nature and wildlife films, and intellectual argument (linked to media coverage) as the five most important influences on their attitudes toward animals and the environment. Out of 14 possible categories, higher education was ranked sixth, and “school level courses” ranked ninth (p. 134).
Chawla (1999), who explored the life paths of 56 environmentalists in Kentucky and Norway, noted that participants consistently attributed their environmental attitudes to “extended time outdoors in natural areas, often in childhood; parents or other family members; teachers or classes; involvement in environmental organizations; books; and the loss or degradation of a valued place” (p. 15). Chawla further explored the ages that participants associated with the varying influences. She found that “natural areas, family members, organizations, and education were salient in childhood, that education and friends were salient during the university years, and that organizations and vocation were salient in adulthood” (p. 16). Additional research supports the finding that age is significant to the development of ecological sensitivity in children. Early childhood is a vital time for children to be exposed to natural places if they are to develop a kinship with the earth (Carson, 1956/1998; Chawla, 1998; Chawla, 1999; Hutchison, 1998; Louv, 2008).

Corcoran (1999b) reviewed autobiographical statements and other data from more than 500 members of the North American Association for Environmental Education, and he looked for “human and vicarious influences” in their lives. In addition to corroborating the importance of childhood exposure to natural places and adult mentorship, Corcoran notes that media—TV, print media, and cultural figures—were important influences in their lives.

In Chawla’s (1999) study, 25% of respondents also mentioned social justice, either as parallel to their environmental activism or as a primary focus of their activism, “which ultimately led them to the realization that a healthy environment is an essential
component of justice” (p. 18). Half of these respondents traced the roots of these sources to childhood.

Chawla & Derr (2012) recently distilled the results of numerous studies and noted that

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. (p. 529)

A kinship with nature, a connection to place, and issues of social justice repeatedly arise in discussions of life paths toward environmental action.

While the research cited above largely focuses on the life paths of environmentalists, the findings are useful to this study. Though ecological mindedness comprises a wider swath of traits than environmental sensitivity, given that ecological mindedness encompasses environmental stewardship it is very likely that the factors and experiences that influence environmental interests and action play a significant role in the lives of students who are ecologically minded.

Conclusion

I have summarized relevant elements of ecology and outlined a framework for ecological mindedness. I have also summarized the history and nuances of environmental and ecological education. While dialogue continues regarding both blueprints and benefits of environmental and ecological education, it remains a rich and crucial endeavor.
Chapter Three: Methodology

This study focused on the experiences that lead to ecological mindedness in teenagers. To reveal those experiences, I drew on a combination of two research methods: interviewing, and educational criticism and connoisseurship (hereafter referred to as educational criticism). Data collection techniques included interviews with student and parent participants, observations taken during the interview process, and the collection of artifacts.

In this chapter, I provide my rationale for choosing these methods of research. After elaborating on these methods, I describe my methods for the selection of participants, data collection, and data analysis. This chapter also includes discussion of validity and study limitations, and it provides information about me as researcher.

Rationale for Methodology: Interviewing

My interest in using interviewing as a qualitative research method stems from the power of story as a way of knowing. The word story derives from the Greek word histor, meaning “wise” and “learned.” In-depth interviewing opens a window into a person’s lived experience and the meaning he or she makes of that experience (Seidman, 2006).

“At the very heart of what it means to be human is the ability of people to symbolize their experience through language,” writes Seidman (2006, p. 8). Vygotsky (1987) argues that the act of putting experience into language is itself a meaning-making
process. By reconstructing the details of their experiences, participants are selecting events from their lives and thus imparting meaning on them (Seidman, 2006).

The heart of my study—the experiences of students—makes interviewing an appropriate method for the study. Through interview, I captured the stories—the lived experiences—of my participants. Further, I sought to understand the meaning the participants attached to their stories. Though interviewing is a component of educational criticism, described below, I include a description of interviewing separately here to emphasize its role in this study. I use Seidman’s (2006) in-depth, phenomenologically based interviewing method as a model.

Seidman (2006) notes that it is vital that interviewers explore their autobiographical connections to a topic. My roots stem from my own interest in caring for the earth, as I discuss later in this chapter. However, as Seidman also notes, “interviewers must not only identify their connection with the subject of the interview; they must also affirm that their interest in the subject reflects a real desire to know what is going on, to understand the experience” (p. 32). In other words, it is important for the researcher to genuinely be seeking answers to questions, rather than seeking corroboration for their own experience.

Well-established interviewing techniques assist the researcher in pursuing the stories of participants. First, open-ended questions are commonly used in interviewing. Flowers and Moore (2003) confirm that this is an appropriate method to use with students: “This qualitative data collection technique enables students to conceptualize their perceptions and opinions in their own words” (para. 6). Additionally, the authors
say, open-ended questions minimize the chance of leading or directing youth to respond to questions in a particular way.

Also commonly used in interviewing are interview guides. In contrast to a more confining interview schedule, an interview guide allows the researcher to leave open the possibility to ask follow-up questions (Lindlof & Taylor, 2002; Seidman, 2006). Seidman (2006) writes,

Although the interviewer comes to each interview with a basic question that establishes the purpose and focus of the interview, it is in response to what the participant says that the interviewer follows up, asks for clarification, seeks concrete details, and requests stories. (p. 81)

Leaving open the potential to explore certain topics further allows the researcher to give a “navigational nudge” when appropriate (Seidman, 2006, p. 79).

**Rationale for Methodology: Educational Connoisseurship and Criticism**

Educational criticism blends well with interviewing for this study. Used by researchers around the world, this arts-based, qualitative method was developed largely by Elliot Eisner (1998, 2002b). The method is well-established in the field of education, utilized at a number of universities throughout the United States and Canada (Moroye, 2007). Hatch (2002) writes that through educational criticism, “Eisner and his students have made an impact on qualitative research” (p. 29).

“The expansion of perception and the enlargement of understanding” is Eisner’s (1998) intent in educational criticism (p. 113), putting into words qualities and insights that will help the reader see a subject more deeply. In this vein, Eisner draws on John Dewey’s belief in the importance of perception and his assertion that we need to “[lift] the veils that keep the eyes from seeing” (as cited in Eisner, 2002b, p. 213).
Educational criticism stems from Eisner’s (2002b) observation of the qualitative mode that artists employ in creating their works, and in the art critic’s perception of the work, providing acuity for the reader. “The art critic finds himself or herself with the difficult task of rendering the essentially ineffable qualities constituting works of art into a language that will help others perceive the work more deeply” (p. 213). While Eisner is here speaking of the arts, he makes clear that anything can be the subject of criticism; in this case, of course, the subject is education. Kozloff further articulates the realm of the critic: “criticism’s merit lies exactly in the fact that it is neither a work of art nor a response, but something much rarer—a rendering of the interaction between the two” (as cited in Eisner, 2002b, p. 219). Educational criticism is referenced several times by Pinar et al. (1995), who write, “The educational critic allows us to appreciate what was important about a particular educational event by rendering that significance in language” (p. 740).

In Eisner’s (1998) view, researchers inevitably pursue their investigations from subjective positions. Educational criticism falls within a constructivist paradigm in which “universal, absolute realities are unknowable, and the objects of inquiry are individual perspectives or constructions of reality” (Hatch, 2002, p. 15). This ontology recognizes that multiple realities exist because they are constructed by individuals from their own vantage points. In fact, from this epistemological standpoint, researchers and participants co-construct a subjective reality. “From this perspective, it is impossible and undesirable for researchers to be distant and objective” (Hatch, 2002, p. 15).
Palmer (1998) suggests that certain research approaches, such as interpretive or constructivist, are appropriate to environmental education, and these include educational criticism and connoisseurship. She explains that the researcher seeks meaning and perspective from the participants, both outwardly expressed and tacit, with the goal of distilling holistic patterns of influence. Palmer notes that in 1994 Robertson called for the development of constructivist-based research in environmental education. Palmer reports that in the few years following this time there was an “upsurge of interest in interpretive research … although many would argue that there is still a long way to go” (p. 111).

If not already apparent, fluency with the subject matter is inherent in sound criticism. It lacks depth if not enlightened by connoisseurship, the ability to perceive with knowledge of the subject. “Connoisseurship” derives from the Latin word cognoscere, to know. “The major distinction between connoisseurship and criticism,” according to Eisner, “is this: connoisseurship is the art of appreciation, criticism is the art of disclosure” (Eisner, 2002b, p. 215).

Thus there is a need on the part of the researcher to reflect on what he or she brings to the study as connoisseur. In my case, I arrive at this study as an experienced teacher who has long worked in and studied the field of education. As an insider, and a connoisseur, I seek out ways to improve the process of education. Further, I come to this study with my own ecological values and habits of mind, and I am thus able to identify with participants in some ways, understanding their values in a way that someone who is not ecologically minded might not. However, though the process of educational criticism
is undeniably subjective, it is also important for me to ensure that I am hearing the stories of my participants and not laying in my own story for theirs.

There are four major dimensions of educational criticism: descriptive, interpretive, evaluative, and thematic. While it is helpful to elucidate the distinctions among these elements to provide clear purpose and direction in the research, in practice the lines are blurred. The first, description, requires careful attention to the environment and participants, the goal being to render on paper their relevant qualities. Eisner (2002b) explains that description enables “the reader to participate vicariously in the auditory and visual qualities” of the experience (p. 226). I provide a detailed portrait of each of my participants in my interviews with them, with a goal of helping the reader see and feel a part of each conversation. I also provide some description of the environments they chose for interviews, with the goal of providing greater context for interpretation and insight for the reader.

Interpretation, the second aspect of educational criticism, provides meaning to the described experience (Eisner, 1998). Interpretation in educational settings is iterative, usually developed from more than one occurrence. Through interpretation the researcher begins to notice patterns and thus expectations, which can both aid efficiency and interfere with the observation of elements that are not expected. Eisner (2002b) asks three questions to direct interpretation: “What does the situation mean to those involved? How does this classroom operate? What ideas, concepts, or theories can be used to explain its major features?” (p. 229). (For the purpose of this study I was not in a classroom, but the
context of my interviews with participants informed my interpretation. I used ecological and aesthetic lenses in my interpretation, explained below.

For this study I have written “portraits” of my participants, which appear in Chapter Four and which include both description and interpretation. Through these portraits I present the formative experiences of student participants for readers. Because I did not make classroom observations, and rather than present three separate vignettes for each student participant (including two student interviews and one parent interview), my intention is to emphasize the descriptive nature of my participants’ stories as a single representation, a style used previously by Kauper (2012).

The third stage, evaluation, gets to the heart of educational criticism: the method should contribute to the improvement of education. To improve education, it is necessary to appraise the value of its processes. I use my interpretations in conjunction with the theories of others to evaluate the formative experiences students have that foster or inhibit the development of ecological mindedness; from there, I examine existing and potential roles that education can play in the formation of those habits.

Developing themes is the final stage of educational criticism. Themes become apparent through recurring features and messages, and they become applicable outside of the immediate situation. Because education is a complex enterprise, a study can yield more than one theme. Themes can be thought of as distillations, or summaries, of the essential qualities of a situation, which can then be generalized (Eisner, 1998, 2002b). I use evaluation and thematics to develop recommendations and elucidate educational implications.
Conceptual Frameworks

I use two conceptual frameworks in my study: I describe themes that emerge within both an ecological and an aesthetic lens.

By ecological lens (or eco-educational criticism) I suggest “a perspective that attends to the relationships and interconnectedness, both literal and figurative, present between and among humans and their environments” (Moroye, 2005, p. 125). My intention is to attend to educational concepts in their relationship to environmental and ecological themes. Environmental themes relate to sustainability issues, such as recycling, energy efficiency, and pollution. The heart of ecological considerations is embeddedness, and themes may include concepts such as balance, relationships, and patterns. They may also include traits that exemplify ecological mindedness, including interconnectedness, ecological care, and ecological integrity (Moroye & Ingman, in press), or additional qualities of ecological habits of mind. Ecological themes may appear in family or social relationships, cultural or educational realms, or in another facet of a student’s life, possibly manifesting in systems of equilibrium and collective growth.

I additionally looked through an aesthetic lens (Dewey, 1934). Aesthetic experiences are difficult to frame, but might be described as “wow” moments when one (usually briefly) becomes absorbed and enthralled in something, experienced often with works of art or with nature. These experiences are described by participants as they discuss their relationship with nature, and they reveal themselves as associated with teenagers’ ecological mindedness. Further, I attended to an aesthetic lens by looking for and describing the aesthetic dimensions of learning developed by Uhrmacher and Moroye.
(Moroye & Uhrmacher, 2009; Uhrmacher, 2009). The aesthetic dimensions are connections, risk-taking, imagination, sensory experiences, perceptivity, and active engagement. I observed whether and how each of these dimensions may have related to the evolution of ecological habits of mind in my participants, and which were most apparent. Table 1 outlines the aesthetic dimensions of learning with descriptions as well as examples from this study. The examples are presented to aid the reader in understanding the dimensions and are elaborated upon in Chapter Four.

Table 1
The Dimensions of an Aesthetic Experience

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Definition &amp; Description</th>
<th>Examples from the Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connections</td>
<td>A person connects or interacts with an idea, concept, or something tangible. There are four types of connections: intellectual, emotional, sensorial, and communicative.</td>
<td>Finding animal bones and being interested in the circle of life, connecting to the history of a place</td>
</tr>
<tr>
<td>Risk-Taking</td>
<td>Taking a risk entails venturing into the unknown. There are high, medium, and low levels of risk.</td>
<td>Exploring, participating in 4-H shows, standing up for ecological values</td>
</tr>
<tr>
<td>Imagination</td>
<td>Imagination may take the form of fanciful manipulation, a rush of original insight, or the interactions between a person and an object that yield something new.</td>
<td>Pretending to be animals, imagining what occurred in a place previously, writing a nature-based fantasy story</td>
</tr>
<tr>
<td>Sensory Experience</td>
<td>The senses are alive and heightened.</td>
<td>Getting hands dirty, smelling the trees, gazing out on a vista</td>
</tr>
<tr>
<td>Perceptivity</td>
<td>A person engages in perception rather than simple recognition.</td>
<td>Studying birds, describing a vista seen repeatedly, studying maps</td>
</tr>
<tr>
<td>Active Engagement</td>
<td>A person is actively involved in the construction of experiences and meaning.</td>
<td>Hiking, teaching family how to milk goats, trail maintenance</td>
</tr>
</tbody>
</table>

Note. This table outlines the aesthetic dimensions of learning (Uhrmacher, 2009). It includes examples from this study to assist the reader in understanding what each dimension, or theme, entails. These dimensions are referred to at length in Chapter Four and examples from the study are expanded upon.
My choice in using the aesthetic dimensions of learning as a framework for this study came from a hunch based on my own experience teaching with the dimensions and seeing the potential they have to enhance learning. Given the clear connection between nature and aesthetic experiences (the feeling of the sublime, for example), I believed that the aesthetic dimensions might provide a useful lens through which formative influences on ecological mindedness might be considered. Joseph Cornell’s (1998) work also supports this framework, as he promotes sensory and direct experiences for sharing nature with youth.

Though I was not interviewing teachers or making observations in classrooms, I also considered the data through the framework of Eisner’s five dimensions of schooling: the intentional, structural, curricular, pedagogical, and evaluative (1992, 1998). However, this framework did not prove to be fruitful, as participants talked little enough of their experiences in formal schooling for me to analyze the data using Eisner’s dimensions. I remained open to additional lenses if they emerged, including social, political, and cultural lenses.

**Research Questions and Study Design**

This study focuses on the experiences of ecologically minded teenagers to understand what led them to be ecologically minded and how this plays out in their lives. As a study based in educational criticism, I use this information to gain insight into ways formal education can foster ecological mindedness. Specifically, this study sought to address the following research questions:

1. *What are the values of teenagers who are ecologically minded?*
2. What childhood experiences contribute to the development of ecological mindedness in teenagers?

3. What is the significance of the experiences of ecologically minded students for education in general?

I focused on youth aged 14-18, and my purpose was fourfold. First, Jean Piaget’s fourth stage in his theory of cognitive development is the formal operations stage, developing especially from ages 11 to 15, but continuing into adulthood. During this stage, individuals develop the capacity for abstract principles and hypothetical thought (Elsevier, 2006). I sought out participants aged 14 to 18 because they will have developed the capacity for deductive reasoning and understanding causal relationships, important to my goal in deciphering how they developed their ecological values, and additionally a better ability to articulate their experiences. (I selected students starting at the age of 14 rather than 15 because the youth in the initial population I drew from, the SCOP, were aged 14-18. This proved to be a good choice; among my 11 total participants, four were 14, and they provided rich material.)

Second, focusing on individuals 14 or older potentially provided more insight into the development of ecological mindedness than focusing on younger children, because I captured experiences in middle childhood and early teenage years rather than limiting the study to earlier childhood years; essentially, older students have had more experiences that have influenced their values than younger students have had.

Different influences may have varying effects, depending on the age when they were experienced. Sobel (1996) writes,
The formative years of bonding with the earth include three stages of development that should be of primary concern to parents and teachers: early childhood from ages four to seven, the elementary years from eight to eleven, and early adolescence from twelve to fifteen. Though these age frames need to be considered flexibly, my belief is that environmental education should have a different tenor and style during each of these stages. (p. 11)

Third, literature on the development of ecological mindedness is scant to nil, and research on life paths that lead to environmental interests and actions focuses on adults. Though there are very likely influences on ecological mindedness that occur into college and through life, I believed that interviews with youth would generate rich and valid data and that ecological education can benefit by gaining younger voices.

Finally, while my reasoning in choosing youth aged 14 to 18 was primarily based on the aforementioned reasons, I believe the parent interviews added richness and depth, and they also provided structural corroboration. Including parents added to the collective memory I aimed to access in my study. Studying participants over the age of 18 may have limited my access to parents.

It is impossible to capture all the influences on and memories of a person, but of course that is not the point. “What matters most to us as we carry out our lives is not the past as it actually happened, but whether, and how, we use the past” (Chawla, 1999, p. 24).

**Data Collection**

The collection of data in this study includes teen and parent interviews, the collection of artifacts, and focus group interviews. Hatch (2002) affirms that interviewing can be the primary source of data collection in a qualitative study. Throughout my data collection, I paid close attention to recurring themes as well as contradictory information.
The participants.

The participants in this study represent purposive, non-random sampling as well as snowball sampling (Hatch, 2002). To answer my research questions, I sought out youth aged 14-18 who showed an outward expression of their ecological values. However, finding participants was more difficult than I expected. Through a connection at the Colorado Alliance for Environmental Educators, I was granted access to students who participated in the Shadow Canyon Outdoor Program (SCOP), a program that promotes environmental stewardship through service learning, environmental education, leadership development, and challenging outdoor activities. I attended two of the SCOP’s monthly meetings, in December of 2012 and January of 2013, to present my study and invite students to participate. During these presentations, I explained the requirements of the study and passed out flyers, including my contact information, to interested teens. Though a number of students showed interest at the meetings, only five contacted me, all by email. Of those five, one student declined to participate, saying that he was too busy, and another stopped replying to emails—she had noted during correspondence that she was quite busy.

The mother of one participant asked if I was looking for more participants, and she offered to mention my study to friends who fit the profile I was looking for. I submitted a revision to the Institutional Review Board to receive permission to use a snowball approach to obtain participants. I was contacted by two more teens who agreed to participate in my study.
It is not uncommon for educational criticism studies to use only four or five participants (Kauper, 2012; Moroye, 2007). In fact, using a small number of participants allowed me to delve into the study of each of my participants in a way that I may not have been able to otherwise, given time constraints.

I attended a third SCOP meeting during one of the group’s work days. It was at this time that I held a focus group consisting of six SCOP members. The focus group is described in more detail below.

**Interviews.**

Each teen participant in this study was interviewed twice, for 40 to 75 minutes. The first interview centered around student interests and experiences, and the second focused on how student values related to their demonstrated interests and actions (see Appendices A and B). I had estimated that interviews would take longer, perhaps as long as one and one-half hours. However, though I often deviated from the interview guides to ask follow-up or exploratory questions, interviews took much less time than anticipated. For each teen participant I interviewed one parent (see Appendix C), and these interviews ranged between 35 and 45 minutes, also shorter in length than I had anticipated. The interview sessions were followed up with in-person, phone, and email conversations to clarify or elaborate on any questions that remained unanswered. Interviews were conducted between January and April of 2013.

Participants selected the time and location of interviews. In all but one case, participants chose to be interviewed in their homes. In the case of the exception, a teen and her mother chose to be interviewed at a rural library. For the second interview with
that student, she chose to be interviewed in her home. Thus I was able to interview all participants in their homes at least one time. Interviewing participants in their homes provided solid sound quality and privacy as well as an opportunity for me to get to know the participants in their own context, an invaluable opportunity in an educational criticism study. I was warmly welcomed into every participant’s home.

My questions were based on a semi-structured interview guide, though I allowed for deviation, asking exploratory questions to pursue many topics further. I was interested in keeping a conversational tone to my interviews, with the hope of creating a rapport with my participants, particularly given that I was an adult interviewing youth. I kept in mind Seidman’s (2006) advice to maintain balance in developing rapport. He writes, “The rapport an interviewer builds during the interview must be consistent with the relationship the interviewer expects to have with the participant after the interviews are concluded” (p. 98). My aim in building rapport was in part to help participants feel at ease and in part to gain access to stories and information that I might not have acquired had participants been less comfortable talking with me. This philosophy is in tune with Eisner’s (1998) in that “conducting a good interview is, in some ways, like participating in a good conversation” (p. 183).

Each participant agreed to be audio recorded, and I took notes by hand as I listened to their responses. These field notes included observations of the interview environment and the conduct and demeanor of the participant. Following each interview I added to my field notes, typing the notes when I returned home. I reviewed transcripts of
the first student interviews prior to the subsequent interviews to identify possible areas of clarification or extension.

Interviews were transcribed, with the aid of Dragon NaturallySpeaking speech recognition software, within one week after the interview. In transcribing the interviews myself using speech recognition, I listened to and read each interview two times through. Because I was present in the interviews and because they had recently occurred, I likely recognized words and phrases that a transcriber would not understand, and it allowed me the chance to listen to and add nonverbal information, laughter, or other contextual information to the transcripts and my notes (Hatch, 2002). Perhaps most importantly, transcribing the interviews myself kept me closely engaged with the data. After transcription, participants were given the opportunity to review transcripts, and none requested revisions or omissions.

I held a focus group as a supplemental source of data to enrich my study (Hatch, 2002). Ranger Keller, in charge of SCOP, agreed to allow me access to the SCOP population. He forwarded an email from me to his students inviting participation in the focus group. Six youth agreed to participate, and this proved to be both a manageable and fruitful set of participants. I interviewed the teens for 45 minutes during a lunch break on a monthly Saturday work day in mid-April. As prompts, I used a list of questions similar to those asked of primary participants, but abbreviated due to the short amount of time available for the focus group (see Appendix D). In fact, despite using an abbreviated list, I was unable to pose my last three questions (questions 7, 8, and 9 in the interview guide) because our session needed to end so that participants could get back to work. However,
during the focus group participants often built on others’ comments, thus generating rich
discussion—the hope in this form of interview (Hatch, 2002).

For demographic information on participants, see Tables 2 and 3.

Table 2
*Primary Participant Demographics*

<table>
<thead>
<tr>
<th>Name</th>
<th>Parent Name</th>
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<th>Grade</th>
<th>Race</th>
<th>Religion</th>
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Table 3
*Focus Group Demographics*

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<th>Race</th>
<th>Religion</th>
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<tr>
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<td>12th</td>
<td>Caucasian</td>
<td>None shared</td>
<td>Broomfield</td>
</tr>
</tbody>
</table>

*Other data collection methods.*

In addition to interviews and a focus group, I collected data in the form of
photographing artifacts. Artifacts—all optional—took the form of animals, a seashell
collection, a story written by a participant when he was in third grade, a fifth-grade
writing project, bird field guides, painted rocks, photographs, and a collection of junior
ranger badges and patches. Teen participants also provided me with favorite quotations
and nature-based metaphors for their lives.
Another option I gave the teens was writing a response paper to reflect on some of the questions that I posed in interviews. I suggested this as a possibility particularly if participants felt they expressed themselves better in writing than through oral language. One student chose to email me a brief write-up to supplement the thoughts she shared in her first interview.

**Data Analysis**

Using data collected from interviews, observations, and artifacts, “educational critics construct stories or portraits of what they experienced and understood in the settings explored” (Hatch, 2002, p. 29).

I used an inductive style of data analysis, moving from the specific to the general, and I collected and analyzed data simultaneously rather than separately. Immediately following each interview I typed field notes to maximize my retention of the tenor and details of the interview. Additionally, as mentioned previously, I personally transcribed all interviews, which reengaged me with the data. I reread the transcription of each participant’s first interview before holding the second interview, and this aided me in shaping second interviews.

After completing second interviews with my initial participants, I began more formal data analysis. I immersed myself in the data and developed a coding system for reoccurring patterns. From the coding, I developed general themes. My initial coding and categories were tentative, allowing for flexibility as my analysis progressed.

Finally, I used my conceptual frameworks to help in my analysis of the data. These are the ecological and aesthetic lenses, and they assisted me in my observations,
interviews, interpretations, and analysis. However, despite having these frameworks in mind, I was open to data that did not fit within these frameworks, with hopes of ensuring that I did not miss any patterns of potential significance. Eisner (1998) writes, “Learning to see what we have learned not to notice remains one of the most critical and difficult tasks of educational connoisseurs” (p. 77).

Educational criticism “assumes that multiple realities exist, the researcher is portraying only one, and researcher interpretation is at the center of analysis procedures” (Hatch, 2002, p. 29). Though it is my own interpretation that follows in Chapter 4, I offer what I hope proves to be an insightful and authentic presentation of my participants’ perspectives and voices.

**Validity**


Validity of interviews is achieved through multiple interviews separated by weeks and, in my case, corroborating interviews with students and parents (Seidman, 2006). Seidman notes that additional clues that lead to validity are the syntax, diction, and nonverbal elements of an interview that convince the researcher of its authenticity.

Three sources of evidence help to provide credibility in educational criticism: structural corroboration, consensual validation, and referential adequacy. Structural corroboration, similar to triangulation, is the use of multiple forms of data that relate to each other to support or contradict one another. Theme-like features evidenced through recurring behaviors or actions help the reader develop confidence in the researcher’s interpretation and evaluation. For my study, I used two primary sources of data—teen
and parent interviews—and I used a focus group, observations of the physical environments, and artifacts chosen by participants in the process of corroboration. Given that I have been able to portray the data accurately, the above sources of data should provide a sufficient “confluence of evidence” (Eisner, 1998, p. 110).

Consensual validation is essentially the agreement of others regarding the description, interpretation, evaluation, and themes of the study. It is worth noting that differences in judgment do not necessarily discredit the reliability of a study, as there may be many appropriate perspectives (Eisner, 1998). However, a different perspective may bring to light oversights or misinterpretations. To achieve consensual validity, I shared with each participant my description of him or her with a request to check for accuracy; the responses I received are published at the end of the portraits. That said, the burden of consensual validation rested primarily in my ability to accurately interpret and evaluate the information I gained through my interviews and observations. Eisner (1998) writes, “Consensual validation in criticism is typically a consensus won from readers who are persuaded by what the critic has had to say, not by consensus among several critics” (p. 113).

The third method of pursuing credibility is referential adequacy. This check for credibility speaks to the educational critic’s ability to make clear to the reader connections between the subject matter and the meanings he or she ascribes to it. Further, the reader should gain insight: “An educational critic’s work is referentially adequate when readers are able to see what they would have missed without the critic’s observations” (Eisner, 1998, p. 114). I believe that the nature of my topic and my
distinctive lens, described below, offered a new perspective in the field of ecological education.

**Limitations of the Study**

As with any research, this study has limitations. First, I used a convenience-based sample. I gained access to participants initially through one organization, so the culture of that organization may have influenced their beliefs and avenues to acquiring those beliefs. In addition to this, limiting myself to five students and their parents and a small focus group restricts the generalizability of the results.

Though my hope was to find a diverse group of students, including equity in gender, I was limited to the participants who contacted me. My primary participants included four females and one male. There was some diversity in socioeconomic background, though all participants would fall into the category of middle class. All teens were Caucasian. Students represented two school districts (none attend the same school), and one was home-schooled. Perhaps the greatest area of diversity was in religion. Though all religions represented were Christian, they included Catholicism, Quakerism, and the Church of the Latter Day Saints. My focus group participants included four males and two females. Socioeconomic background was less apparent, since I did not visit focus group participants in their homes. Most students did not share ethnic, cultural, or religious background; one female noted that she is Hispanic, one male shared that he is Jewish, and one male shared that he is not affiliated with a religion. Students represented two school districts, and none attended the same school. Lack of further diversity is perhaps a limitation of this study.
Further, because this study focuses on students aged 14-18, it could not capture the influences that may occur in later teenage and college years. Additionally, I did not use a comparison group of apathetic or non-examples; thus, while I attempted to extract poignant experiences in developing ecological habits, I was not able to distinguish paths of ecologically minded students from those who are not ecologically minded.

Despite these possible limitations, a lot may be gained from a study of this nature.

About the Researcher

“Given a chance, a child will bring the confusion of the world to the woods, wash it in the creek, turn it over to see what lives on the unseen side of that confusion” (Louv, 2008, p. 7).

As a college student I hiked the Grand Canyon. I remember my jaw dropping as I walked around each grand bend and saw each stunning new vista. When I think of the Grand Canyon, though, I am immediately taken back to the mornings. Normally I am not a morning person—dragging myself out of bed is often the hardest part of my day. I remember so vividly, though, sleeping under the stars and opening my eyes to the reds-of-all-shades walls. I awoke early, those mornings in the Grand Canyon, eagerly anticipating each day. This despite the physical rigor, hiking an ambitious number of miles, carrying who-knows-how-many pounds on my back. Never in my life had I seen or experienced anything like the beauty and immensity of this place.

Some of my most distinct and powerful memories are of time spent in some of earth’s most grand places. Getting a 360-degree view high up in the Swiss Alps, with the Eiger, Mönch, and Jungfrau looming nearby. Staring across a vast and surreal landscape
of salt flats in Jujuy, Argentina. Scrambling on my hands and knees, lungs burning, up
steep sand dunes in the Moroccan Sahara Desert by moonlight.

But also watching the stars as a young girl with my dad from the Rocky
Mountains, running past chirruping prairie dogs and steaming baby cows after a spring
snow, and cycling through the rural roads of Colorado’s plains and foothills. Sitting
riverside at my family’s beloved, dilapidated cottage on French Creek in Pennsylvania,
spotting the occasional great blue heron or bald eagle. My favorite places in the world are
all outside, and my most treasured are places like local running trails that I frequent time
and again. My connection with my own places trumps the grandeur of the Grand Canyon
or the Alps. Local mesas and dirt trails, bustling with rabbits, snakes, birds, and coyotes,
have helped foster my best ideas and solve my most perplexing problems. More than
once they have swallowed my tears in their vastness and (semi-)permanence. Once in a
while I’ve been literally drenched in the elements, and I always find myself laughing.
Being on a trail, on a mountainside, on a sand dune, or on the water brings me strength
and joy. It also heightens my senses and my creativity.

Specifically, I know that outdoors I feel a sense of belonging, though the vast
majority of the time I am on my own. I feel a sense of peace, usually despite the weather.
I feel fulfilled, and I breathe more deeply. I feel free. I know that when I hear about the
despoilment of the earth, my immediate urge is to take the perpetrators there, to my
favorite places.

I am an elementary school teacher, and I work in a focus school for English
Language Learners. I teach among a diverse population with a diverse set of experiences.
Two years ago I spent four months in a windowless classroom, and I then moved into a beautiful space with enormous windows and sunlight. When I made the transition to the new, beautiful room with my class, we didn’t go a day without discussing the weather. Visitors remarked that our classroom felt much bigger than the others. It was not—but we did have more windows. My colleague made a similar shift with her students. She has a wide array of learning aids, such as fidgets and seat cushions, to help calm and ground kids. After the move, she noticed that her students were not checking out the aids very often, and she asked them about it. They explained, quite clearly and articulately, that with the transition to windows, they were calmer and didn’t feel anxious, in need of the fidgets and grounding tools.

I believe that it is through my own connections to the outdoors and the earth, the grounding and clarity that they bring, that I care about the fate of our wild lands, animals, and plants as well as our relationship with them. I also believe that a connection to the earth locally helps me care about the earth around the world and the people and creatures on it—about places I will never go and people I will never meet.

Seidman (2006) suggests that it is crucial for interviewers to explore their own roots to a topic. It is because of my own passion for nature and instinct to protect it that I came to this topic. My wish has been to explore and contribute to the body of knowledge about how to best support our children and our earth, rekindling the deep connection that the two have had. I also took on this project so that I will better embody an ecological philosophy and embrace it as a teacher within my own classroom. I believe I can do better justice to my own students by immersing myself in the study of ecological
mindedness. In addition to contributing to the profession, my goal has been very 
personal—I look to find ways to improve and enhance my own practice.

Orr (2005a) beseeches us to give education the attention it is due and recognize its 
importance in the same way as the great philosophers, including Plato, Rousseau, Dewey, 
and Whitehead: “Education, as they knew, had to do with the timeless question of how 
we are to live. And in our time the great question is how we will live in light of the 
ecological fact that we are bound together in the community of life, one and indivisible” 
(p. xi).
Chapter Four: Presentation of the Data

Overview

In this chapter I offer portraits describing each of the five primary participants as seen through an ecological lens. I then interpret those descriptions using the aesthetic dimensions of learning. Finally, I propose three new qualities of ecological mindedness.

Introduction to the Participants

Following I offer a snapshot of each teenage participant, as informed by my interviews with the teen and his or her mother as well as through artifacts shared by the student. I introduce each participant with a brief haiku-style poem, with appreciation for the association that haiku has with nature. Following each portrait is a section on the influences that have shaped the values and interests of that teen. At the end of this section is an introduction to the focus group participants.

Lily, a shepherd.

Through the chicken-wire
a goat nibbles at my jeans
and Lily giggles beside me

On both occasions that I met Lily, she had her long dark brown hair pulled back into a ponytail, and on her long legs, she sported running pants or shorts and turquoise running shoes—track season. Lily, finishing up eighth grade when I interviewed her, keeps quite busy with track, volleyball, basketball, oboe, and saxophone. Another
favorite activity, visual art, relates to her favorite quotation: “If you write something in English, only people who know English can read it, but if you draw something or paint a picture everyone can understand it.”

Ask Lily what she would do if she had a day off, and she will not hesitate to answer: spend time with her two goats, Loki Joe and Luna, whom, because Lily lives in a third-floor apartment, she boards at a friend’s farm.

Despite not having any animals at the time, Lily joined 4-H five years ago with a project called “Decorate Your Duds,” in which she decorated a piece of clothing. Lily, 14, explains, “I did that because it was a way of, well, my best friend was in 4-H and so I wanted to do 4-H with her but I was a city kid so I didn’t have any livestock.” After Lily proved her commitment to 4-H, Bridget, her mom, allowed her to buy a goat and board it. And where might one acquire a goat? “Craigslist!” announces Bridget, laughing—she has an easy and powerful laugh. During my interview with Bridget, she and Lily sat curled up next to each other on the couch in their cozy living room, with cheese and apple slices on the table.

Once a week Lily is at the farm for goat chores. When she does get to spend time with her goats, she and her friend Sara run while the goats chase them. They also practice showing the goats, and they take them on picnics at a nearby lake. “I wish I could hang out with them constantly, they’re so funny,” Lily says. I got the chance to meet Loki Joe and Luna during my second interview with Lily on a quiet, sunny Monday at the farm in April. One of Loki Joe’s comrades nibbled at my jeans.
During our first interview in her home in Longmont, part of Boulder County, Lily shared some photos. One shows her dressed as a camper, and Loki Joe (whom Lily thinks looks like a toasted marshmallow) is dressed as a s’more, flat pieces of cardboard flanking his sides. Lily proudly showed me three beautiful belt buckles, one given to her by her grandparents because she wanted a buckle so badly, and two that she won soon after, showing goats at 4-H. She showed me ornaments fashioned after Loki and Luna, as well as four bird books, two on owls.

Lily describes aesthetic moments she has had in nature, and most revolve around animals: getting to see a bobcat carrying its cub, seeing a baby black bear in Yellowstone National Park, and looking up at a great horned owl—her favorite animal—20 feet above in a tree. “It was so amazing. It was really one of those moments that you are just like, oh my gosh,” she says, adding, “So when I see animals I’m absorbed in it and stuff.” Lily says that one reason she is so drawn to animals is their deep connection to nature; for example, she says, they can sense a storm coming far earlier than people can.

Not surprisingly, Lily likens herself to a goat. She laughs,

I think I’m like a goat, because, well one, I love goats. Also, they are very quirky and weird and I think of myself as quirky and weird and also there are times where they just get super active and they want to run and play and do all this stuff, and then there are other times when they just kind of want to sit and hang out and stuff like that. They’re also very loyal … something I kind of live by. (Personal communication, April 1, 2013)

Lily exudes all of this, as well as kindness, generosity, and responsibility—traits Lily and her mom describe as noteworthy in Lily. She is also silly, talkative, and ever so sweet. Lily is a self-described follower, though she clearly does not follow anyone.
blindly. She values originality and creativity, “because everyone’s different.” She perks up every time she talks about animals, and animals dominate our conversations.

Lily does not think there is anything wrong with eating meat, but she does believe many animals that are raised for food are mistreated, and, she says, you do not always know where your meat is coming from. Thus, two weeks before our first interview, Lily became a vegetarian.

Bridget explains that Lily is working on defining herself. Bridget notes, “And right now it’s coming across as things she’s against rather than things that she’s for.” One example? “Church!” Bridget responds, laughing—she laughs because she is a Catholic priest. Behind the couch, a 6-foot-tall cross leans against a bookcase, where a nativity scene is also set up. Bridget elaborates:

And she finds, she finds religion right now as very human-centric, even, I had the news on the other day and they were talking about the Pope, and he took on the name Francis, and he’s all for the poor, and everybody loves him. She was sitting there and she said I don’t get it at all, when I think of Francis, I think of animals, and this guy is not about animals. That’s very much how she is, so she’s starting to differentiate what she’s not and I don’t think she’s found yet other systems and people and structures that she feels she relates to what she is. (Personal communication, March 19, 2013)

Lily, listening, smiles and says sweetly, “I’m working on what I am.”

Though Bridget is a priest, Lily has hesitated to associate with the Catholic religion since she was in second grade, when she heard the story of Noah’s Ark. Bridget explains,

She didn’t want to be in a relationship with a God who would kill all those animals, where up until then it had been about a God who saved all these creatures and the realization that, wait a second, all these other animals who did nothing died and she didn’t want to be in a relationship with that God, and that’s more how she says it now. I think at the time the way she talked about it was, ‘I
don’t want to be part of a religion that has this story and thinks this story is important.’ (Personal communication, March 19, 2013)

Recently, on a drive home from the mountains, Bridget just missed hitting a raccoon on the highway, but it turned out that Bridget and Lily had different reasons for being relieved. Bridget was happy that the car was okay and that the family was okay. Lily, however, says,

I was really happy that the raccoon was okay, and I just kind of think that opened my eyes up to that not everyone thinks the same way as I do and like that’s when I kind of noticed that my love for animals and stuff was actually not like shared with everyone. (Personal communication, March 19, 2013)

When Bridget presides at a church in the mountains, she takes the family to stay with her. During their last trip, she says, “we’re all sitting out on the balcony, and there’s a deer over there, and so she goes out and is calling the deer to her. The deer is getting close. And I’m saying, ‘This is ridiculous! Who does this?’” She laughs.

Loki Joe, Lily’s first goat, is a Nigerian Dwarf, “quiet and shy.” Joe was the goat’s original name, and Loki is Lily’s favorite Norse god—the god of mischief. “If you’ve ever met a goat they are really mischievous so it was like the perfect name for a goat,” says Lily, laughing. Luna, on the other hand, is Lily’s “little doeling,” and “really hyper.”

Bridget calls Lily a “shepherd” and says that when Loki had a rough start in life, Lily “taught him how to be the best goat he could be.” In a manuscript Bridget composed for a homily, she writes,

[Loki] was born to a breeder in Evergreen. In his first week of life he was castrated, which means he’s a whether, and he had his horns surgically removed because you can’t show a whether in 4H if he has horns. When Loki was 2 weeks old, he got a bad
case of pink eye and for the next 6 weeks lived in isolation until Lily and I found him and bought him.

We took him to the farm in Hygiene, introduced him to the other goats, who proceeded to butt him and beat him up. So, Loki had to live with the chickens. Lily, went to see Loki at least every other day. And her job as Loki’s shepherd, was to teach Loki how to be a goat.

Now, I think of goats as garbage eaters. They actually are more finicky than that. But Loki, well Loki had to be taught to eat. Because he had been on antibiotics, he was supposed to eat yogurt every day. But he wouldn’t. So, Lily put the yogurt in a syringe and squirted it in his mouth. Then, Lily taught him how to lick the yogurt off of a spoon, and finally how to lick it straight out of the cup. She’d also crawl around with him, and teach him how to head-butt like a goat. And she worked with him using old large wooden spools to teach him how to climb and jump.

Eventually, Lily helped Loki move out of the chicken pen and into the goat pen. Today, when we go out to the farm and Lily yells, “Hey Loki,” Loki comes running. Loki knows that Lily is his shepherd. Loki recognizes her voice and responds with enthusiasm. That’s what Jesus says in the Gospel today, although he’s talking about sheep and not goats, Jesus says: I am the shepherd; my sheep listen to my voice. But when I watch Lily as shepherd, I hear these words very differently than I’ve heard them previously in my life. Because when I watch Lily as shepherd, I can see that all she wants is to help her goat be a goat; be safe and protected and cared for and thriving as a goat with other goats. And now, when I hear these Gospel words of Jesus as a shepherd, I hear a Jesus who wants us to be safe and protected and cared for and thriving as human beings with other human beings. (Personal communication, April 9, 2013)

**Influences.**

Bridget explains that her three children are very different—Lily, she says, is most well-rounded, and she’s most interested in the environment. “Any environmental, earth-loving tendencies come from [Lily]. And that’s what she has brought. And she came this way,” Bridget says.

Though Lily clearly has an inherent love of the earth and animals, she and her mother note a number of influences on her values and ecological mindedness. They are described below.
Family and friends—supporting Lily’s innate love of animals.

Bridget says she was deliberate about providing outdoor experiences for all of her kids, but that outdoors was not the only focus. “It was just, here is a whole array of things, and this is where she really landed and landed solidly.” She explains further, “I just feel like Lily influenced all of this. And then we supported it, and in some ways created opportunities to nurture it.” Lily’s family made sure she got her goats, for instance, and helps her get out to go fishing. When Lily became interested in owls, her mother and grandparents bought her bird guides and books on owls, and even owl pellets to dissect (all artifacts that Lily presented to me). And when Lily was allowed to get two chickens, they started out living in her mom’s apartment for two months before they moved to the farm. (One Easter Bridget wrote a homily entitled “The Miracle Egg Laying Rooster”—yes, it is true.) In fact, Lily and Bridget both note that Lily influences her family. Lily says, “I think I have really influenced my family and my mom and stuff because, I mean, they’re kind of into nature but not as much as like as they are now, when I came along and stuff.”

Lily mentions that her grandparents have been an influence on her love of the outdoors. She often stays with them in their mountain home or camps with them elsewhere in the mountains. They were mentioned recurrently in our interviews, supporting her love of animals and the outdoors.

Though she does not get to spend a lot of time with her aunt, Lily wants to follow in her footsteps to become an environmental lawyer. Lily explains,

Well since I want to be an environmental lawyer all I’m going to do is try to save the earth and kind of try not, try to stop people from expanding like in China
because the expansion there is affecting wildlife species like the giant pandas, and it’s also, they’re also cutting down a bunch of trees and stuff, which isn’t good for the nature there. (Personal communication, March 19, 2013)

Lily also wants to travel the world to see its natural places.

Lily names each of her immediate family members as role models, and each in different ways. She describes her mother as kind and considerate, her older brother as athletic and active, and her older sister as a teacher and helper. Her father, she says, pushes her to do her best. (Lily currently spends half of her time at her mother’s and half at her father’s, as her parents divorced five years ago.) Bridget notes that Lily is very family-oriented.

Lily looks to her best friend as well.

Well, definitely Sara, she has a big influence and stuff because she is very much of a leader and stuff and she’s kind of pushing me to be a leader and stuff sometimes, and so like we’ll hang out and she’ll ask me what to do and I’ll be like I don’t know, you decide and then she’ll be like no, you have to decide, kind of putting me in the position of a leader. So I think she’s kind of trying to help me out that way and also she shares the love for nature and animals and stuff but in a different way than I do. (Personal communication, April 1, 2013)

Lily also looks up to Heidi, Sara’s mom, who is passionate about environmental issues such as fracking. (Heidi is also the mother of Rachel, another participant in this study.) Lily says, “She’s very helpful for me and stuff and she is a very nice person and she’s kind and always looking out for others and stuff.” Bridget notes that Heidi is “just one of those other adults that you can really count on to show up for her and she has had quite a bit of influence on Lily.”

Lily says, “I guess really everyone is my role model because I’m always trying to make myself as perfect, I guess you could say, as I can.”
Formal education—nurturing a passion for nature.

Elementary school seems to have influenced Lily’s ecological tendencies more than middle school. She laughs,

When we were in elementary school they were always like, ‘don’t spend so much time on the computer, watching TV! Go outside more!’ And then I get to middle school and it’s like, ‘yay, all your homework assignments are going to be on the computer!’ … I guess elementary school nourished my love for outside, outdoors, and stuff. (Personal communication, April 1, 2013)

In elementary school, she says, not only did she feel encouraged to get outside, but she appreciated a couple of times when guests brought animals, such as raptors, in. Lily also remembers field trips to the Denver Zoo and the Denver Museum of Nature and Science.

Bridget notes that Lily’s years in elementary school had an impact: “Throughout her years [in elementary school] they brought animals and things in, even in kindergarten they brought in chicks and they watched the eggs hatch and stuff like that, and that has been really influential.” Lily participated in a science and math club in fourth or fifth grade, and the group (all girls) made miniature wind turbines to power cars. Lily says, “I guess I kind of learned about that, renewable resources are a lot better obviously, because well, they’re renewable. We can have them forever and stuff.”

Bridget says,

I felt like school amplified the things that I was teaching them. I was teaching them to love to read and school could teach them how to read. I was teaching them inner satisfaction and inner motivation and those kinds of things and school really nurtured and amplified that. And I never, I was never big on, you have to get all A’s and you have to do this and you have to do that, it was all about character things and school amplified that, and they were also successful in lots of the ways that people would expect. So I think middle school gave her lots of opportunities in a safe way to try things, to not just try band, but even when she made jazz band, it was, why don’t you try another instrument? She just made it trying out on one instrument but why don’t you try a different instrument? And
she could try volleyball and she could try basketball. (Personal communication, March 19, 2013)

Lily looped with a set of teachers for her three years of middle school. One teacher, Mr. Finch, particularly stood out to Lily, for his caring attitude and passion for American history. Lily also remembers an influential field trip in middle school:

Also in like sixth grade my grade went up to the YMCA of the Rockies and so we got to go on a ton of hikes and just do a lot of nature stuff and learn about nature and the animals around there and we also went to this one little cave thing that a Native American tribe used to live in. And so you could see like some paintings on the walls and stuff like that, and that was really cool. And then they talked about some of the artifacts they had found there, and so they had some examples of the artifacts and, yeah. That was pretty cool. (Personal communication, April 1, 2013)

*Informal education—hit and miss.*

Informal education has played a role influencing Lily in the form of 4-H, Girl Scouts, and day camp. It was because of Sara that she joined 4-H, and 4-H has encouraged her interest in livestock and understanding of how to care for animals.

Lily participated in Girl Scouts from first through fourth grades. In a follow-up email, Bridget talks about what Girl Scouts and day camp provided (and did not provide) regarding Lily’s desire for outdoor experiences:

I felt her troop was run by more conservative moms and they did a lot of crafts, skits, and other indoor activities. At one point, these moms arranged a meeting to have our troop leave the Girl Scouts organization because the upper levels of the organization were too progressive, liberal, and “run by lesbians.” Ultimately, her troop stayed with Girl Scouts when they learned how much insurance and other things cost if you leave the structure and try to do it on your own.

Once in a while they did an outdoor activity with the troop. …

Lily would go to day camp outside of Lyons, and enjoyed that the most. Day camp was not a troop activity. Her older sister … was in Girl Scouts from kindergarten through senior year of high school, and when Lily went to day camp
her sister was also there. Lily liked being outside, the fire pit, sleeping in tents (there was one overnight with day camp). So yes, I would say it nurtured her love of the outdoors, and ultimately she quit because it didn’t do that consistently. For her, the stuff with her troop felt like school, and she envied the experience that she could see her older sister had had with Girl Scouts. Her older sister’s troop did lots of outdoor activities, especially camping, and horseback riding. (Personal communication, April 15, 2013)

**Place—meadows, volcanoes, and Boulder County.**

A few places are of notable importance to Lily. She is drawn to forests, mountains, and open views, and in particular she loves to visit her grandparents’ home in the mountains. She says,

Like five minutes away from their house they have, there’s like this little rock outledge thing, we call the cliff. So we hike down there and there’s like a field, a really pretty, like meadow and stuff, and there are some horses down in it. So we go down there a lot. (Personal communication, March 19, 2013)

Also among Lily’s favorite places is Hawaii, though she has only been there once, in first or second grade. In fact, “Lily” is a nickname—she is named after a volcano from where her parents watched the sunrise on the morning of their wedding. Lily remembers playing in the ocean, trees in bloom, and seeing the volcano for which she is named.

Bridget suggests that their locality plays a role in influencing Lily’s values. She explains,

I think just the fact that she lives in Boulder County is influential. There is a particular awareness in this county for things health-related, environmentally related, educationally related and stuff like that and so I think in some ways that’s reflected in her school system. (Personal communication, March 19, 2013)

**Books and media—caring about animals and people.**

In elementary school Lily began to read books that personified animals. She says, “That really I think nurtured my love for animals and stuff, and so that really helped my
values and the books I read were like… one that’s really popping out is *Guardians of Ga’hoole*. … That one’s about owls and that’s when I started loving owls and stuff.”

Another, she says, is the *Warrior Cat* series. *The Hobbit* is Lily’s favorite movie (her mom bought her the DVD the day of our first interview). Lily and Bridget also recall two favorite childhood fictional books on turtles as well as scripture stories Bridget shared with Lily when she was younger.

Since she was little Lily has watched documentaries:

> I like to watch documentaries and stuff about like different places and like how we have life really good and stuff, like our life is easy, and there are other people that have a lot harder of life, and like they, like all of our, all our old technology we go and dump it in another place and then someone has to live there with like radiation or something that’s coming off of that, and that makes them sick or isn’t good for them and stuff like that. I also watched a lot of animal documentaries and stuff, and so I learned about animals and just nature in general and like different places and stuff. (Personal communication, April 1, 2013)

Negative accounts in the media have also influenced Lily’s commitment to the environment. “It’s hard to see the environment dwindling and kind of going away based on the actions of other people,” she says.

*Being with nature—no worries.*

While being outdoors is implicit in many of the influences mentioned above, it is worth elucidating the feeling that Lily experiences with nature, and how that feeling influences her ecological values. She appreciates nature’s imperfections: “And when you go into the city and like in nature nothing’s perfect. And in the city, like everything like has perfectly straight walls and corners, and it’s just very unnatural.”

“Peaceful” is a word that surfaces repeatedly when Lily talks about being outside. Brooks and soft rivers are always changing, she says, in a “peaceful calm way.”
“Freedom” is another term that emerges: “I just kind of like the freedom and stuff and just things like that, just you can kind of do what you want and get away.” Finally, the idea that you can “get away from your worries” turns up in Lily’s musings: “There is definitely a relaxed feeling most of the time, it’s just a feeling like, I mean none of my worries really matter right now. It’s just live in the moment, don’t worry about the past or the future, kind of, and just have fun now.”

**Response to description from Bridget.**

In the following response from Bridget, she begins with a reply to a question I posed. I asked her whether “seeking” was an appropriate term to use to define Lily’s current religious affiliation, which I used in Table 2 in Chapter Three.

Hi Shannon.

“Seeking” sounds good to me. What Lily tells me is, she has her own relationship with God. I have Catholicism and she has Lily-ism.

I did read over what you’ve written and I am deeply touched. Thank you for letting me see my dynamic daughter through your eyes. What you have written is wonderful. It is great to be part of your process.

Oh, and since we last met, just for your own information. We did find an Environmental Lawyer for Lily to shadow and she had a wonderful experience. It has encouraged her to try debate in high school. And....she got a horse!!! It was gifted to us. And old horse, 29 years, but she can still be ridden and Holly loves. [sic] Of course, we are boarding her out at the farm in Hygiene, with our two goats and 6 chickens.

Hope you are well and finding some time to relax under these blue skies.

Peace, Bridget

(Personal communication, June 27, 2013)
Ollie, community builder.

Sitting at the table
Ollie sips hot tea
telling animated stories

Ollie is a spunky 17-year-old who was finishing up high school at the time I met her. For both of our interviews, we sat at a solid wood table in a front room of her house in central Boulder. Her fluffy cat wandered in and out, sunning herself where she could find a good spot, and her sweet dog hung close by, occasionally walking over for some attention. Ollie sipped tea as we talked.

Ollie is petite, with brown eyes and shoulder-length dark hair, cut closely on the left side. She laughs when she suggests how her friends might describe her: goofy, enthusiastic, involved, a little stubborn, and wanting to be the center of attention. Ollie gets animated when she tells stories, like the time a giant herd of cattle tramped through her campsite at dawn.

“Ollie is very social, so a lot of her activities have to do with doing things with other people, whether it be hanging out and watching movies or going for a hike or out to eat or something like that, it’s usually with other people,” says Ollie’s mother, Margaret, who has short, dark hair, and a large, warm smile.

Margaret adds that building community is a strength of Ollie’s. “I think she feels very strongly about building community wherever she is, and she’s very good at it and bringing people together.” Ollie was a member of the student council, and she also served as a mentor to freshmen, helping them acclimate to high school.
Ollie has decided to take a gap year before college, traveling to Peru, India, China, and South Africa with an organization called Thinking Beyond Borders. She will live with host families while she studies and completes service learning projects. “I’m beyond excited,” she says, “it’s like my dream come true.”

Ollie joined the SCOP as an opportunity “to give back,” she says, and she also worked for the Youth Corps for three summers, mostly building trails. She was active in high school sports, including track and soccer.

Ollie recently won an award for outdoor leadership. She explains, “I don’t know, I think that like, I work really well with other people and I think that, I guess as my leader explained to me, he said that I work really hard, but also make things fun for other people and kind of encourage other people while we’re working hard.”

Ollie says trail building has been rewarding because she is helping to make the outdoors accessible to others. She is possibly interested in pursuing a career in environmental education or forestry. She explains,

Mainly so that other people can have the same experience and the same chances to be in the outdoors and experience the outdoors that I have. Yeah, and that they, that people, yeah, can have the chance, I mean, be able to make their decision whether they want to go to the outdoors or stay here. But I want that to, there to be a decision to be able to be made. (Personal communication, February 2, 2013)

Margaret adds,

Providing trails for people is the value of making that accessible to people who otherwise wouldn’t be able to do it. It’s made such a difference in her life, and I know she’s talked about how she feels bad for kids who’ve never had that experience or who’ve never slept out, outdoors. (Personal communication, February 2, 2013)
Ollie is Quaker—an influence from her mother’s side of the family—and her family also celebrates Jewish traditions—an influence from her father’s side. Ollie says that she does not believe in God, but, she says, “I believe that there is good within every person.” Her favorite quotation is one often attributed to Jimi Hendrix: “When the power of love overcomes the love of power, the world will know peace.”

One of the traits Ollie values most in herself is honesty, she says. She says that she is also very caring. “And like other people’s emotions really affect me, which I like and I don’t like, but I like that I’m very outgoing and that I can feel comfortable like talking in front of a lot of people and situations like that.”

Ollie fights depression, and being in the wilderness helps her find solid ground. She says,

It just feels, just like I feel comfortable, and I feel like I guess a big one is like when I’m in the wilderness I don’t think of the outside world and so I guess it’s like an escape from like pressures and stresses, and so it’s kind of like a relief, and I feel like it’s one of those things that everyone can have their own connection. So it’s like what you feel and what you have in the wilderness is unique to you. Yeah, it’s like your safe zone, kind of.

… I think that it’s kind of always been this, like I’ve always had so much fun and always been so happy in the wilderness that it feels like a place that I can kind of, when I’m there I can escape the reality or escape my sadness.

I think that I was just raised like before I had any symptoms or anything like that, I was raised just being so happy in the outdoors, and having so much fun as a kid playing these like games and like scree piles and the people too, being with these people, that love me you know, and so I think that now that I’ve gotten older I can tap into the happiness when I’m in the nature and kind of like access that, and access those memories which kind of brings a lot of happiness. (Personal communication, February 2, 2013)

Margaret talks about what is dear to her about her daughter. She says,
Well, her love for people and her empathy and sensitivity for others. Her sense of humor, and just the magic she has in bringing people together. And then kind of in spite of having a mental illness that can at times be very, very difficult, I mean it’s just, it’s particularly remarkable, really, how amazing she is given what she’s dealing with inside. (Personal communication, February 2, 2013)

**Influences.**

Ollie’s passion for nature is readily apparent, and there are a number of influences that have encouraged her relationship with the environment.

*Family and friends—role models and shared experiences.*

Ollie attributes much of her connection to nature to her family’s influence. Ollie’s family values the environment and its preservation. At the time of our interviews, her family was having a net-zero impact house built, including solar panels and geothermal heating. Margaret says, “I’m kind of nuts about recycling and reusing, so I’m sure that’s had an influence on her.”

From the time she was around three years old, Ollie’s family backpacked with friends who owned llamas. Because the llamas carried some of the gear, the group was able to backpack longer and farther than they would have otherwise. Ollie says,

I would say, I mean my parents, definitely, is a big one for taking us out as like tiny little children to go on backpacking trips and being able to grow up with the outdoors as a strong part of our lives. I think that was probably one of the biggest influences, and our family friends who we went llama backpacking with for years, they made hiking for like six hours in a day like the most fun thing in the world, like with telling these crazy stories and making jokes and placing bets. Yeah like they just like taught us to love the outdoors in such an amazing way. (Personal communication, April 21, 2013)

The family no longer backpacks with llamas, but they now go river rafting every summer with the same family they had backpacked with. Ollie says that having a shared experience enhances her connection to nature.
Margaret mentions that her father, who has dedicated his life to working in nonprofit organizations and to helping others, has had a significant impact on Ollie. Ollie says she looks up to her sister, who is three years older. She laughs when she says she hates to admit how much she has followed her sister’s actions:

So she like, she went to boarding school when I was in eighth grade I think, and it was like this boarding school and she was like, ‘I never wear makeup, makeup detracts from your beauty.’ And I was like ‘yeah, so I don’t either.’ So I think that those things have been like really good for me because she like really knows who she is and is not, was not like, I guess it’s kind of easier in college to be like different. But in high school in Boulder she wasn’t the classic popular girl and is like always herself. And I really look up to her for that. (Personal communication, April 21, 2013)

Ollie also talks about a good friend whom she rafts with and whom she looks up to. “Everything for her is outdoors,” says Ollie, from kayaking to telemark skiing. She says,

I look up to her in that way that like I wish I could do that or had done that in high school because I think that it’s what I love and I think that I get wrapped up sometimes more in like the school environment and all that stuff that I don’t do as much outdoor stuff as I could. (Personal communication, April 21, 2013)

School has had a positive influence on Ollie’s environmental values. She has had a few teachers, in particular, who have impacted her. “She probably has been pretty influenced by teachers because she’s the kind of kid that will really form a connection with her teachers, so there’s a couple in particular that have influenced her a lot,” Margaret says.

Ollie still goes in to visit a science teacher she had in middle school. Not only did he make science interesting, but he supervised an outdoor club that Ollie helped to revitalize. She says,
We’d plan these trips and then our science teacher would take us on them. And that’s kind of when I realized that I could plan it for myself and make, I don’t know, create my own relationship with the outdoors and that I could, that I really had access whenever I wanted. (Personal communication, February 2, 2013)

Another teacher who stands out is Mr. Kobb, Ollie’s environmental science teacher. Ollie took environmental science from Mr. Kobb her junior year and then returned to the class as an aid her senior year. Mr. Kobb has particularly influenced Ollie’s sense of empowerment regarding environmental issues. Margaret says,

Just exposing her to the issues and in a way that was, it can be so depressing learning about these issues, that was inspiring, as I guess he has a way of inspiring the kids to care or to make a difference despite perhaps being depressed about it. Rather than feeling like what can I as one individual do, he kind of gives them a feeling like they can make a difference. (Personal communication, February 2, 2013)

Margaret notes that Ollie attended a middle school that included a lower socioeconomic population and more diversity than other schools in the area. Margaret believes this influenced Ollie’s interest in learning Spanish, and, she says, “I think her empathy was kind of developed also by, particularly middle school, being exposed to kids that didn’t have everything that she had.”

Informal education—taking opportunities.

Ollie has taken advantage of a few informal education opportunities that have nurtured her connection to the outdoors. In addition to the SCOP, Ollie worked for three years in the Youth Corps, primarily trail-building. The work is challenging and extremely rewarding, she says, because the community has benefited by gaining new trails.

A backpacking trip on the Olympic Peninsula also had an impact on Ollie. The trip was organized through the University of Colorado, and Ollie attended during the
summer between middle school and high school. Ollie describes the trip as “education in the outdoors.” She says,

We’d be walking and then we’d stop and check out a mushroom, and they’d tell us what it was, like how poisonous it was. You’d be like studying trees, and it was just, taught me really different, how you can really look at the outdoors as completely educational and like super scientific. (Personal communication, April 21, 2013)

*Place—interacting with the environment.*

A few places hold special meaning for Ollie. She is quite drawn to rivers, she says, “just because I have so many memories, even little creeks I love. As a child, we’d spend hours playing in those little creeks by our campsite. And I guess rivers, too, like from raft trips. I’m just really drawn to them I guess.”

One is the San Juan River, where her family has repeatedly rafted in the summer. She is fond of one campsite in particular, where the canyon walls tower overhead. Another favorite river is the Delores, though Ollie worries over the condition of the river. She says, “Because now they only let the water run if there’s enough rain … the dam’s overflowing or else it’s just a trickle and so you never know whether it’s going to be a river or not over the summer. I think that is like a terrible thing. A river should always be a river.” (Margaret points out that as they have planned river trips, the family has had to pay close attention to river levels and whether rivers are dam-controlled or naturally flowing.)

Ollie chose a river as a natural metaphor for her life, just because I think that, I mean it’s like flowing and changing and you like have all these big things that happened or these big changes in your life and you can’t, you can’t like expect it to just keep going straight forward. You need to be ready
to take the curve and just kind of do your best to flow with it. Kind of just move forward, move along. (Personal communication, April 21, 2013)

Another prized spot is a trail that climbs high up in Boulder, from which Ollie can look down on the city. Her favorite experience is to climb the trail at night with friends.

Ollie takes a sip of tea as she describes a farmhouse that her grandparents own in Indiana. She says,

They live in Chicago, so whenever we go visit them we drive out there and it’s gorgeous and it’s just surrounded by woods and it’s just this field. There’s a pond we go canoeing on. Yeah and it’s just very, it’s like picturesque. It’s just this tiny little farmhouse in this field. (Personal communication, February 2, 2013)

Margaret also talks about the farm, explaining that it is a respite for the family:

So [my parents] owned 40 acres and it’s this, it has some farmland kind of abutting the road, but the house is set back off the road and there’s this ravine and woods and pond, it’s just beautiful. And they donated maybe 25 acres to the Indiana nature preserve so that it would be preserved forever and I think that is a very special place for all of our kids. You know a lot of times if they’re having trouble going to sleep, or when they were little and I’d say just think about sitting by the pond or take them there in their minds. (Personal communication, February 2, 2013)

Because both sets of Ollie’s grandparents live in Chicago, she has had the opportunity to feel the contrast between big city life and smaller town life. Margaret says,

I think that contrast has also been informative for her, just seeing what it’s like to live in a big city and then both living here in Boulder but also the contrast of visiting grandparents in the apartment in Chicago and then driving an hour and being out in this beautiful place in Indiana. (Personal communication, February 2, 2013)

Ollie also has an affinity for the forest, and she became attached to the area where she developed trails for the Youth Corps. She says,

I love the forest, just being in the woods, and knowing that you’re in the woods with no one else. Yeah that’s probably like the big one just because my first two years of Youth Corps, I was working in the mountains where you’d hike in a
ways, no one else was allowed back there, and it was just like the coolest feeling, knowing you were back there and no one else could go back there and that you were, you know, kind of alone. I mean you were with other people, but you were alone in the woods. (Personal communication, February 2, 2013)

Margaret talks about how Ollie’s hard work in Youth Corps developed into a sense of pride in the space:

And they built a trail, and there’s just so much pride in that, like the following year when they dedicated that trail, they invited this group of kids up there with the county commissioners and everything and you could just see those kids were just so proud of their work, and showing what they had done to build it, so just kind of a sense of pride, which is so important in your connection to the land. (Personal communication, February 2, 2013)

*Travel—seeing interconnectedness.*

Traveling, Ollie says, has had an impact on her relationship with the environment, and it has influenced the way she sees the earth. She explains,

Seeing … the interconnectedness. It’s understanding that it’s all kind of one web that we all need to support… Everywhere humans are hurting this environment and all the environments are connected. As one environment changes it’s going to affect everything else, and just kind of learning and hearing about that. (Personal communication, April 21, 2013)

Ollie has traveled to Venezuela, where she saw people living in shanties on the beach. “I think that opened up, exposed her to another view of life,” Margaret says. Another trip took them to Bali, to visit a friend’s family. Ollie says she was impressed with the way the outdoors was integrated into the culture there.

The benefit that Ollie gets from travel—a similar benefit to being outside, she says—is the reason she decided to take a year to travel before beginning college. She laughs when she looks back on her stressful senior year of high school and her need for the outdoors. She says,
I guess that one, that I would, just looking back on this senior year, it’s been so stressful and overwhelming and terrible, and like I really had none of that outdoors coming in and I think that was a very, very big thing in me deciding to take a gap year because I think I get that kind of same experience when I’m traveling that I do when I’m in the outdoors. And I mean often the two can come together, where you’re just in this new environment and something that you look at in a completely different way. So I think that that’s a very pivotal thing for me. But I’d also say that when we like first, when we went on our first raft trip, that was kind of the moment when I was like, I want to do this for the rest of my life. And, yeah, knew that I wanted like, if I ever had kids we’d be rafting every summer, yeah. (Personal communication, April 21, 2013)

Religion—living with intention.

Being Quaker has influenced Ollie’s commitment to the environment, she says.

It’s like a very open religion, and it’s like very open in the way that you can believe what you want to believe. But a big part of it is kind of this, one of the testimonies, I guess you could say, is stewardship to the earth. So that’s the one that’s had a really big influence on me is that you are giving back to what the earth has given you. (Personal communication, February 2, 2013)

Margaret, who grew up Quaker, says she believes that Ollie’s ability to bring people together and build community comes partly from her religion. Margaret explains that Quakerism is egalitarian in nature:

It’s very open because the whole premise is that your connection with God or whatever you want to call it is very personal and direct, so there’s no minister or pastor or anything, or Rabbi, you know, kind of telling you what to think about on any given day. People share messages, they sit in silence and if they feel called upon to speak, they speak. So it’s kind of egalitarian in that sense. (Personal communication, February 2, 2013)

Equality, integrity, peace, and honesty are all values Margaret sees in Ollie, and she says they are qualities valued by the Quaker religion. Margaret says that being part of a community of Quakers in Boulder, Ollie is around and influenced by adults who live their lives with intention and who are politically and socially active. “And so I think she’s
just kind of grown up seeing that that’s a way, that it’s a way to live your life,” Margaret says.

*Story—reminiscing and making meaning.*

Story plays a role in Ollie’s relationship to nature. Margaret says that nature was a part of many books that Ollie read growing up—*The Giving Tree* by Shel Silverstein was one she remembered as we talked. Ollie’s favorite book, *The Power of One*, takes place in South Africa during apartheid. She explains that it is about a boy’s journey to adulthood. “I also think I like it because he has a really strong connection with nature and there are some like beautiful scenes,” she says.

Margaret says that story often emerges as the family reminisces about wilderness trips. “I mean we were just, a couple weeks ago, got together with the family that we always went backpacking with, and the kids were all telling stories about different times, hiking in the pouring rain, and things like that.”

When Ollie was in fifth grade she completed a writing project—including poems, memories, and stories—based on the idea of a river as a metaphor for her life. Ollie wrote about her pet turtle, llama backpacking, and Indiana, among other topics. About her grandparents’ farm she writes, “A feeling of freeness and love makes me sit, listen, and get deep in thought. This is all so much of my life in such a small way. I don’t go there that much but I still feel a big connection to it. I love Indiana!”

Ollie also writes about the San Juan River:

In Utah, there’s a long river that runs to the Rio Grande and follows that down to the Gulf of Mexico. It is the San Juan River.

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I have been down the San Juan two times before. It is a sandy river with high canyons on both sides, reaching as high as you can see. For the last two years, my family has gone down this river with our friends.

As we raft, I think it is most quiet and peaceful. It makes me feel poetic and deep in thought. I feel very attached to the river, like it’s my sibling. I love it and it’s part of my life. My mood flows with the river, rushing, bubbling or calm. Mountain goats walk the canyons, crows fly the river and many more beavers and whatnot love [sic] there too. My friends and I explore, then swim, then eat and do it all over again.

Many people go on this river, but I feel as though I enjoy it more. With friends, animal sounds and fun, I love it there. (Personal communication, April 21, 2013)

*Being with nature—weight lifted.*

Ollie’s face lightens as she describes what it feels like to be in nature:

It honestly just feels like a weight has been lifted off your shoulders that, like a new ball of happiness has been like put inside of you. And you like, you never get grumpy. You wake up in the morning and it’s freezing cold and you jump in the river anyways. And it’s just, you have power. You just have this like power over yourself, and, but then the wilderness just kind of has this power over you, and it’s just lovely. It’s so hard to explain that stuff. (Personal communication, April 21, 2013)

The benefits that Ollie gains from being in the wilderness can be challenging to maintain in everyday life, she says. “I think that I try to bring kind of like the calmness into my life and kind of the no worries that you have out in the outdoors into my life but I think it’s a challenge. It’s definitely really hard to bring that into the world that we live in.”

*Response to description from Ollie.*

This all looks great! Sorry I didn't get back to you sooner! Hope your summer is going well!

Ollie

(Personal communication, July 10, 2013)
Steven, aspiring leader.

*Just back from building snow caves*

*Steven talks of birds and leaders*

*And hiking under stars*

“Look deep into nature and you will understand everything better.” This quotation by Albert Einstein is Steven’s favorite because he says that many life lessons can be applied to nature. For instance, he says, “Like treat nature like how you want to be treated.”

Steven is a tall 14-year-old with rectangular glasses who participates in the Shadow Outdoor Canyon Program. I was warmly welcomed into Steven’s home, in an affluent neighborhood, and offered tea and Izzes; vegetable chips sat out in a bowl. Small pink-and-white flowers sat in a vase on the counter, and the sun streamed into an open kitchen and living area.

Steven, constantly shifting in his chair at the kitchen table, exudes a combination of seriousness, curiosity, and an eagerness for everything he does—including participating in my study. Steven’s parents are originally from Belgium, and his mother, Mary, whom I also interviewed for this study, is sweet and gracious. Mary laughs when Steven offers me a small plastic Homer Simpson cup of water, and she gets me a bigger glass.

Mary smiles when she describes Steven:

I just love his curiosity, his enthusiasm for life. He’s very, I think he’s very kind to others. He has a big heart … I love his love of learning. He always wants to try new things. And I like his sense of responsibility at his young age, I think he’s quite wise. (Personal communication, January 10, 2013)
Steven, who seems most comfortable in a hooded sweatshirt, still has a hint of boyishness, though he was quite thoughtful and articulate in his responses to my questions. Becoming a ranger is among his potential career choices, and there is no doubt for me that he would make an exceptional one. Steven likens himself to a bald eagle—a respected leader who takes every opportunity (minus the aggressive part). Though he doesn’t consider himself a birder, Steven identifies birds easily, according to his mom, and he showed me a few bird field guides among his artifacts—he is fascinated by flight. One of his artifacts is a field guide given to him by a family friend who marked up pages of local birds for him.

Steven says he plays outside every day, often hiking or biking, and he seems to equally enjoy the outdoors with his family or on his own. Steven mentions that his family is Christian (a small cross hangs on the wall), though religion isn’t noted as an influence in his life. He likes having a diverse group of friends, he says, “because it lets me see like different parts of life I guess.”

As I arrived for our second interview, Steven had just come from a day with SCOP building snow caves, and his younger sister ran in from playing outside, despite a chill in the air. A Monopoly game was laid out on the carpet in the family room, and a small TV sat in the lower corner of the room, clearly not a family priority. As I sat across from Steven at the family’s large kitchen table, his socked feet reached all the way to my chair.

Steven talks about being kind:

I think that, anything from a smile to helping others out, I’ve always liked helping others when they need help I guess. … But I’m really inspired by people who do
change other people’s lives. … I think that just generally, but I mean most notably famous people like Martin Luther King, Gandhi, yeah just pretty much anybody that cares for others and I think that I’ll be the same when I grow up. (Personal communication, January 10, 2013)

Dwight D. Eisenhower and George Washington are both leaders whom Steven looks up to. He explains,

I read a book about [Eisenhower] once. It was pretty interesting because I think he was a very good leader, and I mean he’s just, he really, he did his job well because he was a general and then he was president. I like him because he really, well he was... I heard that he was a really funny person himself, but he was serious when he needed work, when he had work to do. Which is kind of like me, I guess. But I guess also he got along with people really well and he was just a good leader and strived for being better and better every day, which is kind of like me too. And I guess also another famous person I guess, George Washington, I like him too. Again he was an incredible leader, I think that he really... Well during the revolution he brought America back up from under because they were losing the war and he really rallied the American people, it’s inspiring to me. I try to be a good leader to motivate people to do what they do even better and things like that. And that’s kind of what George Washington did. So yeah, those are some people I look up to. (Personal communication, February 16, 2013)

Steven also is quite taken with history, particularly the history of a place. He says,

I think that, well history... I think that, yeah it’s kind of like a big story and I like it, and I think that history like takes place in nature and I always like reading it and kind of imagining where things took place and how the nature was … like visualizing nature and everything. But I think that it’s cool because it also lets you go different places. I mean history is better than any book because it actually happened and it’s, I think it’s just like a wacky and wild story and it’s kind of cool to read and everything. Not just to read but to think about to learn, because it happened and everything. So it’s kind of cool to think about what happened in nature like a hundred years before it was a national park or something, like where there were gold miners, which is kind of interesting, you can think about what nature held at a time, at a point in time, like what animals lived there that might not live there today, or like what movements, what people lived there or whatever. Or what migrations took place, I mean by movements. (Personal communication, February 16, 2013)
Steven recently studied the Sand Creek Massacre in class. He says, “And I could imagine what it looks like in the nature that Native Americans lived in, and the expansion of the West.” He goes on to talk about the settings of stories:

I guess through movies and books and everything I would always really pay attention to the landscapes that they’re in, and especially things like *The Lord of the Rings* where it’s shot in New Zealand and everything. I kind of think of that too, like what kind of a movie would take place here and I think it’s kind of cool to think about the landscape and how it can like be in pop-culture sort of, and I guess like movies and songs and stuff like that. Kind of how relevant it is today as well. (Personal communication, February 16, 2013)

Steven’s mom mentions that he reads maps like they’re books. Steven explains, “I love maps and towns and things because you can imagine the nature that’s around it.”

Steven appreciates that nature—particularly in Boulder—is so accessible, and “it’s not like you have to pay a fee to go see nature or anything.” Once, Mary says, the family was hiking outside of Nederland, in the mountains, and Steven became fascinated by some old mining sites the family ventured upon. “Steven was very, I think, intrigued by the combination of history and the environment. It was just, it really triggered his imagination,” Mary says.

*Influences.*

Steven has a natural curiosity in relation to the environment, and the influences described below have nurtured that connection.

*Family and friends—exposure to new things.*

Family has certainly been an influence on Steven’s ecological interests and values. Both Steven and Mary talk about family hikes and the family’s inclusion of nature on road trips. Mary notes that Steven’s father, in particular, nurtures a love of
nature in the family: “When we have some free time, he always wants to make sure that we are out and about. We go hiking, we go visiting new places. It’s always very nice and active.” She notes that Steven’s grandfather has also played a role in forming Steven’s love of the outdoors. Mary says, “He has a grandfather who lives in Switzerland in the mountains, and he spends a great deal of his time outside hiking, snowshoeing, gardening. He has an amazing vegetable garden. So I think he has a big influence on Steven.”

Though he says he does not currently have friends who enjoy nature in the way he does, Steven does credit his peers with inspiring him “because [they show] me that you can pretty much do everything.” He explains that many of his peers are talented in many ways, and that helped him realize that he can have a life that is multi-faceted. He in part credits his interest in being outside to friends who were in the Boy Scouts when he was younger. He says,

I guess I kind of always wanted to be a Boy Scout, but they would tell me about their campouts and everything and that kind of inspired me to do the same thing too. But I realized I can go camping without being in the Boy Scouts or whatever. And I can still do the same thing with friends or family or something. So yeah, I mean, I think that I had a lot of friends who were in Boy Scouts back then, and they kind of got me into it, into nature and everything. (Personal communication, February 16, 2013)

Mary mentions that Steven visits a family friend, in Boulder County, who has two ponds on her property. Steven swims and canoes on the ponds, and it is a nice area to view wildlife. Mary says of their friend, “She’s just a very warm and welcoming personality, and she just has this love of nature that she shares with her friends.”
Formal education—nurturing values.

Certain elements of school have nurtured Steven’s ecological values. He notes a few teachers in particular who have influenced him. Steven describes his history teacher as someone who seems tough at first glance, but, he says,

he’s actually really gentle and very nice and I think that’s very cool because he always says, treat others how you want to be treated and everything. And that kind of, well, that kind of makes me want to respect things more, I guess, and that kind of plays into nature too. … He’s just very kind and has very good values. Also just like empathy, treating others with respect and being there for people when they need it, so that’s I guess, kind of a motivator for me. (Personal communication, February 16, 2013)

Steven later talks more about what he’s gained from his history class:

I mean in my history/U.S. society class we talk a lot about America and society and everything. I think that our teacher, he told us that we have a big gap to fill in as our generation because pollution and the debt and everything and just like a variety of issues. And that’s really interesting because that really got me thinking about like the issues that we kind of have, like air pollution and stuff like that. I mean pretty much, yeah any environmental issue that we have to take care of. So that kind of got me thinking and that made me wonder what I can do to kind of stop global warming from happening and things like that. That’s kind of interested me so far. (Personal communication, February 16, 2013)

Steven says, “Our teachers, and everything, in school, and everywhere else, they just really encourage you to stand up for what you think matters I guess.”

Steven’s science teacher has made an impression on him as well. Steven says,

My science teacher actually is a big birder and he’s kind of interested me in that too because he gets sponsored by a camera company to go take pictures of everything, which is kind of cool. I think that he’s shown us so many pictures of birds, and that’s kind of interested me as well. (Personal communication, February 16, 2013)

Mary talks fondly of Steven’s teachers, particularly his fourth grade teacher. Mary says,
I think that some of his teachers have had a big impact on his life. I remember his fourth grade teacher, he had a great deal of influence on Steven, and he’s still very fond of him. I remember when he started fourth grade there was a table in his classroom and he had various collections and artifacts and one of his collections was rocks shaped as hearts that he had found during his hikes. (Personal communication, January 10, 2013)

Self-efficacy, self-control, and respect are all traits Mary believes Steven’s fourth grade teacher nurtured in him. Mary notes that when the family takes hikes they now watch for heart-shaped rocks. She goes on to explain how the teacher influenced Steven:

He had a quiet presence in the classroom. He had a good sense of authority but it was done very subtly, and I think he opened a lot of the kids to their surroundings. They would start the day … playing the recorder outside if possible. (Personal communication, January 10, 2013)

Mary talks about Steven’s middle school teachers as well:

I think a lot of his teachers, especially in middle school, have encouraged him to be curious about everything, so he’ll just try a lot of opportunities that are available at school. Last year he was part of the science club. He went on the history bee or the geography bee. He wants to try everything. His teachers really nurture that sense of adventure and experiment. (Personal communication, January 10, 2013)

School has impacted Steven in other ways as well. A trip from the local recycling center made a lasting impression on him:

One of the purposes of school is to teach you about values that can help you in real life. … When we were in the fifth grade Eco-cycle came to us and they gave us a presentation about landfills. That really interested me because I was the kind of kid that came home every day saying oh we shouldn’t throw as much away in the trash and everything. I was the kid who applied everything that I learned. (Personal communication, February 16, 2013)

Steven was a part of a science club in middle school for two years, and as part of that club Steven spent a memorable weekend at the University of Colorado Mountain Research Center. Other field trips that Steven remembers are a hands-on trip to a gold-
mining park, near “a beautiful river,” and a fifth-grade night hike. On the hike, Steven says,

It was in the mountains and we crossed a river at night too, just like a little creek, and it was kind of cool I guess because you got to see something totally different because usually you see the stars like from your house or something, but it was cool seeing like the stars and just the stars because it was so dark and you couldn’t really see anything else but you could feel the ground under you and everything. So it was really an immersive experience. (Personal communication, February 16, 2013)

Steven views elementary school as a place that supports a love of the outdoors, which suggests that his own elementary school played that role for him. He says,

My big sister, she’s in high school so I guess she doesn’t really like have quite as much of an interest [in the outdoors] because she’s always so busy with homework and everything. But I guess also in high school it’s not like nature plays a big part in school or anything, so I think that she has less of a reason to care about it anyway, even though she should care about it and everything. I think that my little sister in elementary school probably cares a lot too, because I guess when you’re in elementary school you get to go on field trips with nature, and you really get to interact with it more, and you really get to learn about it in elementary school. It seems pretty fun and everything. (Personal communication, February 16, 2013)

Informal education—making a difference.

Steven learned about the SCOP through an article in the newspaper, and he figured that because it was in the paper, it must have been a big deal. It is the first volunteer work that Steven has done, and, he says, the first time he has shown that he cares for the environment by trying to make a difference. The SCOP experience has been a rewarding one, he says:

I’ve really liked it because it really lets you see what rangers do every day. It really lets you, I guess, just experience nature in a whole different way because you’re helping open space and you’re not just doing that for fun. You’re also doing it for a purpose, for the enjoyment of others and the outdoors. (Personal communication, January 10, 2013)
Mary notes that Ranger Keller, who leads SCOP, has made a particular impression on Steven, as Steven has had the opportunity to work with Ranger Keller in a small group and see him interact with the public.

*Place—local trails and road trips.*

Place seems to have played an important role in developing Steven’s connection to nature. He names a number of local mountains and trails that he is fond of, and he notes that their accessibility from Boulder makes Boulder a particularly good area to live in. “We go to places that are close by, and that we can also appreciate because, I mean it’s close by but it doesn’t feel like it since you’re in a totally different environment, so that’s why we like them,” he says. Boulder as a community has an effect on Steven as well, he says, because “volunteering for nature” is a big deal in Boulder.

Steven talks about an arboretum in Kansas, where he lived before he moved to Boulder eight years ago. He also mentions the beauty of the Alps, where his grandfather lives. Mary says, “He’s just very impressed with the landscape. It’s a beautiful place.”

Steven mentions that seeing a forest area after it had been hit by a wildfire had an effect on him, and he cares about protecting beaches after traveling to the coast in Florida. Mary notes that Steven has always been particularly sensitive to smells, and that the pollution of big cities made him uncomfortable from the time he was very young. Steven talks about his sadness when local areas have been developed. As one example, he says,

I remember there’s a new development [near my neighborhood], and it used to be a horse pasture, and I think that when we were little I mean it was kind of, I mean not really scary but kind of unnatural I guess, to see them taking down all the
trees and everything in there, so that was kind of, so it got me used to seeing stuff like that. Yeah, so kind of like building new houses and taking over territory.

(Personal communication, January 10, 2013)

Family trips have particularly nurtured Steven’s connection to the outdoors. He explains,

We always include nature as part of our trips. I would say just also being on the road, just seeing the outdoors, that’s really nice too. And it’s nice because you really get to see just what a different environment it is from Colorado I guess. It’s kind of cool to see how diverse this section of the nation is, which is pretty cool.

(Personal communication, January 10, 2013)

Mary adds,

This area has so much to offer. I mean, we’ve traveled in the neighboring states too, and we always try to visit national parks, and I think that’s what’s fascinating about this country, the diversity and the environment, and we really try to take advantage of just exploring. (Personal communication, January 10, 2013)

Mary lists states that the family has taken roads trips to, including Wyoming, Arizona, South Dakota, New Mexico, and Utah. The focus is always on seeing natural places. When the family has traveled to national parks, Steven has acquired a number of Junior and Senior Ranger badges and patches, which he showed me during my second visit.

Negative influences—media and people.

Media has been another influence on Steven, and he talks about the destruction of nature in the news. “You hear in the newspaper about people who are protesting like a new development or something that was supposed to cut down trees, especially in our region so that’s something that I care about,” Steven says. He talks about a video he saw where builders took down “every single tree. … and that was kind of sad.”

Oil spills are a concern of Steven’s, as is deforestation. He says,
I mean all the time in the news you hear about things like that and I mean deforestation, that’s something when I hear about it I kind of feel angry, but I feel like I want to do something to help it, so that’s something that’s really I guess fostered my ecological values of caring and not taking nature for granted I guess. Because you never know when it’s going to leave or anything, or when it’s going to be cut down or something. (Personal communication, February 16, 2013)

Steven describes times that he’s seen people being thoughtless in their interactions with the environment. He says,

I’ve been in several experiences where, whether it’s in a national park or just biking or walking on a trail or something, when I see people that are just pretty much reckless with nature that just don’t care. I mean this could like be biking, when we’re on the trails sometimes we see people biking through the woods without any care or concern, which is really interesting because they’re not treating nature the way they want to be treated of course and it’s not good for an ecosystem. So I guess that’s kind of interesting, when I see things like that, or when I saw things like that it just makes me think about how much I want to respect nature because it gives to us. Nature doesn’t hurt us or anything, so I guess just leave it alone and everything. (Personal communication, February 16, 2013)

Steven adds, “I feel like I want to protect nature now, kind of. But I also realize that nature can kind of come and go, I think it’s made me appreciate the outdoors a lot more I guess.”

Being with nature — there’s nothing like it.

Steven talks at length about the effect that nature has on him. He frequently talks about fresh air and the purifying nature of the outdoors:

I think that nature is a good escape sometimes too, I mean whether you’re really busy or something when you live in the city. I mean nature’s very relaxing because as I said before it takes your mind off of what you’re doing and everything. And it’s really nice because, I mean nature’s always there for you pretty much, whenever you need to take a walk or something. But yeah, I guess that’s really a nice thing. It’s just really purifying, and it feels good when you’re in nature. (Personal communication, February 16, 2013)

Steven says that nature is soothing, and that it even helps with academics because
It helps your mind focus. … I don’t really know how, but whenever it’s just fresh air and that really helps too and just interacting with something, not only just thinking about it but actually being there, seeing it in real life, I guess touching rocks and soil, that just seems to help you, I mean stay more focused and more composed and everything. (Personal communication, February 16, 2013)

“Contemplating,” “mesmerizing,” “relaxing,” “immersive,” and “calming,” are all words that Steven uses in describing what it is like to be outside. He says it is something you cannot experience except by being there.

I don’t know, it’s a one-of-a-kind thing because you can think about nature, or you can be in nature, or you can watch, I mean you can either watch and see pictures of nature or you can be there. I think that feeling the wind and feeling the ocean and everything is really cool because I guess you’re there to see what happens. I mean I guess that you can kind of learn about it but there’s nothing like actually experiencing it. I think that it’s very relaxing and it’s good to take a breath of fresh air sometimes I guess. You kind of get off track a little bit and kind of lose track of your schedule and everything and just be outside and enjoy it. And I guess live in the moment and seize the day. But, yeah, I guess that being in nature is really relaxing, very comforting. Yeah, just really a fun experience that, I mean, it’s one-of-a-kind you can’t really describe it. But just like being there in the woods, feeling the wind, or whatever, it’s just really cool. (Personal communication, February 16, 2013)

Response to description from Mary.

Hi Shannon,

You must have a busy summer working on your dissertation. Thank you for sending this document to us. We have enjoyed reading it and will read it again.

We wish you all the best for your thesis. We are grateful that Steven was able to help in a small way.

Keep us informed of what happens next!

Have a happy summer,

mary

(Personal communication, July 7, 2013)
I first met Rose and her mother Lisa at a rural library a few days into the new year. Rose and her siblings piled out of a white van, and Rose and I sat down to talk in a quiet corner of the library. I learned that Rose is the second of seven children, with an eighth on the way at the time of our interviews. Most of Rose’s younger siblings wandered (and sometimes ran) about the spacious library.

Rose’s dark brown hair was pulled loosely into a ponytail. She wore a turquoise hoody and at times touched her fingers to her stud earring as she talked. Rose initially came across as shy, but her self-confident and easy-going nature quickly surfaced.

Rose, 15, participates in a variety of activities, from civil air patrol to the Youth Corps, for which she moved logs for a summer to prevent forest fires. Through 4-H she decorates cakes and shows goats—I got the chance to meet her goats during our second interview. She took up archery for a time through 4-H, and is reputed (by her mom) to have been a good shot. Rose has been riding horses since she was two years old, and horseback riding continues to be a passion of hers. To help pay for her hobby, Rose helps younger children with their riding lessons and teaches ballet to neighborhood girls. Rose says she is someday interested in being an emergency responder or flight nurse. Lisa explains that Rose also participates in worship dance, the proceeds of which go to missionary work. (Lisa approves of the long skirts, which she says are a vast improvement over some “obscene” dance outfits for young women).
Rose says that she doesn’t like to cut corners. “I try to be the best I possibly can every second of the day I guess.” She says that at times she can be “high and mighty,” and that at those times she is often humbled when someone puts her in her place. Lisa describes Rose as having a sweet spirit. Lisa says, “She is extremely sensitive to people’s needs, and she is dependable, very dependable,” a trait Lisa says is necessary in a family with many children.

Rose scoffs at public schooling after having a bad year in a public school in third grade. She did not feel liked by the teacher, and she did not feel that the teacher helped her understand the material. Lisa believes there is a lot of apathy in public schools, which she says was hard on Rose. Rose spent the rest of her early school years in charter schools. Now a freshman, she has been homeschooled since fifth grade. She laughs, saying, “Yeah people think being homeschooled is kind of the easy way out—it’s not. Because I have to help my family as well as do my schoolwork and everything else, so it’s kind of a hard but very rewarding way to go.”

Rose is extremely close to her family, particularly her brother, whom she says has always been her best friend:

Ever since I was little we’ve been like the inseparable type of kids. He’s kind of always been there for me and, yeah, I’ve kind of always been there for him and he’s kind of one of those people that is kind of steady … because we’ve moved around a ton, and I’m kind the more, I’m the more changing and he’s the more steady, and together we make it a lot better. So he’s my best friend. He’s one of the few people who I can seriously just chat with. (Personal communication, January 4, 2013)

Sometimes, Rose says, she feels compelled to defend her large family:

I have stood up for something practically my whole life. I believe that every person is a blessing, and as you can see my family’s kind of large, and so I
believe that every soul, every baby is a blessing. People have always felt otherwise, and told me, always. So that’s something that I’ve always stood up for because they’re special in their own way, and they should have a chance at life, so that’s why I feel that. I’ve stood up for that forever. (Personal communication, February 12, 2013)

Lisa explains that though her family is large, they work hard to make little impact on the earth:

We are a large family, which people are like, oh that’s so not ecologically sound. However we are completely abnormal apparently because I breast-feed exclusively these children until they are almost 3 years old, they wear cloth diapers from day one, they all potty train early because of it. We’ve always gardened and used our produce and of course with our goats, they’re dairy goats and the kids have learned everything about that, and we use all our milk that we produce, and we’ve always looked to caring for our world around us, and using a small footprint, like the home we live in is 1100 square feet with nine people in it and then you know we just aren’t big consumers and we make a serious effort to live in a way that’s not taking a lot from our world. (Personal communication, January 4, 2013)

Lisa laughs when she talks about her family living in a relatively small home. The family lives just outside of Longmont city limits. Lisa says, “We’re a little glitch on the map because we have animals and you can’t have animals in the city limits. We’re kind of on the fringe, we’re on the fringe. We’re fringers.”

Rose, proud of her family’s efforts to leave a small ecological footprint, talks about how they use their animals:

We have our own goats to milk and we use the milk for lotion, soap, cheese, so we kind of use all sorts of stuff through our goats, we don’t have to buy it and stuff like that and then we have chickens. They’re also our little garbage disposals that we can give our extra, like fruits and vegetables, we remove the tops and stems and stuff that we can’t eat it. We give it to them so it’s a way of not throwing out the extra stuff. We eat their eggs, and when they get old we eat them. (Personal communication, January 4, 2013)
Rose’s family belongs to the Church of Latter-Day Saints, and Lisa says that this influences Rose’s values and priorities. She says,

Her family is first and being a part of our family and of course her God, and I think her priority is just to get out there and live this life, you know, experience it to its fullest, and I encourage her in that. She has a lot of talents and a lot of abilities, and I want her to get out there and try them and live it, and I also want her to give back and that’s when she does a lot of giving of herself and her time and her talents and that I think is extremely important so that she is not just taking but giving. (Personal communication, January 4, 2013)

One way that the family gives back, Rose says, is by supporting Heifer International.

As I talk with Lisa at the library, Rose’s 10-year-old sister walks up to our table. Lisa gestures to her daughter, saying, “She’s my goat cheese maker. She’s my stand-in goat milker. They weigh more than she does, but she’s a good milker.” I can’t help but laugh when the girl responds, “It’s hard to drag a goat.”

During our second interview, I was welcomed to Rose’s home with delicious cookies straight from the oven. Rose and I walked to a fenced portion of her backyard to meet her many animals: chickens, cats, a dog, a horse named Chip (aka Eeyore), and goats. Rose notes that the female goats are named after flowers, like Poppy, and the males are named after spices, like Pepper. (Lisa mentions that at one point there was a pig named Timmy living in the family’s laundry room, which drove her husband crazy.) Rose’s 13-year-old sister held up Peach, one of her chickens, to show me, and she later carried pails of water for the animals to drink. In the garage I met Eve, the “miracle chick” who hatched Christmas Eve despite the demise of her 21 sibling eggs.

There was a lot of busyness inside, so Rose and I sat out in a large sunroom-com
on. At one point, Lisa brought out two bowls, handing one to Rose, saying, “Sorry lady, you need to eat,” and one to me: “Here’s yours. If you’re vegan I’m sorry, there’s meat in it,” and she walked back inside. They were bowls of chili. (I do not eat meat, but I also do not turn down food when I am a guest—the chili was delicious.) Following our interview, Rose was off to demonstrate bread-making for her 4-H group. I was sent home with a fresh loaf of bread, steaming up the plastic bag it was in.

Prompted to come up with a nature metaphor for herself, Rose says,

I think I’m like the wind, because I’m constantly changing and moving, and leaving. Because I’ve never really stayed in one spot, the longest I’ve stayed in one place is nine years, and that was the last place I stayed a long period of time, that was Oregon. That’s when I was little. So I don’t remember a ton of it. (Personal communication, January 4, 2013)

Rose loves the water. Rose talks about the ocean, rivers, and lakes, and she showed me her seashell collection, including shells collected from her grandmother’s home, Washington, and Hawaii. Rose swims consistently, and she recently completed her lifeguard training.

When I ask Rose who she looks up to, she says,

My mom. She is seriously amazing. She, as you can see, is like on top of it 24/7. Without her I would not be doing half the stuff that I’m doing because she drives me everywhere because I can’t drive. She is so patient and she’s so humble compared to me. And she just, she knows how to make everything work, no matter what. With barely any materials she can make a dress by just saying, oh I’ll just cut this like this and then sew it like this, and then it’s just beautiful. (Personal communication, February 12, 2013)

Lisa exudes resourcefulness and self-sufficiency. She is quietly animated, soft-spoken, calm, and strong. She talks about how lucky she feels to have her children:

They are not mine, they’re just on loan, but I love the chance to be their parent, and be their mom, and live this life with them, and watch them become somebody
that’s going to give and help, and make something better with their life. You know every day is still an exciting new day that we thank God for the chance to still be, to still have them in our lives. We don’t take that for granted ever. (Personal communication, January 4, 2013)

Protecting the environment is a priority for Rose. She says, “Because I found that, you know, the environment is the environment, it’s always there for you, and you know if you want it to stay that way, then you have to help it.” Later, she says, “You know everything we do to this earth is going to kind of be thrown back at us. It’s the only reason why we’re still alive and so it’s really important that we take care of it the best we can.”

**Influences.**

Lisa suggests that Rose’s ecological values are largely innate. She says, “As far as where she gets her information or where she gets her ideas about the environment and stuff, I think it really is just her own brand, her commitment to help and living.” However, a number of influences are also apparent.

**Family—outside people.**

Family is probably the most significant influence on Rose’s values. As mentioned earlier, her parents consciously try to live and model a sustainable lifestyle. Also, Rose says, “We are always doing stuff outside in nature. We’re not really inside people and so I’ve been able to be with my family more through nature and I prefer doing stuff outside with them because inside is not always the best idea.”

The family does not own a TV. Instead, growing up in Rose’s family has meant playing outside, hiking, camping, raising animals, and gardening. Lisa says,
We always had ginormous gardens, we called them our Jurassic Gardens because we had these zucchinis that were as big as an infant. We’d can everything, you know, can tomatoes and pears and anything. We loved to go gleaning, we’d go at the end of the blueberry season and take jugs, just recycled little milk jugs and run around and just pick one, eat one, pick one, eat one. Then we’d freeze them all and eat them throughout the year, and they loved that, it was so much fun. (Personal communication, January 4, 2013)

Lisa describes hiking and being outside with her children:

They’re all really a bunch of mountain goats, they just run up and down those hills like it’s nobody’s business, and even the little ones, we’re talking 6-mile hikes, even down to the little four-year-old that was here. Even the little two-year-old will hike some and then ride in my backpack. You know, just, we all just enjoy it, it’s just a favorite thing so these are our favorite places, just getting outside. That’s always been our favorite. We’re happiest outside. Inside is hard. … You just feel corralled and tired and moody, and we all have a really good attitude adjustment once we get outside. I think it’s just because everyone can just move and explore and run and jump and whatever it is they want to do. (Personal communication, January 4, 2013)

*Formal education—a range of experiences.*

Teachers and schooling had a noteworthy influence on Rose. Before being homeschooled, Rose mostly attended charter schools. One school had an agricultural focus, where the students learned farming techniques through a hands-on approach. Rose described her teachers as liking nature, and she enjoyed the many field trips. She says, “My class was always outside instead of inside and it was just a lot of fun because of it. [My teacher] was very, very outdoorsy and so all of us became that way too. So it was fun.”

In third grade, Rose attended a public school, which she and her mom both refer to as “a disaster.” Rose says the teacher did not like her, and Rose describes her as “the most non-environmental person I’ve ever met,” explaining that the teacher was quite wasteful. Rose says,
Well there is tons of like, she was always, like buying more paper when we had paper. It was one of those things where she was never really careful about stuff like that and so there was no recycling bin and she’d just kind of throw away, it was kind of one of those weird… because all my schools were really usually pretty, they were very agricultural and so like going to a public school was like a slap in the face, and so it was pretty interesting. … I’m kind of glad I had her though because it taught me I never want to be like her. (Personal communication, February 12, 2013)

The following year, Rose ended up back at a charter school. She says,

The next school was actually really, really cool because the teacher was amazing. She was like, she was a runner, she skied, she hiked, she did everything and so she actually took, it was my first time ever doing snowshoeing was with her. It was super cool. She took us on a field trip snowshoeing. So that was the coolest thing ever. She took us skiing too. (Personal communication, February 12, 2013)

**Informal education—involve ment in the community.**

Though Rose has always had a strong connection to the outdoors through her family, she says that her effort to give back to the outdoors and participate in community aspects has flourished in more recent years. Her family volunteered on a farm for a year, which led to their involvement in 4-H and dairy goats. Rose has learned about forest management through her participation in Youth Corps. Through SCOP, Rose has learned about resource management and outdoor leadership. Ranger Keller sets a good example, she says.

He knows so much about it that it’s been fun to talk to him and learn more, and so he’s kind of a fun person to talk to about stuff like that. … He’s super understanding I guess, in a very kind of, he doesn’t really tell you what to do, you just kind of know just by the way he’s kind of calm and knows that, you know, everything’s going to work just perfectly and so, he’s funny too, he makes you want to learn more. (Personal communication, February 12, 2013)
Place—staying attached.

Despite moving frequently in her life, Rose is attached to a few natural places. One of them is Zion National Park in Utah, where the family often visits. Rose talks about repeatedly hiking the same trails, and she talks about Angel’s Landing in particular, a rock formation that affords spectacular views of the park. Rose also mentions Vedauwoo, Wyoming, as a favorite spot, where her father loves to rock climb.

Rose is particularly attached to Seaside, Oregon, where her grandparents live right next to the beach. “It’s always been kind of one place that doesn’t seem to move around all the time. It’s kind of a more solid, you know, safe place I guess. Just because I don’t have a ton of solid anything,” she says, laughing.

Religion—encouraging stewardship.

Rose explains that religion is an important influence in her life, an influence inherent in growing up in her family. Her family goes to church every Sunday, and environmental stewardship is encouraged. Rose says,

I believe that God made the world and so I’m his steward while I’m here to take care of it as well. And so, well it’s been my job and he gave me a chance to be here so I make sure to make the best of everything. That’s kind of special in a way, making sure I always care for it in every possible way I can. (Personal communication, February 12, 2013)

Being with nature—grand views and crisp air.

Nature itself strongly influences Rose’s ecological values. She says life would be bland without nature, and she describes the different sensations that she gets from various elements of nature. Being high up, with grand views, takes Rose’s breath away and deepens her connection to the outdoors. “I think the feeling of just being able to see
everything, and kind of the air, I think it’s kind of crisper I think and it just kind of, I
don’t know, I guess I’ve always felt that crisp air means good,” she says, laughing. She
also talks about her love of water and swimming:

I guess it’s kind of the water’s kind of cushioning, you feel like you’re being held
I guess. And I like that. It also helps, you know, I don’t have to think at all. It’s
very good, you know, emotionally for me. Because it’s just working hard, you
don’t have to think at all and it’s really nice that way. I like it. … It feels really
safe as well. It’s kind of one of those things, I like to be where it’s safe. (Personal
communication, January 4, 2013)

Rose says she is most comfortable in a forest: “Because I’m very comfortable
around trees, being closed in like that. I like having something around me kind of holding
me in a way.”

Response to description from Lisa.

I read the attachments, and think it all sounds great. So sorry you had to eat meat
at our house! You are always welcome to swing by. The two does gave birth to 7
babies in May. Sadly, Rose’s Pearl passed 3 days after birthing her triplets due to
a ruptured uterus. The kids are bottle feeding the orphans. The black horned doe
had 4!!!! Babies and is doing fine. Their mama kitties also had babies (6 total), 4
have gone home already.

Lots of fun!

Lisa
Sent from my iPhone

(Personal communication, June 28, 2013)
Rachel, driven academic.

*Fiddling with her drawstring*

*Rachel speaks of music and of fish*

*And solidifying values*

Rachel lives in a rural part of Boulder County on a farm with chickens, goats, horses, llamas, and, as her mother Heidi puts it, “a whole lot of cats.” For my first interview with Rachel we sat at her kitchen table on a sunny afternoon. Evergreen trees swayed slightly in the wind outside as her mother stirred goat’s milk, pasteurizing it in a giant stainless steel pot on their stove. I got the impression that this kitchen was well-utilized, and I took in my surroundings: spices, wine, a double oven, an array of colored pencils and a single red rose in a vase on the counter, and country décor, including a small oil painting of chickens.

Rachel has long brown wavy hair, and she wore a royal blue sweatshirt, fidgeting with the drawstring. She gave brief answers to my responses, and she immediately struck me with her no-nonsense attitude. She is serious about academics and very driven. As a metaphor, Rachel likened herself to a rock, “because I kind of do my own thing, I’m not influenced by what’s going on around me,” she says. Rachel is turned off by high school’s “drama.”

Rachel’s mom, Heidi, is petite and had her dark-blonde hair pulled back. She laughed throughout our interview. She notes that Rachel is trustworthy and reliable, and she describes her as a rule-follower. “She’s always just been very thoughtful and, you know … as a little girl she was always so kind, you know, one of these sweet little girls that always wanted everybody else to be sort of happy,” Heidi says.
Rachel is a dedicated musician, participating in marching and concert bands at school as well as a communitywide all-star jazz band. Rachel is an athlete, and until the last year participated in basketball, soccer, and track at school. She is an avid skier, and she also likes to hike. (“Her idea of a hike is a real hike,” her mom says, steep and rocky.)

Fishing is a serious hobby for Rachel, but, she says, the goal is not necessarily to catch anything. She explains,

Well I really like to fish, but I don’t catch very many, so it’s not a big part of it. I just like being out on the water, and it’s real quiet and relaxing. I like fishing by myself the best. I don’t even have to see a fish the whole day and it’s so fun. I don’t know, it’s like the same reason people like hunting, right? Even if you’re not real like into killing the animals, it’s just fun to be out there. (Personal communication, April 25, 2013)

Rachel stays busy on the farm as well. She assists her mother with horseback riding camps for children, and she cares for the family’s goats. She shows the goats in 4-H and in open shows. Heidi laughs when she talks about Rachel’s goats. She says,

Her first goat was this really unruly, naughty goat that she had to train and when she was just learning and I loved how she just stuck with it and probably learned more from that stubborn goat. And now that goat has a daughter who is totally the opposite personality and it’s Rachel’s totally favorite of all of our goats because she’s really easy-going and moves real slow while the other girl would pull her all over the place. She just stuck with it for all those years, she had to show that goat for so long before the daughter got old enough to be able to be shown. Because you know once they show at a certain level they have to be in milk. Well, you know have a baby and you have to wait two years and then breed it and then finally get to show that goat. It’s just been fun to see her stick with that, you know, for as long as she has. (Personal communication, March 21, 2013)

In our second interview, Rachel mentioned that she had solidified her values in the previous year, and that meant shifting some friendships. She describes what she realized mattered: “I guess the importance of just standing up for what you think is right, you know just being like a moral person you know. Having a strong moral compass. Not
doing things that might jeopardize your future or others.” She explains that she holds herself to a high standard. “Well I try to be very honest, sometimes a little bit too much so I think. But I think it’s important. I try to like to do things when I say I’m going to do them. I usually try to be there for my friends always unconditionally you know. So I guess loyalty, right?”

_Influences._

Rachel has a solid connection to animals and nature. There are a few clear influences on her environmental values and interests, described below.

*Family—providing examples and outdoor spaces.*

Family has had a significant influence on Rachel. Heidi notes that the family is close, and they spend a lot of time together. When Rachel was nine, her parents made a decision to move to the farm where they now live so that Rachel and her sister would spend more time outdoors. Heidi explains,

Well I know like one of the reasons we even moved the kids out here was one of the things we saw happening to them in Rock Creek they liked to play outdoors, but they liked to play in their own little world outdoors, you know, they had little games they played together and then the whole neighborhood would want to swarm in on them and play with them, so they started not wanting to go outside because they want to play just the two of them, or in their way. And I was like, but I want them to play outside! So, and you know, when I was a kid there was woods you could go off and play in, you could do things by yourself, and it’s now, parents in neighborhoods and rules and all of that are so overprotective. Kids don’t have a chance and so we felt like, well, if we move somewhere and there was a lot more space that they could still have privacy and quiet and kind of alone time but be outdoors, that would get them outdoors. And definitely that happened, you know when they were kids they used to be out in the trees reading books and be out making mud. (Personal communication, March 21, 2013)

Later, Heidi talks more about the importance of having the farm:
I mean I really had this awareness of how we now as parents are so overprotective of our kids because of this perceived notion that it’s so dangerous out there. We’re worried of getting in trouble because you can’t be on somebody else’s property like we used to do. And I could just see it happening. My kids were getting more and more indoors, or at least not having unstructured activities outside where they could just be a kid outside. Like you could go to a park with your school playing soccer, but you couldn’t just be outside and enjoy outside. So I think that was like just a huge factor in my decision to really go for this whole farm thing, was to get them a chance to have some space that they could just be in nature and be outdoors without having a reason to be out there, you know.

(Personal communication, March 21, 2013)

The family’s influence includes providing not only the outdoor space of the farm, but the animals too. Heidi says, “I would say as a family we’ve always had a lot of animals and we’ve always really enjoyed them a lot and also provided for them well. We’ve tried to make really conscious choices about our treatment of the animals too and the responsibilities of them.”

Rachel says that she shares a lot of her parents’ values. She says, “They’re really open-minded, so they are willing to entertain a lot of ideas when it comes to just about anything including the environment. And so it kind of opens the door for a lot of discussion.”

Heidi’s mother has played a significant role in Rachel’s life. Heidi says, “Both my kids were very close to her when they were young, and she’s a person that’s just got really great morals and values and she was a college professor so she’s also very bright, and loving, very loving.” Heidi and her mom are both leaders in anti-hydraulic fracturing (“fracking”) in their respective communities. “My mom has always been an activist in a lot of different ways, so she’s always been a social activist and involved with a lot of women’s issues and environmental issues,” Heidi says.
Rachel has followed her mother and grandmother into the anti-fracking arena. She does not like to speak publicly, but she holds signs at rallies and will pool minutes so that others can speak longer. Rachel says,

It can be so frustrating to argue with people who are only in it for the oil and gas and the money you know. And they refuse to see the environmental perspective. So that can be very frustrating. But then like knowing that you’re doing something to protect it feels good. (Personal communication, April 25, 2013)

Heidi notes that her brother, Rachel’s uncle, has likely had an influence on Rachel’s outdoor interests. She explains that though he lives in Ohio, when the family vacations together in Michigan he is the one who initiates outdoor activities like canoeing, kayaking, and biking, and Rachel happily goes along.

*Formal education—sparking an interest in science.*

Two recent teachers have made an impression on Rachel. She says,

Usually I look up to people who I think are doing a lot right. Like who I think have good morals, high standards for themselves. Yeah, like the teachers that I look up to, they’re very smart and they are ones that seem to really care about their students and care about making a difference for their students.

This year my AP bio teacher, and last year my AP environmental science teacher, are both teachers that stand out. I really like the subjects they both teach, so that probably helps. And they’re both really smart, and funny. And they get excited about what they teach so it helps the students to be a little more excited about learning it. They are easy to communicate with and you can have a good conversation with them. (Personal communication, April 25, 2013)

Rachel remembers noteworthy field trips associated with each of those teachers:

In environmental science last year we went over to a river and did water samples and stuff and caught bugs and looked at them under microscopes you know. That was really fun. And then this year for AP biology we went camping for a weekend, which was really cool. We did, we also caught bugs and tested soil and plants and stuff, and we saw the bugling elk, so that was pretty fun. (Personal communication, April 25, 2013)
Heidi explains that Rachel is interested in environmental science, an interest that likely has been influenced by her environmental science teacher. Rachel mentions that in environmental science she learned the importance of protecting the environment.

*Informal education—early influences.*

It was the influence of a friend that got Rachel involved in goats and 4-H when she was 11 or 12. She explains, “So then we had a friend who had some baby goats one spring and we went over there to see them and bottle feed them. And they were like really cute and stuff so we kind of fell in love with them and decided to do that for 4-H.”

Girl Scouts had an early influence on Rachel. She says Girls Scouts got her on some of her first camping trips in the mountains, and they were trips she really enjoyed. She left the group because it started to focus more on organizing events and selling cookies, and less on outdoors and camping.

*Place—particularly where there are fish.*

There are a few outdoor places that have made a particular impression on Rachel, and water is a common theme in most of them. A cottage on Mullett Lake, in Michigan, is a special family retreat Rachel and her family visit each summer. Among other activities, like biking and kayaking, Rachel says she fishes at least once a day while she is there. Heidi talks about the cottage:

You know it’s like my kids’ favorite place on earth, and one of the things that’s so nice about it is it’s really not pretentious at all. My great-grandfather built this place over 100 years ago and it’s pretty much the same as it was then, although all the cottages up and down the beach around us have all been remodeled and rebuilt and they’re all really fancy, and we have our rustic little... And they love that, they don’t want it to be fancy, which I think is so great. But it’s on just a beautiful beach that’s very private. Although there are neighbors, they tend to not be around very much. They all go off and do these country clubs things and so we
have the beach to ourselves most of the time which is really nice. It’s on a beautiful lake and it’s so far north that it’s relatively unspoiled up there. And so I think that’s, there’s a simplicity of, you know, we don’t have TV when we’re there and until cell phones came along we didn’t have phones up there either. And so I think for them that’s always been like this little oasis. It’s this place, and it never changes. It’s been the same since I was a kid. And so in this world that moves so fast and there’s all this technology that’s replaced the kind of standstill. And I really do think that’s had a huge impact on them and their enjoyment of nature and the outdoors. And as they’ll say, they love going up there too because they don’t have any chores really. When they’re up there they’re really on vacation. (Personal communication, March 21, 2013)

Hawaii is another favorite place, where Rachel’s paternal grandmother lives. Rachel enjoys snorkeling and mentions that she has had aesthetic experiences finding schools of fish in the Hawaiian reefs. She describes a hike during her most recent visit:

When my mom and I went to Hawaii last Thanksgiving, we went on a hike in the mountains. The trail was beautiful, it was lush and green, there were a lot of trees and flowers and everything. Then it came out at the bottom of a cliff, and there was a black sand beach at the bottom. It was so beautiful, easily the highlight of that trip. I remember being in awe of it, seeing the black sand stretch the whole length of the beach. (Personal communication, March 28, 2013)

Rachel notes a recent trip to Yellowstone National Park and the Grand Tetons, where she kayaked near a bird refuge. Rachel is also quite drawn to the coast, especially in cloudy and rainy weather. “I’ve just always been drawn to it. It’s just kind of relaxing to be out like on a big beach, and it doesn’t even have to be a beach. I don’t know, I like the smell of the sea water and all of that. I don’t like being in the water so much as just being next to it,” Rachel says. She even has her eye on a university on the Oregon coast for graduate school.

Though it is not an influence that Rachel mentions, Heidi talks about the value of the trails and parks in Rock Creek, where the family lived before moving to the farm. She says the area had both positive and negative effects on Rachel. Heidi explains,
And there are a lot of parks in Rock Creek which were great when they were real little, so we did do a lot of, one of the things that was really nice about living there with little kids was there were always these great bike trails and community parks, and so it was really easy as a family to just, you know, go out the front door and put them in a trailer on the bike and go down to the park. You know they played sports in those parks. So I think those were pretty good early influences, whereas, and it’s interesting, because I think that neighborhood kind of shifted as they got older and they wanted more independence. Then it became kind of like claustrophobic. I think that when they were really little it was a great neighborhood for them. Because there was so much outdoor… we lived on open space and within a subdivision, but there was a lot of green around us even though it was a subdivision. (Personal communication, March 21, 2013)

*Being with nature—providing perspective.*

Rachel says that being outdoors is relaxing and that it provides perspective. She explains, “Yeah, like, some of the things aren’t quite as big as you might have them in your head to be and like unimportant, you know. … Because there’s just a lot going on, and, I don’t know, it makes you feel insignificant, which is a good thing sometimes.”

Rachel later elaborates:

I don’t know, it just feels a lot more comfortable I guess, than being in the city or like inside in a confined space you know. I don’t know it’s like calming. Your brain kind of slows down you know, sometimes your brain gets thinking a lot faster than it should. And sometimes it’s nice to just kind of reverse that and do that with your body too. That’s why I like skiing, it doesn’t take a whole lot of thought. So kind of the reverse is that you know, it gives your body something to do and your brain a break. So that’s like my favorite thing. Same as hiking and all that stuff. It’s just quiet, you know. So that’s the main thing. (Personal communication, April 25, 2013)

*Response to description from Rachel.*

Hi Shannon, sorry it took me so long to get back to you, I've been really busy recently. It all sounds good, I don't really have any comments to add. Good luck!

Rachel

(Personal communication, July 10, 2013)
Introduction to the focus group.

I met with the focus group on a sunny, 45-degree Saturday in April. It was a work-day for the SCOP group, and so we met at a trailhead in the foothills of Boulder, where the rangers and youth would be using the day to prepare for an upcoming event in which the teens would showcase the knowledge and skills they had developed through their year in the program.

Snow was melting on the ground and from the evergreen trees. The teens ate while we sat at a metal picnic table and talked. Most of the teens—four male and two female—wore their black SCOP hoody sweatshirts, but we shivered a bit despite the sun.

I gave the group the option to share out loud or write down their demographic information, including a pseudonym if they chose. “Can it be anything?” one boy with dark hair asked. “Sure,” I responded. He laughed as he handed me his paper. As a pseudonym, he wrote “God.” While at the time I considered using the moniker he chose, it felt a little strange as I began to type “God” in as one of my participants. Instead I named him Ethan. Another student, with reddish hair, wrote “Spider,” then crossed it off and wrote, “God king your majesty,” and later asked for his paper back and changed his name to Desmond. Other participants were Kevin, Skylar, Aleah, and Jake. Though some spoke more than others, all participants shared their thoughts during our conversation.

Throughout most of the focus group time, Desmond worked on constructing a row of mini snowmen on the picnic table, complete with sticks for arms and Clementine-peel hats. At one point he looked up and said, apologetically, “Sorry, I can’t sit still.” Later, during the discussion, he smashed his snowmen, sending snow my way and all
over my papers. Not until a couple of the boys looked at him in disbelief did he realize he had gotten me, and he apologized. I laughed.

Some of the themes of our conversation included growing up in outdoorsy families, the teens’ involvement in SCOP, the sense of adventure and contentment the youth feel being outside, the accessibility of nature in their area, and various influences on their lives. (See Appendix D for the Focus Group Interview Guide.) Ranger Keller had to cut us off after 45 minutes to get the youth started again on their work.

The focus group provided structural corroboration for this study. I incorporate the teens’ insights and stories into the remaining sections of this chapter.
Aesthetic Dimensions

In the previous section, I presented portraits of and influences on the five primary teen participants as informed by the teens and their parents. In this section, I present an interpretation of the data through an aesthetic lens. I use the aesthetic dimensions of learning developed by Uhrmacher and Moroye (2009) as a framework. The aesthetic dimensions, introduced in Table 1 on page 55, are connections, risk-taking, imagination, sensory experiences, perceptivity, and active engagement. The aesthetic dimensions of learning provide opportunity for aesthetic experiences, which in turn support joy in learning, an increase in knowledge, memory retention, creativity, and meaning making\(^2\) (Uhrmacher, 2009). If an individual experiences the aesthetic dimensions of learning in relation to the environment, he or she is likely to achieve these educational benefits in relation to the environment as well. I propose that these benefits, particularly joy in learning and meaning making, are likely to nurture the development of a caring, meaningful relationship with the environment and ecological mindedness. “Meaning making refers to the idea that students have found some value in what they have learned that has personal consequences,” says Uhrmacher (2009, p. 631). Joy in learning, or student satisfaction, may lead to a continued interest and investment in the subject—in this case, the environment. (See Figure 2 for a visual representation of this concept.)

\(^2\) Uhrmacher and Moroye (2009) refer to these benefits as the “penultimate goals” of education. They explain that while educators’ ultimate goals may vary—from raising test scores to developing student skill in a particular discipline—they suggest that the penultimate goals of increased knowledge, meaning making, joy in learning, memory retention, and creativity are more uniform.
Designing nature-related learning experiences with the **aesthetic dimensions** in mind

provides opportunities for **aesthetic experiences** to occur

which, in turn, makes it more likely that students will experience the following **benefits in relation to nature**: meaning making * joy in learning * creativity increase in knowledge * memory retention

which will help develop and nurture **ecological habits of mind**

Figure 2: How the Aesthetic Dimensions of Learning May Nurture Ecological Habits of Mind
While I draw the bulk of the evidence from my five primary teen participants (see Table 2 on page 63), it is within this section that I also tap into the data provided from my focus group (see Table 3 on page 63), as data from the focus group adds richness to the dimensions. As an aid, Appendix E charts the aesthetic dimensions of learning as exhibited by the participants. Appendix E lacks the richness that is supplied below through the voices of the participants; however, the chart may be useful to the reader as a refresher of the examples or as confirmation that all primary teen participants demonstrate all the dimensions. In the final section of this chapter I propose that two of the dimensions, imagination and active engagement, are qualities of ecological mindedness.

Now let’s take a look at the participants through the lens of the aesthetic dimensions of learning.

Connections.

Each participant has a strong connection to the environment, and each participant connects to nature in multiple ways. Before diving into participant experiences, I will briefly elaborate on the types of ways an individual might connect with his or her environment.

In a study of art museum officials, Csikszentmihalyi and Robinson (1990) suggest that the ways the curators and directors involved in the study experienced and responded to works of art could be organized into four categories. The intellectual connection refers to a cognitive relationship. Though emotions may be part of any aesthetic

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3 While the focus of Csikszentmihalyi and Robinson is on works of art, Dewey (1934) and Uhrmacher (2009) advance that aesthetic experiences may be had in any aspect of life, and I attend to them in this study in their relation to nature.
experience, the *emotional* category acknowledges that sometimes emotions are the
dominant way in which we experience something. The *sensorial* connection attends to
the use of one’s senses. Finally, through the *communicative* mode, individuals may
connect with a subject through a person, time period, or culture (Csikszentmihalyi and
Robinson, 1990; Uhrmacher, 2009). All four types of connections are demonstrated by
participants with relation to the environment.

When I ask Rose what it is about horses that she loves, she says,

I think it’s the emotional part, the way they kind of just are quiet and they kind of
listen and they kind of feel the same way we do, and so they understand you a
little better than most animals and so it’s kind of an emotional connection I guess.
I’ve kind of always had that with them, and they’ve always been my favorite
thing to go see and touch and ride and type thing, so it’s kind of a special thing.
(Personal communication, January 4, 2013)

Rose also talks about how she feels when she hikes. She says,

I love feeling safe. Hiking can be safe and it can be quite dangerous at times. And
I guess it’s because I feel kind of more connected and again it’s one of those times
I don’t have to think at all, I just kind of listen, and it just feels really good. … it
just kind of calls out to you, and you just kind of embrace it, I guess. It’s really,
really nice. (Personal communication, January 4, 2013)

Lily connects to nature primarily through animals. As described in Lily’s portrait,
she has a close, nurturing connection with her goats. She is interested in interacting with
any dog or cat who will come her way, and her mother calls her the “anything
whisperer.” Bridget describes Easter morning, when a rabbit approached Lily in the
grass; a similar story about a deer is described in Lily’s portrait. Lily’s connection to
animals is emotional, but it is also intellectual. She is fascinated by facts about owls, for
instance, and she describes a time being interested in the “circle of life” when she and her
brother walked through a field in the mountains:
And so me and my brother, we like snuck into the field and like watched the horses and stuff and we actually ended up finding a bunch of bones and stuff because there were also cows that were in there, and I thought that that was really cool because it was like kind of showing the chain of life and stuff, the circle of life. (Personal communication, March 19, 2013)

Rachel also displays both an emotional and intellectual connection to nature. Like Rose, Rachel has been around horses most of her life, and as a child her connection to horses manifested in part through her play, both pretending to be a horse and playing with toy horses. On an intellectual level, Rachel is taken in by the study of fish, as well as by the study of DNA and viruses. Rachel’s mother, Heidi, mentions that the family has a spiritual connection to nature. She says, “We don’t do any formal religion and I would say if we do have a religion it would be basically the religion of nature, you know … probably what I would just call more of our spiritual values is more based in earth types of things.”

Desmond, a focus group participant, also connects to nature on an intellectual level: “I just think it’s kind of like amazing, I’m just fascinated by how nature works. It works perfectly, there’s no mistakes in it. And no matter how much you’re in it there’s always something new you can discover about it, and it’s full of surprises.”

Steven connects to birds in part on a communicative level, through people he knows. He attributes his connection to birds to both a family friend, who began to orient Steven to local birds, and his science teacher, an avid birder. “He gets sponsored by a camera company to go take pictures of everything, which is kind of cool. I think that he’s shown us so many pictures of birds, and that’s kind of interested me as well,” Steven says.
Steven also connects to nature through history, another communicative level of connection. He says,

I think that, well history ... it’s kind of like a big story and I like it, and I think that history like takes place in nature and I always like reading it and kind of imagining where things took place and how the nature was, kind of like what I talked about before, like visualizing nature and everything. But I think that it’s cool because it also lets you go different places. (Personal communication, February 16, 2013)

When I ask Steven to explain what stood out for him about places he describes as beautiful, like the Alps, he says,

I don’t know, I would just say that you can just kind of connect to it. There’s just something inside you, that’s like really interested by that sort of. It’s just really a beautiful moment as well, I mean it’s one-of-a-kind and it’s pretty rare, I guess. So that’s kind of interesting, I mean it’s just so different from what you see every day, which is nice too. And it’s, I guess, just really breathtaking. (Personal communication, January 10, 2013)

Steven remembers fondly a night hike he took in fifth grade:

It was in the mountains and we crossed a river at night too, just like a little creek, and it was kind of cool. I guess because you got to see something totally different because usually you see the stars like from your house or something, but it was cool seeing like the stars and just the stars because it was so dark and you couldn’t really see anything else but you could feel the ground under you and everything. So it was really an immersive experience. (Personal communication, February 16, 2013)

The experience Steven describes, seeing the stars and feeling the ground, suggests a sensorial connection to nature.

Ollie describes a connection to a place that is both sensorial and emotional. She says,

One time we were on the San Juan River, and there’s one point where you can do this long hike up, like along the edge of the canyon, like up the canyon, and you get to the top and there is this beautiful natural pool and up there you’re looking over, down upon this, the whole canyon. And it’s like the water was like crystal
blue, and it was probably, it was just an amazing moment, like getting to… like standing atop this huge rock that you can jump into the water from. And it was just like so, so grand. And the nature is so much bigger and this huge thing that I could be a part of. (Personal communication, February 2, 2013)

Ollie’s interactions with nature are often experienced with other people, and she explains that her love of nature comes partly through this shared experience. She says, “[People have] had a really big influence on my love for nature, like the other family that we went llama backpacking with we go rafting with, you know it’s the same people all the time. It’s a big part.”

Ollie talks about connections to the environment being unique, based on personal experience:

I think that when you’ve been in the, when you’ve been raised going outside and going backpacking and hiking and you develop with all these experiences you have, you like, every experience you develop a different part to your connection with the environment, and you, with every like time you like, you know you learned to skip a rock, or your cows wake you up at four in the morning walking through your campsite you develop like a different connection but, and it kind of just all comes together every time to form, to form what is, what you love about the wilderness, and it kind of like thickens your connection. It’s like what makes your connection to the wilderness like so unique and so hard to explain, is that, it’s that two people could never have the same experience. (Personal communication, April 21, 2013)

**Risk-taking.**

Risk-taking, venturing into the unknown, is an aesthetic dimension of learning that surfaces for each student, albeit in different ways and at varying levels. In some cases, Uhrmacher (2009) points out, “The willingness to be open is the place in which risk is involved” (p. 625).

Though she considers herself a follower, Lily demonstrates risk in a number of ways. First, she shows her goats through 4-H, a risky activity not only because she is
showing goats in front of other people, including judges, but also because she is at risk of “losing.” Lily additionally shows her willingness to take a risk as she breaks from her family’s religion, particularly at the young age of eight. This is notably risky because Bridget, Lily’s mother, is a Catholic priest. (Lily’s distance from Catholicism does not seem to be a form of rebellion; rather, she bases her standing on her values.) Lily further demonstrates her willingness to take a risk as she stands up for animals:

I always talk to my family about how like I don’t really like how we treat animals and think of animals and stuff. I feel like we should give them more respect and stuff, so I guess I kind of stand up in that way. One of my friends went vegan for a week and we kind of had an argument because I was talking about how vegan, how I don’t understand vegans because it doesn’t really make sense to me because they don’t want to eat anything that comes from an animal, but then they’ll eat wheat or something that grew in a field that may have been feeding a mouse. And so then they’re taking away the mouse’s food, and so wouldn’t that be kind of the same thing? (Personal communication, March 19, 2013)

Steven also exhibits risk-taking in a number of ways. As one example, he describes a time when he advocated for an idea of his while working with a small group at school. Though he explains that it took some persuading (and respecting others’ ideas), Steven pushed his idea because he believed it was solid. His idea did get picked up by the group. A second example of risk-taking on Steven’s part is not played out, but his interest in being an explorer does exhibit a willingness to take risks:

I especially like books about explorers because they got to explore nature before anybody else was there, and that’s one thing that I really want to be, I guess, if I were living like back in history, because you get to explore, and nobody knows where you’re going which it’s kind of cool and it’s just uncharted territory. (Personal communication, January 10, 2013)

Finally, Steven indicates that being outdoors entails some risk:

I’m pretty cautious now because I know that there’s a lot of dangers out there I guess. … I’m always careful for anything that’s kind of weird in the surroundings
I guess, but I mean once we were hiking and we knew there was a bear and I kind of wanted to know what to do if there is a bear sometimes, but I mean that’s a part of living in Boulder, I guess, is always being aware of things like that. (Personal communication, January 10, 2013)

Though he acknowledges some risk in being outside, Steven chooses to develop an awareness of his surroundings—taking the risk—rather than avoid the outdoors.

Skylar, a participant in the focus group, echoes Steven. She says that being in nature, “You kind of get out of your safety zone too. … You gotta keep track of what you’re doing and where you are. You don’t really have a lot of help all the time.”

Rose considers herself to be a daredevil. She laughs, explaining,

It’s kind of one of those things, is I like to be where it’s safe. I’m kind of a funky person that way. I’m very much a daredevil, which is weird that I like being safe, yet I’m a daredevil. … Hiking can be safe and it can be quite dangerous at times. (Personal communication, January 4, 2013)

Rose climbs “14ers,” mountains over 14,000 feet high, which can indeed present risks. Rose also comments that she is willing to voice her opinion: “I speak up. When everyone else’s kind of scared to speak up, I guess.”

Rachel talks about kayaking:

Last summer … me and my uncle went kayaking on a new river that was real fun. It was like a fast river so it took a little bit of skill. It was the first time I’d ever done that, and it was fun but I was kind of scared because I thought we would tip over, at one point, but we didn’t. (Personal communication, April 25, 2013)

Rachel mentions being scared, and she also mentions needing skill to maneuver her boat on the river. Both of these indicate that she was taking a risk in kayaking on the river.

Ollie displays risk in being willing to try new things and dive into the unexpected with the Shadow Canyon Outdoor Program. She explains,
Every week is so different, you don’t know what to expect. Like one week it was freezing cold and we were doing this obstacle course and we were all shivering like crazy and then the next week we were like, we learned a whole curriculum. I’ve really liked that, that it’s not doing the same thing over and over again. (Personal communication, February 2, 2013)

Ollie also talks about being on a school outdoor club trip during a memorable storm:

When we were on one of our outdoor club trips we were staying kind of on the, camping out on the plains there, and this huge lightning storm came in and so of course our teacher’s making us be safe and made us go sit in the van. But we were all just staring out the windows and it felt like lightning was striking all around us, and it was like kind of freaky, but also, also very awe-inspiring. (Personal communication, February 2, 2013)

Ollie also describes a time when she and friends got stuck on a rock while rafting. “Then it was just so scary, we were freaking out. It was stressful.” However, though Ollie explains in both of these cases that she was scared, she laughs while recounting them. She continues to love the experiences of camping and rafting, though they are clearly somewhat risky to her.

Finally, one might argue that all participants took on a risk in being willing to participate in this study, sharing their stories and their values with me.

**Imagination.**

Imagination, Dewey (1934) says, is

a way of seeing and feeling things as they compose an integral whole. It is the large and generous blending of interests at the point where the mind comes in contact with the world. When old and familiar things are made new in experience, there is imagination. … There is always some measure of adventure in the meeting of mind and universe, and this adventure is, in its measure, imagination. (p. 267)

Uhrmacher (2009) draws on the work of Dewey and Sam Coleridge in describing three distinctions of imagination. The first, fanciful, refers to “the manipulation of qualities.”
Uhrmacher offers an example: “We can imagine a cow and give it a purple color. Then we can imagine the cow walking on a sidewalk in New York City. It lifts its two front legs and it starts dancing” (p. 625). The second distinction Uhrmacher calls intuitive, referring to the quality of imagination that can feel as if the work produced is inspired by the cosmos or a muse; Uhrmacher describes “experiences in which a person feels as though he or she is a conduit for a work of art to express itself” (p. 625). The last distinction, interactive, captures the act of engaging with material in a back-and-forth experience in which some things work and some do not. Uhrmacher refers to this as “the workhorse of experience” (p. 626). All participants demonstrate the dimension of imagination, and it takes a variety of forms.

The theme of imagination surfaces frequently in discussions about childhood play. Student participants and their parents describe imaginative play, often outdoors, with no need for toys or video games to keep them engaged.

For Ethan, a focus group participant, playing outdoors opens up possibilities. He says,

Part of the thing that I really like about being outdoors is my imagination can go free. … You know when you’re outdoors, all your toys are like there. You just have to open up your imagination and that’s what I really loved about it. … And that’s what I love, I love the sense of adventure that you can get from being outdoors. (Personal communication, April 20, 2013)

Ethan suggests here that playing outside encourages the use of imagination.

Ollie describes, with passion in her voice, being drawn to rivers and creeks. She says,

As a child, we’d spend hours playing in those little creeks by our campsite. … When we were really little, I remember that we would just like build little dams
and rock piles and we’d just, I don’t even remember what we would do. It would just be so fun, and it would offer just so many things, you could float things down the river, and you could like race and splash. And then for river trips it was just a constant source of enjoyment where you could, it like offered you everything, like it offered you everything you needed to have fun. You could just float, you could paddle, you could swim, you could jump in. It would help you wake up in the morning, you know you’d run into the water when it was freezing cold. (Personal communication, April 21, 2013)

Margaret, Ollie’s mom, also talks about Ollie’s use of imagination as she played outside. She says, “And the kids playing in the river. I mean they would just create so many games together that were just pure imagination, you know building… They had a whole system of money that was made out of pine needles or something.”

Heidi, Rachel’s mom, talks about different ways that Rachel used imagination in her play, usually revolving around horses. She says,

A lot of little horse animals and little farm animals and they set up all these little villages and farms, but it was mostly about the animals. They didn’t play with dolls hardly at all. The animals would talk and have families but there weren’t necessarily very many people. … So definitely that was a huge part of their playing. And then a lot of, when they were, when we first moved here a lot of being animals themselves, mostly being horses. So like we’d have horses who they’d ignore, and then they go set up the jumps in the arena and they would be the horses, jump over the jumps and play like good horse/bad horse. I always laugh because they both in sports have been good at jumping so Rachel was a good high jumper and Sara now does triple jump and high jump and hurdles, and I’m like it’s all that play when you were horses, all that jumping, running and jumping.

Just a lot of make-believe, a lot of make-believe. A lot of less actual toys and more things representing toys, you know. Where they, you know they might have this really nice pretty barn but then they’d make, you know, a little barn out of boxes and cardboard and popsicle sticks and whatever, so there was always a lot of creative, more symbolic kind of, I don’t know. It was less about the literal thing, you know, that looked like a toy. So a lot of make-believe, a lot of make-believe in their playing. (Personal communication, March 21, 2013)
Rose’s mom, Lisa, also describes Rose’s play as imaginative, as well as active and sometimes very messy. Playing in the mud was a common theme among participants.

For some participants, imagination and nature also intersect in their writing. Rachel notes that she often used her free-writing time in school to write creative stories about horses. Ollie wrote an autobiographical project that included a number of pieces about her relationship to nature. Steven shared a long, creative Narnia-like story he wrote when he was around nine years old, called “The Return to Zebious Island.” The main character, Simon, enters a hedge to retrieve a ball.

Once inside, the air got colder. It smelled of donkeys. Simon pushed his way through. Wide eyed, mouth open, Simon stared in amazement. He saw something that no one else would ever see. He saw clear blue skies, towering snow capped peaks, grassy plains, rather bizarre looking beasts and small villages. Simon walked around and soon came upon a creature with two horns, a spiky tail and big teeth. “Hello Matey,” said Simon. The creature started kicking its hooves, and with one swift movement kicked Simon in the throat. (Personal communication, February 16, 2013)

Steven’s story culminates as Simon and his brother Trevor save livestock in the magical land from dragons.

Participants used their imaginations as they identified metaphors for themselves related to nature. Ollie, for instance, used a river as a metaphor. She says,

I mean it’s like flowing and changing and you like have all these big things that happened or these big changes in your life and you can’t, you can’t like expect it to just keep going straight forward. You need to be ready to take the curve and just kind of do your best to flow with it. Kind of just move forward, move along. (Personal communication, April 21, 2013)

Lily displays imagination with her goats. She named her male goat after Loki, the Norse god of mischief, because she says goats are mischievous. She also once gave Loki a creative costume. Explaining that she has always thought Loki looked like a perfectly
roasted marshmallow, Lily draped Loki in cardboard and called him a s’more. She complemented the outfit by dressing up like a camper.

Lily says she sees the world as full of possibilities. She explains,

I think the world is very big because if you think about it there are probably places in the world where like no one, no one’s ever stepped before. I don’t know I just think it’s very big, and especially with all the possibilities, and just things and differences in culture and climates and stuff like that. (Personal communication, March 19, 2013)

Imagination is necessary to see possibilities.

Steven often imagines the natural settings of places at different points in time, particularly before they were developed. He says, “Nature’s really inspiring as well because I can kind of think of what happened in the nature before I was here.” As a history lover, Steven also uses his imagination to picture historical events. He says, “I mean we were just talking about the Sand Creek Massacre and Native Americans. And I could imagine what it looks like in the nature that Native Americans lived in, and the expansion of the West.”

Mary, Steven’s mother, describes a time when the family went for a hike near Lost Lake in the mountains. She says,

I remember there were some old mining sites in the area, if you ventured a little bit beyond the lake. And Steven was very, I think intrigued by the combination of history and the environment, it was just… it really triggered his imagination. It was at the end of a long hike, he was quite young, but just reaching those old mining sites, it was just very exciting for him. (Personal communication, January 10, 2013)

Steven also talks about how he and his peers used their imaginations in working on a group project. Steven encouraged the group to consider how national parks might be run differently in the Philippines. “I think it was kind of interesting to see for our group
and everyone to just kind of see what it was like in other countries and to just kind of take a trip with our minds and everything,” Steven says.

All participants are able to imagine what they might later pursue as careers, and some of those careers are related to the environment: Steven considers being a ranger someday, and Lily thinks about being an environmental lawyer. Rachel is perhaps interested in marine biology, vaccine research, or fish and wildlife conservation. Rose considers becoming an emergency responder or a flight nurse. Ollie imagines herself having a continuing relationship with and career in the environment. She says,

I’m definitely interested in a career in the environment, whether it’s like environmental education or something in like forestry I think would be really cool, and I haven’t really decided but I know that like, that if I ever have a family or whatever I do with friends it’s definitely going to, I’m definitely going to want to incorporate the environment into my life because I’ve had such amazing experiences in the environment that I like want to share that with people. (Personal communication, February 2, 2013)

Sensory experiences.

Humans have long attached an aesthetic quality to nature. Because we take in nature through the senses, sensory experiences, in which the senses are alive and heightened, naturally surfaced in my interviews with participants.

Participants frequently talk about visual aspects of nature, particularly vistas. Steven says he likes “every place with a view.” Rose describes hiking to Angels Landing in Zion National Park and then climbing her first 14,000-foot mountain:

When you get to that top part you seriously can see everything and I’ve, I’ve never really been up that high to do that, like to just seriously see so much and you’re just like oh my goodness! You’re way up there. But it was beautiful, it was kind of later in the day and the sun was getting ready to set, and it was super pretty. And then there’s another one where I did my first 14er and that was another big, oh my goodness I am way up high! And it was beautiful. It just was
amazing how you know all this nature it’s not, there’s not as many people doing this when they should be because it’s a great experience, just think about it, and you’re like, oh! … I think the feeling of just being able to see everything, and kind of the air, I think it’s kind of crisper I think. (Personal communication, January 4, 2013)

Some of Ollie’s fondest memories are of rafting the San Juan River with family and friends. She describes a beautiful vista, suggesting a sensory experience as well as perpectivity:

What comes to mind is one time we were on the San Juan River, and there’s one point where you can do this long hike up, like along the edge of the canyon, like up the canyon, and you get to the top and there is this beautiful natural pool and up there you’re looking over, down upon this, the whole canyon. And it’s like the water was like crystal blue, and it was probably, it was just an amazing moment, like getting to… like standing atop this huge rock that you can jump into the water from. And it was just like so, so grand. And the nature is so much bigger and this huge thing that I could be a part of. (Personal communication, February 2, 2013)

Rachel describes the aesthetic quality of sunsets, and how she enjoys catching a beautiful sunset in the rearview mirror. Steven calls moving water “mesmerizing.” Lily sometimes hikes in a “really pretty” meadow with horses, near her grandparents’ home, and she talks about how neat it was to see trees blooming on the volcano after which she is named. Lily notes a number of times being caught by the beauty of seeing animals in the wild, such as a time when she and her Girl Scout troop saw a bobcat on a frozen lake, holding her cub in her mouth. Lily says, “When I see animals I’m very like absorbed in it and stuff.”

Participants also talk about colors in nature. Desmond says, “The colors in nature are awesome,” and Steven talks about how he appreciates the colors of birds, particularly blue jays.
Though the sensory experiences participants mention are largely visual, other senses were mentioned as well.

Rose describes a sensation of being held in the forest. She says, “I’m very comfortable around trees, being closed in like that. I like having something around me kind of holding me in a way.” In her description of climbing her first 14,000-foot mountain, above, Rose mentions that the fresh air felt “crisper.” Steven also notices the feeling of the air, saying, “I also like fresh air, I think it’s really nice. Because I guess being in the mountains, it’s really nice because it’s very pure.”

Steven describes the experience of a night hike as “immersive.” He says, It was in the mountains and we crossed a river at night too, just like a little creek, and it was kind of cool. I guess because you got to see something totally different because usually you see the stars like from your house or something, but it was cool seeing like the stars and just the stars because it was so dark and you couldn’t really see anything else but you could feel the ground under you and everything. So it was really an immersive experience. (Personal communication, February 16, 2013)

The feeling of the ground was perhaps enhanced because it was dark, limiting what Steven could see. He also talks about how the sensation of touching the earth seems to help him focus:

I don’t really know how, but whenever it’s just fresh air and that really helps too and just interacting with something, not only just thinking about it but actually being there, seeing it in real life, I guess touching rocks and soil, that just seems to help you, I mean stay more focused and more composed and everything. (Personal communication, February 16, 2013)

Steven says he likes anything that can get him outside, and he again mentions “feeling” nature: “I don’t like just seeing nature, I mean, I like feel it, so anything that can get my hands dirty, and make me appreciate nature I guess.”
Ethan talks about the scents of trees. He says, “I like the forest and the trees, and I like some of the trees up here you can smell them and they smell like, like vanilla or chocolate.” Rachel mentions that she appreciates the smell of sea water.

Sound comes into play for Rachel. She says that music helps put things in perspective, and she says music could be a metaphor for nature. She explains,

You know it gives you like a better world view I guess. It makes you appreciate all kinds of things and realize like the importance of having everything here like working together. Like if you listen to like a long piece of classical music or something and hear all the little parts working together, I guess you could call it a metaphor for nature. However you want to think about it, that sort of a reminder that all those little things have to be there to make the whole sound right, you know. (Personal communication, April 25, 2013)

Perceptivity.

Beyond the act of simple recognition, perceptivity is characterized by a deeper interaction or appreciation for something. Participants demonstrate perceptivity in part through the nature of the relationships that they have with the environment, relationships that include time spent with and an appreciation for certain aspects of nature.

Lily, for instance, shows perceptivity with regard to owls. She mentions owls repeatedly in her interviews, and she is able to share her reasoning for her fascination with the birds. She became interested in owls after reading a series of books called the Guardians of Ga’hoole. Lily proceeded to research owls, even dissecting owl pellets at home. Lily can recount many details about owls. She tells me, for instance, that owls’ eyes are tubular (rather than spherical, like humans), giving owls good telescopic vision. Lily owns a few books on owls and pointed out some favorite photographs. The photos
had had some significant viewing time—the books’ spines opened right to the pages Lily wanted.

Lily explains that she is always on the lookout for owls, and her perceptive eye has paid off. Recently she and her mom discovered a great horned owl—Lily’s favorite—while driving by a tree. They walked under the tree and were able to stand directly below the owl.

Rachel has a fascination with fish, and Rachel’s interest manifests in a few ways. Rachel has a fish tank, and fishing is one of her favorite hobbies. She is interested in marine biology and a possible career in fish and wildlife conservation. One of Rachel’s favorite fishing spots is near her grandmother’s cabin on Mullett Lake in Michigan, where Rachel spends a couple of weeks each year. Rachel describes a spot on a river, underneath an old railroad bridge, that has lots of lily pads. It is a place, Rachel says, that she hopes will always remain the same.

Rachel also displays perceptivity regarding her family’s farm, particularly as she cares for the horses and goats. She describes bottle-feeding the goats as babies, and she has been around horses throughout her life. She now assists her mother with riding lessons for younger children.

Rachel’s relationship with music also suggests perceptivity, and she relates music to nature as a metaphor. She says that her parents help her put things in perspective, and then like it might sound weird but music probably does that too to an extent. You know it gives you like a better world view I guess. It makes you appreciate all kinds of things and realize like the importance of having everything here like working together. … Like if you listen to like a long piece of classical music or something and hear all the little parts working together I guess you could call it a metaphor for nature. However you want to think about it, that sort of a reminder
that all those little things have to be there to make the whole sound right, you know. (Personal communication, April 25, 2013)

Ollie describes a couple places that she visits repeatedly and knows well. She and her friends often hike up Mount Sanitas, in Boulder, at night, to sit and stare down at the city, watching the night lights. She also talks about rafting the San Juan River. She describes a particular campsite, her favorite: “It’s right on the water and we always sleep outside and when you look up you can just see these two canyons, the sides of the canyon, and it feels like they’re going over you.” Another of Ollie’s favorite places is her grandparents’ farmhouse in Indiana. She describes the small farmhouse in a field, surrounded by woods. Ollie clearly has a relationship with these places. She has spent significant time in them, and she knows them well.

Rose, similarly, has favorite places that she has relationships with. Rose’s mother, Lisa, says that Rose has been up and down every trail in Zion multiple times. As mentioned earlier, Rose has a particular fondness for Angels Landing, explaining that it has dramatic views, and she notes that it is especially beautiful with morning and evening lighting. Rose also has a relationship with Seaside, Oregon, where her grandparents live, a place she describes as “safe” because she knows it well and it does not change.

Steven demonstrates perceptivity through his knowledge of birds. His mother, Mary, notes that Steven is skilled at identifying birds, a difficult task that goes beyond simple recognition. Mary also points out that Steven reads and studies maps, showing a level of engagement that suggests perceptivity as well. Steven mentions the benefit of “experiencing” nature, a word that again shows a level of engagement that ties in with perceptivity. Later, he talks about the rewards of caring for the environment. He says, “I
guess it’s just pretty rewarding because you as a person, as an individual, not as a social unit, just like you as a person get to know it better. So that’s, I guess, a good thing. Especially when you understand everything behind nature and everything.” Understanding nature and knowing it better again indicate perceptivity. Finally, Steven’s favorite quotation, by Albert Einstein, reflects an appreciation for perceptivity: “Look deep into nature and you will understand everything better.”

**Active engagement.**

The aesthetic dimension of active engagement—actively constructing experiences and meaning—is demonstrated consistently among all participants. Following are some representative examples of active engagement.

All participants talk about hiking and other outdoor activities that they engage in routinely. Ollie, for instance, hikes weekly with a group of friends. Desmond talks about how he has never had a television or video games. He says, “So like all my life growing up I really just played outside.” Lily, Rachel, and Rose are all involved in caring for their goats and other animals. Rachel says, “I like the goats most of the time. They’re a lot of work though. I have to get up and milk them in the morning and take care of them. But it also gives you a sense of responsibility, which is good.” Rachel and Rose both help with horseback riding lessons for younger children. Each of these activities demonstrates an active way that students spend their spare time.

Lily, while visiting her aunt in Maine, volunteered to band northern saw-whet owls to help track them. Researchers use the information gained from tracking the owls to follow the population and its migration routes. Lily additionally shows active
engagement by passing on her passion for animals to her family, even teaching them how to milk goats. She says,

I think I have really influenced my family and my mom and stuff because, I mean, they’re kind of into nature but not as much as like as they are now, when I came along and stuff. They kind of liked animals and then I came along and loved animals, and I wanted to have goats, and chickens, and everything. And so they all are very into that kind of thing now. Not super into it, not as much as I am, but they are more into it and stuff. (Personal communication, April 1, 2013)

Steven, Lily, and Jake, a focus group participant, have all participated in Junior Ranger programs, environmental stewardship and education programs for youth. Steven showed me a number of badges and patches he had earned visiting national parks around the country. Jake joined Boulder’s Junior Rangers program so he could get outdoors and learn more about the area where he lives.

All participants take their engagement to a higher level by participating in informal learning activities that relate to animals or the environment, such as 4-H and the Shadow Canyon Outdoor Program, which often include leadership roles. Rose, for instance, is secretary in her 4-H group, and she also serves in a leadership position in the civil air patrol. Several participants have worked for the Youth Corps, which is highly demanding physical work. Ollie says,

I think that Youth Corps especially had a really big effect on me my first two years because I was working at Betasso and those two trails I built are being ridden so much and hiked so much. But the work also is so rewarding because you are with, you become so close to these kids. And you’re working so hard while having so much fun and then you’re having this product that you can like see and it benefits that community. And that’s a really great feeling. (Personal communication, April 21, 2013)

Desmond says that he joined the SCOP because he “wanted to give back.” Ethan says that he is proud to have the SCOP as volunteer work. He says,
I really like it because I get to, I feel a sense of accomplishment after I do something, especially outdoors, like even if we didn’t like specifically work outside but we just learned about it, I take that as some pride in knowing that after the fact I can then go out and teach someone else about this and make them more informed about it. (Personal communication, April 20, 2013)

While visiting her sister, Ollie participated in a rally in Washington, DC, protesting the XL pipeline. Ollie says, “It was like the coolest experience and we were so very literally standing up against something that we believed is wrong and terrible for the environment.” Lily and Rachel are both committed to protesting fracking.

Steven repeatedly uses language that speaks to active engagement. At one point he says, “I really like nature because you can interact with it.” Later, he says, “I would say the way I would describe myself is probably not really the center of attention, but kind of like a person on the outside that’s like really engaged with what’s happening I guess.” In Steven’s second interview, he describes kayaking at a friend’s house: “That was just really cool because there were fish everywhere and birds and just a bunch of nature so it was kind of cool because you got to actually experience it and be with it and not just watch a movie about it or something.” Finally, when Steven is talking about what it feels like to be outdoors, he epitomizes active engagement: “Live in the moment and seize the day.”

**Qualities of Ecological Mindedness**

I now turn to qualities of ecological mindedness. In Chapter Two, I discussed the qualities advanced by Moroye and Ingman: caring, a sense of interconnectedness, and ecological integrity. Below I propose three additional qualities of ecological mindedness: imagination, active engagement, and self-efficacy.
In proposing qualities of ecological mindedness it is necessary to return to Dewey’s (1938/1997) criteria for an educative experience: continuity and interaction. To review the discussion of continuity offered by Moroye and Ingman (in press), “it is particularly important that we consider continuity so that students and teachers comprehend the connection between the experiences educators facilitate and the lives students lead.” Further, the authors maintain, for an experience to be considered educative, it must connect to future experiences in a meaningful and positive way. While many experiences in nature are isolated and thus fail the test of continuity, I contend that the qualities under proposal meet the criteria for continuity. Interaction, again, refers to an equal relationship between the content and the learner, rather than a more traditional emphasis on the subject.

While I am not proposing risk-taking and perceptivity as qualities of ecological mindedness, there is evidence that they may indeed fit the parameters above. Risk-taking, for instance, is arguably necessary in caring for the earth. However, the saturation of evidence related to nature was not present at the same level as for the qualities discussed below; further study may provide additional evidence.

**Imagination as a trait of ecological mindedness.**

Moroye and Ingman (in press) suggest that imagination may be a quality of ecological mindedness, and I would like to offer the examples in the above section on imagination as evidence that it is. Palmer (1998) and Judson (2010) both offer support for a connection between imagination and ecological mindedness. Based on studies of significant life experiences, Palmer advocates that educational programs provide aesthetic
experiences to influence pro-environmental attitudes and action in individuals. Palmer (1998) notes “exercising the imagination” as a specific method of influence (p. 241). Judson (2010) proposes that ecological education requires the incorporation of imagination. She writes, “Without imagination we cannot develop ecological understanding, and we will remain ill-equipped to envision alternative possibilities for human-world relationships and resolutions to ecological problems” (p. 4).

Many of the experiences presented in the section on imagination meet the criteria for continuity. Steven’s ongoing use of his imagination to inform and enhance his understanding of history, participants’ development of nature metaphors for their lives, and participants’ exploration in their writing affirm continuity with regard to imagination. Interaction is inherent in imagination, as it requires forming mental images and ideas in relationship to the subject. Ollie’s mind works to interact with the river and the objects around it as she plays. Steven’s mind forms mental images of settings based on historical accounts, and in anticipating potential careers, the teens process how they might interact with and fit into the world as they grow older.

Of question might be whether a quality of imagination (or any quality of ecological mindedness, for that matter) helps to develop ecological mindedness or whether the reverse is true, that being ecologically minded nurtures the imagination. While this study can only offer an association of the two, I would suggest that both are true. Being in nature likely sparks and encourages the imagination, as Ethan indicates, because one must formulate mental images and relationships in play, for instance.
However, it is also plausible that an individual with imagination is likely to be drawn to the outdoors because that person can consider the possibilities in nature.

Active engagement as a trait of ecological mindedness.

I propose that active engagement is also a trait of ecological mindedness, supported by the evidence outlined above in the section on active engagement. Active engagement fits as a quality of ecological mindedness, as it seems appropriate that to be ecologically minded one must actively construct experiences and meaning out of those experiences.

Continuity is present in examples of active engagement. Rose, Rachel, and Lily all care for animals, an on-going responsibility that offers continuity. Rose and Rachel are also involved in teaching younger children, similar in its ongoing commitment. All participants are involved in educational activities associated with the environment. These activities maintain continuity because they develop new skills that will enhance future experiences in the environment. Finally, some of the students express a desire “to give back” by participating in the Youth Corps or other environmental activities. This suggests continuity because students are carrying forward their own experiences in nature and hoping to help provide such opportunities for others in the future.

Interaction is fundamental to active engagement, which requires becoming involved or immersed. Examples include assisting with horseback riding lessons, protesting on behalf of environmental issues, and “giving back” to the community. All require significant interaction on the part of the individual engaged.
Self-efficacy as a trait of ecological mindedness.

In addition to imagination and active engagement, I suggest another quality of ecological mindedness, one which surfaced outside of the aesthetic lens: self-efficacy. For the purpose of this study, self-efficacy is defined as one’s belief in his or her ability to achieve an outcome. Each of the primary participants in this study demonstrates self-efficacy as well as traits closely connected with self-efficacy, such as confidence, motivation, empowerment, and responsibility.

Steven indicates self-efficacy as a value. He says that he enjoys helping others, he admires his friend because he is a “go-for-it type person,” and he notes that he has been encouraged by teachers to “stand up for what matters.” He also is “inspired by people who do change other people’s lives. And who give a positive impact.”

Further, Steven exhibits self-efficacy in his actions. Steven found out about SCOP through an article in the local newspaper. He decided to fill out the questionnaire required to apply to the program, indicating a sense of ability to participate. Steven also considers himself a leader. He says, “I’m not afraid to take challenges head-on and assume leadership,” another example that signifies his confidence in his ability. He considers pursuing a career as a ranger, a role requiring a sense of self-efficacy. Steven describes being in fifth grade when the local recycling center visited and presented on landfills. Steven took in the information and used it at home. He says, “I was the kid who applied everything that I learned,” again an indication of self-confidence and efficacy. Steven suggests that being in nature encourages the impulse to “seize the day.”
Rose similarly exudes self-efficacy. In regard to protecting the environment, she says, “I believe it’s very important to help what helps us,” suggesting she believes she can make a difference. Rose describes herself as a leader, and she also characterizes herself as a learner, implying that she has the skills and capability required of those roles. Rose attended a conference on renewable energy, and, she says, “it was really neat to have a say,” suggesting that her contributions could make a difference. Rose implies confidence when she says, “I don’t go easily the way others go. I kind of take my own way.” Rose exhibits determination, a trait also linked to self-efficacy, when she talks about the feeling of achievement she gets hiking to a beautiful vista: “just feeling really accomplished that you got up there and just knowing that even though it was hard you stuck to it and didn’t give up.”

Self-efficacy is also apparent in Rose’s work. Rose talks about the reward of seeing logs stacked and weeds pulled through her work in Youth Corps. Rose has performed volunteer work at a farm, and she is pursuing missionary work as well. Finally, Rose takes on jobs, such as helping with horseback riding lessons for children and instructing dance classes, to help pay for her own hobby of riding horses. She is considering a career as an emergency responder or flight nurse. All of these suggest that Rose has a sense of motivation and belief in her ability to accomplish these tasks.

Lily expresses that she expects her environmental interests will manifest into a career as an adult. She says,

I want to be an environmental lawyer when I grow up so I can protect the earth and nature and stuff like that. I also am thinking-slash-hoping to get a veterinary degree, specializing in livestock because I really like livestock and I want to also
be able to help them in more of a close, immediate way I guess. (Personal communication, March 19, 2013)

At the time of our second interview Lily was in the process of locating an environmental lawyer to shadow to work for a day, and I learned through follow-up correspondence that she did indeed shadow an environmental lawyer and had a positive experience. Lily mentions that she would like to travel to see how the environment and landscape look in different parts of the world; this suggests a capacity to take on the risk and responsibility associated with world travel. Finally, Lily’s mother says that when it comes to animals and her responsibilities at the farm, “Lily’s in charge. She’s the leader, she knows it.” Responsibility and leadership both require self-efficacy.

Rachel similarly demonstrates responsibility when it comes to taking care of the animals on her farm. She also shows self-efficacy in her willingness to take on hydraulic fracturing as an environmental issue. She says, “I think the most important thing is to try to influence other people to also try to take better care of the environment and stuff, because it’s not something you can do by yourself. But you can definitely have an impact on other people’s view on that.”

Self-efficacy is evident in a number of ways in Ollie’s life. First, Ollie helped to restart an outdoors club in middle school and took on trip-planning. She says, “And that’s kind of when I realized that I could plan it for myself and make, I don’t know, create my own relationship with the outdoors and that I could, that I really had access whenever I wanted.” Ollie exhibits self-efficacy through her participation on student council, where she feels she has an impact:
Well I’m in student council, which is basically the role I play at school. So I’m very involved in school and kind of have a say in what’s going on which is really big for me and I really get the opportunity to change things and make a difference and influence the way that administration does things and runs things. That’s been a very like empowering experience and cool experience, to be able to have like, as a student to have that say. (Personal communication, February 2, 2013)

After taking environmental science as a junior, Ollie aided for the class her senior year, suggesting a level of confidence in her ability. Mr. Kobb, Ollie’s environmental science teacher, influenced Ollie’s sense of passion and empowerment regarding environmental issues. She says,

I think that that made a huge influence on me, well he had it from like an activist standpoint that I’d want to do more work with that because I mean it’s kind of a depressing class. You like go in and learn over and over and over again how humans are destroying earth. But it’s also a huge wake-up call and it makes you really passionate that something is very wrong and that you can do something about it. (Personal communication, April 21, 2013)

Ollie’s attendance at a rally opposing the XL pipeline indicates that she believes her voice matters. Ollie further demonstrates self-efficacy in her decision to travel around the world during a gap year before beginning college.

It is worth noting that there are two examples through which students indicate a lack of self-efficacy. Rachel says, “I don’t know, when you’re in school you tend to think like everybody else at your school, for better or for worse. Because there’s only so much that you can do as an individual you know because you’re part of the big group and all of that.” Similarly, Lily says,

It’s challenging because not everyone cares about the environment, and so it’s hard to see the environment dwindling and kind of going away based on the actions of other people and it’s hard to see that and know that you really want to stop it, but there’s nothing really you can do. At least there’s nothing I can do right now because I’m just a teenager. (Personal communication, April 1, 2013)
Both girls suggest that being young, in school, affords them less control. However, because they qualify their statements around their age, it also suggests that they do expect to have more control as they get older and out of school. Further, for both girls the evidence of self-efficacy in their lives outweighs the evidence to the contrary shared in these statements.

Statements by Steven and Ollie reinforce the idea that adolescents expect to gain a better sense of control over situations as they get older. Steven says that he expects to influence others more in the future regarding environmental issues, and Ollie says,

I think that like issues surrounding the environment are becoming so much more important and relevant and as we get older and people kind of realize what’s going on really and I think it’s so important to get involved with that and be a part of that and help keep this environment safe and here, that we have. (Personal communication, February 2, 2013)

While there is evidence to suggest that some participants feel less empowered than they would like, there remains solid evidence indicating that all participants do have some sense of self-efficacy and that a lack of feeling of self-efficacy is related to their age.

Self-efficacy as a quality associated with ecological mindedness is suggested in the literature. Palmer (1998) notes multiple studies, including a meta-analysis by Hines, et al., that associate with responsible environmental behavior a desire to act, a locus of control, and personal responsibility, all qualities closely associated with self-efficacy.

Locus of control has been widely discussed in environmental education, according to Heimlich and Ardoin (2011). The authors write,

Locus of control is based on internal versus external control, referring to the degree to which an individual believes that a desired outcome can be achieved through one’s own behavior or personal characteristics. If the desired outcome
occurs, that outcome serves as a reinforcement of the belief in one’s internal efficacy. (p. 227)

Whereas locus of control concerns whether one believes that internal factors (choices and effort) or external factors (luck or fate) are controlling his or her behavior, self-efficacy is a perception of the effectiveness of one’s behavior. Thus locus of control is required of self-efficacy.

Norway is a country recognized for its emphasis on environmental understanding and awareness in education. According to Norway’s educational policy, written by Hagness, education of

the integrated human being shall inspire an integrated development of the skills and qualities that allow one to behave morally, to create and to act, and to work together and in harmony with nature. Education shall contribute to building character which will give the individual the strength to take responsibility for his or her own life, to make a commitment to society, and to care for the environment. (as cited in Palmer, 1998, p. 245)

Personal responsibility and caring for the environment both require self-efficacy.

Palmer (1998) notes, in her suggestions for educational programs, the need to support “the belief that one’s inner resources provide the ability to rise above everyday experiences” (p. 240). Palmer additionally argues that “environmental education, in its broadest sense, is about ‘empowerment’ and developing a sense of ‘ownership’, improving the capacity for people to address environment and development issues in their own communities” (p. 274). One’s sense of ability to affect an outcome, self-efficacy, is inherent in these statements.

Integrity, another quality of ecological mindedness, may require a degree of self-efficacy. Moroye and Ingman define integrity as “to act in accordance with one’s beliefs”
(in press). Acting on one’s beliefs suggests a sense that one can actually achieve an outcome.

Further, I offer up the argument that self-efficacy is connected to caring: a person is more likely to care for someone or something if the person believes he or she can make some degree of impact in caring.

Many of the above examples pass the test of continuity, including Ollie’s creation of a relationship with the outdoors, Steven’s application of what he learned about recycling, and Lily’s step toward becoming an environmental lawyer. Similar to imagination and active engagement, self-efficacy is inherently interactive. The teens are applying what they’ve learned, contributing to the community, and planning their futures—all examples of interaction.

**Summary**

In this chapter I have organized the data into portraits of the participants, including formative experiences that have shaped their values and interests, and interpretations based on the aesthetic dimensions of learning. I have also proposed three qualities of ecological mindedness. In Chapter 5 I will discuss themes and provide connection to the literature. I will also address the three research questions that guided this study and discuss implications of my findings.
Chapter Five: Thematics, Evaluation, and Implications

Overview of the Study

There is no question that we are changing our environment, and for the most part the change we are exacting is destructive. Fortunately, awareness of environmental issues is demanding increasing attention. While methods vary widely, this awareness includes an increasingly loud call to incorporate environmental and ecological education in schools. If we wish to preserve the planet—our home—with its varied landscapes, air, water, and biodiversity, we must continue to seek out meaningful ways to provide an education that fosters sustainability. The present study aims to aid this quest by studying the formative experiences of ecologically minded youth.

Environmental and ecological education has multiple roots, including nature study (Archie & McCrea, 2006; McCrea, 2012), outdoor education (Disinger, 1983), and conservation education (Daudi & Heimlich, 2002). As environmental issues and concerns over human impact on the earth gained prominence, a number of international conferences heightened the focus on a need for environmental education (Archie & McCrea, 2006; Heimlich & Daudi, 2002; Palmer, 1998; UNESCO, 1978). Amid concern that environmental education is limited to a school subject that fills students with knowledge of the earth but excludes social and cultural issues, ecological education emerged (Smith & Williams, 1999). Ecological education emphasizes “the inescapable
embeddedness of human beings in natural systems” (Smith & Williams, 1999, p. 3) and includes themes of care, place, connection, culture, and social justice.

While many agree on the value of environmental or ecological education in some form, there remains a significant lack of earth-based education in schools. Further, there is little research on the development of ecological mindedness. Some studies have examined the life paths of adults who exhibit pro-environmental behavior or who have pursued environmentally oriented careers, but little has been done to study ecologically minded youth (Chawla, 1998; Chawla, 1999; Chawla & Derr, 2012; Corcoran, 1999b; Palmer, 1998). Because it is school-age children and adolescents that we hope to influence through environmental and ecological education, I sought out the voices of youth to hear their stories about formative influences on their lives and ecological mindedness.

I asked three research questions to guide this study: 1) What are the values of teenagers who are ecologically minded? 2) What childhood experiences contribute to the development of ecological mindedness in teenagers? 3) What is the significance of the experiences of ecologically minded students for education in general? To pursue these questions, I used a combination of methods, interviewing and educational connoisseurship and criticism.

In essence, interviewing is about story as a way of knowing. Interviewing allows a researcher to understand the lived experience of an individual, as well as the meaning the individual derives from that experience (Seidman, 2006).
The aim of educational criticism and connoisseurship, an arts-based qualitative research method developed largely by Elliot Eisner, is to improve education (1998). This method marries connoisseurship, the art of appreciation, with criticism, the art of disclosure (Eisner, 2002b). It is up to the researcher to understand and interpret a situation and then to render the situation with clarity and detail, giving rise to themes that enlighten the field of education.

An inquiry through educational criticism consists of four components: description, interpretation, evaluation, and thematics (Eisner, 1998). In Chapter Four I provided descriptions of the participants in the form of portraits, and I interpreted the data I gained through ecological and aesthetic lenses. In the present chapter I discuss themes that emerged and suggest an evaluation of those themes with regard to my third research question: What is the significance of the experiences of ecologically minded students for education in general?

I gained access to the participants in this study through the Shadow Canyon Outdoor Program, a program that promotes environmental stewardship through service learning, environmental education, leadership development, and challenging outdoor activities. Three of the participants, Rose, Steven, and Ollie, were involved directly in the program, and two additional participants, Lily and Rachel, were referred to me by one of the initial participants, a “snowball” method (Hatch, 2002).

The data collected for this study included two interviews with each primary youth participant and one interview with each student’s mother. In most cases, I held brief follow-up conversations in person or by email or phone. I conducted interviews between
January and April of 2013. I also collected data by photographing artifacts provided by the primary participants; I photographed artifacts at the time of the interviews. Artifacts included animals, a seashell collection, writing projects, bird field guides, painted rocks, photographs, and a collection of junior ranger badges and patches. Youth also provided nature-based metaphors for their lives, and some shared favorite quotations. I interviewed additional teenagers who participated in SCOP through a focus group format.

In Chapter Four of this paper, I proposed that three qualities—imagination, active engagement, and self-efficacy—be included on the continuum of ecological mindedness. While I will not repeat myself in reviewing the case for these ecological habits of mind, I make mention of them here because their distillation is among the main findings of this study. They hold significance for the third research question that guided this study, discussed later in this chapter.

I now respond to the research questions that framed this study.

**Research Question 1: What are the values of teenagers who are ecologically minded?**

In Chapter Four I presented the portraits of five teens who are ecologically minded. Woven into the portraits are illustrations of the participants’ values. These examples were both gathered through explicit questions of teens and their parents and gleaned through our discussions and artifacts.

The teens demonstrated a number of values. While values varied some among participants, there was also much overlap. Many of the values that the teens talked about and/or displayed are traits they strive to embody: responsibility, honesty, dependability,
resilience, curiosity, creativity, resourcefulness, loyalty, trust, and empathy. Other values are entities beyond themselves that the teens hold important, such as family, nature, safety, health, and beauty. The themes I offer below—relationship, commitment, and growth—integrate many of the traits and entities listed above as distilled through an ecological lens. Some values explicitly discussed by participants fit under more than one theme. Honesty, for instance, was mentioned as a value by multiple participants, and it arguably contributes to all three themes.

Relationship is a value shared among all student participants. This value manifests through participant relationships with family, friends, teachers, community, animals, and the earth. The teens place importance on their connections and partnerships with others; this is an ecological quality, as ecology by definition is based on relationships. Commitment emerged as a value as well. Participants display commitment to people, through their relationships, but also to academics, extracurricular activities, and work, as well as to their beliefs and causes. Commitment is related to ecology, as it attends to relationships and interactions. Growth is an additional theme that surfaced among participants. Participants are dedicated to bettering themselves and making meaning of the world around them. The teens also exhibit curiosity and a sense of wonder and awe toward the beauty of the natural world, qualities that contribute to their growth as stewards of the earth. Growth is inherently ecological, as living systems are at the heart of ecology.
**Relationship.**

Relationship surfaces among the teens in a number of realms. All student participants show evidence of valuing family and the positive influences that their families provide. Lily, Rose, Rachel, and Ollie all mention that they look up to family members. Lily explains that she emulates each of her immediate family members for a different reason—each has played a role in shaping her as a balanced person. Not only do the participants talk about their relationships with their families, but they demonstrate a closeness as they interact when I visit. As an example, Lily and Bridget curled up on the couch together as I interviewed Bridget.

Most student participants also mentioned that they have developed strong relationships with teachers, gaining values and insights from those they have had close or ongoing connections with. Friendships are also valued: Lily demonstrates a caring relationship with her best friend, Sara, learning and gaining from her friend in 4-H and as a leader. Steven says he values his diverse group of friends because of the different perspectives the friends bring to his life. Ollie talks about the long-term connection she and her family have developed with their friends whom they backpacked and raft with; those relationships contribute to the fond memories Ollie has of the wilderness. Ollie further demonstrates her value for relationship in her affinity toward and strength in building community.

Additionally, all the teens demonstrate a caring relationship with earth and nature. Ollie talks about creating her own relationship with the outdoors, and her connection to the outdoors helps her find relief from her depression. She says,
I feel like it’s one of those things that everyone can have their own connection. So it’s like what you feel and what you have in the wilderness is unique to you. Yeah, it’s like your safe zone, kind of. … when I’m there I can escape the reality or escape my sadness. (Personal communication, February 2, 2013)

When Steven refers to his connection to the outdoors, he says, “Nature’s always been there for you pretty much.” Heidi describes her family’s spiritual connection with nature, suggesting a valued relationship.

Lily, Rose, and Rachel also clearly value their relationships with animals. Lily’s relationship with her goats is of deep importance to her; an example is her nurturing of Loki Joe when she first takes him on, helping him learn to eat and play. Rose and Rachel have close connections with horses, and Rose describes her connection: “I’ve kind of always had that with them, and they’ve always been my favorite thing to go see and touch and ride and type thing, so it’s kind of a special thing.” Participants also discuss specific places in natural settings that they have developed relationships with over time. The importance of place will be discussed further below, as a theme under the second research question.

**Commitment.**

Commitment is demonstrated consistently by participants—responsibility, dedication, and loyalty are all values that fit under commitment that are explicitly noted by participants and that emerge recurringly. Rachel and Lily explicitly discuss their commitment to academics, though it seems that all students are dedicated to school. All students exhibit commitment with respect to extracurricular activities such as sports, the arts, 4-H, Youth Corps, and SCOP. Rose is committed enough to her hobbies, such as horseback riding, that she helps with horseback riding lessons and teaches dancing to
help support her activities. A few participants show enough interest in future careers to take steps now to pursue those callings: Rose, possibly interested in being a flight nurse, is involved in Civil Air Patrol; Steven is involved in SCOP, learning about the work of a ranger, and Lily shadowed an environmental lawyer on the job and is planning on participating in debate club in high school.

Many of the examples outlined above also indicate a commitment to animals and environmental causes, such as extracurricular activities like 4-H and SCOP as well as career interests. Rose and her family discuss their commitment to sustainable living, and Ollie’s family demonstrates a similar commitment in building a net-zero energy home. Ollie places value on her trail-building commitment through the Youth Corps to make trails accessible to others. Rachel’s commitment to the environment was strengthened in her environmental science class when she learned about the importance of its protection, and Rachel and Lily have both taken on the cause of anti-fracking, showing enough commitment to the cause to attend multiple meetings. Lily, Rose, and Rachel all show sustained commitment to their animals, completing routine chores and showing the animals in 4-H and other shows. Desmond and Ollie both talk about “giving back” by committing to environmental volunteer work.

**Growth.**

Growth as a value surfaces repeatedly for the teens. Again, all participants participate in multiple extracurricular activities, and through these activities participants are dedicated to growing as athletes, artists, and environmental stewards; further, Rose and Ollie take on leadership roles—Rose in Civil Air Patrol and 4-H, and Ollie in Student
Council and mentoring freshmen. This, along with Ollie’s community building and service learning abroad, also suggest that the teens care about growth beyond their own lives. Similarly, as the teens’ pursuit of career interests indicates commitment, it also suggests a dedication to growth. They show further growth in their interest in education: Mary talks about Steven’s love of learning and interest in trying new things. Ollie speaks with delight about her educational trip to the Olympic Peninsula, and Lily fondly remembers learning about renewable energy in a girls’ science club in elementary school.

Students use language that illustrates the value they place on growth. Lily says, “I’m always trying to make myself as perfect, I guess you could say, as I can,” and Steven says one reason he looks up to Dwight D. Eisenhower is because he “strived for being better and better every day, which is kind of like me too.”

Rachel demonstrates an affinity for growth when she talks about shifting friendships: “I sort of dissociated myself from an old group of friends and I’d been sharing their values for a long time and realized that it wasn’t quite working for me.” Rachel explains that she began to follow a stronger “moral compass.” She also talks about how her family is open-minded, “so they are willing to entertain a lot of ideas when it comes to just about anything including the environment. And so it kind of opens the door for a lot of discussion.” Lily’s discussion of role models whom she emulates also indicates an interest in growth. Lily has also developed a caring relationship with Heidi, from whom she has learned about anti-fracking and raising animals. It is clear from our conversations that Lily places value on her relationship with Heidi, a relationship that contributes to her growth as an individual.
After taking environmental science with Mr. Kobb, Ollie appreciated feeling empowered regarding environmental issues, indicating both growth in her abilities and interest in bettering the earth. Bridget’s homily about Lily as a shepherd indicates the value that Lily places on the growth of her animals.

**Discussion.**

Not surprisingly, the qualities of ecological mindedness—caring, a sense of interconnectedness, integrity, imagination, active engagement, and self-efficacy—are prevalent in the emergent themes elucidated above. Caring, for instance, is required to have the interaction of a true relationship, it is integral to the concept of commitment, and it is intrinsic to seeking growth.

Dietz et al. (2005) suggest that “there is consensus across a broad literature that values are a reasonable way of conceptualizing how we make decisions about the environment” (p. 365). Understanding the values of ecologically minded teens is helpful because it allows us to be mindful of those values as we work with children and adolescents, providing opportunity for the values of relationship, commitment, and growth to develop and flourish. In the following section, I will examine the formative experiences and influences in ecologically minded teens. While we want to provide such experiences to youth to help nurture ecological mindedness, attending to the associated values explicated above should help students find relevance and meaning, taking them further along the continuum of ecological mindedness.
Research Question 2: What childhood experiences contribute to the development of ecological mindedness in teenagers?

Themes emerged around a number of formative influences in teens’ lives: experiences in nature, connection to animals, adult mentors, community, peer and sibling influence, religion, and story. Evidence to support these themes is drawn from the “Influences” section of each teen’s portrait. Some of the themes—like experience in nature and having an adult mentor—emerge clearly for all participants; however, there are others—like peer and sibling influence and religion—that do not emerge clearly for all participants. However, all of the themes discussed were influential for at least some of the participants and thus hold meaning for this study.

Experiences in nature.

Having experiences in nature was among the themes that emerged most clearly in this study. This fits the findings of previous studies cited in the review of the literature, which show that one of the two most common influences on pro-environmental behavior is spending time in a natural environment (mentoring by an adult, the other common influence, will be discussed later in this section) (Chawla, 1998; Chawla, 1999; Corcoran, 1999b; Cornell, 1998; Palmer, 1998; Sobel, 1996).

The teens in this study recount a wide range of experiences in the outdoors, from gardening and collecting seashells to trail building and night hikes. A lot of play happened outside, and the teens’ travel experiences were often associated with the outdoors. Some of the teens describe an affinity for a particular type of setting, such as water, forest, or mountains. Though most experiences teens describe were shared, a few
were solo, and the participants seem to very much value the qualities of both shared and solo experiences.

Perhaps what matters most is what outdoor experiences provide for the youth. Imaginations are triggered, and relationships formed and nurtured. Students recount aesthetic experiences, and they express what it feels like to be doing what they love to do best outside: mesmerizing, calming, immersive, freeing, contemplative, peaceful, as if a weight has been lifted. In our increasingly high-tech, high-pressure society, should we not be aiming to include these words in our vocabulary more often?

*Experiences in nature* is a broad category, and to discuss it further I break it into different elements: *place* (including *valued places* and *travel and field trips*), *outdoor play*, and *aesthetic experiences*.

**Place.**

**Valued places.**

Having a connection to a special place in a natural setting was a theme consistent among all participants. All teens describe cherished places that they are connected to through their grandparents; in most cases, the families have had long-term relationships with the treasured spots. Rachel and her mom describe their family’s cottage on Mullett Lake that Heidi’s great-grandfather built. The cottage itself is simple and unpretentious, they explain, and Rachel enjoys activities on the lake like fishing every day. Rose notes the feeling of safety she experiences in Seaside, Oregon, where her grandparents live. While Rose notes the beauty of the place, it is clear that part of her connection to it is its consistency in her life despite many moves. She says, “It’s always been kind of one place
that doesn’t seem to move around all the time. It’s kind of a more solid, you know, safe place I guess. Just because I don’t have a ton of solid anything.” The landscape of the Swiss Alps draws Steven to his grandfather’s home, and Lily describes the pretty meadow near her grandparents’ home in Colorado’s mountains. Ollie’s mom describes the comfort that her family’s Indiana farmhouse brought to Ollie and her siblings when they were young, as well as the contrast it provided for Ollie against Chicago, where her grandparents live.

It is not surprising to see place show up as a powerful formative influence on the teens, as place is discussed frequently in the literature. Not only are relationships with place discussed, as with Arne Næss’ relationship to the mountains (see Chapter Two, “Ecology” and “Place”), but place is noted as one of the top influences that lead environmentalists to their work. Specifically, “attachment to valued family land, such as a farm” is noted (Chawla, 1999, p. 18). However, Chawla also found that “the special places that stood out in memory, where people formed a first bond with the natural world, were always part of the regular rhythm of daily life” (Chawla, 1999, p. 19). While the locations described above are generally not accessible daily or weekly to the teens, the participants do have places they connect with on a more routine basis. Rachel, of course, lives on a farm in a rural part of Boulder County, and she gets out fishing frequently. When she was younger, her mother says that the Rock Creek area, with its bike paths and parks, provided a strong connection to the outdoors. Ollie and Steven talk about hiking local trails, and they have their favorites—Ollie lights up when she talks about hiking
Mount Sanitas at night with her friends. Places become special because of time spent
with them, experiences had in them, and energy gained from them.

*Travel and field trips.*

Though having a particular place that one returns to routinely and/or that has a
family connection seems to have the most impact in developing a relationship with the
environment, the teens have also developed affinities for places that their families have
chosen as vacation spots. Some connections seem to develop as a result of multiple visits,
and some seem to have developed as a result of a meaningful experience with others
and/or aesthetic experiences had in the place. Rose, for instance, has a strong connection
to Zion National Park, which she has visited multiple times; in her portrait, she describes
an aesthetic moment she had there at Angels Landing. Rachel has been to Hawaii
multiple times, and she describes a black sand beach she remembers clearly from her last
visit. Though Lily has only been to Hawaii one time, she has a special connection to the
place, as she is named after one of its volcanoes. Steven and his mother talk about their
family vacations to national parks, where he has gathered his Junior and Senior Ranger
badges. In this case it does not seem that Steven has a relationship with a particular park,
but that his affinity derives from knowing the parks collectively. Though Steven has only
been to the Gulf Coast once, he mentions it as a place that he cares about. Though one
may not return to a traveled spot, it can hold very special meaning based on the
experience that was had in it. Further, it provides the opportunity to see the way others
live—as Ollie did in Venezuela—to see more of the earth, and to put it all in context.
School field trips fall in the same category as travel in that they are not a part of daily life. They are places that students may only visit once, but, as seen in this study, they may have lasting impressions. In fact, when talking about the influences of formal education on their lives, cherished teachers and field trips are the participants’ primary topics. Most teens talk about field trips to natural settings, and they recalled some trips with clarity and fondness. Rose remembers field trips she took while attending an agricultural school for a year or two in the primary grades. She says, “I had the best, best, best like, you know, field trips and I loved it. It was a really, really cool learning experience and I think that was the start of all this stuff that I’ve really done in the past few years, so it’s really, really fun.” Desmond talks about a current teacher who leads “the coolest field trips,” including one day living as a colonialist in which the students had to give up their electronics and backpacks for a day. Steven remembers a night hike during a fifth-grade trip to the YMCA of the Rockies as “one of the best moments” he has had in nature. Lily also had a memorable trip to the YMCA of the Rockies. Rachel mentions a few outdoor field trips, including two recent science field trips highlighted in her portrait.

Outdoor Play.

I include a short sub-section here on play because I believe it is noteworthy that during their time in nature as children, all participants engaged in play unique to the outdoors: playing in mud, building snow igloos, looking for bugs under rocks, using pine needles as money, pretending to be horses and other animals, and playing in trees. Lily and her siblings would load up their wagon and pretend they were on the Oregon Trail.
Imagination was at play for many of these experiences, and children were actively engaged. Creative play was valued by the children and their parents.

**Aesthetic experiences.**

For all the teens, aesthetic experiences enhance their connection to nature. To review, aesthetic moments occur when an individual (usually briefly) becomes absorbed or enthralled in something, and it is often accompanied by a sense of vitality (Dewey, 1934; Moroye & Uhrmacher, 2009). As mentioned in the discussion of travel above, the aesthetic experience has the potential to create or deepen a connection with a place as it did for Rose in Zion National Park. Ollie remembers vividly a moment hiking along the San Juan River:

> One time we were on the San Juan River, and there’s one point where you can do this long hike up, like along the edge of the canyon, like up the canyon, and you get to the top and there is this beautiful natural pool and up there you’re looking over, down upon this, the whole canyon. And it’s like the water was like crystal blue, and it was probably, it was just an amazing moment, like getting to… like standing atop this huge rock that you can jump into the water from. And it was just like so, so grand. And the nature is so much bigger and this huge thing that I could be a part of. (Personal communication, February 2, 2013)

When asked about aesthetic experiences, Steven remembers the night hike he took in fifth grade when he could see the stars and feel the landscape, and Lily immediately recalls seeing the bobcat carrying her cub on the frozen lake. For Rachel, Hawaii comes to mind.

There is often a quality associated with the aesthetic experience that might best be described as *ineffable*. That is, the teens felt unable to express the quality of the experience or the feelings they took from it. At one point, Steven says, “I guess that being in nature is really relaxing, very comforting. Yeah, just really a fun experience that, I
mean, it’s one-of-a-kind you can’t really describe it. But just like being there in the woods, feeling the wind, or whatever, it’s just really cool.” Similarly, after trying to describe the feeling of accomplishment she felt after climbing Angels Landing in Zion National Park, Rose says, “It’s just beautiful, it’s breathtaking. It’s just amazing, it’s hard to explain, it’s just so pretty.” Finally, Ollie attempts to characterize what it feels like to be rafting. Though her description (shared at the end of her portrait) is compelling, she still finishes with, “It’s so hard to explain that stuff.” Uhrmacher (2009) notes that aesthetic experiences can be “difficult to pin down and to neatly define” (p. 616).

Experiences with animals.

Experiences with animals is another theme that emerged as influential on the teens, particularly for Rose, Rachel, and Lily, who all have farm animals and participate in 4-H. All three girls have significant responsibility when it comes to taking care of the goats, chickens, and other animals they own, and they interact with the animals daily (or at least weekly, in Lily’s case). Rose’s daily connection with animals includes a caring, utilitarian relationship, using animals for their milk, eggs, and meat. In Rachel’s portrait she describes her emotional connection to horses, and her interest in horses is further illustrated through her childhood play with her sister, frequently riding horses, playing with toy horses, and pretending to be horses. Heidi also describes Rachel’s commitment to her “stubborn goat” for years. Rachel’s entrée to 4-H and goats happened thanks to a friend—when Rachel got to bottle-feed the friend’s baby goats, she got hooked. Though we did not explicitly discuss her animals, Ollie clearly displayed a loving relationship with her dog and cats.
In addition to the long-term, caring relationships that the teens have developed with particular animals in their lives, a few of them also show a fascination with certain kinds of animals: Steven is fascinated by birds, Lily is mesmerized by owls, and Rachel is taken in by fish. Rachel describes an aesthetic experience with schools of fish on a Hawaiian reef, and she says that her interest in fish could lead to a career in fish and wildlife conservation.

Bridget describes Lily’s connection to animals in general as quite special, calling her the “anything whisperer” and likening Lily to a shepherd in her homily. Lily talks about becoming “absorbed” when she sees animals, and she speaks with delight about her experience banding saw-whet owls for tracking in Maine. Lily’s concern for the environment comes in part through her interest in protecting the habitat of animals; she expresses concern, for instance, over the habitat of animals in China.

From inspiring imagination to developing a solid, caring connection with nature, experiences and relationships with animals have clearly fostered ecological mindedness in participants in this study.

**Adult mentoring.**

Having an adult member—often a family member—has been found to strongly impact pro-environmental behavior (Chawla, 1998; Chawla, 1999; Corcoran, 1999b, Cornell, 1998; Sobel, 1996). All teens in this study discuss the influences of adults who have nurtured their relationship to the earth.

For all the teens, their parents have played a crucial role in the development of their ecological mindedness. To begin with, all of the families value getting outside.
Much of the families’ vacation time is spent in national parks, at family cabins in natural settings, hiking and camping, or rafting. Rachel’s parents valued a natural setting so much for their daughters that they moved to a farm. While Bridget says she has not pushed the outdoors on Lily, she does provide her children with outdoor experiences and has supported Lily in her environmental and animal interests. Further, parents have shared explicitly their values, which include caring for the environment. Rose’s mother, for example, talks about the importance of living sustainably, and Ollie’s parents were building a net-zero energy home at the time of our interviews. Rachel’s mother shares her passion for anti-fracking with her daughters.

Extended family also comes up frequently in our conversations. Grandparents come up most often, providing vacation homes in natural settings, modeling active outdoor lifestyles, and offering examples of pro-environmental behavior, such as Ollie’s grandfather donating part of his land as a nature preserve and Rachel’s grandmother protesting hydraulic fracturing. Rachel’s uncle is mentioned as a strong influence because of his enthusiasm for outdoor activities, and Lily’s aunt, the environmental lawyer, helped inspire Lily in terms of career.

Teachers are mentioned by all students as well. Though some of the influences were explicitly nature-related—Ollie’s mentoring by her environmental science and outdoor club teachers, for instance—some of the ecologically minded influence appears more through caring relationships that foster strong values and empower students as critical thinkers. One teacher, Rose’s third grade teacher, is mentioned as a negative
influence—not only did Rose feel that teacher did not like her, but Rose also thought of her as wasteful and “the most non-environmental person.”

Other adult mentors include Ranger Keller and other rangers and adults who work with SCOP, as well as family friends; Heidi has had a particular influence on Lily as far as awareness of environmental issues and raising and caring for animals. For Ollie, the adults in the family’s Quaker community have served as role models as well.

There are many adults involved in the mentoring of the teens in this study. Most of the adults themselves clearly embody qualities of ecological mindedness, and the various roles they play are invaluable in modeling a caring relationship with the earth and providing the skills necessary for its stewardship.

Community.

Though not all participants explicitly refer to it, an entity that emerged as noteworthy in this study is Boulder County, where the participants live. It is special in part because it is where the teens get to have the majority of their outdoor experiences. Aleah, a focus group participant, says,

> It’s like so accessible like living here, it’s hard not to find it in your life. Like just behind my school there’s a trail, and after school you walk the trail. You get some exercise just being in nature, it’s just easier being here, it’s all around us. And like some cities they’re so like obsessed with having buildings and all this that they kind of lose their touch. (Personal communication, April 20, 2013)

However, not only is Boulder County a beautiful locale with many possibilities for outdoor excursions, but it is full of outdoor enthusiasts who promote a community of ecological consciousness and standard of environmental stewardship. Bridget, Lily’s mother, says, “I think just the fact that she lives in Boulder County is influential. There is
a particular awareness in this county for things health-related, environmentally related, educationally related and stuff like that.” Steven notes that “volunteering for nature is a big deal” in Boulder. Jake, a focus group participant, says, “Yeah just growing up in Boulder you get introduced to all this,” referring to the outdoor possibilities and consciousness. Desmond agrees, saying that the City of Boulder has a lot of people who care about nature. This speaks to the role of community in its potential to influence ecological qualities.

I name Boulder County rather than give it a pseudonym as a measure of transparency, offering those who know Boulder a deeper understanding of the basis for my suggestion of community as an influence. Boulder carries with it a strong reputation of ecological consciousness but also of privilege; however, as with any place, Boulder County is much more three-dimensional than that, including issues of over-consumption and poverty. Though it is certainly not alone, Boulder may have an edge on ecological consciousness; this does not mean that such a community influence is unachievable in other locales, but rather that such an influence may need to be more intentional.

Peer and sibling influence.

Though the influence does not appear to be as strong as for adult mentors, there was some influence on the teens from peers and siblings. Lily and Ollie both talk about their siblings as role models, and it is thanks to friends and siblings that some of the teens became involved in some of their outdoor and animal activities, such as 4-H and Youth Corps. Lily also credits Sara, her best friend, with encouraging her to develop leadership qualities. Ollie looks up to a friend whom she rafts with, saying, “Everything for her is
outdoors. I look up to her in that way that like I wish I could do that or had done that in high school because I think that it’s what I love.” Aleah says she became involved in Youth Corps thanks to her sister: “Just seeing her have so much fun going out and building trails so that people could experience nature. She was so happy about it that it made me want to sign up and get to experience that too.” Rachel alludes to the negative influence of peers, choosing to follow her “moral compass” and seek out more positive influences. Though the evidence is not overwhelming, the influence and inspiration of peers and siblings is noteworthy because it did have meaning for the teens in this study.

**Religion.**

Another theme that emerged for some participants was that of religion. Rose belongs to the Church of Latter Day Saints, which she says is an important influence in her life. She says,

> I believe that God made the world and so I’m his steward while I’m here to take care of it as well. And so, well it’s been my job and he gave me a chance to be here so I make sure to make the best of everything. That’s kind of special in a way, making sure I always care for it in every possible way I can. (Personal communication, February 12, 2013)

Ollie’s influence from religion comes from Quakerism, one tenet of which is stewardship to the earth, she says. Margaret, Ollie’s mother, believes that Ollie’s skill in building community derives in part from the Quaker influence, and that Ollie embodies values, such as equality, integrity, peace, and honesty, important to the Quaker religion.

For both girls, religion offers a set of values that are shared and advocated; in these cases, those priorities include stewardship of the earth.
In Lily’s case, she pulled away from the Catholic religion because of a story it values; further, it seems that that story may have served to cement Lily’s resolve to protect animals. Bridget says, “That realization and the firmness with which she experienced that has been really influential in helping her be confident.”

Heidi, Rachel’s mom, mentions that her family has a spiritual connection to nature; while this connection likely serves to encourage environmental sensitivity, it is different from a set of values and beliefs that are advanced by a religion.

**Story.**

Under the theme of story I am placing a variety of influences that capture the narratives and recounted experiences that have affected the teens in this study. While story seems to be a minor influence compared to experiences in the outdoors and having an adult mentor, it carries enough meaning to address its influence here.

For several of the teens, nature- and animal-based fictional stories were important to their childhood. Lily and her mother recall a few fictional stories in particular, including two about turtles, and scripture stories that Bridget thought were appropriate for small children; as noted in her portrait, the story of Noah’s Ark had a negative influence on Lily. Lily also talks about the influence of books like *Guardians of Ga’hoole* on her interest in animals and owls in particular. She also mentions being interested in learning about nature and animals through documentaries. Desmond talks about the influence of a book by C.S. Lewis: “It was about this guy, he traveled to different planets and just like, and just fun adventures, and it got me more fascinated.
what was out in space and what was out there, what I don’t know yet. It helped me grow my fascination for nature.”

Heidi talks about a book she read repeatedly to Rachel when she was little, called *On the Day You Were Born*, which chronicles some of the natural events on earth each day. Rose’s parents would read stories to their children and morph them, including Rose and her siblings as characters. Steven is drawn to natural settings through the recounting of historical events, and through the media, Steven learns of stories of oil spills and deforestation—issues he has come to care about. He also has been inspired by the story of Dwight D. Eisenhower’s life. Ollie mentions that her favorite book is *The Power of One*, and she appreciates the connection to nature in the story. Story surfaces for Ollie as well when she and family friends retell experiences they have had together on backpacking and rafting trips, reliving the experiences and looking forward to new ones. Similarly, as participants shared their experiences through their interviews for this study, they shared in the form of stories, bringing meaning to their experiences. Participants’ eyes lit up as they related stories about scary thunderstorms, cows tramping through campsites, and reaching stunning mountain views. Participants have also been inspired to create and capture their own stories, such as Steven’s Narnia-like story and Ollie’s river metaphor project, highlighted in their respective portraits.

For the purposes of this study “story” takes many forms, from stories in the media to fictional narratives. In its many approaches, story helps form connections, develop meaning from experiences, and consider relationships from new perspectives.
Discussion.

The above themes reveal meaningful influences on the teens who participated in this study. Some themes, such as outdoor experiences and adult mentorship, came across in the data clearly and consistently for all participants, while others, like religion and peer/sibling influences, still hold meaning as formative influences but came across less consistently among participants. Because this is a qualitative study, the meaning of these experiences is what is important. Further studies might find further or less evidence of each theme if pursued on a larger scale.

While most of the influences outlined above are positive, some are negative, such as Rose’s third grade teacher and Lily’s concern over the loss of habitat in China. Regardless, one can trace the influences on ecological mindedness: Care is developed through attachment to special places. Interconnectedness is observed through learning about animals and their habitats. Integrity is modeled by thoughtful teachers. Imagination is fed through outdoor play. Active engagement is modeled by parents taking strides to protect the environment. And self-efficacy is nurtured by planning wilderness excursions. These are just a few of the many threads that might be followed from influence to resulting qualities.

Research Question 3: What is the significance of the experiences of ecologically minded teenagers for education in general?

Several suggestions for education may be taken from this study. Before addressing them, however, it is appropriate to turn briefly to some of the tenets of and approaches to environmental and ecological education.
Hutchison (1998) discusses three popular approaches to environmental education. Through the *supplemental* approach, teachers implement discrete, non-intrusive learning activities that typically require little to no experience in environmental education. Examples might include going on a nature hike or lessons from the well-known *Project Wild* and *Project Learning Tree* programs. Through the *infusionist* approach, environmental themes and subjects are incorporated into traditional school subjects such as mathematics and science, with the aim of helping students better understand not only environmental issues, but also how those issues relate to the broader curriculum. A third approach, the *intensive experience*, focuses on multi-day residential environmental education programs, the argument for this approach being that students are more likely to gain from an intensive approach than from more disconnected or fragmented approaches. Steven’s and Lily’s middle school trips to the YMCA of the Rockies might fit into this category. Of question, however, is whether any of these approaches offer a lasting impression on students or the continuity required of an educative experience (Dewey, 1938/1997; Hutchison, 1998).

Moroye (2007) offers suggestions for furthering environmental and ecological education. In her study of ecologically minded teachers, Moroye observed four types of ecological curriculum in the teachers’ practice: *explicit, complementary, modeling of the ethic of care, and critical thinking and questioning*. In *explicit* ecological curriculum, environmental and ecological themes and issues are specifically stated and taught. Rather than teach *about* the environment, the *complementary* curriculum encompasses the ecological examples, personal stories, and vocabulary teachers use that pertain to
ecological ideas. *Modeling the ethic of care* involves understanding how to care for self, fostering a caring environment, and modeling caring through classroom interactions. Finally, *critical thinking and questioning* includes broadening one’s sense of the world by exploring it through a variety of lenses.

Moroye likens the explicit ecological curriculum to the infusionist approach mentioned above. However, she contends that explicit ecological curriculum in union with the other three types of curriculum she observed “enriches and expands the notion of the infusionist approach. The combination of the four types of curriculum cultivate a type of learning environment that models the integration of ecological ideas and education, rather than further separating the two” (Moroye, 2007, p. 244). Moroye’s last three types of curriculum are important to the themes outlined below.

**Significance for education.**

In discussing the findings of this study, I offer suggestions for education in general rather than specifying them for environmental or ecological education. I advocate that ecological themes belong in all classrooms and education in all its permutations, based on Orr’s (2004) premise that “all education is environmental education” (p. 12). I offer the suggestions below as a starting point, focusing on implications for K-12 education and teacher education, and including a brief discussion on implications for informal education as well.
Implications for K-12 education.

In considering the educational significance of the formative experiences of the teenagers portrayed in this study, two themes emerged: we need to provide youth with opportunities for natural aesthetic experiences and ecological mentoring.

Opportunities for natural aesthetic experiences.

In Chapter Four I presented the experiences of the teens in this study through the framework of the aesthetic dimensions of learning—connections, risk-taking, imagination, sensory experiences, perceptivity, and active engagement. The results of viewing participant experiences through such a lens are significant, as the aesthetic dimensions appeared repeatedly for participants throughout their experiences. As I suggested in Chapter Four, designing learning experiences with the aesthetic dimensions of learning in mind provides students with opportunities for aesthetic experiences. When students have aesthetic experiences, they are more likely to experience an increase in knowledge, creativity, memory retention, joy in learning, and meaning making (Moroye & Uhrmacher, 2009; Uhrmacher, 2009). If the aesthetic dimensions of learning are experienced in relation to the environment, an individual is likely to achieve the aforementioned benefits in relation to the environment as well. Joy in learning and meaning making, in particular, are likely to lead to a continued interest and investment in the subject—in this case, the environment. Such exposure and buy-in are required in fostering ecological mindedness. Palmer (1998) agrees that aesthetic elements should play a role in education, based on studies of significant life experiences that influenced pro-environmental attitudes.
To set the stage for natural aesthetic experiences, we must first and foremost get students outside. To return to the words of the No Child Left Inside Act,

Studies documenting the increasing indicators of nature deficit show that time spent out of the classroom for learning during the school day is critical to the intellectual, emotional, and physical health of children and that providing students with quality opportunities to directly experience the natural world can improve students’ overall readiness to learn and academic performance, as well as self-esteem, personal responsibility, community involvement, personal health (including child obesity issues), and understanding of nature. (HR. 2547, 2011)

Note that the time spent outside of the classroom, mentioned above, is for learning; while unstructured time outdoors is extremely important, particularly for younger children, it is often the only time spent outdoors at school. Writes Krapfel (1999),

The current school structure conditions children to associate being outdoors with unstructured play time. In order to focus academic attention, most classes need to begin within classroom walls. Therefore, there is a very strong tendency among teachers to remain indoors if the content area is considered academic. (p. 60)

Teachers simply must set expectations for learning outside. Opportunities to get children outside include field trips, including the intensive multi-day sorts of trips mentioned earlier. However, between limited resources and lack of continuity, field trips in themselves are insufficient. School gardens and outdoor classrooms offer additional possibilities for getting students outdoors, but so do most spaces outside of the school’s walls. All schools should have trees and other greenery on their grounds. Kevin, a focus group participant, recalls frequently going outside during elementary school to observe nature and sometimes draw.

The learning itself does not need to be tied to the environment to take students outdoors. (Isn’t a nice day enough reason to get outside?) Steven’s fourth grade teacher often started out the day outside with the class playing recorders. Whether it is taking the
day’s independent writing time outside or reading aloud in the shade, just taking students outdoors places value on being outside and lends itself to the complementary curriculum.

Further, there is plenty of opportunity to bring nature inside. Writing nature poetry, studying symmetry in nature, and bringing in rocks to study the rock cycle are examples of bringing nature indoors. Each of these examples also gives teachers opportunity to model a sense of wonder regarding nature from indoors.

While all of the aesthetic dimensions of learning will prove favorable in developing ecological mindedness, I suggest that connections is a crucial dimension—if students are not connected to a subject, they are less likely to gain from it. Therefore, it is important to provide multiple avenues to connect to a subject. To review, there are four ways to connect to a subject to create an opportunity for an aesthetic experience: intellectual, emotional, sensorial, and communicative (through a person, culture, or time period).

Connections may prove particularly beneficial in developing relationships with places and animals, illustrated earlier in this chapter as influential in the development of ecological mindedness. Cajete (2000) says, “With the wonders and ramifications of larger, more complex societies and technology, we have lost touch with our place—living with it has become complicated” (pp. 212-213). Though certainly more of a challenge for some schools than others, facilitating student relationships with local natural places should be a priority. As an example, though he was young at the time, Steven fondly remembers visiting a local arboretum multiple times when he lived in Kansas. Providing opportunities to connect to animals, too, nurtures qualities of ecological mindedness. Lily
remembers watching chicks hatch in kindergarten and having raptor and other animal presentations in school. Steven’s science teacher shared his passion for birding, helping to promote Steven’s interest in birds. Children are fascinated by animals but often know facts about animals that live on the other side of the planet better than they know local species; helping students develop connections with local animals can also help them develop a relationship with local places.

Story, also discussed earlier in this chapter, provides an opportunity to form connections and make meaning. We should provide children with chances to read, listen to, and create stories related to nature at every turn, and we should also help them find significance in these stories. Stories and culture are intimately associated with place (Bowers, 1999; Hutchison, 1998; Smith & Williams, 1999). In Native Science: Natural Laws of Interdependence, Gregory Cajete uses the word “science,” derived from the Greek word for “knowledge,” as “a story of the world and a practiced way of living it” (p. 14). Perhaps in environmental and other sciences we can emphasize the stories of the earth in our teachings.

The value of the aesthetic in ecological education is significant, as it gives children the opportunity to cultivate a relationship with the earth before they are barraged with fear-based environmental messages that may cause them to dissociate from nature and environmental issues.

**Ecological mentoring.**

The aim of what I am calling *ecological mentoring* is to provide youth with the types of influences the teens in this study gained from parents, grandparents, teachers,
and other caring adults. The themes from the first two research questions—the values and formative influences of ecologically minded teenagers—are of significance in ecological mentoring.

The importance of caring adults in the development of biophilia is widely recognized (Carson, 1956/1998; Hutchison, 1998; Orr, 2004; Sobel, 1996). Because the focus here is on the significance for education, the primary audience is teachers and schools; ultimately, however, youth are influenced from all angles. Says Krapfel, “What we adults pay attention to is a profound form of communication to children” (Krapfel, 1999, p. 58). Children learn from adult values and actions what is important and what is not. In an ideal world, all the adults in a child’s life provide ecological mentoring.

Further, mentoring occurs not only at the individual level but at the community level, as illustrated through the influence of living in the Boulder County community and Ollie’s involvement in the Quaker community. In this vein, mentoring may occur at the level of the school community, including all of the adults—teachers, administrators, paraprofessionals, counselors, coaches, and parent volunteers—who are involved in the lives of students.

Palmer frames the role of environmental educators:

Our task as environmental educators in the twenty-first century is to … implement programmes of education that inform our students about the complexities of the environment in which they are growing up; empower them to address environment and development issues in their own lives; and provide them with opportunities to be inspired by the joys, wonder and mysteries of the natural world and human achievement. (Palmer, 1998, p. 277)

While some of the mentoring that occurs should include explicit ecological curriculum, as Palmer suggests above, much of what is included in ecological mentoring falls under
the complementary curriculum, modeling an ethic of care, and critical thinking and questioning (Moroye, 2007). Further, I suggest that the tasks outlined above—informing, empowering, and inspiring students—must fall on all educators, not only environmental educators. (Another way to look at this, of course, is that we are all environmental and ecological educators.)

The qualities of ecological mindedness are imperative to ecological mentoring. They include caring, a sense of interconnectedness, and ecological integrity, qualities set forth by Moroye and Ingman (in press) and outlined in Chapter Two of this paper on pages 24-27. They also include the qualities distilled from this study—imagination, active engagement, and self-efficacy—that are proposed in Chapter Four on pages 151-161. These qualities are valued and modeled in ecological mentoring.

Dietz et al. (2005) offer that over one’s life, communication with other individuals shapes and reshapes the emphasis we place on values. Our sense of identity and the values to which we give greatest weight are developed by interaction with others whose views we respect. And in this way, a community develops commonality in its values, although never perfect agreement. Dewey and Habermas hold that real rationality is deliberative rationality, not the isolated expression of individual preferences, and suggest that deliberation can lead to reflection and value change. (p. 363)

In Chapter Four we saw teachers and other adults taking students snowshoeing and hiking, modeling active outdoor lifestyles, showing passion for the subjects they teach, taking the time to connect with their students, sharing their values and interests, modeling sustainable living and recycling, modeling caring for animals, and helping students develop the knowledge and skills to stand up for what they know is right.
In ecological mentoring, teachers and other involved adults have an understanding of the interrelatedness of issues. Educators may share their personal stories and a sense of wonder regarding nature. They may model and explicitly teach the values of relationship, commitment, and growth and help students make meaning and connections regarding the world around them. They may further help students develop a sense of self-efficacy, including students as partners in their learning. They provide a caring, safe environment for students to learn, and they celebrate diversity. Educators have the potential to make profound impacts in the lives of their students.

Joseph Cornell writes of the power of mentoring:

Albert Schweitzer's student teachers once asked him to name the essential personal qualities of a good educator. Dr. Schweitzer replied that there are three: first: example, second: example, and third: example. An individual whose heart is filled with love and reverence for nature can make ecological attitudes come alive for others as nothing else can. (n.d.)

Ecological mentoring also returns us to issues of social justice and ecofeminism. By encouraging ecological qualities that nurture stewardship of the earth, we are also tending to relationships among ourselves as the planet’s human inhabitants. By mentoring youth we are helping their voices emerge, empowering an otherwise non-dominant voice in our society. Specifically, by emphasizing the development of self-efficacy, active engagement, and imagination, we help empower youth. By emphasizing caring and integrity, we establish a foundation for social justice and bringing the disempowered into the conversations of our society.

The mothers interviewed for this study, while in some ways stereotypical as nurturers, are also powerful figures who serve as important role models and mentors in the lives of children.
Implications for teacher education.

Because ecological mentoring is important to all of education, it has implications for ongoing teacher professional development as well as pre-service teacher preparation. Of course, teachers must themselves be ecologically minded before they can foster ecological habits of mind in students.

Professional development for teachers in environmental education is on the rise. As an example, one of three goals of the recently developed Colorado Environmental Education Plan (CEEP) is to “connect school districts and teachers to professional development opportunities in environmental education” (Colorado Department of Education, 2012, p. 13). The plan lists specific training opportunities but also notes that gaps in professional development opportunities must be identified. Additionally, though it lacks actual suggestions for how to educate teachers, the North American Association for Environmental Education publishes Guidelines for the Preparation and Professional Development of Environmental Educators (2004), outlining themes for competency in environmental education.

Environmental themes are gaining ground as the Department of Education honors Green Ribbon Schools, honoring schools and placing value on the reduction of environmental impacts, the promotion of better health, and the inclusion of environmental education in curriculum (U.S. Department of Education, 2013). Ecological themes are likely to find further inclusion in the classroom if and when they are recognized as valuable through the national board certification process for teachers.
Teacher professional development should include explicit conversations about the development of ecological habits of mind in youth and the importance of ecological mentoring. Professional learning communities are a great starting place for such conversations. Additionally, professional development on the aesthetic dimensions of learning should be provided to teachers so that they might increase the possibilities for natural aesthetic experiences for their students.

Environmental and ecological education are making their way into pre-service teacher education, but they are still largely marginalized due to the high number of requisite courses and the absence of mandates for their inclusion (Heimlich, Braus, Olivolo, McKeown-Ice, & Barringer-Smith, 2004; Powers, 2004). However, Peter Blaze Corcoran (1999a) maintains that “environmental education in teacher education is the ‘priority of priorities’” (p. 179).

Because environmental education is inherently interdisciplinary, it has proven challenging to fit into the traditional format of pre-service teacher education and has typically been integrated into science and social studies methods classes (Powers, 2004). Heimlich, et al. (2004) suggest that this is the “best fit” for environmental education because it can be integrated into existing programs to enhance existing curricula (p. 20). However, because they should appear throughout teacher practice, ecological themes as well as the aesthetic dimensions of learning should be infused throughout teacher education programs.
Linda Darling-Hammond (2006), arguing that traditional teacher preparation programs are structurally and conceptually fragmented, promotes “intensely coherent programs” in which course work in highly successful programs is carefully sequenced based on a strong theory of learning to teach; courses are designed to intersect with each other, are aggregated into a well-understood landscape of learning, and are tightly interwoven with the advisement process and students’ work in schools. … In such intensely coherent programs, core ideas are reiterated across courses and the theoretical frameworks animating courses and assignments are consistent across the program. (p. 306)

This framework is ecological in nature, acknowledging and building from a foundation of interdependency. I suggest that the theoretical frameworks that drive such programs should include ecological themes. Further, I offer that qualities of ecological mindedness should be considered in the selection of cooperating teachers who mentor teacher candidates.

In his discussion of sustainability-literate teaching, Nolet (2009) suggests that direct personal participation and tangible examples need to be incorporated into teacher education. Corcoran (1999a) incorporates “environmental autobiography” into a course on environmental education. Through readings, discussion, and a combination of naturalist and reflective journaling, Corcoran hopes that students find personal significance in the course and that they explore what their own contributions might be to the field. Such exercises, as well as explicit conversations about ecological habits of mind, would be valuable to all teacher education programs. Including intensive outdoor experiences would be invaluable to teacher education as well, to both foster teachers’
own relationships with nature and provide explicit modeling of experiences that teachers may incorporate into their practice.

**Implications for informal education.**

Informal education clearly plays a significant role in the development of ecological mindedness. All the teens in this study benefitted from informal education in the form of the Shadow Canyon Outdoor Program, Youth Corps, 4-H, summer camps, and Girl Scouts. CEEP recognizes the role of non-formal educational entities such as child care providers, community non-profit organizations, camps, zoos, museums, businesses, and families in providing environmental education (Colorado Department of Education, 2012).

Providing ecological mentoring and opportunities for natural aesthetic experiences have implications for informal education as well as formal education; informal education programs generally have fewer constraints in terms of structure and curriculum, and so the potential for impacting students is high. In fact, we should not leave the development of ecological mindedness to one realm. Palmer writes,

> The world’s *most* successful programmes in the twenty-first century will surely be those in which the formal and informal elements of education are supported alongside each other. … Formative influences and informal educative experiences do not simply precede and ‘feed into’ formal programmes that can then ‘take over the task’ in a linear progression. Formative influences occur before, within and after formal programmes, and interact with them. It is a combination of these ‘life’ experiences, general maturation and exposure to ‘environmental education’ at a variety of levels and degrees of formality that will lead to individuals gaining a sense of personal concern for the environment, a desire to live in sustainable ways, and the ability to act appropriately. (Palmer, 1998, p. 277)

In other words, it all adds up.
**Tying the Themes Together**

While some connections among the study’s themes are drawn above, it is worth further elucidating the relationships among them. Understanding the values—relationship, commitment, and growth—of ecologically minded teens is informative for the process of ecological mentoring, which is meant to help guide youth in their awareness of ecological issues and in making choices that support a positive relationship with the earth and its residents. Because values are chosen with intention and used as guides in daily living, it makes sense that we should understand which values are associated with being ecologically minded so that we can explicitly discuss as well as model those values in our mentoring. Relationship, commitment, and growth are inextricably linked with qualities of ecological mindedness, as illustrated in the discussion of the first research question above.

Ecological mentoring is further informed by the themes that capture the formative influences of teens, described in response to the second research question. Understanding the types of experiences—from play to story-telling to forming connections with animals—will help adults choose opportunities and experiences to provide youth as part of a mentoring relationship.

It is also through looking at the formative experiences of ecologically minded youth that we are able to see the aesthetic dimensions of learning emerge—how youth connect to and actively engage with the environment, for instance. Thus understanding the themes described under the second research question also inform educators and other adults working with youth in providing opportunities for natural aesthetic experiences.
Suggestions for Further Research

The themes outlined above hold significance for ecological education and education in general, and those interested in strengthening education and nurturing ecological mindedness may gain from reading about the formative experiences of the teens in this study. However, great opportunity remains in the study of ecological mindedness.

First, further research might address the limitations of the present study. Studying ecological mindedness in more diverse populations would be of benefit, particularly diversity in race, ethnic, and socioeconomic background. While this study is more limited from the perspective of male participants, exploring ecological mindedness in more participants of both genders would be of value. Further research might also explore a comparison group—that is, students who are not ecologically minded—to better differentiate experiences that lead to ecological mindedness. Additional research might explore an older population, offering more life experience to draw from in studying formative experiences. It would be interesting to explore peer influences in an older population.

Further, a population in a different location would be interesting to pursue, as the location itself is of influence in this study. The study could be expanded to urban and rural settings, as well as to areas that are not as highly valued for their natural surroundings. Studying the ecological mindedness of transient populations could prove interesting.
Because a primary aim in such research is to improve education, further study might be designed to include classroom observations, with a focus on curriculum, pedagogy, physical setting, and teacher-student interactions that influence ecological mindedness.

**Closing Comments**

Elliot Eisner reminds us that “The aim of the educational process inside schools is not to finish something, but to start something” (2002a, p. 90). In setting out on the journey that was this study, I sought out to explore the question, what is it we want to start, and how?

This has been, in essence, a study of hope. David W. Orr says that “hope, real hope, comes from doing the things before us that need to be done in the spirit of thankfulness and celebration, without worrying about whether we will win or lose” (Orr, 2004, p. 210). The youth in this study provided voices, stories, insights, and hope to the cause before us. By listening to the voices and stories of ecologically minded youth, we can better understand the significance of their experiences for ecological education. For can there be a more important curriculum?

No doubt environmental and ecological education will continue to evolve, and with them, so will we.
References


Colorado Department of Education. (2012). *Colorado environmental education plan: A roadmap to develop graduates with the skills and understanding*
of the outdoor environment, Denver, CO. Retrieved July 15, 2013, from https://www.caee.org/sites/default/files/CEEP%202012%20FINAL.pdf


Appendix A

Teen Interview Guide I: Experiences and Interests

*Demographic information:*

1. How old are you?
2. What grade are you in?
3. Where do you go to school?
4. Where have you lived?
5. Do you have ethnic, cultural, or religious background you would like to share with me?

*Interview questions (possible probing questions are bulleted):*

6. Tell me about your involvement in the Shadow Canyon Outdoor Program.
7. What led you to get involved in the Shadow Canyon Outdoor Program?
8. Can you describe some typical experiences you’ve had in nature?
   - Do you have recurring experiences in the environment, such as often walking the same trail or camping in a favorite place with your family?
   - What kinds of experiences did you have when you were young (3-8)? in middle childhood (8-11)? in early adolescence (11-15)? Now?
9. Can you describe any “wow” moments you’ve had in nature? (*Explain aesthetic experience: a moment when one, usually briefly, becomes absorbed and enthralled in something; often experienced with works of art or with nature; can sometimes feel like “being one with nature.”*)
   - Are there other experiences you’ve had in nature that stand out in your mind? (profound, good/bad, scary, intense, unknown?)
10. Describe a part of nature that you are particularly drawn to or know well.
11. Describe activities that you do, or choices that you make, that stem from your commitment to the environment.
12. How do you think your environmental beliefs or interests will play out as an adult?

13. Do you think you can make a positive impact in the world, or on others?
   - If you didn’t think you could make a difference, would you still do what you do?
   - Why do you want to make a difference?

14. What would you choose to do if you had a day off?

15. Where are some of your favorite places to spend time?

16. Tell me about your favorite book or movie.

17. What role do you play in your social group? Among your peers as a whole?

18. Can you describe one of your closest friends?

19. Some people say it’s a small world. Do you agree? Why?

20. Can you remember any stories about nature, either recent or from a while ago, that were told to you, read to you, or that you created?

21. Do you have a particular story from being in nature that you could share with me? (If needed, provide examples: watching stars with dad, tree falling in Canada.)

22. Do you have a sense of what direction you would like to head for a career?

23. Do you have anything else you would like to add?

For the second interview, if you are comfortable, please bring:
   - any artifacts that reflect or symbolize your connection to nature.(e.g., photos, collections, poems, school projects, etc.)
   - a quotation you particularly appreciate
   - a metaphor for yourself or an aspect of your life, related to nature (give examples)
   - a response paper discussing your values and major influences in your life.
You may also decide to expand on our discussion today, such as your experiences in the environment and what you’re drawn to in nature.
Appendix B

Teen Interview Guide II: Values and Influences

Possible probing questions are bulleted.

1. If the participant brings an artifact, quotation, and/or metaphor: Describe your artifact(s) for me and explain why you chose it/them. Explain why you chose the quotation you did. Explain the metaphor you chose for yourself.

2. How would your friends describe you?

3. What are qualities that you value in yourself?

4. Who do you look up to? Why?

5. Describe a time when you stood up for something.

6. What is it about nature and the environment that you value?

7. How do these values show up in other parts of your life? (e.g., relationships, schoolwork?)

8. Are there any pivotal experiences that have changed your values one way or another?

9. Have any people (parents, teachers, writers, etc.) influenced your values?

10. Have any peers had an influence on your values and beliefs?

11. Has school influenced your values, either positively or negatively? (If needed, examples could be a teacher who had you write nature poetry or images of landfills that felt overwhelming.)

12. Have you ever participated in any outdoor clubs, 4H, Girl/Boy Scouts, etc.?

13. Are there other factors that have influenced your ecological values, in particular? (Explain ecological values.)
- Some people who care about the environment have a particular place that they care about. Do you have any natural places that are particularly important to you? Did you have such a place growing up?
- What are places you care most about protecting?

14. Have you had an influence on other people regarding commitment to the environment?

15. What do you find rewarding or challenging about having environmental values and interests?

16. You talked about… (your work in the Youth Corps, etc.). What makes it rewarding?

17. How does it feel when you’re… (outside: in the mountains, with animals, etc.)?

18. Do you have anything else you would like to add?
Appendix C

Parent Interview Guide

Possible probing questions are bulleted.

1. Would you mind telling me a little about yourself—what you do for work, where you grew up, what you enjoy doing in your spare time? Can you also tell me about your spouse/______’s other parent?

2. Describe ______’s interests and activities.

3. Describe ______’s values and priorities.

4. Describe some of the primary influences on ______’s values: people (family, teachers, friends, writers), school, media, particular places, etc.

5. When did the environment become a priority for ______?

6. Are there people (yourself, other family members, teachers, writers, etc.) in ______’s life who have provided an ecological influence?
   - What influenced ______ in early childhood (3-8), middle childhood (7-11), and early adolescence 11-15?
   - Were you deliberate about providing ______ opportunities to experience nature?

7. Has ______ had any favorite places in early childhood, middle childhood, and/or early adolescence?

8. Did you notice any influence from formal education on ______’s values or interests?

9. Are there other factors or experiences that you believe may have particularly influenced ______’s ecological values? (Explain ecological values.)

10. Can you remember any stories about nature that you told to ______, read to ______, or that he/she created?

11. Can you tell me a bit about ______’s play as a child?
12. What are some things that are particularly dear to you about ______?

13. Do you have anything else you would like to add?
Appendix D

Focus Group Interview Guide

*Demographic information (participants can share verbally or write responses):*

1. How old are you?
2. What grade are you in?
3. Where do you go to school?
4. Where have you lived?
5. Do you have ethnic, cultural, or religious background you would like to share with me?

*Discussion questions:*

6. Tell me about why you got involved in the Shadow Canyon Outdoor Program.
7. What is it about nature and the environment that you value?
8. Describe a part of nature that you’re particularly drawn to.
9. Have any people influenced your ecological interests or values? (family, friends, peers) How?
10. Has school influenced your ecological interests or values? (particular teachers, field trips, guest speakers, etc.) How?
11. Are there other factors that have influenced your ecological values, in particular? (places, books, media, social justice issues) How?
12. What would you say is the single biggest influence on your ecological interests and values?
13. Describe any activities you do, or choices that you make, that stem from your commitment to the environment.
14. Who do you look up to and why?
Appendix E

The Aesthetic Dimensions Exhibited by Primary Teen Participants

<table>
<thead>
<tr>
<th>Connections</th>
<th>Lily</th>
<th>Ollie</th>
<th>Steven</th>
<th>Rose</th>
<th>Rachel</th>
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<tbody>
<tr>
<td></td>
<td>• animals (goats/owls)</td>
<td>• San Juan River</td>
<td>• birds</td>
<td>• horses</td>
<td>• horses/play</td>
</tr>
<tr>
<td></td>
<td>• circle of life</td>
<td>• shared experiences</td>
<td>• history</td>
<td>• hiking</td>
<td>• fish</td>
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<td></td>
<td></td>
<td></td>
<td>• beauty (Alps/hiking)</td>
<td></td>
<td>• DNA/viruses</td>
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<td></td>
<td>• spiritual</td>
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<tr>
<td>Risk-taking</td>
<td>• shows goats at 4-H</td>
<td>• participates in SCOP</td>
<td>• advocates ideas for school</td>
<td>• hiking 14ers</td>
<td>• kayaking</td>
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<td></td>
<td>• breaks from family religion</td>
<td>• thunderstorm while camping</td>
<td>• project</td>
<td></td>
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<tr>
<td></td>
<td>• advocates for animals</td>
<td>• stuck while rafting</td>
<td>• interest in exploring</td>
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<td></td>
<td></td>
<td></td>
<td>• being outdoors</td>
<td></td>
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<tr>
<td>Imagination</td>
<td>• goat name and costume</td>
<td>• playing in creeks</td>
<td>• Narnia-like story</td>
<td>• playing in the mud</td>
<td>• toy animals</td>
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<td></td>
<td>• seeing possibilities</td>
<td>• metaphor writing project</td>
<td>• imagines natural settings</td>
<td>• possible career as emergency</td>
<td>• pretending to be horses</td>
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<td>• sees continued relationship</td>
<td>from history</td>
<td>responder or flight nurse</td>
<td>• horse stories</td>
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<td>with the environment</td>
<td>• school project</td>
<td></td>
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<tr>
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<td></td>
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<td>• Albert Einstein quotation</td>
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<td></td>
<td></td>
<td></td>
<td>• music</td>
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<td>• caring for goats</td>
<td>• weekly hikes</td>
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<td>• Youth Corps</td>
<td>• kayaking at friend’s home</td>
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<td>• 4-H</td>
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<td>• engaged language (“seize the day”)</td>
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<td>• anti-fracking</td>
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<td>• Civil Air Patrol leader</td>
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Note: This table serves as a glance at examples of how participants exhibited the aesthetic dimensions of learning. For description of these examples, see “Aesthetic Dimensions” in Chapter Four.

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