

RIDING FOR GAIA: EXPANDING ECOLOGICAL
AWARENESS THROUGH CYCLING

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RIDING FOR GAIA: EXPANDING ECOLOGICAL
AWARENESS THROUGH CYCLING

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Chapter I

Introduction

My thesis is that committing to a lifestyle in which cycling is a valued component contributes to interest in the environment and the basic ecological understanding that is foundational to the formation of an ecocentric ethic. The thesis and data presented in this paper are intended to support and build upon arguments made by James Lovelock, Stan Rowe, and other members of the philosophical and scientific community cited here who have written to illustrate the ethical priority of Earth. The arguments presented here are, for the most part, in opposition not only with the traditional human focused (anthropocentric) worldview that dominates modern society, but also many well-intentioned green movements presented in spheres of political and social activism. The reason for this widespread rejection of traditional values is that the problems plaguing our planet and threatening our existence are systemic to common thought and are perpetuated by our language and culture.

This thesis is presented over the course of six chapters, including this introduction. The second chapter is a review of relevant literature comprised of discussion of summaries of scientific and philosophic works. Following the literature review there is a chapter in which the lifestyles of different types of cyclists are discussed. The third and fourth chapters are a description of the methodology employed to gather and analyze data relevant to this thesis and the presentation of that data. Finally, in the conclusion and discussion chapter the themes discovered in the findings are analyzed for significance

Chapter II

Literature Review

The Anthropocene

At the beginning of the twenty-first century Paul J. Crutzen and Eugene F. Stoermer proposed that the human race had moved the planet into a new geologic epoch that they called “The Anthropocene” (Deschênes). Following their proposal, which was published by the International Geosphere-Biosphere Programme in 2000, reference to the Anthropocene has become more frequent in scientific literature as well as the mainstream media, despite the fact that it is still being reviewed by the International Commission on Stratigraphy (Ellis). Crutzen and Stoermer, both accomplished environmental scientists, proposed that the human race has dominated and continues to dominate the planet in such a way that it has sufficiently altered Earth’s history to merit official recognition within the scientific community. Recent publications aimed at the public, such as “Welcome to the Anthropocene”, compare the human influence on the planet to “the great forces of Nature” (Deschênes). The strain of supporting the ever expanding and consuming human population has disrupted the biological, chemical, and geological cycles that sustain all life as we know it.

Since the driving forces behind global change are typically be linked to physics, chemistry, or biology, scientists are still developing an approximate timeline for the beginning of the Anthropocene because of the socially driven nature of its inception. Before, the geologic timescale relied mostly on fossil evidence, lithographic observations, and other physical scientific markers in order to distinguish periods of

global history. Now, for the first time the lines of demarcation cannot merely be seen, they must be estimated using social models and an understanding of the nonlinear processes of human and environmental coevolution.

Most scientists associate the beginning of the Anthropocene with the Industrial Revolution in the late nineteenth century and what is called “The Great Acceleration” in the mid twentieth century, but a recent publication by the International Geosphere-Biosphere Programme (IGBP) suggests that there may be evidence that would place the beginning of the Anthropocene as early as eleven thousand years ago (Ellis). The International Geosphere-Biosphere Programme is the very same group that published the first proposal of the Anthropocene by Crutzen and Stoermer in 2000, and is a scientific group dedicated to developing a greater understanding of changes within global processes. According to Erle C. Ellis, author of the publication “Using the Planet” (Ellis), some environmental scientists believe the use of land for the development of agriculture in the early Holocene set the stage for the global changes we observe today. The fundamental principle behind their idea deals with a concept called “land-use intensification” (Ellis). “Put simply, humans don’t make an effort to use land efficiently unless they must, for example, to feed a growing population with the same amount of land or to satisfy social or commercial demands” (Ellis). Following that line of logic, scientists concluded that less dense, less developed groups use the most land per person. The concept of land-use intensification allows room for the possibility that much of the land inhabited by humans in the early Holocene was being used, and supports the claim that the Anthropocene began with the birth of agriculture.

The advent of agriculture allowed the human population to grow well beyond the limits put forth by hunting and gathering, but the industrial revolution allowed for what environmental scientists are calling “The Great Acceleration”. According to a publication by the IGBP titled “Planet under Pressure” (Gaffney, 2012) since the industrial revolution 40% of known oil reserves have been depleted; this is solar energy generated and stored over hundreds of millions of years. With the stored solar energy that the human race has borrowed from prehistory the population has grown and extended to every corner of the planet with little thought to what will happen when the fossil fuel reserves become too scarce to support us. Today we can see the political and economic unrest throughout the world because of such scarcity, and fossil fuel reserves are probably the least of our worries. Expansive land use and the fact that over half of all accessible freshwater has been allocated for human uses combined with negligent resource depletion across the planet has led to a historic new age for the planet; for the first time in Earth’s history a great extinction has been brought about by the activities of one species.

Unfortunately, the rape of natural resources in the name of humankind is justified and encouraged by the condition of the human experience. In several schools of philosophy, classic and contemporary alike, man either dominates as the king of the natural world because he can contemplate himself, or is completely isolated from his environment, struggling autonomously through the void of existence. The common themes of isolationism, individuality, and autonomy throughout these philosophies have been developed and fastened tightly to Western culture ever since Descartes and Isaac Newton. When this “selfish perspective” was finally put into words by many

philosophers in many different ways it resonated with the contemplative mind of most humans as though they had been thinking it the whole time, but were incapable of bringing the idea to fruition; it was just on the tips of their tongues. Since then, Western culture has been saturated with the overtones of an anthropocentric ethic. From this perspective -- the most easily grasped, self-centered perspective -- humankind has thrived, making great leaps and bounds in the advancement of technology, medicine, science, and social organizations such as politics and religion. But the Anthropocentric view perpetuated by Western Culture has justified greed and gluttony, and in our shortsightedness, we have betrayed our home and provider: Gaia. Under an anthropocentric ethic, there is little reason to worry about long term resource management, sustainability, and natural conservation because we are not looking beyond ourselves, therefore with humankind at the center of importance, understanding our place within natural Earth systems is impossible.

By shifting life's value away from our own isolated existence towards creating, developing, and maintaining a symbiotic relationship with Nature our ethics become ecocentric. The concept of Ecocentrism places the ecosphere, or all the biotic and abiotic components that comprise the planet, at the center of importance. Shifting value away from our own needs and desires requires fundamental personal and perceptual change. It cannot happen overnight. In order to begin this shift in focus, an individual must reevaluate his or her priorities and sense of self in such a way that the boundaries between man and nature seem to evaporate. The trick to this type of perceptual shift deals with the recognition that such separations from nature is merely a social construct,

developed and reinforced by nearly every aspect of modern science, culture, and even language. A shift of this type would change the meaning of progress, which is generally associated with consumption in the modern world, towards understanding our place within the natural systems of the planet. Once we can see past the separation of man and nature, an ecocentric ethic becomes easy to adopt; since we are an integral part of the whole that is nature, we can place ourselves at the center of importance along with the rest of nature.

The Philosophy and Science of James Lovelock

The natural cycles being disrupted by human impact are connected in complex ways and the Anthropocene marks a period of vast uncertainty in Earth's history. To name one of an incalculable number of examples, the deforestation of what were once heavily forested rainy areas leads to desertification because of the way the water cycle interacts with dense vegetation, specifically evaporating water from leaves in trees to create cloud coverage and precipitation. When the relationship between the water cycle and the forested area is ecologically healthy, they act to regulate one another and allow for more resilient conditions for that ecosystem, and since ecosystems are not closed systems, impacts amongst some reverberate through many. James Lovelock studied the self-regulation of the planet and his observations led him to formulate The Gaia Theory, concluding that the planet may be looked at as a living superorganism (Lovelock, 1973). To approach environmental issues in a fresh and pragmatic manner he suggested, in his book "Healing Gaia: Practical Medicine for The Planet" (Lovelock, 1991), that a

physiological perspective of the planet may be beneficial. He proposed that modern science tends to be more mechanistic in the way it looks at small parts in order to attempt to grasp an understanding of the greater whole. Based on the Gaia Theory, Lovelock claims that “Earth is sufficiently like a living organism to be subject to illness and injury” (Lovelock, 1991), and given the physiological perspective, human interaction and disruption of the functions of natural cycles, humans aren’t unlike a pathogenic microorganism. When an organism becomes a host for a pathogen, there are only four possible outcomes: 1) Destruction of the pathogen, 2) chronic infection, 3) destruction of host, and 4) symbiosis (Lovelock, 1991).

As the population continues to chronically infect the planet, it is reasonable to foresee the destruction of either the human pathogen or the planet host. Obviously symbiosis is the most beneficial outcome for the human population as well as the planet, but achieving a symbiotic relationship on such a grand scale seems impossible given the amount of ignorance, arrogance, and self-entitlement found present in the human perspective. However, Lovelock offers an example in evolutionary biology as a solution; the extracellular origin of mitochondria is an example of how coevolution can achieve symbiosis between pathogen and host. Once an alien to our bodies, mitochondria now serve important functions to maintain human homeostasis. Lovelock rejects the notion of planetary stewardship, a form of global management, because “it implies taking charge of the Earth. [He] proposes instead that we learn to live with the Earth as a part of it” by understanding our place within Earth’s natural systems (Lovelock, 1991) and mindfully coevolving with those systems. But the human disposition encourages focus on short-

term gain and an egocentric ethic which, when culminated across the global population, results in an age of anthropocentricity. Without changing the very way we define ourselves, any solutions would merely be shortsighted.

One way that Lovelock suggested we may change our perspective is to understand the advantages of a symbiotic relationship with the planet; “To make you feel for Gaia, or for the Earth, as you would about your own body” (Lovelock, 1991). While managing the planet poses a difficult, if not impossible task, regulation of the way we interact with the environment as individuals is much less problematic and may yield a more positive and widespread change. When an individual makes a lifestyle change they have the opportunity to pass their experiences along to other people they know, friends, parents, or children. When those opportunities get passed along to new people, they in turn have a similar opportunity to pass their slightly different experiences along. In this way human relationships mirror the relationships that natural systems and their functions hold to the Earth. As I have learned from Dr. Lopes at Texas State University, the framework of reality is made up of a complex network of relationships that make up a larger whole. Positive change amongst individuals can snowball, growing exponentially and uniquely as it is passed around. This is the perspective that will allow the human population to develop a symbiotic relationship with the planet, and with this perspective, just as in Nature, the slightest changes in one individual’s lifestyle can have massive effects on all of reality.

The Inclusive Ethics of Stan Rowe

The traditional view of the planet we inhabit is that it is a life supporting system; a chunk of rock that certainly isn't alive in any way. Stan Rowe, in his paper "The Living Earth and Its Ethical Priority" (Rowe, 1994), suggests that basic ecological understanding takes the traditional view of the planet and flips it on its head. In his paper Rowe states that the planet is simply a higher level of organization of life, not just a passive arc, while attempting to erase some of the distinctions between the organic and inorganic components that comprise the planet.

By observing the countless ways the so-called "inorganic" components of Nature (i.e. water, air, sediment) play a part in the systems that provide conditions for life, we may conclude that their separation from the organic/living components ought to be reassessed. According to Rowe, the coevolution of the many inorganic/organic processes that are represented in the Ecosphere "link its improbable air, water, rocks, sediments, and organisms" (Rowe 1994). To better illustrate this relationship, Rowe makes an analogy to organization in biology; just as cells comprise tissue, which comprises organs, and go on to make up an organism, the Ecosphere is a higher level of organization of organisms and the other components of their environment, which are identified as inorganic or abiotic. Here lies another problem that Rowe brings up: Without a concrete definition of life, we cannot justify granting it to some components of the Ecosphere, while arbitrarily denying it from others.

When trying to determine whether tissue is living or dead biologists are required to consider its function within the organism. Following that analogy, ecology considers

the “inorganic” components’ functions in collaboration with organic components to make up the living Earth. They are equally integrated in this system, yet their apparent lack of animation renders them less valuable according to traditional views. Without taking up the difficult and improbable task of defining life, we can identify that the source of life comes from the integration of all the components of the ecosystems of Earth. In this way, ecological consideration has identified Earth as the source of life, highlighting the importance of an Ecocentric ethical system of values. According to Rowe, “the logic of ecology suggests that ‘Life’, though undefinable except as an organizing potential, is a qualitative characteristic of Earth and its spatial segments.” No longer is there a need for organisms to own exclusive rights to the concept of “life”.

Regarding the spatial segments of the Earth that exhibit characteristics of life (which are simply ecosystems), Rowe seeks to perceive relationships rather than fragments, through “fundamental thought”. On its most basic level, fundamental thought is simply thought that takes context into account to achieve understanding. This type of thought allows us to peer through the blinds of limited self-centered perception to put together a more honest depiction of reality than the one we are typically awarded using only the faculties of our senses. When an ecosystem is observed, and those observations are then analyzed with fundamental thought, it becomes apparent that organisms are tethered to their environment; organisms become a part of an ecosystem, rather than the object of an ecosystem (Rowe, 1994). This type of thoughtful observation helps bolster the notion that abiotic components of an ecosystem are more than just “dead environment”, they are integral to life. Furthermore, this type of thought contributes to a

change in the way values are assessed in nature.

Rowe utilizes this type of thought in order to make an argument for a reevaluation of ethics. According to Rowe, the common human ethics are formed by extension; value radiates outward from the individual, placing the highest priority on things closest to the individual (Rowe, 1994). He suggests rather, that with the enhanced perception outlined in the previous paragraphs, a greater understanding of the interconnectivity of everything leads to an ethical system of inclusion, in which all things have intrinsic value because of their relationship to one another.

Deep Ecology, Gestalt Ontology, and Leopold's Land Ethic

Many of the themes discussed in Rowe's 1994 essay on the ethical priority of the planet relate strongly back to the writings of his predecessor and the father of the Deep Ecology movement, Arne Naess. Upon the foundation of his ecological philosophy, or Ecosophy, Naess makes a strong distinction between the Shallow Ecology movement, which relates to the modern/reform environmental movement that was gaining momentum at the time that Naess founded these principles, and the Deep Ecology movement. In short, the Shallow Ecology movement focuses on the pragmatic issue of policy change in the political sphere. According to Naess, Shallow Ecology focuses on fighting against pollution and resource depletion in order to maintain "the health and affluence of people in developed countries" (Naess, 1973). Although inherently anthropocentric, Naess is quick to recognize that members of this movement can be friends to the Deep Ecology movement, however he advises that one must be wary not to

overlook other evils for the sake of policy changes.

In describing the tenants of the Deep Ecology movement, Naess employs similar characteristics to Rowe's discussion of the way ecological knowledge affects one's perception. Naess makes reference to "the ecological field worker" as someone with a "deep-seated respect, or even veneration, for ways and forms of life" (Naess, 1973). The tenants of Deep Ecology are those of the ecospheric ethic that have been broadly applied to a social, political, and economic movement. Naess employs the familiar notion that rejects the separation between humankind and nature in favor for a deeply relational holistic image. He characterizes this relationship by making reference to Gestalt theory, a theory that is vital to forming an ecospheric ethic (Naess, 1973). Gestalt theory, as employed by Naess, is the theory that the sum of two parts, or the constituents of those parts, transcends the parts as they are separated. In other words, the intrinsic relation between two parts is part of their essence; when separated (or perceived to be separate) the parts are distorted (Sessions, 1997). This concept is very similar to Rowe's mention of fundamental thought, mentioned in the previous section.

He goes on to describe the importance of "Biospherical Egalitarianism", which amounts to allowing all living things the "equal right to live and blossom" (Naess, 1973). This is recognized by Naess as a principle, not a law, since coexistence and coevolution on the complex level must include competition to some degree. He connects this to the ecological principle of diversity and symbiosis, which recognizes that stability is derived from diversity, however this concept reaches beyond the scientific idea of biodiversity to include societal and cultural diversity.

Prior to Naess' 1973 essay in which he described the Deep Ecology Movement, Aldo Leopold (Leopold, 1949) called for a change in ethics that would reorient humankind's role in nature.

In short, a land ethic changes the role of Homo sapiens from conqueror of the land-community to plain member and citizen of it. It implies respect for his fellow-members, and also for the community as such (Leopold, 1948)

This excerpt from his 1948 book titled *A Sand County Almanac* describes the same ecocentric principle of innate responsibility from membership as described by Lovelock, Rowe, and Naess. Leopold goes on to foreshadow the Deep Ecology movement in his declaration for internal perceptual change.

No important change in ethics was ever accomplished without an internal change in our intellectual emphasis, loyalties, affections, and convictions. The proof that conservation has not yet touched these foundations of conduct lies in the fact that philosophy and religion have not yet heard of it (Leopold, 1948)

Both Leopold and Naess recognized early on this notion that deep and universal changes necessary would require the marriage of science and philosophy. Between the knowledge of that marriage and the experience of a conscious relationship with the environment ecospheric tendencies emerge almost spontaneously.

Chapter III

A Brief Phenomenology of Cycling

Activities like cycling foster fundamental thought by exposing the rider to the environment with which they interact and by applying context to their actions. This phenomenon is subtle and sometimes unconscious to the cyclist, but the data gathered for this thesis supports it. The argument is simple: take Rowe's argument for the Earth's ethical priority a step back. Rowe says that ecological understanding leads to Ecocentrism, and individuals who cycle are more likely to possess the ecological appreciation that is the catalyst of ecological understanding.

Cycling is a unique phenomenon. As a form of recreation it offers an escape from the coddling clutches of modern amenities, exposing the rider to topography, wind, precipitation, and temperature fluctuation. As a form of transportation it offers an alternative and more detailed view of the rider's immediate environment, whereas drivers tend not to be engaged as their surrounding pass them by in a blur. The urban cyclist fuels himself with a vegan burrito, not fossil fuel, and he gloats about it. But the plight of the urban cyclist has its dangers, so he makes his voice heard to those who back blindly out of parking spots and sees the driver well before he is seen. The mountain biker fuels herself with superfoods like bananas, avocados, the occasional oatmeal cream pie, and craft beer; she knows what the local soil tastes like because of the endo-faceplant she performed while getting acquainted with the trail. For a bicycle tourist, the bicycle is home, and like a monk or perhaps an enlightened bum, he rides across state lines, up and down the coast, in order to rediscover what America means to him, and hopefully what

he means to himself.

Cyclists develop a respect and reverence for the fuel they put in their bodies, understanding what quality does for performance. They take care when maintaining their machine, keeping in mind that the level of care they input will correlate with the level of performance output; a quick fix usually results in a quick break, and an understanding of the functions of each part of the bicycle is necessary for safety and longevity. Experience yields an understanding of their own physiology, knee problems can lead to back problems, and an ill fitted bike can have serious repercussions.

Developing a personal ecocentric ethic is like finding a unique place in an ethical niche; each set of ethics would be unique to the individual that developed them based on their relationship with the environment and other individuals. It would follow that groups of individuals with their unique sets of ethical guidelines interacting with one another would make up an ethical ecosystem, or as I have chosen to call it, an “ethosystem”. The interaction of all “ethosystems” across the globe would make up the “ethosphere”. When several systems interact in Nature we can observe what scientists call “emergent properties”. Emergent properties are simply characteristics or qualities of the relationship between systems that could not have been predicted based on the knowledge of one of the involved systems independently; in other words, these qualities emerge from complex relationships. We can observe emergent properties in order to diagnose the status of systems in much the same way as a physician would observe both homeostasis of illness. Generally, in a healthy system, these emergent properties present themselves as seemingly spontaneous order or organization from apparently disordered interactions.

Examples of this phenomenon range from flocking behavior in animals such as birds or fish swimming in schools to homeostasis maintained within cells, organisms, and living systems. An example of a symptom of illness within a system is algal bloom in reaction to nitrogen and phosphorus runoff in water features. Flooded with nutrients from human pollutants, the algae population grows so dense and expansive that sunlight cannot pierce the top layer of water, leaving plant and animal life underneath to die.

If we accept the premise that the separation between man and nature is an illusion then it should follow that the interactions of ethosystems ought to behave like living systems in nature. A healthy ecosystem is characterized by balance, whereas an unhealthy ecosystem is unbalanced. Currently our ethosystem is exhibiting unbalance, which is a direct consequence of anthropocentricity. Through irresponsible land use and resource depletion we are creating concrete dead zones throughout the majority of the planet which diminish the biodiversity that is so important to the health of an ecosystem. This is displayed not only through our disrespect towards the natural world, but also through the economic and social unrest throughout our population as well. Because our population has grown to such a powerful force we must reestablish balance in our ethics before balance is brought upon us in the form of catastrophic natural disasters. Eventually, if a pathogenic microorganism runs unchecked through a host, the host will grow unhealthy and die, and the pathogenic microorganism will be forced to find a new host. While the idea of populating distant planets is popular in science fiction, its practicality is questionable at best, absolutely unnecessary. The idea of hopping from planet to planet, leaving a path of destruction in our wake is absurdly irresponsible.

The ethosystem of the cycling community is moving toward a more ecocentric perspective, perhaps it has always been that way. Riding a bike everyday instills in us an intuitive connection to one another and to our environment. When you ride your bike in an area there is a unique sense of connection that is personal; you feel proud and protective of your local environment. Despite the vastly different ways to ride, when someone engages in cycling and commits to the lifestyle associated with it, there are certain qualities that they acquire.

Chapter IV

Methodology

The data presented in this thesis is based upon a voluntary and anonymous survey of cyclists, of whom the majority reside the Southwest region of The United States. The survey was brief, with only ten questions, in order to remain convenient for the participants. The questions employed focused on 3 main themes including specific information pertaining to the participants' involvement in the sport of cycling, participants' involvement in environmentally conscious practices such as recycling and volunteering, and questions regarding their relationship with the environment and its priority to them personally. The questions from the survey are listed at the end of this chapter. Based on their responses to the questions regarding their participation in cycling, they were separated into three groups: novice cyclists (less than 5 hours of cycling per week), intermediate cyclists (between 5 and 10 hours of cycling per week), and advanced cyclists (more than 10 hours of cycling per week). The participants were separated into these three groups in order to recognize how their commitment to cycling correlated with the differences in their environmental practices and their relationship with nature.

In order to find participants for this study I reached out to community cycling groups, competitive cycling clubs and teams, bike shops, and individuals who I have met in the cycling community. They were encouraged to share the survey with their teammates and fellow cyclists, and because the groups of cyclists I reached out to directly live in Texas, it is safe to say the majority of the participants study reside in the Southwest region of The United States.

Detailed Themes Employed in Survey Questions

Not only were the participants in this study asked about the approximate time they spend riding their bike for a given week, there was also questions regarding the type of cycling they participate in most often and whether or not cycling was their primary mode of transportation. The question regarding type of cycling served to recognize that not all who cycle do so in the traditional sense. Many participants race in cyclocross races, sort of a hybrid between trail and road cycling, and others play bike polo. Other options included BMX, mountain biking, and commuting. Participants were also given the option of indicating that they participate in several different forms of the sport. The question regarding cycling as a primary mode of transportation served to recognize that not all cyclists ride for fitness or competition; many either do not have a car, or make an effort to ride instead of driving for either financial or environmentally responsible reasons.

Participants answered questions about their recycling habits and whether or not they committed time to volunteer their services in either conservation efforts, cleanups, or environmental clubs. The hope with these questions is that the data gathered would offer some more concrete evidence of a positive relationship with the environment, rather than simply stating that they do in fact care about nature. This data would also identify individuals with environmental tendencies outside of the realm of cycling in order perceive whether or not personal practices were related to exposure to the environment through cycling.

Finally, the participants were asked questions that addressed the philosophical themes of environmental ethics, separation between humankind and nature, and their

personal priorities around time spent outdoors. These questions get to the heart of the questions asked in this thesis. By indicating how they feel about humankind's integral participation in the natural community and how that affects the valuation of environmental protection the participants are afforded the opportunity to reflect on their relationship with the environment within the rhetoric of ecological logic.

After the 303 responses were collected and the survey closed, the responses were separated into the three previously mentioned cycling groups. Upon separating them into three groups the responses were compared in order to recognize patterns and differences throughout, as they related to time spent cycling per week. Once patterns and differences were identified they were run through a Chi square test in order to determine their statistical significance.

Survey Questions

1. How often do you ride your bike?
 - a. More than 10 hours per week.
 - b. 5 to 10 hours per week.
 - c. Less than 5 hours per week.

2. Is cycling your primary mode of transportation?
 - a. I don't own a car.
 - b. Yes, but I own a car.
 - c. No, but it's my secondary mode of transportation.
 - d. No, it's just for fun.

3. What kind of cyclist are you?

- a. I'm a renaissance man/woman! (At least 2 different types of cycling)
- b. I'm a road cyclist.
- c. I'm a mountain cyclist.
- d. I ride cyclocross.
- e. I ride a track bike.
- f. I ride BMX.
- g. I play bike polo.
- h. I'm a commuter.

4. Do you recycle and are you confident that you recycle properly?

- a. I always recycle am 100% confident that I recycle properly.
- b. I always recycle and I think I recycle properly.
- c. I recycle the majority of the time and I try to recycle properly.
- d. I recycle sometimes, but I'm not sure if I recycle properly
- e. Nobody recycles properly, so I don't bother

5. How often do you participate in conservation efforts (i.e. trail maintenance, river cleanups, garbage pickups, etc.)

- a. All the time (At least 6 times per month)
- b. Often (about 4 times per month)
- c. Whenever the opportunity to do so presents itself (1 or 2 times per month)

- d. When it's convenient to do so (a few times per year)
 - e. Never
6. Are you a part of an environmental group or conservation club?
- a. No, but I would consider getting involved.
 - b. No, and I am not interested.
 - c. If yes, please type the name of the group here with a brief description of its mission.
7. How would you personally prioritize the importance of spending time outdoors?
- a. Time outdoors is a necessity, I'll go crazy if I don't get enough of it.
 - b. Time outdoors is important, but some things (i.e. work, family) are way more important.
 - c. Time outdoors is fun, I consider it more of a leisure activity than a priority.
 - d. Time outdoors isn't very important to me.
 - e. I'll only go outside if I have to.
8. Please select the statement that you agree with most.
- a. Humanity is an integral and inseparable part of nature.
 - b. Nature and humanity have some overlap, but are mostly separate.
 - c. Humanity and nature are completely separate.
9. Please select the statement that you agree with most.
- a. As members of the natural community we have an innate responsibility to protect the

environment; we preserve nature for its sake and need no justification for doing so.

b. Humanity ought to act as stewards for nature; we need to plan and manage nature in order to protect it.

c. The natural world is here for the betterment of humanity, and therefore we should protect it so we may continue to utilize its resources.

d. As long as nature doesn't bother me, I'll leave it alone (i.e. wildlife in your backyard).

e. Humanity can survive without nature, so we need not preserve it.

10. In what other ways do you strengthen your relationship with the natural world? (i.e. Annual camping/backpacking trips, gardening, hiking/trail running, kayaking/canoeing, etc.)

Chapter V

Findings

Before being able to truly understand the data gathered it is important to gain perspective about the three groups of cyclists. According to the findings, expert cyclists are more likely to depend on their bike as a primary mode of transportation than novice and intermediate cyclists, and most likely they will participate in competitive (but not necessarily professional) cycling. The participants in this group were comprised of 25% road cyclists, 9% commuters, and 3% bike polo players. The remaining members, just shy of 63%, indicated that they participate in several forms of cycling. These cyclists will typically adhere to a strict regimented schedule and ride rain or shine; for most members of this group cycling serves as their main source of fitness, socialization, entertainment and pleasure. They ride every day before work, after work, and on weekends (sometimes all day). Very few aspects of their daily life aren't touched by cycling.

The intermediate group represents cyclists such as myself, who alternate between riding and driving while competing occasionally. According to the survey, about half use their bike as a primary mode of transportation. The remaining cyclists either ride for recreation or as a secondary mode of transportation. About 51% of these participants practice multiple types of cycling, 28% of them identified themselves as road cyclists, and the rest were split relatively evenly amongst the commuter, bike polo player, and mountain biker categories. The sport still serves as a source of fitness, socialization, entertainment, and pleasure, but the absence of a strict riding regiment leaves time open

for other types of experiences. While many aspects of the lives of individuals in the intermediate group are affected by cycling, there is much less intensity than in the expert group.

The novice group is made up of mostly casual cyclists who generally use other means of transportation and typically ride their bike as a leisure activity. Only 17% of them indicated that they use cycling as a primary mode of transportation, and of that 17% they are most likely covering short distances considering their indication that they ride less than 5 hours per week. According to the survey, the majority of these individuals identify as either a commuter or a road cyclists, with the rest split up amongst the multi-cyclist, mountain bike, and bike polo categories. Their lifestyles are the least affected by cycling.

While many people become cyclists in order to cut down on the waste they generate, the majority of the participants in this survey enjoy cycling for the sport itself and would not necessarily consider themselves “environmentalists”. This became apparent in the findings when I observed that about 90% of participants indicated that they have never belonged to an environmental organization or club and about 75% of them either volunteer their time towards conservation efforts when convenient (less than once a year) or not at all. This data may seem contradictory to the connection to nature discussed in the hypothesis, however when the responses were analyzed according novice, intermediate, and expert levels of participation in cycling, new dimensions of information and relationships were uncovered.

Keeping in mind that members of the expert cyclist group commit so much of

their time to cycling, and rarely commit themselves to other hobbies, it is surprising to learn that of the three groups represented by the participants in the survey, the expert group was the most likely to indicate that they regularly take part in conservation efforts, with roughly 35% of them indicating that they participate in activities like trail maintenance, river cleanups, or litter pick up more than once a year. Out of the intermediate and novice cycling groups 19% and 13% of them indicated that they participate in conservation activities more than once a year respectively.

Addressing the recycling habits of the individuals of these three groups, both members of the expert group and the intermediate group showed a majority of individuals who always recycle. The majority of the individuals in the novice cycling group were split between always recycling and recycling most of the time, however the statistical analysis did not indicate that there was enough of a difference to warrant significance.

While the sport offers an array of disciplines, cyclists are united by a sense of duty to act as ambassadors to nature. Often times this sensation begins out of a desire to do what allows them to enjoy a sport they love, but the feeling runs deeper. In the cycling community there is an overwhelming sense of responsibility and obligation for the environment. The sport is enjoyed outside either learning intricate trail systems or creek crossings or over many hours spent on the road with nothing but the natural scenery and their thoughts. Compelled to protect the natural heart of cycling, every ride is made into an adventure. The findings of my study support this, as the majority of participants were united in indicating that they felt a strong connection towards the environment.

Interestingly enough, this unification happened independently of the amount of hours

they spent cycling per week.

As stated previously, ecocentrism and the Deep Ecology Movement is founded upon the notion that man is an integral and inseparable part of the natural ecosphere (for the analysis I will refer to this as The Integral Principle). The cyclists that took part in this survey were presented with three statements regarding humankind's place in nature and were asked to indicate which aligned more with their personal beliefs: The Integral Principle, the moderate notion that man and nature are partially separate, and the idea that man and nature are ultimately separate and autonomous entities. Of the 303 cyclists that took part in the survey, 85% of them indicated that their personal beliefs aligned with The Integral Principle. Furthermore, there were no significant variations across the three groups on this matter; these cyclists, although they lead very different lives, are united under this principle.

Similarly, the cyclists were presented with Lovelock's opinion that, while noble, environmental stewardship offers only the impossible task of attempting to manipulate an ever changing and ever powerful force from the inside. The participants were asked once again to choose the stated notion with which they agreed most. First they were presented with the idea that responsibility to protect the environment is an innate characteristic of humankind's membership within the ecosphere, then the notion of stewardship-planning and managing the environment to protect it, which was followed by the utilitarian/biblical belief that nature is here for the betterment of humanity. The final two options dealt with the hands off idea that if nature keeps to itself we ought not to bother it and the belief that nature is no longer necessary in the endeavors of men, respectively. None of the cyclists

in these groups identified with the final two ideas, rather the majority of them chose ecocentric notion of innate responsibility from membership. Once again, this observed agreement across the three groups was independent of how often they rode per week and there were no statistically significant variations to be identified.

Finally, the participants were asked to indicate how they prioritize time spent outdoors. Despite the environmental awareness displayed throughout the responses to the survey, the analysis of this question showed a statistically significant difference in the responses between the Expert group and the Novice group. About 76% of cyclists who indicated that they ride their bike more than 10 hours per week prioritized spending time outdoors as a necessity, while the majority of cyclists who ride less than 5 hours per week tended to treat time spent outdoors as a leisure activity. The intermediate group of cyclists fell in between these two.

Chapter VI

Discussion and Conclusion

There lies significance in finding similarities in these three starkly different groups. Keeping in mind that only a small percentage (~5%) of the cyclists surveyed would consider themselves “environmentalists”, deduced based on their responses to questions dealing with their level of involvement in conservation efforts and environmental groups, they are still united by two fundamentally ecocentric principles and have in common only the sport they enjoy. These beliefs are radical existential truths confronted by epistemic reason, and it is worth noting that they are not common to this region. The unification under these ecocentric principles observed in these cyclists can be characterized as an emergent property of the interaction between the cyclists and nature; the sport does not exist without an interaction with nature, and the findings of this study suggest that it is from the interaction of these two complex entities (cyclists and the environment) that the principles of ecocentrism discussed become manifest. This is a compelling argument for Rowe’s defense of ecocentric ethics, and yet the most compelling defense comes from a significant difference between the way the expert group and the novice group prioritize time spent outdoors.

This difference concerning the way these groups prioritize time spent outdoors is significant to my thesis because it illustrates a simple principle: people who spend more time outdoors value nature more than those who do not. For some, the prioritization of nature above other things would surely have to do with the fact that the sport that they commit so much of their life to relies on nature while others may recognize the

importance of nature outside of the sport, but these are simply the beginning of the process of shifting from ethics-by-extension to inclusive ethics.

As described previously, inclusive ethics use fundamental thought in order to determine holistic value out of context rather than subject. This concept can also be understood in the way that Arne Naess wrote about Gestalt Ontology; “The whole is more than the sum of its parts” (Naess, 1989). Ethics-by-extension start with the subject and radiate outwards, valuing highest what is closer to the subject out of utility. Cycling exposes the rider to the context of their surroundings while cultivating ecological interest. As both context and interest grow from experience, knowledge and its quest grow. As a rider exposes themselves to the realities of context, their priorities shift to reflect their new found empirical knowledge. This coupled with the subscription to the two fundamental principles of ecocentrism mentioned leads to the formation of a value based on inclusion. What is important to the ecosphere is important to the individual, rather than the converse (which is ethics-by-priority). To the expert cyclist, this phenomenon starts as a sort of hybrid inclusion by proxy. They know their immediate surroundings, and so they inform their values with their experience of it. But just as Rowe explains, the logic of ecologically informed minds leads to ecocentrism, and, evident from the survey, more time spent in the saddle leads to not only a broadened perspective, but also the prioritization of a relationship with nature as essential to life.

The cyclists that participated in the survey were overwhelmingly united with regard to the notion that humankind is an integral part of nature. Their agreement that nature’s protection is our innate responsibility as members of the natural community

correlates strongly with their responses to the integral principle of ecology. The fact that this occurred independently across all three cyclist groups strongly suggests that their experience in the environment through cycling, at any level, has contributed to their personal relationship with nature.

The relatively low portion of cyclists that contributed to this thesis involved in conservation efforts deserves an attempted explanation. I would speculate that the reflection shown in the data concerning percentage of the sample involved in conservation efforts would closely mirror that of the general population, but just from this study I cannot defend that statement. However, I did notice a slight correlation in the amount of participant that volunteer their time in conservation efforts as the number of hours spent cycling per week increased.

That being said, there is much to gain from a sample group that is made up of a majority of individuals who do not identify as environmentalists/conservationists yet their responses reflects the principle of deep ecology and ecocentrism. Within their apprehension to subscribe to a mainstream movement such as environmentalism there lies a lack of bias. The majority of individuals interviewed are not swayed by the pressure to represent the values of the environmental movement because they do not belong to it. The observation of the Integral Principle and Innate Value of Nature in their responses comes not from their subscription to the environmental movement, but from their exposure to the environment through their participation in cycling.

These findings may also be reflected in a more broad study of outdoor recreation, however the scope of this study was limited to cyclists. I can offer two reason for this

limitation. The first is practical: a broad study would have required much more time and resources, and at the moment of this study's inception I found myself immersed in the culture of cycling with easy access to hundreds of cyclists throughout the region. The second reason has more to do with the growth of both the popularity and the practice of the sport. The sport's popularity is prevalent in cities with a high population of young people like Austin, TX, which has a median age of 31 years (Austin Demographic Information, 2012), as well as the presence of the New Urbanism movement and its push to promote urban cycling and the infrastructure to support it safely (CNU Charter, 2001).

As for the practice of the sport, cycling has undergone an observable renaissance period with the growth in popularity of sports like cyclocross since the 1990's (Burke, 2000) and bike polo since 2007 (Norvell, 2008). Both cyclocross and bike polo are more than a century old, but the increase in popularity of cycling has breathed life into the embers of slightly antiquated or less common forms of the sport, giving birth to this renaissance and reaching new people. It is the burgeoning popularity of cycling and its various disciplines that encouraged me to focus the scope of this study on cyclists' relationship with nature.

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