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Ecology and Engagement: The Importance of Direct Experience of Nature in Culture and Scholarship

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ECOLOGY AND ENGAGEMENT: THE IMPORTANCE OF DIRECT EXPERIENCE OF NATURE IN SCHOLARSHIP AND CULTURE

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ABSTRACT

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Our culture is becoming increasingly detached from nature. We spend more of our time indoors than ever. While the indoors may offer certain benefits, it's becoming increasingly clear that our alienation from nature has serious downsides. We depend upon nature for our physical, mental, and spiritual well-being and without it. The opposite of detachment is engagement. Engagement involves direct experience of nature, whether in national parks, wilderness, backyard woods, or unkempt vacant lots. If we want to reverse the problems associated with detachment, we need to encourage engaged alternatives. Only through a culture of engagement, one that recognizes and values natural places and one that sees that human and natural flourishing are intertwined, can we ensure a brighter future.

In this paper I argue from an environmental pragmatist position. With a commitment to focusing on urgent practical problems first and theory later, a preference for value pluralism over value monism, and an invitation for multidisciplinary cooperation, this orientation of environmental philosophy offers a promising approach for philosophers to help usher in a culture of engagement, one that the dominant intrinsic value approach of environmental philosophy cannot so easily foster. I'll show that scholars today must engage with the public, professionals and ordinary citizens alike, if we want to combat the effects of detachment. In making the case, I illustrate how detachment shapes our way of life through two areas: scholarship and general culture.

Chapter 2 focuses on scholarship. I build my case by focusing on the work of scientific ecologists. Because ecology is the study of natural systems, we might assume this discipline more than others encourages direct experience of nature. However, in an era of laboratory experiments and computer modeling, this is not so. Many ecologists are no more engaged with nature than ordinary citizens. This is a problem because in an era of great environmental change, we need to be able to recognize changes in real natural places. That requires careful on-site observation. Luckily, there is a resurgence of observational methods in ecology. More and more, ecologists are beginning to break free from the dominant orientation of the discipline and experimenting with observational methods, those that require on-site exploration. Lab work and computer modeling are important, but they can't deliver all of what we want from the discipline. Observational methods help the discipline engage with the public so that it can help inform public policy as we fight to address the urgent environmental problems of today.

Chapter 3 focuses on culture. I illustrate the problems associated with detachment by looking at children. Today's generation of children, more than any other in history, have grown up in a culture radically alienated from nature. As a consequence of this cultural alienation, many children suffer what

psychologist Richard Louv terms “nature-deficit disorder,” a set of health problems common to those with minimal exposure to the outdoors. These include increased anxiety, depression, lack of curiosity, etc. The problem here is that many children, because they are not exposed to nature at an early age, are unable to understand its importance for human flourishing, both for the individual and for the culture at large. The indoors seems to be more clean, more safe, more interesting, and more comfortable. Because of this, we might assume nature can be replaced. This, however, is shortsightedness. If this were so, we’d expect children today to be healthier and happier than their predecessors, which is not the case. In order to help our children develop in a healthy way and ensure a new generation of eager preservationists and restorationists, we need to work together as a community to bring nature back into the center of our lives.

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Chapter 1:
Detachment, Engagement, and Environmental Pragmatism

Introduction

When I first arrived at the University of Montana to start graduate school, I served as a teaching assistant for an Environmental Ethics course with an emphasis on global climate change. The course was designed by the Wild Rockies Field Institute, a Missoula-based outdoor experiential education program with the mission of closing the gap between the conventional college classroom and the great outdoors. The trip was led by Pat Burke, a member of the University of Montana philosophy department, and Adam Hermans, a Ph.D student at University of Colorado. I accompanied Pat, Adam, and a dozen undergraduates from various areas of the US and Canada on a three week backpacking trip across western Montana. We spent a week each in the Bob Marshall Wilderness and Glacier National Park. We also camped at stand-alone sites on some of the days. The course was a lot different from any I'd had before. In a typical day we would hike around five miles and set up camp when we discovered a suitable location. We would meet daily for class to discuss various assigned readings. There were also days where we left the woods, packed up the van, and drove out to meet with various guests. Before our initial departure we met at the University of Montana for lectures from Albert Borgmann and Christopher Preston. Throughout the trip we had similar meetings with various community activists, park rangers, government officials, and the owner of museum. Towards the end of the trip each of the students completed a final project. Each wrote an essay on morally justifiable actions or steps we could take to transition towards a way of life where, in the face of climate change, both humans and the natural places we depend upon can thrive. From their presentations it was evident the trip had taught the students a great deal.

Many of the students, especially those from larger cities, had never encountered wild places like the ones we explored. Why did this group of mostly urbanites choose to step into these unfamiliar

woods? Each had his or her own reasons. Some, for instance, wanted to challenge themselves to do without the comforts they had become dependent upon back home: computers, cellphones, hot showers... Others were drawn to the beautiful scenery or the promise of witnessing exotic wildlife like the grizzly bear or mountain goat. For whatever reasons the students came, each left with a profound recognition of the value of the wild, the stakes of our daily choices, and how to carefully consider appropriate actions. I want to use this trip to highlight two topics I'll focus on in this project: First, detachment from nature versus engagement; and second, environmental pragmatism.

Detachment and engagement

What do I mean by "detachment from nature"? For the purposes of this project we can think of it as the trend in our culture of distancing ourselves both in public and private life from the outdoors or natural places. This is a global trend, but is most evident in western nations, especially the United States. As a culture, we are increasingly shifting our attention indoors. Nature is becoming increasingly marginal to the daily affairs of the ordinary citizen. The effects of detachment from nature can be observed in a variety of areas of culture: in homes, in schools, in workplaces, in places of recreation, and in places of religious faith. Through each detachment shapes our daily lives; our ideas, our practices, our values. Philosopher Eric Higgs describes the trend in this way:

> Our knowledge is becoming indoor knowledge: fewer people move beyond television and computer screens, biology departments are shifting from field to lab projects, students in universities—my university at least—are receiving far less experience in the field or even direct hands-on education than they did ten years ago, and fewer people venture into the backcountry of Jasper National Park [or any national park]. These are the physical manifestations of a large cultural shift in our disposition toward places and things we regard as nature. (Higgs, 56)

It is now becoming increasingly clear that distancing ourselves from nature has serious negative consequences. In chapters two and three I'll provide examples.

Throughout our trip we witnessed many symptoms of detachment, those of our group and those of people we encountered. The most apparent example of those consequences we ourselves exhibited is that after several days, nearly all of the campers, myself included, yearned for our cellphones and laptops. On the rare occasion we would venture into town, the students raced to the nearest outlets in order to charge their devices for a quick Facebook update or phone call. It may sound silly, but recall that Americans my age are the first generation that have had steady access to cellphones and computers ever since we were pre-teens. These devices have been at the center of our social lives and a key source of information and entertainment. The separation was a real challenge. My favorite example of detachment we witnessed outside of our group occurred at Glacier National Park. We were the only group on a fairly large campground that wasn't sleeping in a large RV camper. It's good that people are visiting the parks, but we were disappointed to see that we were the only group in a dozen

The opposite of detachment from nature is engagement. For every form of detachment, there is a more engaged alternative, a practice that works to shrink the distance between humans and the natural places we inhabit. Engagement with nature is a recognition that we depend upon wild places, whatever their form, for our physical, mental, and spiritual well-being. National parks, wildernesses, neighborhood woods and streams, and even untamed vacant urban lots, all offer something essential for human flourishing and provide opportunities to come into direct experience of nature's value. The way to combat detachment is to show that the more engaged alternatives offer something of value that the detached versions don't provide. Our trip was an initiation into a new world, one that can only be discovered through engagement, through direct sensory experience.

Environmental pragmatism

Now I am going to discuss two orientations in the academic study of environmental ethics. This will help us better understand the unconventional approach of our class and its merits. How should the work of environmental ethicists relate to today's big environmental problems? Examples of the type of environmental problem I'm referring to are climate change and loss of biodiversity. The first approach to those problems we'll look at is the intrinsic value approach. The second is environmental pragmatism. There has been much debate across the two camps as to the proper goals and direction of environmental ethics. I don't intend here to provide the fine details of the debate. Instead, I want to provide a sketch of the reasons why environmental pragmatism first developed and show how certain ideas its adherents have advanced might help usher in a more engaged way of life.

First, what is the intrinsic value approach? In his essay "Intrinsic Value in Nature: A Metaethical Analysis" J. Baird Callicott writes that building the case for intrinsic, non-instrumental natural value should be the central project of environmental ethics:

> In addition to human beings, does nature (or some of nature's parts) have intrinsic value? That is the central theoretical question in environmental ethics. Indeed, how to discover intrinsic value in nature is the defining problem for environmental ethics. For if no intrinsic value can be attributed to nature, then environmental ethics is nothing distinct. If nature, that is, lacks intrinsic value, then environmental ethics is but a particular application of human-to-human ethics. (Callicott, 1)

How would an adherent of this approach combat environmental problems? In comparison to what environmental pragmatists might advocate, the approach is less direct. Once the existence of intrinsic value is sufficiently demonstrated we should be able to recognize as a matter of deduction our moral

duties in all of the wide variety of ways we interact with the nonhuman world. Many have agreed with this orientation, but many have also disagreed.[1]

The approach of environmental pragmatism is an alternative strategy for environmental ethics. Andrew Light and Eric Katz describe the basic ideas and motivations of environmental pragmatists in their anthology Environmental Pragmatism.[2] There is no body of doctrines all environmental pragmatists must adhere to. Instead, the term signifies a network of related and overlapping concepts that work to, as they write, "resist the trend to homogenize environmental philosophy." (Light, 4) Environmental pragmatism is a reaction to what some philosophers have recognized as the shortcomings of an

[1] I do not mean to give the impression that I am opposed to the intrinsic value approach or think it unimportant. What I am opposed to is the attitude that all of environmental philosophy should conform to this single approach at the exclusion of possible alternatives. It is important to establish sound arguments for the existence of intrinsic value if we are to move past instrumentalism, the popular idea that nature is valuable only for its potential to serve human ends. However, for the idea of intrinsic value to take root in public life, to influence real changes, environmental ethicists must couple it with an emphasis on the importance of engaged, direct experience of nature. If we want to counter environmental degradation, we must encourage people to recognize the value of nature in their own lives before we can reasonably expect them to recognize the value of nature independent of their own lives. This is only my suspicion, but it seems plausible: for many people engagement can lead to a recognition of intrinsic value. Engagement can lead to a deeper understanding of the importance of nature in ways that are not immediately obvious to those more detached. The budding nature enthusiast who enjoys exploring new facets of the natural world may eventually come to develop an attitude that nature is valuable even when it isn't serving our needs and that we ought to conform our actions to this fact. The person less engaged with nature, the one who spends nearly all of his or her time indoors, is less likely to develop this attitude.

[2] Ben Minteer has also recently written an interesting book on environmental pragmatism titled Refounding Environmental Ethics: Pragmatism, Principle, and Practice. Tibor Solymosi offers an illuminating review in the March 2014 issue of "Ethics, Policy, & Environment." Minteer offers an approach compatible with my own, one that emphasizes the power of democracy. Minteer diagnoses the problem the same way as Light and Katz: dogmatic insistence on theoretical work is preventing environmental philosophy from influencing public policy. He also advocates pragmatism as the solution. However, he argues it in a new way. Minteer draws heavily from ideas of John Dewey, especially Dewey's appreciation of democracy. He points out that environmental ethicists are often uninterested in writing about democracy and that this prevents the discipline from effectively engaging with the individuals and the institutions in our society that can make environmental change. Solymosi, summarizing Minteer, writes "Nonanthropocentrism is at odds with the necessarily human institutions of public policy, environmental management, and democracy." (119) At one point in the book he presents the results of polls taken by ordinary citizens in Vermont on their ideas of how environmental problems should be solved. Results show that citizens tend to favor change through democratic popular efforts rather than through the establishment of and deduction from ethical principles. He shows how actual complex environmental problems can be solved through democratic participation. Minteer recognizes the way democratic efforts have shaped public life in the past and argues that these kinds of efforts are key to effective change.

exclusive focus on the intrinsic value approach. Light and Katz identify two tendencies most environmental pragmatists share. First, there is a recognition of "the decreasing importance of theoretical debates and the placing of practical issues of policy consensus in the foreground of concern." Second, there is "the call for moral pluralism." (Light, 5) I'll detail both.

Part of the call to reorient the discipline away from theoretical debate and towards the resolution of practical problems stems from a recognition that environmental ethics at the time of environmental pragmatism's initial development was failing to meet its practical task as a result of methodological and theoretical dogmatism. Light and Katz put it this way:

> The field has produced a wide variety of positions and theories in an attempt to derive morally justifiable and adequate environmental policies. On the other hand, it is difficult to see what effect the field of environmental ethics has had on the formation of environmental policy. The intramural debates of environmental philosophers, although interesting, provocative and complex, seem to have no real impact on the deliberations of environmental scientists, activists, and policy makers. (Light, 1)

Environmental pragmatists want to steer environmental ethics away from the danger of becoming irrelevant beyond the doors and journals of academia. Certainly those with the knowledge and skills relevant to doing environmental ethics have something to offer in the creation of workable, morally defensible policy solutions to environmental problems. If we believe, like Callicott seems to suggest, that environmental ethicists should only focus on advancing intrinsic value, then anyone who hopes to work from an alternative direction will be met with skepticism. Light and Katz acknowledge that the burden of proof typically falls on the nonconformist to justify a deviation from the norm. We are missing out on the possibility of valuable contributions if we so severely limit the discipline from the start to one single project.

What is meant by the call for moral pluralism? Light and Katz write that environmental pragmatists recognize two distinct types of pluralism: theoretical and metatheoretical. Theoretical pluralism is "the acknowledgement of distinct, theoretically incommensurable bases for direct moral consideration." (Light, 4) They provide an example where a philosopher could make the case for the protection of different individual animals using either Peter Singer's criterion of sentience or Paul Taylor's criterion of respect for all teleological centers of life. Metatheoretical pluralism is, as they define it, "an openness to the plausibility of divergent ethical theories working together in a single moral enterprise." (Light, 4) For example, ecofeminists and ecological holists could work together towards the preservation of the same natural places, though their theoretical foundations they work from might differ. In both of these cases, the question of which theoretical position is ultimately more justifiable than its rivals is less important than the fact that a adherents from several positions working together may contribute to better practical solutions than any single one. Weston comments that value pluralism means "many different kinds of value, and many different sources of value, can be recognized as serious and deep without requiring further reduction to some single end in itself." (Weston, 286) We are concerned with understanding the many ways people already value nature and articulating how these values relate to our desires and other things we find important. What actually leads people to form a sense of value towards nature? Why do ordinary folks care about the nonhuman world? There doesn't seem to be just one answer. Maybe there doesn't need to be. We all come from different backgrounds and have experienced nature in our own ways. Weston comments:

> Even if someone were finally to discover a knockdown proof, it would not be the reason that most of us who are in search of such a proof do in fact value nature, since our present accounts of natural values differ so markedly. We learned the values of nature through experience and effort, through mistakes and mishaps, through poetry and stargazing, and, if we were lucky, a few inspired friends. What guarantees that there is a shortcut? It is wiser to accept the fact that

> many of our contemporaries, even our most thoughtful contemporaries, hold deeply different, probably irreconcilable, visions of the ideal world. (Weston, 303)

Weston's brand of environmental pragmatism is also pluralistic in that it is open to non-philosophers. An environmental pragmatist need not be a philosopher by training. Non-philosophers can also help us in understanding the many ways we value nature. In addition, an interdisciplinary team working together on a single environmental problem might contribute better work towards its resolution than any team of only philosophers.

How can environmental pragmatism help us deal with the problem of detachment from nature? Detachment from nature is clearly an environmental problem, but not the type best addressed by appeal to intrinsic value. The problem is not that there is no recognition of the intrinsic value of nonhumans, but that such recognition does not provide the right kinds of experiences of nature necessary to motivate the right kinds of action. First people need to recognize why nature matters in their own lives. I want to build on the environmental pragmatist's appeal to pluralism to show what I believe is an appropriate and effective response to the problem of detachment from nature.

Now let's return to the hiking trip. What made it such a success? I want to suggest that much of the reason it succeeded is that it incorporated important environmental pragmatist ideas. Let's look at a few examples.

First, the study of environmental ethics was introduced to students in the context of how we might approach the concrete problem of climate change. Theory was discussed in relation to how it applies to a clear concrete end. The students completed at the end of the course a paper describing a morally defensible concrete plan for how society can better adapt to climate change. Ideas were successfully translated into real-world application.

Second, the course was remarkably multi-disciplinary and incorporated a variety of different learning styles. Students gained a deeper understanding of natural places and their importance through readings and discussions, through listening to guest lecturers, and through direct experience with their own senses. Each student was provided a large spiral notebook of selected readings. The readings were collected from a variety of sources, including philosophy books, science journals, local newspapers, books of poetry, and more. Our guests included professors, government officials, park rangers, and community activists. By meeting with these guests we were able to better understand the variety of ways climate change poses problems in various areas of society and the various perspectives that shape our understanding of the situation. Students also learned a lot from the simple day-to-day practices we exercised in hiking and camping. We learned basic rules of conduct required for inhabiting a natural setting. For instance, we learned to always pack our trash out and to hang our food items high up trees to prevent animals from approaching human visitors. We also learned how to work as a team, to depend upon one another in difficult circumstances. Most importantly though, we learned to become more receptive to the wonder of natural places. Because our ideas about nature are largely shaped by our direct experiences, and because many of us had previously had few direct experiences like these, the trip played a major role in introducing us to the non-human world and its splendor. Everyone left with a profound new respect and appreciation for natural places and an understanding of their value both for themselves and our culture at large. The trip and the class it was based upon are a great model for combatting detachment from nature. This is just one of the many ways people today are beginning to transition into a relationship of engagement. It is also an example of how scholarship can guide the transition.

For the remainder of this thesis we'll take a deeper look at detachment versus engagement. In chapter two, I'll focus on the pair as it relates to scholarship or the educational institution. How can scholarship promote the types of experiences of nature that motivate appreciation and foster a sense of natural value? In answering this, I'll focus on the science of Ecology and recent directions in how the field operates. If any field is intimately engaged with nature, we might believe, it's surely ecology, the study of natural systems. However, as I'll show, the discipline has taken on a surprisingly detached character. The chapter will focus on a book by ecologists Rafe Sagarin and Anibal Pauchard titled Observation and Ecology: Broadening the Scope of Science to Understand a Complex World where they advocate a recent trend towards a more engaged way of conducting ecological research, one where researchers are leaving the laboratories and entering the field instead. Data is collected through methods based on direct sensory observation. Discoveries are made by exploring real natural places. The problem for Ecology is similar to the one we just looked at for environmental ethicists: dogmatic insistence on a single correct way of conducting study has stunted the discipline's ability to help contribute solutions to urgent practical problems. As we'll see in this chapter, this new engaged style of ecological inquiry is a promising example of how scholarship can better foster a world where humans and the natural world can thrive.

In chapter three, I'll look at detachment versus engagement as it relates to our culture in general. To narrow the discussion, I focus on ideas from child psychologist Richard Louv's bestselling book Last Child in the Woods: Saving our Children from Nature-Deficit Disorder. Louv writes about how detachment from nature affects children, how it inhibits their development into happy, healthy, morally responsible adults. He introduces the concept of "nature deficit-disorder" to describe the current psychological condition of many children. This term does not denote a clinical disorder, but rather

signifies a body of undesirable traits linked to our retreat indoors: depression, anxiety, boredom, lack of creativity, and more. The book is also an optimistic celebration of the many ways children are already becoming more engaged with the help of all types of ordinary citizens working to bring about a "nature-child reunion." Everyone in our culture has a place in helping reform our institutions, our schools, our legal system, our city structure, and so forth, so that they promote meaningful experiences of nature that provide our lives with value. Only when we become more engaged as a culture can we ensure that future generations will continue to recognize the natural world as something indispensable, something that cannot be replaced.

Neither Richard Louv, Rafe Sagarin, or Anibal Pauchard are philosophers by profession, but, I believe, they all work on the project Weston recommends: an interdisciplinary exploration of the many ways nature provides value to our lives. Through this thesis we'll recognize the similarities between their recommendations for bringing about a more engaged world.

Chapter 2:
Scholarship: Detachment, Engagement, and the Ecologist

Introduction

In this chapter we'll look at detachment versus engagement in relation to scholarship. First I'll offer some remarks on scholarship in general, then I'll focus the discussion on the enterprise of scientific ecologists. In this chapter I'll survey the major ideas from Sagarin and Pauchard's Observation and Ecology: Broadening the Scope of Science to Understand a Complex World where they describe two styles of ecological inquiry. One is the "manipulative-experimental" approach, which is more detached. The other is "observational ecology," which is more engaged. As pluralists, Sagarin and Pauchard don't want the discipline to abandon the manipulative experimental approach entirely. It has its appropriate

applications. It's just that the discipline can't rely on this approach alone if it wants to meet its practical aims and help address environmental problems.

The value of scholarship

There are many reasons we value scholars and our educational institutions. One of these, an environmental pragmatist might suggest, is that they help contribute to the resolution of immediate practical problems our society faces. Research can guide society towards a better way of life. How might scholarship combat the problem of detachment and promote engagement?

One way scholarship can do this is through the type of education it offers students. In order to become more engaged with nature, students need the right types of ideas and experiences. I'll explain this by returning to the hiking trip from the first chapter. In designing the course the professors made sure the students would learn important ideas and have the types of experiences that make these ideas concrete and psychologically motivating. The leaders recognized that ideas and experiences shape one another. For instance, there was a day where we read several articles on a recent problem in certain Western forests. Rapidly increasing temperatures are causing pine bark beetles to breed rampantly and destroy endangered whitebark pine trees, a critical keystone species for these ecosystems. Upon completing the readings, we hiked to an area where we examined whitebark pines firsthand. We were able to confirm and make concrete the ideas from the articles through direct experience via our own senses.

If the students had observed the trees without having been first introduced to the problem, the background information provided by the readings, would they have been able to identify the problem? Would they have known it was linked to climate change? Direct experience would not be enough to

spot the problem and recognize its causes. Let's say the students read about the problem but did not observe the trees firsthand. I would imagine they would be less apt to care about the situation or recognize it as personally meaningful if the trees and beetles remained merely ideas on paper, but never objects of direct experience. The power of direct experience seems to be something we too often overlook in the way students are educated.

Direct observation is the key to recognizing an interesting conception of reality, one Jane Bennett terms "vital materialism" or "thing-power materialism." In "The Force of Things: Steps Towards an Ecology of Matter" she articulates this worldview and its potential for inspiring a greater recognition of the value of nonhuman forces in the shaping of our culture. In this essay she describes the thin boundary between human and nonhuman forces. She explains that the world is composed of a vast network of interrelated material "things." By "thing" she is referring to any object: an old boot, a rock, a soda can, etc. As humans, we interact with these things all the time. In these interactions we typically think of nonhuman things as inanimate, inert, passive, or merely instruments for bringing about human ends. Humans, on the other hand, are recognized as animate, vitalized, active agents in shaping our culture and daily lives. There have been, Bennett describes, notable philosophers and scientists historically that have written against this unfounded prejudice. When we observe the world as it appears to the senses these dualities are not so obvious. The closer we engage with the nonhuman world, the more we can recognize that matter has a kind of life of its own, a vitality that directs changes. Things have a kind of power to influence human decisions, what she terms "thing-power." We see that human actions are necessarily to some degree, determined by the nonhuman forces in their surroundings. A person may write a letter, for instance, but he or she could not do this without the help of certain nonhuman things, a pen and paper. When we recognize that all actions are caused by what she terms

"an assemblage" of human and nonhuman components we can begin to see that vitality runs through all matter. She writes that there is "an affinity between thing-power materialism and ecological thinking: both advocate the cultivation of an enhanced sense of the extent to which all things are spun together in a dense web, and both warn of the self-destructive character of human actions that are reckless with regard to the other nodes of the web." (Bennett, 354) Through direct observation there is the possibility of heightening one's senses to the enchantment and wonder of the complex forces that direct our lives. This in turn inspires careful consideration of our choices and promotes a better way of life.

Richard Louv at one point in Last Child in the Woods quotes the American pragmatist John Dewey on the power direct observation can play in enhancing the way children are educated. Dewey writes, "Experience has its geographical aspect, its artistic and its literary, its scientific and its historical sides. All students arise from aspects of one earth and the one life lived upon it." (Louv, 203) There are many opportunities for students to learn from the experience of the natural places that surround our institutions. Experiential education and research can bridge the gap between the educational facilities and the natural places where they are located.

Some have criticized the current state of education for actively encouraging detachment. David Orr, a professor of environmental studies at Oberlin College and the founder of the Meadowcreek project, a conservation education center, writes that the ecological crisis is rooted in the way we educate future generations. The dominant form of education today, he writes, "alienates us from life in the name of human domination, fragments instead of unifies, overemphasizes success and careers, separates feeling from intellect and the practical from the theoretical, and unleashes on the world minds ignorant of their ignorance." (Louv, 211) He laments the fact that students today can leave college without an understanding of basic environmental concepts. To counter this, Orr proposes that colleges

set an ecological literacy requirement for all students. No student should be able to graduate without a basic understanding of the issues he lists: "the laws of thermodynamics, the basic principles of ecology, carrying capacity, energetics, least cost and use analysis, how to live well in a place, limits of technology, appropriate scale, sustainable agriculture and forestry, steady-state economics, and environmental ethics." (Louv, 224) This type of requirement would help students understand the phenomena they experience in a more enlightened way. We need both ideas and experiences working in a symbiotic relationship to push students towards engagement.

The history of ecology's relationship to nature

Now let's turn to the work of Rafe Sagarin and Anibal Pauchard. In their book, the two detail the history of the science of ecology and its relationship to real natural places. Sagarin and Pauchard identify three major paradigms in the history of ecology. Each paradigm has its characteristic tendencies, certain ideas and methods that shape the discipline, how it functions in relation to larger society, and how it relates to environmental problems.

The first paradigm they term the "period of discovery." This period lasted from the late nineteenth to mid-twentieth century. Ecology at this time was beginning as a new discipline. It was, at the time, synonymous with what we today call "natural history." Scientists studied nature directly by immersing themselves in the field and making themselves open to what was to be experienced. Charles Darwin's classic voyage to the Galapagos to study and document its wildlife is a good example of this style of inquiry. Through careful observation of particular natural areas, ecologists would develop broad ideas about ecological phenomena. In this paradigm ecologists tended to present their findings through narrative anecdotes interspersed with social commentaries and curious speculation. Because the

vocabulary of ecology was not yet formulated, ecological observations were often described in the language of familiar areas of human society: economics, politics, business, etc. This allowed for the public to understand new scientific ideas and the similarities between the ways nature and culture operate. Phenomena documented in the natural world were also often thought to provide guidance in social affairs. (Sagarin, 29-32) There might be something to learn, for instance, from the way ants cooperate to accomplish their work. Success in this type of study was proportional to one's skill at navigating and familiarizing oneself with particular natural places. That is, this style of inquiry required scientists to be intimately engaged with the natural world.

Detached ecology

In the second paradigm natural history was largely abandoned and replaced with a new style of research. This period is characterized by a different methodology, what Sagarin and Pauchard term "the manipulative-experimental approach." (Sagarin, 16) The period began in the mid twentieth century and is still the dominant style of ecological research in the university system today. In this era, precision and rigor are the leading values. Ecology is modelled after the hard sciences of chemistry and physics. The goal of research is to formulate general laws in ecology or well-supported cases of causal mechanisms. Observation is not entirely abandoned, but it takes on a new purpose. Observation plays the role of informing hypotheses to later be tested via computer models or precise replicable experiments designed to make discoveries by isolating and manipulating variables. This is the period of the birth of institutional ecology and the highly specialized ecologist. Ecologists conduct their research today primarily in private laboratories and universities rather than in the field. Rather than focus on broad ecological phenomena, as the early naturalists tended to do, ecologists focus on small, highly specialized problems. (Sagarin, 16-17) Sagarin and Pauchard stress that an understanding of this

paradigm can't be adequately grasped without a recognition of biophysicist John Platt's strong inference method. To this we will now turn.

John Platt's essay "Strong Inference" published in 1964 was highly influential in the rise of the manipulative-experimental approach, inspiring a generation of ecologists to adopt the style of research he presents. The essay, Sagarin and Pauchard write, had quite an impact on science. It has been cited over a thousand times in scientific articles in ecology and fields like psychology and medicine. (Sagarin, 111) In the essay Platt encourages ecologists to adopt a systematic method of scientific research, the method of "strong inference." Platt writes, "Some fields of science are moving forward very much faster than others, perhaps by an order of magnitude." (Platt, 347) The fields that progress quickest, such as molecular biology and high energy physics, are those where a relatively high percentage of its practitioners conduct research following the strong inference method. Fields with more delayed progress, such as ecology at the time, lag behind due to the use of informal, less efficient methods. If we take our scientific pursuits seriously, if the problems are worth our time and energy, we should apply strong inference to "every problem in science, formally and explicitly and regularly." (Platt, 347) Platt writes, "The difference between the average scientist's informal methods and the methods of the strong-inference users is somewhat like the difference between a gasoline engine that fires occasionally and one that fires in steady sequence. If our motorboat engines were as erratic as our deliberate intellectual efforts, most of us would not get home for supper." (Platt, 348)

What is this method? It is an adaptation of Francis Bacon's formulation of the scientific method. It is a series of steps the researcher follows to produce rigorous scientific work. First, for any given problem, the researcher must devise alternative falsifiable hypotheses that can be tested pairwise against one another. Second, the researcher designs for that problem an experiment (or more than one) with

alternative possible outcomes, each of which will, as nearly as possible, exclude one or more of the hypotheses. Third, the research carries out the experiment so as to get a clear result. When these three steps are taken, the researcher repeats the process until the possibilities are narrowed down so as to provide a well-supported solution to the initial problem. Other scientists can check the work by repeating the experiments themselves. (Platt, 347)

Ecology began to transform itself into a more rigorous science as practitioners began to adopt this method in order to compete with molecular biology for university positions, among other reasons. Part of the appeal of the method is that research based on strong inference was more easily fundable than research conducted in other ways. That's because research by the strong inference model has a specific clearly defined purpose, a clear methodology, and a clear constrained set of possible outcomes. (Sagarin, 33)

Problems with detached ecology

We can best understand Sagarin and Pauchard's third paradigm, the state we are now transitioning towards, "observational ecology," as a reaction against the problems that stem from the manipulative-experimental approach. For this reason I'll transition into describing the third paradigm by first discussing the disadvantages of the manipulative experimental approach.

Sagarin and Pauchard aren't opposed to the strong inference method entirely. Strong inference has its proper place in the sciences. Problems arise, however, when we take it as the one and only correct way of conducting ecological research. When it is accepted as an institutional requirement, researchers who opt for alternative methods, however promising these might be, are automatically met with skepticism. The researcher may have difficulty competing for funding or a professional position among his or her strong inference peers. Sagarin and Pauchard quote Teddy Roosevelt on this point.

Roosevelt entered politics largely because he was dissatisfied with the state of the natural sciences at the time. Roosevelt complained about his studies at Harvard, "The tendency was to treat as not serious, as unscientific, any kind of work that was not carried on with laborious minuteness in the laboratory." (Sagarin, 7) This is a problem because, as we'll see, there are merits to alternative methods.

Strong inference isn't designed to give us everything we want from the discipline. Sagarin and Pauchard believe the discipline should have, as one of its central aims, the goal of helping us to respond to a changing world. Ecologists can serve the public by identifying problems and recommending courses of action. This can, in turn, inform public policy and activism. The manipulative-experimental approach fails to help because many of the big problems we face today ("global climate change, collapsing biodiversity, ocean acidification, nitrification of huge water bodies, and the widespread emergence of invasive species...") (Sagarin, 17) occur over such broad spatial and temporal scales that they are difficult to study through isolating and manipulating variables in precise, small-scale isolated experiments. If ecology relies solely on the strong inference model, it has a hard time studying these problems and making policy recommendations.

Richard Louv writes on the state of ecology in his book as well. One of the results of the paradigm of the manipulative-experimental approach (although he does not himself use the term) is the ill-preparation of today's students to take on the work of their professors and mentors. Much of this is the result of natural history courses falling out of the curricula at many major universities. Students are being pushed towards narrow specialization away from broad, general ecological knowledge. Louv interviews Paul Dayton, professor of oceanography at Scripps Institution of Oceanography in La Jolla, CA about the problems he faces as a result of the transition away from natural history. Dayton revealed in the interview that most of his elite graduate students in marine ecology exhibit no evidence of training

in any type of natural history. Further, "few upper division ecology majors or undergraduates in marine ecology know even major phyla such as arthropods or annelids." (Louv, 142) Many have never witnessed the organisms they are studying in natural habitats and few are required to spend any more time outdoors than students of other majors. In a few years, he predicts, there will be nobody left to identify several major groups of marine organisms. (Louv, 143) This is a serious problem with profound consequences. Dayton explains, "A guy in Catalina sent me photos of a snail he found… The snail is moving north. It's not supposed to be where the guy found it. Something is going on with the snail or with its environment… But if you don't know it's an invasive species, then you detect no change." (Louv, 142) If new generations of students can't recognize changes in real environments, how can we detect problems?

Engaged ecology

Observational ecology seems to be the solution to these problems. Observational ecology is a body of research methods based on direct observation, that is, research based on the five senses. The research is based on experiences in the field. Observational methods may be less precise or rigorous than manipulative-experimental methods, but those values are not the only ones important to the discipline. Observational ecology is more concerned with the values of urgency and personal and social transformation. In order to cope with environmental problems, we need information now. If conventional methods can't meet this need, we must, like any other organism in an environment, adapt by looking for new strategies. We also need ecologists who are deeply connected with nature, real natural places, not computer simulations, not laboratory experiments, who are able, through direct observation, to notice phenomena others might overlook. We also need ecologists with a passion for their subjects of study, with a personal and deep attachment to natural places and a commitment to their

integrity and preservation. Long hours exploring natural places, deliberately searching for interesting phenomena has a way of transforming a person psychologically. The hope is that this kind of transformation can breed the type of ecologist who will inspire others with his or her passion. I'll detail some of the key ideas Sagarin and Pauchard write about regarding observational methods and their promise of a more engaged ecology.

First, observational ecology encourages us to engage with nature using all of the senses. Henry David Thoreau once wrote, "The true man of science will know nature better by his finer organization; he will smell, taste, see, hear, feel, better than other men." (Thoreau, 28). The idea is that one develops higher character traits and appreciation of nature as one becomes deeply immersed in the senses, that is, in direct observation. Immersing oneself in nature builds observational skills others who have not made themselves receptive and open in such a way will lack. This is a theme of Sagarin and Pauchard's chapter "Using all the Senses in Ecology," where they build a case for a broader recognition and appropriation of the senses in ecology. They lament the fact that the senses, especially those other than sight are often met with skepticism in more traditional ecological science where the senses are often regarded as a source of subjective bias. This is shortsightedness, Sagarin and Pauchard think, as the senses cannot and should not be avoided. This is how the natural world reveals itself. They write:

> It should be self-evident that ecological science requires all of our senses. After all, the relationships among plants and animals and microbes and the physical world around them are all crafted in touch—deadly bites and hypersensitive whiskers; in sights—flashes of warning colors and cloaking camouflage; in smells—odors that attract and repel; in sounds—alarm calls and mating songs; and in tastes—the bitterness of protective chemical compounds and the sweetness in nectar. Likewise, ecological study is punctuated with remarkable uses of the senses, visual and otherwise. (Sagarin, 50)

Skilled birdwatchers, for instance, can identify such information as a bird's species, sex, behaviors, and the types of other animals in its vicinity merely by the sounds he or she observes. Each sense creates its own kind of ecology; the wider our use of the senses, the wider our understanding of nature. Sagarin and Pauchard give an account of two ecologists Geerat Vermeij and Daniel Kish, both blind from birth. Vermeij studies primarily through his tactile sense and Kish senses the world primarily through an extra sense: echolocation. As such, they are able to make ecological observations hidden to ecologists who only focus on sight. These are observational skills that arise out of necessity. They are the products of sincere motivation and practice. (Sagarin 47-49) Sagarin and Pauchard contend that even those who rely primarily on sight can train their observational skills through practice. This is accomplished by practicing direct, full-bodied observation in a natural setting. Aside from spending time in nature, Sagarin and Pauchard advocate an important practice for training one's observational tendencies: the maintenance of a field journal. With a field journal one is able to keep track of all of one's sensory observations, as well as documentation of one's personal reactions and reflections. As such, the journal can be used not only to observe nature, but to observe one's reactions to the natural context. They write "Observations, then, become part of a larger endeavor, where our personal experience can be translated into a deepened understanding of nature." (Sagarin, 61)

Second, observational approaches are breaking out of the institutions and opening the doors for new sources of ecological knowledge:

> One of the most notable features of an observation-driven approach to ecology is that data can come from anywhere. There are virtually no limits on the types of observations that might become part of a scientific study of changing ecological systems. Old photographs, a naturalist's field notebook, seafood-restaurant menus from a bygone era, long-forgotten scientific papers, a gambling contest, feathers of a bird preserved in a museum, stories passed down from generation to generation, and even a centuries old pack-rat midden preserved by generations of pack-rat urine have all been used recently in ecological studies. (Sagarin, 75)

This type of information is collected by interacting with local and traditional people who have lived closely to the natural places they inhabit. These might include fishermen, farmers, herbalists, etc. It also might arise from what they term "citizen science," amateur scientific research conducted by non-scientists. There is a real benefit to this kind of inclusion. Sagarin and Pauchard write of the positive feedback cycle that results from this kind of inclusion of the public. More people and perspectives observe nature and its changes. This validates and develops their own sense of biophilia. This in turn simulates their desire to restore and protect natural places and systems.

Third, observational ecology is recognized as a valuable bridge between the ecological sciences and institutional reformation. Particularly, data from observational research can be help inform directions in education, environmental policy, and resource management related to environmental change. This is because they so aptly translate scientific language into the language of the public. We need a way, they write,

> to translate urgent science into language that resonates in all three areas of policy making- the technical, emotional, and sociological. Experimental and theoretical studies of ecology whether designed to meet policy needs or (more commonly) not, simply aren't able to do this because they operate at small scales of space and time, or in a computerized world that can't be touched or smelled or seen in reality. (Sagarin, 137)

Experimental studies help reveal the mechanisms underlying ecological changes at small scales, whereas policy makers are more interested in the outcomes of change at large scales. Experimental studies do, however, still have a place in informing policy. The point Sagarin and Pauchard want to raise is that experimental studies can be supplemented by observational data for a more robust presentation of ideas, one that is more psychologically motivational and more easily understood by nonscientists than a reliance on experimental approaches alone.

Conclusion

We've seen in this chapter that experience provides an important part of education, one that cannot be overlooked if we want to encourage a more engaged relationship with nature. Though conventional education sometimes encourages detachment, there are also creative solutions being advocated. We've also seen that exciting new trends in Ecology towards methods that rely on direct observation and receptivity to natural places have promising potential for pushing individual scientists, the educational system, the scientific discipline of ecology as a whole, and society at large towards a more engaged relationship to nature. Observational approaches have the benefits of contributing to effective problem resolution and promotion of experience of nature. With a more robust science of ecology we can better adapt to a complex world than we can with a narrow, dogmatic insistence on researchers operating strictly through a strong inference or experimental approach. In the next chapter we'll take a step back and look at detachment versus engagement in the context of larger culture.

Chapter 3:
Culture: Detachment, Engagement, and the Child

Introduction

In the previous chapter I showed how detachment and engagement relate to the science of Ecology and scholarship in general. In this chapter I'll illustrate how the pair relate to culture and

children. If we want to understand the effects of detachment on our culture, today's children are an interesting group to examine. That's because they are socialized into and shaped by the culture at its most detached point in history. While adults may be able to recall from their own childhoods a time where they spent most of their free time outdoors--building treehouses, wading through streams, exploring neighborhood woods--many children today are unfamiliar with these kinds of activities and lack a significant presence of nature in their lives. As a result, many children today suffer conditions that Richard Louv collectively terms "nature-deficit disorder." In order to reverse these problems, it's up to adults to introduce children to the wonders of the outdoors, that is, to engagement, and make sure traditional ways of experiencing nature are preserved for future generations. Doing so is also good for nature because engagement creates the type of people who recognize the importance of preservation and restoration and who will work towards bringing nature back into the center of our culture.

In this chapter I'll first introduce a key problem for our culture, the growing idea that nature isn't necessary for the good life, that it can be adequately replaced by anthropogenic substitutes. How can we show a culture growing increasingly distant from nature that genuine experience of nature is indispensable for our flourishing? It's simple. Are children today flourishing? In demonstrating that they are not, I detail Richard Louv's nature-deficit disorder, its forms, effects, and extent. In elaborating this and situating the problem historically, I provide a sketch of the American relationship with nature and the various forms it has taken. In order to transition out of the culture of detachment, I conclude, we need grassroots participation from all kinds of citizens.

The problem of our culture: can nature be replaced?

In Nature By Design, a book about the values of ecological restoration, Eric

Higgs writes a chapter on the the way our cultural institutions shape the public's perception of reality. Restoration of degraded landscapes is important, but it's only half of the goal. We also want to restore appropriate values, ideas, and attitudes. We want to restore our culture's traditions of engagement with one another and with the natural world. This will ensure that restoration in the future will no longer be needed to the same degree as it is today. Degradation can be prevented in an engaged culture.

Higgs explores this idea by looking at the type of experience visitors have in two different types of wilderness, one that is genuine, Jasper National Park in Alberta, Canada, and one that is artificial or synthetic, Disney Wilderness Lodge, a hotel resort at Disney World in Orlando, Florida. Jasper National Park is a paradigm example of the state of the national parks of North America today. Attendance has plummeted to record lows. This is, Higgs recognizes, a symptom of a larger cultural phenomenon, what I've been calling detachment, or what Louv would call nature-deficit. We can understand why parks face this problem by looking at their competition.

The Wilderness Lodge is a surreal vacation spot. Disney designed the park to provide customers with the "wilderness experience." In doing so, they engineered a facility modeled after the wild west, one that is decorated to cater to deeply held American beliefs about wilderness, simpler lifestyles, the frontier, and Native Americans. Guests are made to feel like they're at a national park hotel. This, to Disney, is the wilderness experience people want. It is one that is safe, clean, comfortable, and air-conditioned.

What is the problem? Higgs states it in this way: "By turning wilderness into a conceptual product, one that is adaptable and pliable, Disney is... creating a new reality. The wilderness outside the empire becomes subject to the interpretations of the empire, and our capacities for imagination and action are desiccated." (Higgs, 52) In other words, everyone who visits the park is introduced to

certain ideas about, a certain picture of, nature. Guests may be inclined to prefer this picture to the one offered by genuine nature. Because Disney is such an influential and popular entertainment enterprise, this is a massive kind of programming. It is becoming difficult for the national parks to compete with these expectations and to undo this programming. Higgs writes, "themed experience, whether through television, museums, school curriculums, or theme parks, is causing people to do bizarre things while traveling through parks such as Jasper as walking right up to a black bear munching berries at the side of the road; it disrespects the integrity of that being, and denies knowledge of its fierceness, fragility, and wildness." (Higgs, 55) When we visited Glacier National Park we made similar observations. For instance, we saw a woman try to feed a mountain goat food from a concession stand. We also witnessed park rangers having to tell tourists to keep their distance when a grizzly bear suddenly appeared on the trail. Folks were actually trying to get close for a photograph. Another problem is that people just aren't visiting like they used to. Many people are becoming less tolerant of the real national park experience, preferring the artificial experience of nature instead. Louv mentions this problem too. He asks, "Why visit the glacier when the glacier is reproduced safely and comfortably inside a building or through the virtual engineering of video?" (Louv, 51) Similarly, why go outside when the indoors has so much more to offer? It's more comfortable, more safe, more easily predicted and controlled. Why care about nature at all?

The solution to the problem seems to be this: in order to show that nature offers us something of value that its substitutes cannot, we must look at the effects of life in a detached culture on children, those who have developed exclusively under such cultural guidance. Would we prefer their childhood experiences to our own? As Louv makes clear, when children are raised in the paradigm of electronic detachment, when they spend virtually all of their time indoors in front of screens and aren't allowed or

encouraged to engage in direct experience of nature, they tend to suffer from maladaptive conditions to a greater degree than their more engaged peers.

Nature-deficit disorder

Louv focuses his book on the sources and symptoms of a cultural phenomena he terms "nature-deficit disorder." He does not mean for this to be taken as an actual psychological disorder, such as those in the DSM-5. "Nature-deficit disorder," Louv writes, "describes the human costs of alienation from nature, among them: diminished use of the senses, attention difficulties, and higher rates of physical and emotional illnesses." (Louv, 36) Not every child suffers from nature-deficit disorder and its related conditions to the same degree. The problem, still, is dire enough and widespread enough that it is becoming a serious issue. Louv also notes that the disorder also extends beyond children. Adults, cities, or even cultures can be described as having "nature-deficit." He writes, for instance, "Nature-deficit can even change human behavior in cities, which could ultimately affect their design, since long-standing studies show a relationship between the absence, or inaccessibility, of parks and open space with high crime rates, depression, and other urban maladies." (Louv, 36) Even though our situation may seem grave, Louv is optimistic throughout his book and eager to take on the challenge. For every instance of deficit, he recognizes, there is possibility for natural abundance: "By weighing the consequences of the disorder," he suggests, "we can become more aware of how blessed our children can be--biologically, cognitively, and spiritually--through positive physical connection to nature." (Louv, 36) Louv uses the terms "flourishing" and "thriving" to describe this kind of psychological well-being.

I'm of the opinion that referring to these conditions as a psychological disorder weakens Louv's case and that one could draw the same suggestions and conclusions without appealing to the controversial notion of disorder. Louv admits that the term is contentious and that not everyone will

accept its use. This is because, he admits, calling it a disorder medicalizes the problem; it likens it to a disease or illness. It's not clear that Louv wants us to think of detachment from nature in this way. If he does, this is an unusual type of disorder, one that departs radically from the way psychologists have traditionally understood the term's meaning. As such, he risks alienating his project from other members of his discipline. His use of the term "disorder" also raises the difficult question of what constitutes its opposite, health. This can be avoided if we refrain from the label "disorder" and frame the issue differently. We can more fruitfully frame the issue in terms of the virtue ethics tradition in philosophy where philosophers have discussed the issue of how we ought to live or what constitutes human flourishing. This is a question outside the scope of psychology because psychology is purely descriptive. It can describe phenomena but it does not make value judgements. Philosophy, on the other hand, is normative. What Louv calls a medical disorder we might more appropriately describe as a deficiency in virtue. Our cultural context deprives children of the ability to live up to their potential or to pursue the kind of life they are meant to pursue. If we want to promote the good life, a life where nature and humans can flourish, we need to reform our actions into better conformance with virtue.

How much nature-deficit do children today experience compared to children from the past? Longitudinal data is hard to come by, Louv laments, as previous generations had little reason to monitor children's exposure to nature. It was just a fact of life that kids spend their time outdoors. Still, there are a few interesting studies that have been conducted recently. For one, Louv writes of University of Maryland's Sandra Hofferth study. She found that from 1997 to 2003, a span of just six years, there was a decline of 50 percent in the amount of time children from nine to twelve spent on outside activities like walking, fishing, going to the beach, or gardening. She also found that over a twenty five year period the amount of free time children had in a typical week declined by nine hours. Louv also

mentions the study by Rhonda L. Clements, professor of education at Manhattanville College. She and fellow researchers surveyed eight hundred mothers about the extent of their child's exposure to nature. She compared data with the views of mothers a generation ago. She found that 71 percent of today's mothers recalled playing outdoors every day as kids, whereas just 26 percent said their own children play outdoors daily. Research like this is important for our ability to recognize the extent of the problem, for our ability to assess what we're up against. Louv hopes research like this will continue.

Louv also describes the extent of the problem through his own observations, those collected "in the field," the elementary school classroom. He describes at one point a particular visit with a classroom to talk about spending time outdoors. A fourth-grader told him: "I like to play indoors better, 'cause that's where all the electrical outlets are." (Louv, 10). All of the students had their own thoughts about playing in nature, many similar to this. Playing in nature, he was told, is "Unproductive. Off-limits. Alien. Cute. Dangerous. Televised." (Louv, 10) These are the ideas our culture has instilled in these young minds. They're getting ideas like these from observing the way our culture operates, the way mom and dad spend their time, the things they're taught in school, etc. If mom and dad spend all of their time indoors, it's no surprise that junior will follow suit.

The evolution of the American relationship to nature

In order to situate the problem historically and reveal its roots, Louv writes a chapter in his book on the various historical forms of the American relationship to nature. He starts at the middle of the 19th century and divides the time from then until now into four frontiers. Each frontier is a venture into the unknown and presents novel issues previous generations did not have to come to terms with. The four frontiers are direct utilitarianism, romantic attachment, electronic detachment, and the nature-child reunion.

Louv describes first the frontier of direct utilitarianism. In the mid-nineteenth to early twentieth century, Americans saw themselves as brave explorers and conquerors of the untamed American land. Part of this is the result of the expansion towards the west. To illustrate the character of this era, Louv writes about the historian Frederick Jackson Turner's "frontier thesis" which he presented at the 1893 Chicago's World's Columbian Exposition, a celebration of the 400th anniversary of Columbus' voyage. Turner argued that "the existence of an area of free land, its continuous recession, and the advance of American settlement westward" explained the development of the American nation. (Louv,17) The frontier was the meeting point between savagery and civilization. As evidence, Turner cited the results of the 1890 U.S. Census which revealed the closing of the frontier. This same year the superintendent of the census declared the end of the era of free land for homesteaders. (Louv, 17)

The second frontier, that of the relationship of romantic attachment, was characterized by family farming and a general enthusiasm for the outdoors. This is the era, Louv writes, where The Boy Scouts began, where the great urban parks like New York's Central Park were established, where young girls hoped for a little house on the prarie. This was also a time where many citizens transitioned into urban life. Louv writes of an event in 1990 that marks the transition from the second frontier to the third. The Washington Post described the event as "a symbol of massive national transformation." (Louv, 18) This is the year when the federal government dropped its annual survey of farm residents. The data was deemed no longer relevant, as the farming population had dropped from 40 percent of US households in 1900 to 1.9 percent in 1990. (Louv, 18) The baby boomers, those born from 1946-1964, Louv writes, are the last generation of Americans to share a deep familial attachment to America's land and water. Even those who lived in cities usually had relatives who farmed in the countryside. (Louv, 19)

Louv's third frontier, the frontier of electronic detachment, is of greater significance for our understanding of the American relationship to nature than the first two frontiers, as the changes this frontier has brought are more severe and unprecedented than the ones previous generations faced. This frontier, he writes, is characterized by several trends. I'll detail a few.

First, there is a widespread severance of the public mind from our food's origins. While farming, hunting, fishing, and other forms of subsistence were once a central part of cultural life, today fewer people are involved in these activities. There are certain positive trends, such as a rise in vegetarianism or consumption of goods from health food stores, but fewer people today are directly involved in cultivating their own food. The family garden has been replaced with shrink-wrapped, lab-produced food. The convenience of fast food or microwave dinners are increasingly replacing home cooking and family dinners. (Louv, 20)

Second, there is a disappearing line between humans, animals, and machines. Louv mentions as an example a project from MIT in 1997 where a human ear was grown out of the back of a mouse. Ten years later, the Department of Animal Biotechnology at the University of Nevada School of Medicine created a human-sheep chimera, a being with the body of a sheep and half-human organs. Researchers at Northwestern University created a tiny robot with the brain stem of a lamprey eel. Research projects like these are becoming more and more common. This has a serious effect on how children understand nature. Louv writes: "We can no longer assume a cultural core belief in the perfection of nature. To previous generations of children, few creations were as perfect or as beautiful as a tree. Now, researchers flood tees with genetic material taken from viruses and bacteria to make them grow faster, to create better wood projects, or to enable trees to clean polluted soil." (Louv, 23) Louv doesn't mention these, but we might also think of how many jobs humans used to do that are

today quickly becoming replaced by machines. From self-checkouts at grocery stores, robot-run factories, and drones delivering packages to customers, this phenomenon is becoming increasingly widespread.

Third, there is increased urbanization and the rise of suburbia, or urban sprawl. The dominant type of development today, Louv writes, features interchangeable shopping malls, faux nature design, and rigid control by community covenants and associations. In America, Louv writes, we have a strong perception that "urban" and "wild" are opposites. Wild places exist outside the city. If we want to experience wild places we might have to drive a while. This is contrasted to the situation in some European cities that are increasingly incorporating green design in many areas. (Louv, 25) Even in suburban areas, nature is often hard to find. Neighborhoods answer to homeowner associations that place strict limitations on the freedoms of neighborhood kids. Threats of lawsuits from injury keep neighbors from allowing kids to play on their property, to climb their trees, for instance. Children, if they play outside, are in many cases confined to organized sports teams on manicured soccer, football, or baseball fields. The problem is that children need unstructured time in nature, time where they can explore freely and use their imaginations. Increasingly this is becoming unavailable.

Trends like these illuminate the problem and show us what work needs to be done. The question now is this: Where do we go from here? How do we get there?

Building the nature-child reunion

If we want a more engaged world, it's time to get to work. A central message in Louv's book is that everyone has a place in helping build a culture of engagement, in bringing about the "nature-child reunion." Creating a culture that is deeply engaged with nature, as we also saw in the previous chapter, means engaging with the community. Schools, businesses, neighborhoods, church groups, families,

friends-- these are the groups that will make changes, first local, then global. We can all benefit from a greater exposure to nature. Already a grassroots movement is forming from many kinds of interest groups. Louv writes: "Parents, grandparents, and other relatives are the first responders, but they cannot resolve society's nature-deficit disorder by themselves. Educators, healthcare professionals, policy-makers, business people, urban designers---all must lend a hand." (Louv, 359)

At the end of his book Louv includes a section titled "A Field guide to Last Child in the Woods." This is a practical guide to the formation and intensification of a movement, a network or plurality of approaches and interests. He includes in this a section "100 Actions we Can Take" that includes recommendations for concrete, practical actions we can take to make it happen. Some of these recommendations are for activities that engage children directly, others are more indirect. These types aim to reform institutions and the way they shape our culture. In order to recognize what an engaged culture might look like, let's look at a selection of some of these types of actions.

Some of my favorite recommendations he makes for directly engaging children with nature are as follows: maintain a birdbath, build a bat house, tell your children stories about your special childhood places in nature, make a leaf collection, camp in the backyard, go for a family walk when the moon is full, raise butterflies. (Louv, 360) These are actions that require little preparation, are inexpensive or free, and offer great reward in that they inspire wonder and appreciation. Louv hopes we can examine these kinds of recommendations and come up with our own. Every particular place has unique opportunities. Certain practices might be more meaningful than others. Try out a bunch and see what works. When children become adults, they'll be able to look back on these positive memories as reasons to value nature. By encouraging actions like these today, we can ensure there will be stewards of nature tomorrow.

There are also great recommendations for various professionals in helping to reform institutions. By reforming institutions to focus on helping bridge the gap between children and nature, we create the cultural conditions where children will learn the values of nature from the very beginning. If there is an urban park a few blocks away, for instance, children living near that area will much more likely begin to accumulate meaningful experiences of nature at an early age than their peers who do not have access to that same kind of infrastructure. Here are a few recommendations sorted by type.

For healthcare providers:

> In your community advocate children's contact with nature as integral to healthy development. In the ongoing search for answers to child obesity, attention-deficit disorder, and childhood depression, health care researchers, practitioner, and public health officials should emphasize free outdoor play, especially in natural surroundings, as much as they now do organized sports. (Louv, 177)

For teachers:

> Ask your students to take the nature-deficit disorder survey created by Dave Wood, an eigth-grade teacher at Sidwell Friends School in Washington D.C., for his students and for National Environnelta Education Week, the survey is available at www.eeweek.org/resources/survey.htm (Louv, 378)

For government officials:

> Adopt policies that keep farming families on their land, strengthen land trust law, and decrease property owner's liability when they allow children to play on open land. (Louv, 382)

For those interested in bringing it all together:

> Break down the barriers: promote dialogue among people from different cultures, as well as among individuals who speak different professional languages, such as pediatricians and landscape architects, public health professionals and park and recreation officials, bike and pedestrian advocates, and arborists, hunters, anglers, residential developers, and environmentalists. Engage faith-based communities. (Louv, 384)

Conclusion

In conclusion, there is hope for a new era in the relationship of children to nature, a restoration of values and practices from a more engaged era. Through popular participation on all levels of our

culture, we can begin to create a network of people dedicated to reversing the trends of nature-deficit disorder. We can introduce nature to children through simple practical actions. By also reforming our institutions we can prevent future problems for today's children and ensure that nature will be preserved, restored, and placed back into the center of our daily lives. This stems from a recognition that our health and well-being are inseparable from nature's. When the natural places we depend upon are jeopardized, we are too. When nature abounds, we can too. Engagement provides us with a more fulfilling life both for our culture as a whole and for each individual member.

The thesis has now come to a close. As I have hopefully sufficiently demonstrated, the task of environmental philosophy in a complex world with urgent environmental problems is to articulate and illuminate the cultural context and the values we hold. This style of environmental philosophy is based on pragmatism and seeks to bridge the gap between professional academia and the larger community. Encouragement of engagement, direct experience of nature, is an important way environmental philosophers can help reform policy and inspire a recognition of natural value in culture and scholarship. Only when we become sufficiently engaged as scholars and ordinary citizens can we ensure a future where nature is preserved, restored, and placed back into the center of our daily lives where it belongs.

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