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The Nature of People's Perceptions of Wolves

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THESIS APPROVAL

The abstract and thesis of Laura Briana Nobel for the Master of Science in Education: Educational Policy, Foundations, and Administrative Studies were presented May 6, 2005 and accepted by the thesis committee and the department.

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ABSTRACT

An abstract of the thesis of Laura Briana Nobel for the Master of Science in Education: Educational Policy, Foundations, and Administrative Studies presented May 6, 2005.

Title: The Nature of People's Perceptions of Wolves

European immigrants once regarded wolves as the "devil in disguise" (Lopez, 1978, p.40). With our growing awareness of other cultural perspectives and flourishing body of scientific knowledge with regard to wolves' behavior, our perceptions of wolves have become more complicated and nuanced. Our collective awareness of the environment in which we live also gathers complexity. I examine these issues in this study. Wolves are returning to Oregon. The arrival of wolf B-45 in 1999 heralded the beginning of the return of wild wolves to Oregon. More wolves are expected to cross the border as young sub-adults disperse from the growing population in Idaho.

This study explores our perceptions of wolves using empirical, qualitative methodology. Running in parallel with this main goal, I also seek to understand how these perceptions relate on a larger scale to the ways we understand nature. In exploring these questions qualitatively, I seek to answer the following questions:

(a) What ways can story play a role in defining people's perceptions, in particular, of

wolves? (b) What lessons can be learned to inform future ecological educators' work to communicate on this or other similarly complex topics? (c) What is the collective story that we can tell each other on the eve of wolves' presence in the Oregon landscape becoming an acknowledged reality once again? (d) Finally, how can what is learned inform future ecological educational programs regarding wolves in the state?

This study explores the above questions. In considering people's perceptions, I attempt to examine whether the desires to exterminate wolves are really gone. Perhaps, as we learn more about the complex ways that wolves interact in the landscape and the various ways that humans react to the idea of wolves, we may recognize the greater complexities in the ways we inter-relate with them.

THE NATURE OF PEOPLE'S PERCEPTIONS OF WOLVES

by

LAURA BRIANA NOBEL

A thesis submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE
in
EDUCATION: EDUCATIONAL POLICY, FOUNDATIONS,
AND ADMINISTRATIVE STUDIES

Portland State University
2009

DEDICATION

This work I dedicate in honor of the interview participants themselves, for their shared stories and insights, without which the possibility for me to make many connections would never have occurred. I hope only that I have done justice to words shared between us well enough to pass on the depth of my learning from each of you to others in a new, yet still recognizable, form.

Additionally I would like to dedicate this to all members of my ecological communities, for the innumerable ways we teach each other – whether we like it or not – about the dance. For those who participate daily in the giveaway, it is my hope that we may learn to give something reciprocally in return.

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Harvey for his endless patience, love, and for barking to me to come outside in the moonlight, teaching me to listen in a different language.

The cats whose purrs kept rhythm on my lap in the dawning hours.

All the other four-legged, winged or scaled ones who taught me much.

Plants I have known: for the air I breathe, and for the lessons – that things take time to grow; we all harbor a resiliency within ourselves.

And, to my Interview Participants who for logistical, bureaucratic¹ reasons must go un-named, yet in my heart I long to give you that honor, for your time, good will, laughter, shared stories and insights. – Thank You

¹ To review specifics on the Human Subjects Review requirements for all Portland State University students please visit the Office of Graduate Studies web site for further information.

http://www.rsp.pdx.edu/compliance_human_process.php

http://www.rsp.pdx.edu/compliance_human_forms.php

For specific questions regarding the HSR application completed for this study please contact the researcher Laura Nobel [laura\(at\)nobel.org](mailto:laura(at)nobel.org) or the Office of Research and Sponsored Projects directly at (503) 725-3423 or (800) 547-8887

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LIST OF ABBREVIATIONS

- I1F: 1st interview participant, name initial "F."
I2K: 2nd interview participant, name initial "K."
I3J: 3rd interview participant, name initial "J."
I4S: 4th interview participant, name initial "S."
I5M: 5th interview participant, name initial "M."
I6Y: 6th interview participant, name initial "Y."
I7DF: 7th interview participant, female, name initial "D."
I7DM: 7th interview participant, male, name initial "D."
I8C: 8th interview participant, name initial "C."
I9GF: 9th interview participant, female, name initial "G."
I9RM: 9th interview participant, male, name initial "R."
I10VF: 10th interview participant, female, name initial "V."
I10NM: 10th interview participant, male, name initial "N."
I11R: 11th interview participant, name initial "R."
I12I: 12th interview participant, name initial "I."

PROLOGUE

In the beginning it is about the story. The story guides us. It stands on four legs outside the light cast by the shadow at the center of the circle where the fire burns crackling and hot. Barking "Attention!" Not much, but just enough, the story asks of us to come in. The story asks for us to listen. Reaching deep within us the eyes that stare back at us are wild and unpredictable. They weave a thread of connection from lines we did not know we shared. They pull at our gut and we feel our stomach lurch and our heart leap up, padding along behind singing softly "But that is not what I meant..." Yet, the words have meaning and grow feathers, wings that fly far beyond our wildest dreams. They fly to lands unknown and ears that cock their heads to listen, tune to the cadence in a different sort of way than we would ever imagine. Always the story is running along the paths from here to there, pacing, sometimes visible, sometimes hidden from sight by bushes, trees or shadows. It feeds on the soft meals when people's stomachs lurch in recognition guiding their hearts like a rudder on a massive ship that must turn the course and open the eyes of the humans "above" to see that this, this what is said, this story, these words offered, now for you to digest, they hold truth trapped in the bonds of what makes food sustenance, a life-giving force. Something to chew on, we contemplate now our actions, our perceptions. Will we give back when next we feel our stomach lurch? The story watches us know, now, it wonders. Will we give back gifts to ourselves in reciprocity? Hungry, the story

wonders if it will feed this night. Hidden it wonders how much crackling splendor it needs to throw off its coat to dazzle the eyes while integral the words jump like jewels given as gifts weaving the many-colored threads of connection that they take from our hands, threads that reach deep inside of us pulling at our gut, calling forth memories of another time, space or landscape. The heart feels the pull of shuttle in the weave between warp and weft. And when the story weaving begins, each of us singing softly stops to listen. Slowly, instead of singing lonely, softly our tune changes, our ears tuning and now we hear a humming collected in the rhythm of the story. Padding on four legs just outside the circle from the fire, barking not much but just enough; the story asks to come in. The story asks for us to listen.

CHAPTER I

INTRODUCTION: WOLF TRAVELING, CROSSING BORDERS

February 18, 1999: An endangered gray wolf spent Valentine's Day coursing across snow-capped mountains in northeast Oregon and looking for love in all the wrong places. State and federal biologists say B-45, a yearling female, appeared to have crossed the Snake River from Idaho and made her way more than 100 miles into the headwaters of the John Day River, apparently in search of a mate. "She presents a somewhat odd situation for us, because Oregon is not part of the wolf recovery effort," said Mark Henjum, a biologist with the Oregon Department of Fish and Wildlife in LaGrande (Monroe, 1999, p. D8).

In 1999, a female wolf, dubbed "B-45" by the United States Fish and Wildlife Service, appeared and ignited the imaginations of people in Oregon. Her appearance intimated future wolves' arrival within the state as they dispersed across the border of neighboring state Idaho where a reintroduced population dwelled in the mountains. B-45's remarkable journey as she bravely crossed the waters of the Snake River and subsequent appearance of two other wolves in 2000 proved very real their ability to

move across the border. Jump 9 years later and a breeding pair of wolves answer to a howling survey in 2008. By crossing the state border between Idaho and Oregon, these prospecting wolves travel en route toward encounters with humans that push the envelope of our collective reality.

Wolves, we know, can occupy a sometimes larger-than-life presence in the minds of men and women. They are linked to our own American history. Since the federally mandated effort to reintroduce wolves, a drama has been unfolding across the nation in state after state. At the heart of the controversy, wolves heighten debates in the American people over issues of the commons, property, livelihood, wilderness and our relationship to nature. These ideas are intricately woven into the fabric of our lives and have become part of the underlying structure. We often assume we know and understand the threads within which we live. But wolves are good at crossing borders. In doing so, they raise questions anew and require us to reexamine the assumptions under which we have been operating. The renewed presence of these animals in our landscape offers us an opportunity for dialogue for many of the issues that we hold dear.

The difficult ethical and moral challenges that wolves present us with shift the debate from a purely scientific study of these animals' behavior or objective questions of wildlife management to the controversial realm of a political and cultural setting where the arguments are more value-based in character (Nie, 2003, p. 26). Paquet and Musiani (2004) maintain that human attitudes will play a pivotal role in the persistence of wolf populations. In March 2004, Niemeyer, U.S. Fish and Wildlife Service Idaho

Wolf Director, in a presentation on "Wolf-Human Interactions" before the Oregon Wolf Advisory Committee maintained that wolves need two things in order to survive: an adequate prey base and a tolerant human population.

The relevancy for this study begins to take shape as the outcome of our encounters with them gains importance. The final outcome of the sum of humans' actions in relation to wolves is yet unknown. History shows that we have the power to eradicate these animals from our landscape almost completely. So we have done once before. Yet now, in this day and age, our collective understanding of humans' complex ecological inter-relatedness to other species has grown. This study attempts to explore if the ecological learning that has blossomed over the past 30 years now exerts an influence on our perceptions of an animal whom European immigrants to the New World once regarded as the "devil in disguise" (Lopez, 1978, p. 40). This study looks at how our human perceptions of wolves may have broadened as we include information of these animals learned from other cultures, our own growing scientific body of knowledge, and as the collective awareness we share of our own ecological environs grows more nuanced in its complexity.

The story continues to unfold. The final outcome of individual encounters will be determined based upon perceptions. With each twist and turn in the tale, we learn something new, not only about these animals but about ourselves.

The purpose of this study is to expand upon what are some of the levels of humans' awareness of wolves through an empirical, qualitative methodology that explores our perceptions of wolves and how they relate on a larger scale to our

perceptions of nature. To do this, this study seeks to answer the following questions:

(a) What ways can story play a role in defining people's perceptions, in particular, of wolves? (b) What lessons can be learned to inform future ecological educators' work to communicate on this or other similarly complex topics? (c) What is the collective story that we can tell each other on the eve of wolves' presence in the Oregon landscape becoming an acknowledged reality once again? (d) Finally, how can what is learned inform future ecological educational programs regarding wolves in the state?

In chapter 2, I review the literature and present my intellectual ancestors' voices as they lay out a baseline for understanding the different interdisciplinary connections, and thereby enable us to begin exploring these questions, and build the theoretical framework for this study. In chapter 3, I elucidate my methodology. In chapter 4, I present the distillations of things learned in my interview journeys in the form of figures, discussion, and analysis. In chapter 5, I present my conclusions and recommendations for the future.

CHAPTER II

BUILDING A THEORETICAL FRAMEWORK: INTELLECTUAL ANCESTORS' VOICES

My grandmother took us to Sunday school and we used to ask our grandfather, "Well, Grandpa why don't you go?" and he'd say "Because I belong to the Church of the Great Outdoors" and that was, you know, his answer to that. And my family always appreciated the out of doors and nature. It's a big, big part of our lives (I4S).

I wish to acknowledge the different tributary streams of intellectual ancestors' knowledge that feed into the waters and allow the seeds of my interests to germinate and grow. Good qualitative research acknowledges the framework from which a researcher approaches her study. To do this, I elucidate some "intellectual ancestors" whose prior gathered knowledge relates to aspects of my study including: ecology, perception, nature – wolves' and humans' views thereof, the use of story and language as teaching tools, and the importance and challenges that a multidisciplinary approach presents. I present Figure 1 at this time to move wolves and humans into the presence of each other, literally, on paper. Now we must consider each other. So it happens, as well, in real life. So now we begin to observe and recognize the characteristics of the ground that we stand upon when such a thing occurs.

WOLVES

HUMANS

Figure 1. Wolves, humans.

The Challenge a Multi-Disciplinary Study Presents and Its Importance

In the book *Of Wolves and Men*, Lopez (1978) first explores ideas of wolves and humans' perceptions of them as he critiques the ways that wolves have historically been perceived and treated by humans prior to 1978. This integral work weaves in various forms of cultural knowledge and what is known about them scientifically at the time. Lopez has given wolves a fair assessment from many points of view while interweaving story and rich imagery together with factual accounts, scientific studies, and some cultural mythology. In this way, he reminds us of the importance of a multi-disciplinary approach when considering wolves.

To allow mystery, which is to say to yourself, "There could be more, there could be things we don't understand," is not to damn knowledge. It is to take a wider view. It is to permit yourself extraordinary freedom: someone else does not have to be wrong in order that you may be right. (p. 284)

This comprehensive look at wolves allows for multiple approaches toward knowledge about them. In exploring my topic with a diverse group of individuals, I hope to build upon his work and present a more current picture of where our collective knowledge may lie now, more than 30 years later.

I draw from learnings in psychology, nature awareness, and environmental education when I ask questions pertaining to perception and humans' views of nature. I use teachings and concepts of ecology as a base from which to consider the interactions that occur between wolves and humans and also relate to other connecting disciplines. I also pull from teachings in animal behavior and biology when I consider

the nature of wolves' behavior. I draw upon theories of education, learning, and the applicability of story and language as teaching tools when I consider how new knowledge will be absorbed on an individual level. I draw upon developments in conflict resolution and change theory to analyze how wolves' presence might affect groups of people at the community level. As a qualitative researcher, I pull from the tributary streams of a few different paradigms to base my theoretical framework for this study: interpretive/naturalistic, critical ecological inquiry, and cosmo-ecological inquiry.

Paradigm Tributary Streams of Theoretical Framework

Guba (as cited in Miller & Crabtree, 1999a, p. 8) defines the idea of paradigm as a patterned set of assumptions concerning reality, knowledge of that reality, and the particular ways of knowing about that reality. In asking what patterns exist in people's thinking in the ways they perceive wolves, I chose to use an interpretive paradigm research objective. Paradigm terminology is subjective and depends upon the discipline in which it is used. In other disciplines this might be called "constructivist inquiry" or "naturalistic inquiry." Regardless of which term used, this type of study often helps humans maintain cultural life, symbolic communication, and meaning (Miller & Crabtree, 1999a, pp. 9-10). In an interpretive paradigm, truth is acknowledged to be subjective and rooted in the context of each interview participant's own reality. This subjective truth still has relevance at a larger level when one considers that the work of an educator is to communicate with diverse individuals who

all have their own subjective truths. In this way, a careful exploration of the subjective nature is helpful for an educator to understand better the assumptions, initial stance, or knowledge that a particular person might arrive with in a learning situation.

In so far as this study to some extent also pushes the envelope and researches ways that the more-than-human world is included into our reality and perception, I believe this study also becomes a critical ecological inquiry. In that, it may be necessary for the researcher and readers of this thesis alike to travel in their mind's eye quite like wolves that have dispersed out of what was once their traditional and familiar home range: traveling to explore new territory not yet familiar. Some aspects may be unmapped yet, while other aspects may be well explored previously and therefore recognizable.

Berry (1999) carries ecological ideas one step further into a paradigm that most closely fits with mine within the critical ecological inquiry framework. He places things in context at the meta-level. As he beautifully describes in his book *The Great Work*, humans have come to a place of great turning where now, more than ever before in history, our actions have incredible abilities to shape life as it exists on this planet. For Berry, this knowledge is not without regard to a greater meaning that the universe itself might hold in store for us. He believes as we move into a new millennium, our work is to carry out the transition from a period of human devastation of the Earth to a period where humans would be present to the planet in a mutually beneficial manner (p. 3). According to him, one of the most essential roles of the

ecologist then is to create the language in which a true sense of reality, of value, and of progress can be communicated to our society (p. 63). He proposes a paradigm which includes cosmo-ecological inquiry that not only takes into account the "other-than-human" world but also allows for other structural frameworks like livelihood in the form of corporations and the university, economic markets, religious traditions, and government nested and operating within it (p. 73).

Paradigms bound the researcher in neat boxes in terms of what an initial mindset will be. However, at the same time, despite all the theory we propose in our minds, all around us, people move forward in life within their own constructs, whether they are aware of them or not. As I have acknowledged my own here, I hope to remain open to others' in theirs. For this and because of this, I engaged with the data and interview participants using personal experience (mine and theirs), and empathetic mindfulness along with using grounded theory as suggested by A. Strauss and Corbin (1998).

Perception, Defined

As an important word in the title of this thesis, the word "perception" requires careful exploration and thought. What do I mean when I use the word "perception?" A "true" definition of the word perception seems to depend upon from which discipline I choose to define it. *The Oxford Companion to the Mind* (Gregory, 1987), a book full of psychological references, defines this word as intimately tied to our senses and also a mental process different from conception.

Why is perception somehow separate, and in several ways different from our conceptual understanding? Very likely, it is because perception, in order to be useful, *must work very quickly*, whereas we may take years forming concepts, since knowledge and ideas are in a sense timeless. It would probably be impossible for perception to draw upon all of our knowledge, as it has to work so fast. Rather, it employs a rapid but not deep intelligence with a small knowledge base. (p. 599)

Abram (1996) also believes that perception happens simultaneously and stems from sensory input. But as he elaborates in his book, *The Spell of the Sensuous*, perception involves more than just sight and must necessitate the use of the whole host of our senses – sight, taste, touch, hearing, and smell. As he points out, perception is a synaesthetic process – a blending and overlapping of the senses as what is experienced occurs simultaneously and is recognized by all of our senses in the moments as experiences occur.

By the term "perception" we mean the concerted activity of all the body's senses as they function and flourish together. Indeed, if I attend closely to my nonverbal experience of the landscape that surrounds me, I must acknowledge that the so-called separate senses are thoroughly blended with one another, and it is only after the fact that I am able to step back and isolate the specific contributions of my eyes, my ears, and my skin. (pp. 59-60)

In addition to immediate sensory input, Abram takes a very active, participatory view of what perception means. He cites Merleau-Ponty's idea that our most immediate experience of things is necessarily an experience of reciprocal encounter – of tension, communication, and commingling (p. 56). For Abram, the act of perception is inherently participatory, and "involves at its most intimate level, the experience of an active interplay or coupling between the perceiving body and that which it perceives

(p. 57). Abram attributes this interpretation of our environment as "being in relation" to Merleau-Ponty and explains it thus:

Where does perception originate? I cannot say truthfully that my perception of a particular wildflower, with its color and its fragrance, is determined or "caused" entirely by the flower-since other persons may experience a somewhat different fragrance, as even I, in a different moment or mood, may see the color differently, and indeed...any bumblebee that alights on that blossom will surely have a very different perception of it than I do. But neither can I say truthfully that my perception is "caused" solely by myself--by my physiological or neural organization -- or that it exists entirely "in my head." For without the actual existence of this other entity, of this flower rooted not in my brain but in the soil of the earth, there would be no fragrant and colorful perception at all, neither for myself nor for any others, whether human or insect. Neither the perceiver nor the perceived, then, is wholly passive in the event of perception. (p. 53)

In approaching this from another angle, it begins to seem as if either perception might have multiple definitions, or, that a person's perception might in actuality draw upon other internal resources besides our sensory input. In the study of "Human Culture and Wildlife Conservation in North America," Kellert, Black, Rush, and Bath (1996) found that people's basic values toward animals and nature inevitably affect their perceptions of an individual species. Additionally, they saw that perceptions are affected by past and present interactions with a particular species (p. 978). This same study, however, muddled what they actually meant by perception as they seemed to use the word interchangeably to mean "attitude." Consider the following two sentences found within the same paragraph: "We also examined attitudes toward bears [and] Today, perceptions of bears range from positive to negative" (p. 977).

If perception is really more something determined as in an attitude, and not merely having to do with an occurrence of simultaneous understanding from sensory input, this opens up new avenues for us to consider how perception is derived. Following this thread, Kellert et al. (1996) similarly propose that wildlife attitudes (therefore perception) "are significantly influenced by...cultural and historical associations...knowledge and understanding including factual, conceptual, and conservation awareness" (p. 978).

Drawing closer specifically to an examination of wolves, in an essay posted on the Wild Sentry Web site, Weide (2001) posits that "perception of wolves as rapacious villains or a golden race reveals more about the beholder than it does about the creature of flesh and blood" (p. 5) and later calls these derivatives of our human phantasmagoric whirling "imagination."

Thus, I see perception as being loaded from all sides: imagination, knowledge and understanding, cultural and historical attitudes and associations, sensory input, values, past and present interaction. Could anything have been left out?

In reading the famed ecologist Leopold (1989), in his *Sand County Almanac and Sketches from Here and There*, he offers further insight.

We come now to another component: the perception of the natural processes by which the land and the living things upon it have achieved their characteristic forms (evolution) and by which they maintain their existence (ecology). That thing called "nature study"...constitutes the first embryonic groping of the mass-mind toward perception...The swoop of a hawk, for example is perceived by one as the drama of evolution, to another it is only a threat to the full frying-pan [when it steals a pigeon you would have shot for your dinner]. (p. 173)

In this instance, Leopold uses the term more to mean the way an action – in this case, the swoop by a hawk – is interpreted. Hogan (1996) uses the term in a similar manner when she speaks of how townspeople, uncertain of what biologists studying wolves are up to, complain that they are trying to deify the wolf. With this, the townspeople are described as having a perception of the way an action (the study) is interpreted (deification of the wolf). In her eyes she calls this perception both extreme and irrational (Hogan, 1996, p. 66). It is good to note that Leopold also uses the term perception to describe the way that natural processes maintain their existence. In this sense, perception occurs in humans when we focus our attention not only regarding a living being (hawk or person) but also toward processes and how they might be functioning. If we follow this thought further it could lead us toward an exploration of the meaning of the word “ecology.”

Before we fully tackle the idea of ecology, let us follow the thread of perception and explore it as it relates to ecology from a human psychological perspective. Drawing on theories of James Gibson and William James, Heft (2001) relates how humans perceive situations of significance, plan, and execute purposes activated in the environment. From this, Heft defines ecological psychology as the study of information transactions between humans and their environments (Heft, 2001, p. xiii). Similar to Merleau-Ponty, for James Gibson perceptual learning denotes a type of change in the relationship between the perceiver and its environment and not merely a change in the perceiver.

The perceiver (animal) and the environment exist as a reciprocity. The animal is described as an integration of capacities and ways of life actualized within an environment. The animal perceives, but perception is ecological, for example, humans walk, but walking occurs within an environment. Perception is animal awareness of the environment. (Lombardo, 1987, p. 330)

When Abram (1996) speaks of reciprocity where not only is he perceiving the flower but the flower also is in the act of being perceived, he describes as an ongoing interchange happening between his body and the entities that surround it – a "sort of silent conversation [or] continuous dialogue that unfolds far below...verbal awareness" (p. 51).

Abram (1996) carries this idea of ecological relation further than previous psychologists Roger Barker and James Gibson (cited in Heft, 2001, p. 237), who assume that natural processes are structured in nested levels of organization. Bronfenbrenner (1979) theorizes how people perceive their world from within nested levels of concentric circles. At the center of Bronfenbrenner's ecological systems theory for human development stands the individual self. Rippling outward from there in concentric circles, the individual relates to the world on system levels of: micro (immediate surroundings like home, neighborhood, school); meso (interactions between different microsystems); exo (structure of the community, town); and macro (larger societal structures like government or economy which lay social historical context) to their surroundings (Bronfenbrenner, 1979). Bronfenbrenner's ecological concept for self does much to explain the nestedness and interconnectedness a person forms within context of their lives. His ideas only adopt nesting the self within society

ecologically, but subtly shift focus of what is ecological away from the original biological definition. Bronfenbrenner's psychological use reinterprets what we may think of as "the environment" and that which is "ecological" to pertain only to that which is in our human-cultural world.

Capra (2002), in his book *The Hidden Connections*, speaks of how other cognitive scientists now ground our human ability to reason not solely from our brains' abilities as they were provided to us at birth from our genetic makeup. Instead, reason, is shaped crucially by our physical nature and our bodily experience. Capra quotes two leading cognitive linguists, Mark Johnson and George Lakoff:

The evidence is based, first of all, on the discovery that most of our thought is unconscious, operating at a level that is inaccessible to ordinary conscious awareness. This "cognitive unconscious" includes not only all our automatic cognitive operations, but also our tacit knowledge and beliefs. Without our awareness, the cognitive unconscious shapes and structures all conscious thought. This has become a major field of study in cognitive science, which has resulted in radically new view of how concepts and thought processes are formed... The same neural and cognitive mechanisms that allow us to perceive and move around also create our conceptual structures and modes of reason. (p. 61)

Spinning our lens now to take a wider focus on Capra's revelations, we can infer that not only is the "environment" in which a person lives and grows up integral to the makeup of their logic, but through Capra, we can scientifically link together our perception and reasoning, both integrally and literally. I call this "situatedness."

Next, I explore ecology more fully in order to root ourselves and gain a sprouting foothold before we venture forth and look at the data and our interviewees' contribution to this study.

Ecology, as My Intellectual Ancestors Define It

Ecology, as many texts remind us, is the study of home. "Eco" is derived from the Greek word *oikos* interpreted into our English language to mean home (Begon, Harper, & Townsend, 1986, p. x), house (Ricklefs, 1993, p. 1), or household (Odum, 1993, p. 23). "Logy" implies: the study of. When you think of your home, and if you were to study it, in your mind's eye, where would be the boundaries you drew to define your own home? Do you define your home as the shelter structure of wooden, stone or metal beams and walls that create an enclosed air space around you as the boundaries of your house, or does your home also include your yard, nearby surroundings, neighbors, the town or community in which you live, or more simply and focusing closer in, perhaps just your body? When a college student says "I am going home for the weekend" where do they go and how do they know that they have arrived? In addition to these structural/boundary questions, what inputs into and/or out of this space should be included? Would you include furniture that enables a person to sit in certain locations or perform certain functions as part of your home? Would you include the kitchen stove as part of your home? How about the often-metaphorical-now-literal kitchen sink? Would you include the food that enters your "home" as well? In many cultures food is an integral part of that which reminds us of home...If we include food, must we then include the water that we must drink daily and is necessary for our survival? Or, what about the unseen elements – the air we breathe, the pipes that carry the water, air ducts, electrical wires and other heat/energy transference

mechanisms, the more that may exist beyond our general vision? For each person that you ask how they define their home, you may well come to find that the answer depends on the individual and the context in which a person is asked for the way in which they respond to the question. Some things perhaps are easily and directly associated with the word – say perhaps as we think of the four square walls and pointy roof as we are taught to "draw a house" in school from an early age. Other connected concepts we might only think of if given some time for thought. Perhaps then again we might answer "Why yes! definitely!" to these as well, even though we might not have initially thought of them. The word home is just that: a familiar, well-used term that carries individualized and personal meaning for each of us. It is a term that addresses us in society but reverberates within each of us differently. How then could one endeavor to study it?

Ecology is the study of home. It derives from an old Greek word. But here already even with its first use in English, the definition within the scientific community became one at once familiar but nuanced depending on the context. Ecology took on new meaning first when German zoologist Ernst Haeckel (cited in Ricklefs, 1993) gave a broader meaning in 1870 with his scientific biological definition of ecology as the

...total relations of the animal both to its organic and to its inorganic environment; including above all, its friendly and inimical relation with animals and plants with which it comes directly and indirectly into contact – in a word – ecology is the study of all the complex interrelationships referred to by Darwin as the conditions of the struggle for existence. (p. 1)

Subsequent scientists generally agree that the discipline of ecology studies the interactions or relationships between the living and the nonliving components found in the world. Depending on the questions being answered by the research and the focus interest of the researcher, the living aspects could be defined as those comprised by the five kingdoms of Animalia (animals), Plantae (Plants), Protista (single-celled bacteria with nuclei), Monera (single-celled bacteria with no distinct nucleus or other internal parts enclosed by membrane), and Fungi (sometimes recognizable by their reproductive fruiting bodies such as mushrooms). The non-living aspects include such inputs as solar energy, water, air, and the mineral nutrients that are transferred from soil and rocks. So far this seems relatively straightforward.

However, consider now the possibilities, complexities and debates that can arise if one scientist were to approach an ecological study focusing solely on animals and how they relate to their environment where another's starting point might be tracing the nutrient energy flow of water or even another might view things in terms of the stationary populations of plants in an area. While each of these studies may have points where they overlap, their views, perspectives, and subsequent conclusions will draw from their observations made at that level and may be at odds with others if the underlying assumptions differ. These discrepancies carry forward into the way ecological ideas are discussed, taught, and defined at a theoretical level as well. In recent years, Gurevitch, Scheiner, and Fox (2002) speak to the fact that

...ecology is the study of relationships between living organisms and their environments, the interactions of organisms with one another and the

patterns and causes of abundance and distribution of organisms in nature.
(p. 1)

Contrast this with how Krebs (1998) portrayed ecology simplistically as "the science that deals with the interactions of animals and plants in natural systems" (p. 1). In this definition, the fungi, and bacteria are left out, and the abiotic factors, the student must assume, are enveloped within Krebs's term "natural systems."

Odum (1993) also used the term natural systems, but he contrasted these with both domesticated and fabricated systems created by humans. He takes the broader view that *oikos* as meaning household reflects the ways that plants, animals, microbes, and humans live together as interdependent beings here on earth (Odum, 1993, p. 23). Underlying Odum's perspective of this household is the belief that these things make up the life-support system of the planet. He mentions ecosystems in light of their ability to transport and transform energy and also with regard to nutrient flows. He gives them their place in an ecological hierarchy as being the next step "up" following population after organism as the underlying defining unit (Odum, 1993, p. 26). The term ecosystem was actually devised by Sir Arthur Tansley (cited in Gurevitch et al., 2002, p. 295) in 1935 to include the entire system of living organisms in the context of the physical factors on which they depend and with which they are interconnected.

The debate now arises. Arguing from a different perspective than Odum, and hardly mentioning the term "ecosystem," Begon et al. (1986) prefer to think of ecological systems as things that can fluctuate and therefore are present on all levels

depending on the researcher's focus between organism, population, and at the community level:

Traditionally, another category of ecological study has been set apart: the ecosystem. This comprises the biological community together with its physical environment. However, while the distinction between community and ecosystem may be helpful in some ways, the implication that communities and ecosystems can be studied as separate entities is wrong. No ecological system, whether individual, population or community, can be studied in isolation from the environment in which it exists. (p. 591)

Following a similar line of thought, other biological-ecologists agree to the hierarchy with organism as the defining unit from which the life of a being differentiates itself from the environment (Gurevitch et al., 2002, p. 1; Ricklefs, 1993, p. 3). For Ricklefs (1993), however, this hierarchy does not negate the aspect of an ecosystem:

Every organism is bounded by a membrane or other covering across which it exchanges energy and materials with its surroundings. Its success as an ecological entity depends on its having a positive balance of energy and materials to support its maintenance, growth, and reproduction...Organisms and their physical and chemical environments together make up an ecosystem. (p. 3)

Capra (2002) takes the idea of a physical boundary that is separated by a membrane and through which energy and materials transfer across and interprets this at a deeper level. When he attempts to describe the nature of life and living systems, he brings the differentiating unit down to an individual cell. For Capra, it is at this minute level, where a membrane has first developed to create a barrier through which materials flow in from the outside environment, that the power to regulate, sustain life,

and also self-generate first originates. He speaks of autopoiesis as a concept developed by biologists Humberto Maturana and Francisco Varela that

...combines the two defining characteristics of cellular life, the physical boundary and the metabolic network. Unlike the surfaces of crystals or large molecules, the boundary of an autopoietic system is chemically distinct from the rest of the system, and it participates in metabolic processes by assembling itself and by selectively filtering incoming and outgoing molecules. (p. 10)

Capra goes on to assert that the relationship between internal and ecological simplicity is still poorly understood, partly because most biologists are not used to the ecological perspective. He quotes Harold Morowitz when he explains:

Sustained life is a property of an ecological system rather than a single organism or species. Traditional biology has tended to concentrate attention on individual organisms rather than on the biological continuum. The origin of life is thus looked for as a unique event in which an organism arises from the surrounding milieu. A more ecologically balanced point of view would examine the proto-ecological cycles and subsequent chemical systems that must have developed and flourished while objects resembling organisms appeared. (p. 5)

Capra raises a point here now that relates back to the origins of ecology as a term coined by a zoologist (a biologist that concentrates their study on animals). From the time when Haeckel coined the term in the 1800s, the approach that ecologists took to examine ecological concepts remained fairly close to the biological sciences for the next 100 years.

Even as recent as 2002, Gurevitch et al. claim ecology as a subset of biology when they introduce the discipline as the "biological science of ecology," in the opening paragraph of their text *The Ecology of Plants*. When Begon et al. (1986) acknowledge the complexities of this science – for its ability to overlap and with other

disciplines – they note that whatever progress is made, ecology will remain a meeting-ground for the naturalist, the experimentalist, the field biologist and the mathematical modeler (p. viii). Although they do mention mathematics, the rest of the vocations listed are still biological in their focus, only differing in approach.

At this point, we can see that ecology is a decidedly complicated area of study. Given the nearness and similarities of certain components found in both biological and ecological studies, these disciplines are proximal and hence, I believe, often confused with each other. Regardless of what the most basic unit of ecology is – cell or organism – there are many things to learn from the interactions that occur between the living world and the nonliving world. If one recognizes in ecology the ability to connect research with other disciplines that study various aspects of the same things, we can begin to see how ecology is more concerned with interactions – both intra-species and inter-species – as well as patterns of and influences upon energy flows as they might be occurring entering and leaving a particular area as might be defined by the term of “ecosystem.”

Wolves, as a focal point for us now, have been studied by ecologists and biologists since the 1940s. Adolph Murie is considered to be the first ever wolf ecologist for his intensive and objective ecological study of the wolf (Mech, 1970). Subsequent scientists like L. David Mech, Marco Musiani, Paul Paquet, Luigi Boitani, Rolf Peterson, and Erich Klinghammer, to name a few, have focused their attention on the biological aspects of the wolf in numerous publications that flesh out their

behavior, social structure of packs, physical attributes, and dietary habits. Other scientists have written ecological observations regarding inter-species interactions between: wolves and mountain lions (Boyd & Neale, 1992); wolves and coyotes (Crabtree & Sheldon, 1999); wolves and ravens (Heinrich, 1989); wolves, elk, and the survival of aspen trees (Ripple, Larsen, Renkin, & Smith, 2001). These studies lend further insight and hint at the intricate interrelationships with other species that reside within the respective ecosystems where wolves are present.

First person observations can also lend insight into wolves' behavior, at least momentarily, as long as situation and viewpoint of the author are also taken into account. Crisler (1964) in her book *Artic Wild* gives a detailed account of the character and behavior of wolf cubs she and her filmmaker husband adopted and watched grow as they lived in the Brooks Range of Alaska. In the book *Wolves at Our Door* (Dutcher & Dutcher, 2002), wildlife filmmakers describe moments of insight as observed and lived with several captive wolves. The animals taught them that the workings of a wolf society are deeper and more complex than they would ever know.

As they mention:

In a wolf pack there are no equals. Someone always has the slightly upper hand, even if it changes from day to day, and there is always the chance of moving up the ladder a rung or two. It is in this nebulous middle rank where one sees the true and fascinating paradox of life in a wolf pack, the incredible balance of competition and cooperation. (Dutcher & Dutcher, 2002, p. 208)

In the book *Wolf Totem* (Rong, 2008), a semi-autobiographical account written as a novel by a Chinese author using a pseudonym, the author tells a gripping story

that mirrors aspects of his experience living in Inner Mongolia. In this book, the protagonist Chen bears witness to numerous encounters with wolves, the teachings of a Mongolian elder “Papa Bilgee” and the crucial role that wolves play in the life-death eternal dance that involves the renewal of the grassland steppe plains ecosystem. In Mongolian eyes, not only do wolves serve as integral protectors of the grassland itself, their presence and potent threat also serve to hone the fighting spirit of their people and the resiliency of their horses.

The Mongol horses rank number one in strength, stamina, digestion, immune system, and the ability to withstand cold and heat. But only the horse herders know that all these qualities were forcefully developed by the wolves’ speed and fangs. (p. 372)

Now we begin to see not only how wolves can play an important part in an ecosystem but also how story, narrative, and language can play a powerful role in our teaching and learning processes.

Language and the Power of Narrative

Despite years of scientific study, certain qualities about the wolf and its ecological situatedness are better conveyed through story. In her book *The Passionate Fact*, S. Strauss (1996) dissects the art of storytelling and notes how storytelling “creates a place wherein we speak about things that we usually cannot in mainstream life...the storyteller [keeps]...a special place where we are allowed to be tender, reflective or vulnerable” (p. 53). Dutcher and Dutcher (2002) utilize this prerogative of the story form when dwelling on compassion in wolves:

Scientists are continually debating rival theories of the emotional life of animals and only lately has real consideration been given to the possibility that a creature such as a wolf could be capable of so complex an emotion as compassion. If we can't use the word "compassion" to describe a wolf, then what word should we use? What word would a wolf choose to describe protecting the omega from aggression, or when (as has been observed in Alaska) it brings food to an injured pack mate? (p. 201)

Cronon (1992) asserts that narrative remains essential to our understanding of history and the human place in nature (p. 1370). A simple story well told may reveal far more about a past world than a complicated text that never finds its own center. Hogan (1998) notes that story is a power that describes our world, our human being, and sets out the rules and intricate laws of human beings in relationship for all the rest. As such, we live inside a story, all of us. Stories hold the unfathomed and beautiful depths of a people (Hogan, 1998, p. 9).

The language that we choose to tell our stories becomes paramount for several reasons. Language carries import as a useful tool. The three primary aids to invention which exist in the nature of man are his hands, his high nervous organization, and his communication through language (Bernard, 1923, p. 3). As humans we exist in language and we continually weave the linguistic web in which we are embedded (Capra, 2002, p. 54). We use language not only to convey our thoughts, but also to mold and shape them. Language and thought are inextricably related concepts that exert mutual influences on each other; although it seems clear that our thoughts influence the language we use, it is sometimes more difficult to understand the reciprocal nature of the relationship (Halpern, 1984, p. 27). We coordinate our

behavior in language, and together in language we bring forth our world. This human world includes our inner world of abstract thought, concepts, beliefs, mental images, intentions, and self-awareness (Capra, 2002, p. 54). Moyers and Remen (1993) note how images are the primal language, and a pathway through which the body and mind talk to each other. Maybe the first way we experience the world is through images (Moyers & Remen, 1993, p. 347). Through these scholars and scientists, we see how language brings meaning and creates a bridge across which we can share our experience of the world with others. Through language, we can describe and voice what we perceive to others around us, hopefully communicating in a manner that they can understand. Beyond this, we are aware now of the power of language to shape our perceptions, of perceptions to shape our actions and actions to shape the landscape (Cafaro, 2001, p. 3).

It is important to note also how, if we are not careful, miscommunications can occur when one is not aware of the multiple meanings that others may attribute to different words. Different definitions and interpretations may hinder education on a particular topic or influence what final message is heard to different individuals. By example, in thinking of the word “nature,” Cronon (1996, p. 51) notes many human visions of nature always jostling against each other, each claiming to be universal and each soon making the unhappy discovery that even its nearest neighbors refuse to acknowledge that claim. Delpit (2002) acknowledges that language is one of the most

intimate expressions of identity, indeed “the skin that we speak” (p. 47), so if a person’s language is rejected, a person can only feel as if we are rejecting him.

Beyond a single word carrying import through different meanings, when striving to communicate cross-culturally, different words may be more or less understood. Huxley (2004, p. 24) notes how most people, most of the time, know only what has come through their personal filter and is consecrated as genuinely real by their local language. Hilliard (1997) draws the connections between teaching, learning, culture, and language:

Teaching and learning are rooted in and are dependent upon a common language between teacher and student. Language is rooted in and is an aspect of culture. Culture is nothing, more nor less, than the shared ways that groups of people have created to use and define their environment. (p. 229)

As we note how ecological topics are multi-disciplinary in nature, we must also realize that they stretch across different cultures. Educators will encounter instances of possible miscommunication not only when trying to communicate with different professions but also with different ethnic groups. Fadiman (1997), in her book *The Spirit Catches You and You Fall Down: A Hmong Child, Her American Doctors, and the Collision of Two Cultures*, describes in heart-breaking detail an example of cross-cultural communication and the misunderstandings that occurred between the Hmong culture and the culture of professional western trained doctors. In studying how the medical doctors chose to relate to their Hmong patients, Fadiman quotes linguistic anthropologist Timothy Dunnigan: “The kinds of metaphorical language we use to describe the Hmong say far more about us, and our attachment to our own frame of

reference, than they do about the Hmong” (p. 189). If we insert the word “Wolf” for Hmong, we might draw similar conclusions for ourselves as well. This hearkens back to the idea of perception and the similar, previous quote from wildsentry.org. Now we realize how language and metaphor have both the power to speak of and affect our perceptions.

The Language of Wolf in Story

Some stories of the wolf, like *Little Red Riding Hood*, have been deeply embedded into our collective consciousness. In this story, we are taught of the wolf: What big eyes you have! What big ears you have! What big teeth you have! The implicit message carried away from the experience of this story speaks of the animal’s extremely good sensory abilities, their larger-than-us size as well as their ability (and intent) to kill and eat us. If you look at this story another way, Red Riding Hood illustrates how the wolf can lay in wait and take us by surprise if we are not careful. Although some wildlife advocates have denounced this story for the negative light it casts on wolves, perhaps within the story lie some grains of truth. Chinese author Rong (2008) in *Wolf Totem* also tells of an instance where a mother wolf utilizes long grass to lay in wait for a sheep to stray too close and grabs a lamb without stirring the rest of the flock.

He had just returned from checking the flock, and everything seemed normal...Suddenly, he heard a disturbance among the sheep and jumped to his feet, just in time to see a large wolf holding a lamb by the neck. With a flick of her head, she flung her prey onto her back, held it there in her mouth and ran along a stream up into Black Rock Mountain...Normally, lambs will bleat in a crisp, shrill voice, and the bleats of one will get an immediate reaction from

hundreds of others and their mothers, filling the sky with noise. But by sinking her fangs into the lamb's neck, the wolf stifled the cry and was able to get away without disturbing the tranquility of the flock. Hardly any of the sheep knew what had just happened, and maybe even the lamb's own mother was unaware of what she had just lost. If not for Chen's keen hearing and his alertness, he wouldn't have known one was missing until he counted them that evening. As it was, he was as shocked as if he'd been the victim of a master pickpocket.

Once his breathing was back to normal, he rode over to where the lamb had been taken. There he discovered a depression in the ground. The flattened grass was all he needed to see to know that the wolf had not just come down out of the mountains; if she had, he might have spotted her earlier. No, she had lain in the depression, waiting for the flock to draw near before making her move. Chen looked up to see where the sun was in the sky. He calculated that the wolf had lain hidden for more than three hours. (pp. 117-118)

Although nothing in this story could be verified as the kind of truth we might expect from a scientific study, the detail captured in the story as well as the knowledge that the author spent 11 years as a shepherd himself in Inner Mongolia encourage a reader to believe that there are some truth elements present. Rong paints such a vivid picture, the reader begins to think of the qualities of both wolf and sheep. Banks (1998) notes how the truth in a good story comes from its resonance with our felt experience in how it can create an emotional texture of experience (p. 11).

Stories call wolves to mind in other ways and so hold the potential to teach us of other traits. Nie (2003) notes some of the roles that the wolf holds in folktale: the wolf is wise in an Irish folktale, ferocious in a Pennsylvania legend, foolish in a German folktale, and friendly in a Japanese folktale. In one story, the Russian fairy tale "Ivan and the Firebird" (Ponsot, 1973; S. Strauss, 1993), a wolf plays a pivotal role when he feels sorrow for the death of the prince's horse and he offers

to help the prince not only by becoming his steed but also instructs the prince in ways to overcome obstacles on his quest to find a firebird, carry off and marry a princess, and steal another superior horse. In this story the wolf not only serves as a teacher, but is swift – able to run long distances across the earth – strategic, cunning, loyal, helpful, and resourceful. Nie notes how these culturally imposed traits are often context-specific as well:

...thus, humans-as-hunters often saw wolves symbolizing skill, intelligence, teamwork, and courage. Farmers, on the other hand, often saw wolves symbolizing danger and posing a sinister threat to their livelihoods and well-being. (pp. 4-5)

Historical evidence speaks of this occurring here in the United States when people first began to move across the continent. Initial hunters, trappers, explorers noted wolf numbers more with curiosity than the fierce hatred and desire for extirpation that ensued once settlers arrived with livestock to tend. Such views persist even in more recent times. Kellert et al. (1996) observe how Minnesota trappers and Michigan deer hunters expressed considerable affection and protectionist concern for wolf populations, recognizing this animal's ecological importance (p. 980).

Speaking of Nature, the Wild, Wildness, and Wilderness

Before I acknowledge my own positionality and delve further into analysis of the data gathered from my interviews, let us briefly gather some tools to take with us regarding the usage of the word “nature” in our language. As we may already surmise, nature has multiple meanings and is used in different contexts. As a noun, one's

“nature” denotes characteristics which are intrinsic to an individual. Also, “nature” can be seen as that which surrounds us, extending beyond the self into the outer world we live in, and usually denotes something not man-made, more in touch with elemental aspects of the world.

What is nature? Using what we have learned so far, like the word perception, and similar to views on wolves, nature is a word whose definition remains culturally specific and is contextual depending upon a person’s worldview. Is nature something wild or a garden to be tended and inhabited within? If it is wild, is it *Other* and therefore do we need that place which we call wilderness for wild things to inhabit?

Nash (1982, pp. 8-9) views nature as occurring in two varieties: the cultivated pastoral variety – a type of paradise that can be determined fruitful or otherwise useful – and the raw, wild type, to be feared and requiring control. Cronon (1996), however, feels that these two types of nature are but really two sides of the same coin, and that human civilization is what creates this concept of wilderness as the untouched *Other* place. Cronon goes on to note that because people differ in their beliefs, because their visions of the true, the good, and the beautiful are not always the same, they inevitably differ as well in their understanding of what nature means (p. 51).

Cronon’s (1996) viewpoint places nature/wilderness on one end of the continuum and in opposition to (Western) civilization that created the idea. But this viewpoint proves erroneous in that it fails to take into account indigenous people. If we recognize that indigenous people have contributed to mankind and civilization

through their language, culture, and diversity, Cronon's first failure arises from the fact that indigenous people are often present in areas we might term to be wild. Secondly, as Nabhan (1997) points out, in Cronon's negation of the concept of wilderness, he overlooks that these indigenous people may themselves have lands that they believe to be sacred, lands that they leave pristine and untouched.

An alternate way of viewing nature that acknowledges indigenous peoples is starting to take hold. In this view, humans exist within nature and thereby possess the potential to inhabit a place in a connected, respectful manner. Parajuli (2001) uses the term ecological ethnicities to describe more than 500 million indigenous people – peasants, fisherfolk, forest dwellers, nomadic shepherds, and so forth – who

maintain the rhythm of circularity and regenerative cycles of nature's economy by cultivating appropriate cosmovisions, observing related rituals, and practicing prudence in the ways they care about nature, harvest from nature, nurture nature, and are in turn nurtured by nature. (p. 560)

Nabhan (1997) calls these "cultures of habitat":

The term ecosystem comes from the scientific tradition of identifying discrete but somewhat arbitrary units of the natural world as though each functioned like an organic machine. In contrast, the term habitat is etymologically related to habit, inhabit, and habitable; it suggests a place worth dwelling in, one that has abiding qualities. I could not make a machinelike ecosystem my abode for long, but I could comfortably nestle down within a habitat. The term culture may be likewise preferable to the value-neutral people; culture implies that we learn from our elders and neighbors a way of living in a place that is more refined or better adapted than our genes alone can offer. (p. 3)

In his book *Cultures of Habitat*, Nabhan (1997) further spins the debate about "wild nature." For him, the heart of this issue hinges upon three things:

- whether the “natural conditions of the land” by definition excludes human management;
- whether officially designated wilderness areas in the United States should be free of hunting, gathering, and vegetation management by Native Americans or other people; and
- whether traditional management by indigenous peoples is any more benign or ecologically sensitive than that imposed by resource managers trained in the use of modern Western scientific principles, methods, and technologies (Nabhan, 1997, p. 155).

Running in parallel, Nabhan’s focus here hinges the debate not only on the definition of the word nature but what then, people (can) do with it. From this, people’s perspectives and philosophies on how to interact with nature come into play. What is natural? Ultimately, does preservation or conservation of resources or wise use or ecosystem services or resource allocation or inhabitation take precedence in terms of how we interact with our natural surroundings? Where does the boundary exist (if there is one) between that which is natural and that which may be considered not-of-nature – or as some might call it – man-made? The act of positioning a man-made thing as not-of-nature, naturally assumes that humans are apart from their environment rather than a part of it. Wilson posits that beliefs about humankind’s proper relationship with the natural environment is one of three social issues that drive the debate over the presence of wolves (Wilson, 1997).

On Knowledge and Learning, Ecological and Otherwise

Many educational theories exist that consider how people learn and come to know information. Howard Gardner's initial theory of multiple intelligence breaks down the concept of intelligence into seven types of intelligence: Linguistic (verbal), Spatial (visual), Musical (rhythmic), Logical-Mathematical, Bodily-Kinesthetic, and Personal (both inter- and intra-). He later added an eighth intelligence: Naturalistic (Smith, 2002). People spun off from his theory of intelligences to conclude that there must similarly be different types of learners.

Jung's theory of psychological type as operationalized by the Myers-Briggs Type Indicator (MBTI) assesses personality types according to their preferences on four scales: extraverts vs. introverts; sensors vs. intuitors; thinkers vs. feelers; and judgers vs. perceivers. The 16 MBTI profiles are known to have strong learning style indications as well (Felder & Brent, 2005, p. 59).

Kolb (1984) classifies learning as a four step process which learners engage to take in information through concrete experience, internalize through reflective observation, then create generalizations via abstract conceptualization, and finally apply those generalizations to a new experience via active experimentation. From these four steps of learning, four types of learners emerge who exhibit combinations of the steps: divergers (concrete, reflective) typically ask "Why?"; assimilators (abstract, reflective) typically ask "What?"; convergers (abstract, active) typically ask "How?"; and accommodators (concrete, active) typically ask "What if?" By recognizing each

type of learner, an instructor can determine whether it is best to function as a motivator, expert, coach, or ask open-ended questions and maximize opportunities for students to learn on their own (Felder, 1996; Felder & Brent, 2005, p. 60).

Approaching learning from another angle, the Felder-Silverman Model determines a student's learning style by the answers to four questions: (a) What type of information does the student preferentially perceive: sensory or intuitive? (b) What type of sensory information is most effectively perceived: visual or verbal? (c) How does the student prefer to process information: actively or reflectively? (d) How does the student characteristically progress toward understanding: sequentially or globally? (Felder & Brent, 2005, p. 60).

Paying attention to learning types can be helpful in that it provides insight into ways a student learns material most easily, and diverse avenues to explore whereby students increase their learning skills in new directions. However, it is also important to note learning types can be misused and misconstrued if they are used to label and/or exclude a student from a learning environment.

In addition, people debate over what should be learned, what the context for learning should be, and what the outcomes of learning should produce. Felder and Brent (2005) not only compare different learning styles but also people's approach to learning surface, strategic, and deep, as described by Marton and Säljö (1997), and levels of intellectual development. Studies that discuss levels of intellectual development often cite Perry (1981); Belenky, Clinchy, Goldberger, and Tarule

(1986); and Magolda (1992). Despite using different terminology, parallel themes from all of these researchers describe stages of how a person can progress from believing in absolute knowledge that is dualistic (things are either right or wrong); transition to thinking some knowledge is certain and some is not; assume most knowledge is uncertain and multiple viewpoints can be valid; and finally recognize that all truths are contextual. Contextual knowers take responsibility for constructing knowledge for themselves, relying on both objective analysis and intuition and taking into account (but not accepting without question) the ideas of others whose expertise they acknowledge (Felder & Brent, 2005, p. 65).

In a way that seems to combine learning types with levels of intellectual development, Sterling (2001), in his book *Sustainable Education: Revisioning Learning and Change* mentions three different levels of learning: first, second and third order. First order learning takes place within accepted boundaries; it is adaptive learning that leaves basic values unexamined and unchanged. Second order learning involves critically reflective learning, when the assumptions that influence first-order learning are examined. Third order learning is creative and involves a deep awareness of alternative worldviews and ways of doing things. It is, as Einstein suggests, a shift of consciousness, and a transformative level of learning both at individual and societal levels (p. 15).

Different cultures accept different types of knowledge as valid and have different processes for acquiring such knowledge. As Bowers (cited in Smith &

Williams, 1999) explains, intelligence should not be considered an attribute of the individual. This only makes sense if the encoding, storage, and reproductive characteristics of language are entirely ignored. Cultural epistemologies as well as patterns and values shared within cultural/linguistic communities can differ greatly. Bowers argues for a cultural form of intelligence that takes into account such things as technologies, norms governing metacommunication, and conceptual patterns. Metaphorical languages sustain cultural life. In turn, they deeply influence the purposive rational, reflective, and “creative” aspects of intelligence. Further, Bowers note that thinking of intelligence as ecological, where the shift is from viewing the individual as thinking about an external world to viewing intelligence as an integral aspect of all relationships, is even more radical than thinking of intelligence as part of a shared cultural epistemology (Bowers cited in Smith & Williams, 1999, pp. 168-170). In one example of this, Moller, Berkes, Lyver, and Kisalioglu (2004) compare scientists’ learning to traditional hunters’:

Scientists think in terms of cause-effect relationships determined entirely by biophysical mechanisms, whereas...[traditional hunters] often use metaphorical language when discussing the reduction or disappearance of populations, and their discourse on populations phenomena is therefore sometimes strikingly different from scientists. (p. 10)

Acknowledging My Positionality

The tributary streams of thought from my intellectual ancestors that feed into the river of my own views begins to emerge. Acknowledging some of these scholars, mixed in “nature” though they are, reveals my own belief in an interdisciplinary

approach. Some final thoughts from Rolston (1983) summarize well how we can use such a wide array of learning to move forward with our study in the topic of this paper.

All judgements mix theory with fact. Even the simple cases close at hand involve elements of linguistic and conceptual description about what to call what, and where to draw the lines. An Iroquois Indian might view the hawk as his totem, or the tree and boulder as the haunt of a spirit. Certainly the scientific judgements about natural kinds (granite, *Picea*, *Buteo*) are theory laden. It is admittedly difficult...to say why we prefer science to superstition, but it has to do at least in part, with our persuasion that one is a better window into the way things are. The interpreter imports something of him[her]self into the interpreted. But the fact that we use theory laden decisions about natural operations does not stand in the way of description; it rather makes it possible. (p. 143)

Despite the challenges that come from speaking across different languages, an interdisciplinary ecological approach incorporates models that empower people to think critically. E. O. Wilson (1999, p. 8) calls such an effort consilience, the “jumping together” of knowledge across disciplines to create a common groundwork of explanation. Built-in attention to language enables us to acknowledge our cultural roots. As I promote life-long learning while taking into account different types of learning styles, I hope to move beyond the solely teacher-as-expert educational model into one where individuals’ subjective experience are also valued and these multiple viewpoints can add to the learning of others. By elucidating the connected lines in our shared ecological webs, I hope to inspire deep, third order learning and open pathways for others to engage in the great work of our time.

CHAPTER III

METHODOLOGY

“Are you asking about somewhat the same questions to everyone?” (I9GF).

In this chapter, I describe the qualitative methodology used, my reasons for making various methodological choices, and the research tools I employ to complete this study. I begin to bring in the voices of my interview participants as I describe the terrain I traveled in this study so that readers may place themselves in the context of the land and the journey. Finally I acknowledge my own origins as a researcher for the roots it gave me for this study and my own relationship to the process.

Why Use Qualitative Research Methodology?

I chose qualitative research methods for this study since these methods encourage participants to introduce factors that they perceive to be important and relevant. Qualitative research methods allow new constructs to emerge in a way that is not constrained by a researcher’s predisposition. As Knight, Nunkoosing, Vrij, and Cherryman (2003) note: qualitative research methods encourage participants to think about and verbalize their views with regard to their attitudes and beliefs concerning animals (p. 309). Humans do not often think about the types of relationships they hold

with animals. In my effort to give them the chance to do so, I allow room for the participants to show me differing perspectives. This method avoids pre-defining the types of relationships as I might have done in a quantitative survey, where a participant would simply check off answers I set in a gradient. Hence, the interview participants benefit from a chance to vocalize for themselves the ways that they understand these relationships.

Participants in the Study

Five women and 10 men participated in twelve interviews. In three interviews, three pairs of men and women share their views jointly as couples. The interview participants ranged in age from mid-thirties to mid-seventies. Occupations of the people interviewed included: fireman, landscape maintenance, retired former schoolteacher and principal, filmmaker, sound technician, cattle rancher, sheep rancher, truck driver, wildlife manager, farmer, biologist, wilderness advocate, homemaker, and college instructor.

Ten participants originated from Oregon and five from Idaho. Four participants (two couples) from Idaho lived in towns with populations around 3,100. One Idaho participant lived in an urban area of more than 30,000 people but worked in a small rural village with a population of around 1,000. Two participants in Oregon lived in a small rural community with less than 1,000 residents. Six participants lived in communities with populations greater than 10,000. One person lived an urban

community of more than 500,000. One interview participant's ethnicity is African-American, and members of two different tribes were interviewed.

Decision Related to Interview Questions

Prior to actually speaking to interview participants, I tested the questions with two sample interviews and collected preliminary data for a class in Qualitative Data Analysis. In this way, I shaped the questions I used for the actual research interviews. I asked three primary questions of the interview participants in order to draw correlations for ways that participants perceive wolves: what their early memories are of being out in nature, how they define an ecosystem, and if they have ever seen a wolf. I used additional questions to encourage exploration of their definition of an ecosystem and how – through an examination of the wolf – they perceived the roles that both they as humans and animals played within their self-described ecosystem.²

Some 56 different questions comprised the starting points for the 12 interviews. I followed the advice that a good interview is semi-structured and improvisational. My goals to be a good researcher spurred me to say as little as possible while learning as much as possible (Slim & Thompson, 1995, p. 76). Thus, I asked most of the interview participants "opening" questions such as "What is your

² Ecosystem as used in this sense is a scientific word of my choosing, used for purposes of this thesis as shorthand for readers to understand my ultimate goal to obtain a description regarding the interaction and interconnections that interview participants may draw between wolves and humans. Since interview participants did not necessarily use or think in terms this word depending on their initial frameworks and language references, in asking them to describe something of this sort I would phrase the question in different ways depending on how they initially broached the topic themselves. The glossary provides for further definitions of words as they were utilized in this thesis and how I came to define them in the end.

first memory of being outside in nature?" From there, direction of the questions during the interviews depended on each participant's answers and things like their verbosity, speed and manner of speech, ideas discussed, threads pursued, and the philosophical level that people wished to explore and answer. Appendix A is the question guide.

How Did the Interviews "Flow?"

Prior to conducting interviews I verbally reviewed with participants the purpose of the study, how their comments would be used, and what possible risk may be associated with the study. I gave them a consent form to read that spelled things out in detail. All participants were given the option to request that their answers be kept confidential or semi-confidential. Semi-confidential participants allowed for the use of their initials whereas choice of confidential meant that the participant chose a pseudonym to use. Two participants wanted their interviews to stay confidential. In order to tell participants' answers apart and maintain consistency in how participants were coded, I chose a single letter taken from one of the first couple characters of a person's name or their chosen pseudonym to distinguish each interview participant in the thesis. When I interviewed couples simultaneously, (M) and (F) were used to differentiate between the male and female voices in the interview. All participants were verbally informed prior to beginning the interview that their answers were voluntary for each question. Participants were given the opportunity to review their comments as they appeared in written form to make changes or amendments prior to final publication.

In general, the interviews began with open-ended questions to establish background information and have the participant describe their own "situatedness." As each interview progressed, I narrowed the focus and introduced my topics of interest. Progressively, I focused on such topics as wolves, ecosystems, and the interviewees' beliefs regarding interrelationships between humans and wolves. Interviews generally lasted between 45 and 90 minutes depending on the speed of participants' speech patterns and lengthiness of individuals' chosen answers. One exceptional interview with a couple lasted a little more than 135 minutes.

Strategies for Data Gathering

Given the small sample size and limited time for me to travel to interview each participant, and in order to maximize richness of the data, the interview participants were chosen purposively using a combination of maximum variation, snowball, intensity, and opportunistic sampling strategies. In deciding whether a person might be appropriate as an interview participant, I considered such things as a person's background: where they live (urban/rural), occupation, gender, age, cultural ethnicity, as well as the stance they might hold with regard to wolves (pro/con). In addition, I had to consider the willingness of a person to being interviewed. Regardless of culture, all participants were asked to speak only for themselves and share views that they personally held rather than act as a representative voice for any larger "constituent" or cultural group.

I also employed thick description, journaling, and a holistic perspective approach to help with the data gathering and record observations. Whenever possible, I traveled in the field to meet and interview participants in a setting of their preference and choosing. I chose to do this in part to establish trust and bring an initial comfort level via setting to each interview participant. It also gave me as the researcher an opportunity to experience some of the situatedness of the interview participant – in terms of the aspects of place that a participant may have situated themselves to live (location, vocation, community relations etc.).

In-depth interviews were chosen to gather data since they allow for context-specific, culturally rich information to be shared, and in hopes that this might illuminate how people's knowledge base influences their perceptions of wolves. Although highly emotional topics like this sometimes benefit from study in a focus group setting, depth interviews were chosen since they are "designed to generate narratives" (Miller & Crabtree, 1999b, p. 93). Although a question guide was developed, each in-depth interview followed a flexible format that allowed the researcher to follow various threads as they arose and for the participant to expand upon ideas important to them.

A small battery-run micro-cassette recorder was used to record the interviews. When recording in the context of the Wolf Advisory Committee meetings, a "Soundgrabber" microphone proved quite valuable to facilitate audible recording of meetings under varying room sound conditions.

Strategies for Analysis, Synthesis, and Interpretation of Data

Interviews were transcribed verbatim, with double spacing and wide margins to allow space for notes during coding. A Panasonic microcassette transcriber helped transcribe nearly 500 pages of notes from the interview tapes. Each interview participant was given a letter-number code, and each line of the text was numbered to facilitate location. Interviews were coded for themes. Themes were clumped into categories and subcategories. Inductive reasoning was a method that I used in the analysis. Once themes were noticed, I returned to the literature to check these themes in the literature.

Being a nonlinear thinker, I used creative synthesis methods that were context-sensitive to map the dynamic systems I noticed emerging from the data. I attempted to pay close attention to voice and narrative to help convey parts of the collective story that could be drawn from the data and help synthesize areas for further learning that might take place for future investigators.

Origins of the Researcher

My origins as researcher for this project stem far back into my childhood when I first heard howls of wolves break through the darkness in the mountains of New Mexico, around the age of 12. My years spent in the company of large canines often mistaken for wolves placed me on the raw edge that traverses through some of these interactions. Having lived thus and attempted to take responsibility for my own role in these relationships developed my thoughts with regard to human-animal interactions,

our relation to the wild, and our ability/desire to control aspects of our encounters with such.

While at the University of Chicago, I followed the reintroduction efforts both of the Yellowstone wolves and the Mexican wolves with great interest. I based my college bachelor's thesis on the implications for cattle ranchers of the reintroduction of the Mexican Wolf. My participation in two field studies in animal behavior furthered my thinking and learning. These studies also raised questions for me regarding how scientists approach research of other animals. I noted the questions being asked, the careful attention to objectivity, the attempt to distance ourselves as observers from that which we observe. At that stage in my own development, however, I did not question the underlying framework of my education. Premises and paradigms went unchallenged. My own theories remained hidden and unexplored, as did the outcome of my learning experiences except on a surface level. Reflecting back now, I often was surprised at how much, but for a few remarkable classes, the methods used to teach biology sapped the energy, wonder and joy out of my studies. To this day, though, I use the remarkable classes I experienced as touchstone standards of what a learning experience can be: exciting, stimulating, and thought provoking. The distinction between biology and ecology would have also remained entirely hidden to me during this time except for a breakthrough moment when by chance I took an ecology class as an elective. From this I recognized that the meta-perspective of community ecology

aligned more closely to my personal interests and offered opportunity to explore interconnections and integrate humans back into relation with our environs.

Work in Oregon after college honed my interest in education and deepened my desire to inspire local connections to our ecosystems. Living in Oregon also positioned me to observe some of the inner workings and reactions of people as the return of wolves to the state grew more imminent with the increasing numbers of wolves in neighboring Idaho.

CHAPTER IV

ANALYSIS

You know, the Nez Perce actually followed the seasons...they started out at the winter camp...and in the springtime when the first roots were coming into bloom, they – you know, moved up the hills – upon the hillsides and started gathering roots. When the spring run of the salmon came...everybody moved down into the rivers. And, you know, just kind of – the people moved with what was happening in nature. (18C)

My Journeys: Crossing the Terrain Shapes the Story's Path

Setting Out, November 20, 2003

The journey for my thesis began not with the interviews themselves but earlier, with my travels to listen to the meetings of the Wolf Advisory Committee (WAC) as they set to creating a management plan for the wolf in Oregon. Traveling from Portland to Silver Falls State Park for the first meeting of the 14 member group I had a sensation of “entering the story.”

As we left the interstate and curved around onto the smaller highway, we saw fields of the Willamette Valley looking sleepy, clothed in the dull brown color of dried, spent vegetation preparing itself for the winter. As we neared the park, the land changed again. Trees rose up tall, majestic, and dripping, demonstrating their aspect as

part of the temperate rainforest of the Pacific Northwest. Snow had fallen the night before but by late morning as we passed it was in the process of a cold, wet melt. I approached a log cabin building nestled amongst the trees where the meeting was in progress.

My adrenalin ran high for this first meeting. I had no idea what I would find inside. Two men were standing outside chatting quietly to each other in a conspiratorial way as if the information they were exchanging was important but not for all ears to hear. The meeting was held a large room. Fourteen to 18 participant men and women sat in chairs around tables set up in a "circular"-square fashion. Observers of the meeting squeezed themselves into chairs set up along the walls, seated knee to knee.

The close proximity of that first meeting allowed no one great ease, but on another level, it felt like a womb – dark, and as if in suddenly entering the room, you entered into a consciousness of others around you and a knowing that these individual were not of you. Their views and values potentially differed greatly from yours. As such, this log cabin room bounded some large personalities within its walls and set the stage to welcome in the beginning of a long, arduous 10-month "birthing process" for a heady document, historic in its making. I was thankful for the rich green smell of the dark wet forest outside and when, on the break, large snowflakes lightly began to fall. They fell like light accents that quietly touched the rich beauty of the moment.

Subsequent Meetings of the Wolf Advisory Committee

As these 14 members ploughed deep furrows into the rich soil of different sections of the wolf management plan, their conversations ranged across many aspects: logistical, technical, social, economical, ecological, fears and concerns of different viewpoints being heard or not, and the consequences that might stem from different management decisions as chosen by the specific use of different words.

Stretching My Envelope

My efforts to be present unfolded in quick trips made on a monthly basis in the midst of teaching and classes. Attending meetings involved hugely stretching and pushing aside all other responsibilities. I got up at odd early hours to drive across the state and arrive in strange towns often stressed slightly as I tried to navigate my way to find the locations where meetings were being held. Once I found the sites and arrived, these meetings required adjusting to the spatial layout of a new space, and settling in to listen with a quiet focus for hours at a time. Outside of the meetings, much of the time was spent finding simple things: a place to eat, a relaxing place to walk with my traveling companion Harvey-the-dog, and – when I could afford the time for a two day journey – a place to spend the night. Negotiating these things as stranger to these towns I now visited reminded me on a visceral level of: (a) the needs that might occupy a wolf when he/she enters a new area, and (b) how so much of our human society has been structured so as to facilitate this finding process, and make recognizable certain landmark or "community nodes" – in short order – to facilitate a

new person's "situatedness" when they arrive at new locale and answer their basic needs of survival relatively quickly.

...and my dad is the one who told me that [he] always want to go up and see what's over the next hill and then what's over the next one – pretty soon – you know. But he always told me where I was gonna end up. The lay of the land. And it wasn't until...the first time that I got to fly that I actually got to *see* the lay of these mountains. They were just what he said they were. (I2K)

The Land of the Unknown

In the beginning of this study, things unknown loomed prominent and many questions arose to be answered. In my desire to learn more about the "lay of the land" I felt it most important to do this not only in a mental construct but also literally (see Figure 2). So I traveled to Oregon Department of Fish and Wildlife (ODFW) headquarters in Salem to listen to their commission meetings. I observed WAC meetings in Salem, Bend, Island City, and Pendleton. Traveling out of town, I would leave the Willamette Valley that I had called home for 6 years. I passed through the lush, forested, rainy mountains of the Western Cascades. I followed "long-haul drivers" of semi-trucks through the steep cliffs of Columbia River Gorge as they traversed the country moving food and supplies to various locations around the country. In the high Columbia Plateau region, rolling hills stretched out holding golden waving grasses, ample farmland, and a hot beating sun that created a xeric

Ecoregions of Oregon and Idaho

Figure 2. Ecoregions of Oregon and Idaho.

landscape where most of the water was held below ground. Rising up in elevation from there, the Blue Mountains loom large as a challenge to cross. My journeys touched upon various points of Lewis and Clark's exploration as I proposed to discover connection points in the stories of the land. As my journeys across the land strung elements of wolves and their return on the warp of the loom of this thesis, each interview and subsequent gleanings from history books and the WAC meetings wove stories of place, people, its past and future, into a vibrant fabric (see Table 1).

"...if you see wolves in the wild, they are usually a long, long ways away. They are very, very afraid" (I7DM).

"But you know the term ecosystem is one that humans have defined and created" (I11B).

Table 1

Brief Summary of Interview Participants' Situatedness

Interview	Cultural Background	Location	Wolf Knowledge
I1F	Male Fireman Born in Connecticut. Family moved a lot. Ocean first nature memory. Family roots in the Virginia. Surprised to experience cow as child. Hiked a lot as adult. Lived in Germany, California, Arizona, Colorado, Oregon.	OR Urban > 100,000 Willamette Valley	*W k
I2K	Male Landscape Maintenance. Born and lived whole life in Oregon. Grew up listening to father's stories of self sufficient life on wheat ranch in Umatilla reservation. Shared observations of changes to the land from deforestation and railroad.	OR Medium > 10,000 Columbia Plateau	*W K
I3J	Male Retired Principal Born and lived whole life in eastern Oregon. Family had sheep growing up that they would trail up in the mountains for the summer. Worked on various ranches – helped harvest wheat/peas, worked in lumber mill. Went to school and taught in various towns before settling in an area that bordered the Blue Mountains.	OR Medium > 10,000 Columbia Plateau	I* H k
I4S	Female Cattle Rancher Fourth generation rancher born and raised in eastern Oregon. Son is farmer nearby. Ranches with husband. Rather be on a horse than a tractor. Income tied up in cattle. Enjoys natural beauty of things and challenge of making things better.	OR Rural < 1,000 Blue Mountains	*w K
I5M	Male ODFW Wolf Coordinator Grew up in Willamette Valley. Lived in Oregon entire life. Regional biologist for 20 years with ODFW. Agency funded primarily by big game hunting permits despite the fact that their work extends wider – to cover non-game species as well.	OR Medium > 10,000 Blue Mountains	-N/A- K

Table 1 (continued)

Brief Summary of Interview Participants' Situatedness

Interview	Cultural Background	Location	Wolf Knowledge
I6Y	Male Wildlife Administrator Grew up in Pendleton. Lived whole life in Oregon. Wildlife management for 32 years. Trains young filly in off-time. Believes in possibility of communicating with other species – via either negative or positive feedback mechanisms.	OR Medium > 10,000 Blue Mountains	*w K
I7DF	Male Filmmaker Grew up in Florida catching frogs, collecting turtles, looking at seashells. Beauty of an underwater experience part of why chose his work in wildlife film. Worked as a cattle wrangler in Wyoming. Started taking pictures and creating films to take audience into a world that they've never known before.	ID Rural ~ 3,000 Blue Mountains	*Ww h K
I7DM	Female Sound Recorder Born in Washington, D.C. Grew up in Maryland curious about nature and animals. Interest in wildlife led her toward work recording animal sounds for film. Wants to bring people closer to appreciate wildlife. Enjoys wildlife on 3 acres of land.		*Ww h K
I8C	Female Wildlife Biologist Born and raised in a small urban city off of the Nez Perce reservation. Interest in being out in nature only started after got a job doing summer stream surveys in college. After school in Oregon and Idaho, became a wildlife biologist active with the wolf program in Idaho for 5 years. Now works with other non-game species.	ID Home Medium > 30,000 Work Rural ~ 1,000 Blue Mountains	*W H K
I9RM	Male Farmer Born and raised in NW Idaho. School in Montana and Washington. Taught before buying a ranch to farm in 1966. 80-90% income comes from grain. The rest come from cattle.	ID Rural ~ 3,000 Columbia Plateau	*w k
I9GF	Female Wife, Mother, Ranch Hand Born and raised in Seattle. School in Washington. Married. Moved to Idaho to farm, drive truck, raise family.		*Ww k

Table 1 (continued)

Brief Summary of Interview Participants' Situatedness

Interview	Cultural Background	Location	Wolf Knowledge
I10NM	Male Sheep Rancher Grew up on a desert farm in California near the Mexico border. Went to school in Washington, got married, moved to rural town in eastern Oregon. Been a sheep rancher and general handyman since.	OR Rural < 1,000 Blue Mountains	H *I k
I10VF	Female Homemaker, Gardener, Active Community Member Grew up in Seattle, Washington. Got married after college and moved to rural eastern Oregon to live since.	OR Rural < 1,000 Blue Mountains	*I k
I11B	Male Wildlands Advocate Grew up in suburbs outside of Detroit, Michigan. School in Ohio. Moved to Montana and worked with Wildlife Federation. Worked doing restoration in salmon hatchery in Alaska. Moved to eastern Oregon after law school.	OR Medium > 10,000 Blue Mountains	*w K
I12I	Male College Instructor Born in rural northern California. Idolized uncle who was a rugged cattle rancher who hunted deer. Career in wildlife management until discovered joys of teaching. Nature is incredibly dynamic, & functions in complex interactions between biotic/abiotic factors.	OR Medium > 10,000 Columbia Plateau	-N/A- K

KEY

- W* = Has seen a wolf/wolves in the wild
w* = Has seen wolf/wolves in captivity
I* = Has seen image of wolf/wolves
(TV, journal, magazine, film etc.)
i* = Imagined mental image of wolves
H = Heard a wolf/wolves howl in the wild
h = Heard a wolf/wolves howl in captivity
K = Has an in-depth knowledge of wolves
k = Has a somewhat knowledge of wolves
-N/A- = Question not asked in the course of the interview.

Ecological Views on Nature

Definition of an Ecosystem

In asking how people define an ecosystem, I wanted to know about the boundaries that people choose to do this. Initially, I expected that people might list various components (soil, water, plants) or characteristics (living, non-living) or features (nutrient cycles, system processes) to include *in* their version of an ecosystem. Since I entered the study holding the view that ecology was the study of interrelationships, I expected to find that as people defined ecosystems, they would discuss interrelationships. From gaining a better understanding of what people bounded inside an ecosystem, I hoped to gain a better understanding of the roles wolves and humans might be placed therein.

People chose to answer this question in very different ways. In listening to the wide variety of ways that interview participants engaged in trying to explain their definition, I realized that (a) the word ecosystem is not universally defined; (b) when trying to define the word, people entered into a mental process of asking a series of questions to determine what it is; and (c) that the differing answers to this question were intricately linked to their views, values, and ways that people chose to interact with the nature around them.

From interview participants' answers I was able to create an ecosystem decision tree (see Figure 3) with several consecutive questions that helped predict a

Ecosystem Beliefs and Perceptions

Figure 3. Ecosystem beliefs and perceptions decision tree.

person's perspective on management decisions. The questions as they became apparent were:

1. Does the individual have a belief that ecosystems exist?
2. Are humans a part of the ecosystem?
3. Do humans have higher priority than others?
4. Is the system perceived as balanced/healthy/functioning?
5. Do humans determine (or play a part in) the balance?

Depending on how a person answered these questions, they may or may not believe in human interventions, or see human interventions as detrimental, positive, crucial or not necessary for management or care for nature.

As can be noted from Figure 3, by tracing different answers, one can arrive at different environmental perspectives. This decision making tree offers an initial sketch to visually help trace peoples' differing philosophies and bring to light the underlying assumptions that may accompany each. After synthesis from my participants' interviews, one effect I noticed is how individual participants would answer questions that would appear to place them on one branch of the tree while later in response to a different question their answer might almost contradict their earlier thoughts and place them on a different branch. An example of this thinking is discussed below under "Belief (or Disbelief) that Ecosystems Exist." This decision tree represents a first attempt to flesh out various viewpoints but begs more research to specifically explore these questions and test the tree's validity for different perspectives.

Belief (or Disbelief) that Ecosystems Exist

In wanting people to think about what an ecosystem is, I asked that people accept the existence of such a thing as what the term “ecosystem” describes. What I found, however, was that not all interview participants agreed with this initial premise. Several interview participants reflected an interesting mix both of actively refuting the idea but then, paradoxically, giving examples of what might be included in an ecosystem when allowed to define the term themselves. For example, I9GF actively refuted the idea:

I know what they want it to mean and what they say it means...but I don't really think there is a thing as an ecosystem...I don't think you are ever going to have a balance in there between the humans and the plants and the animals the way they are trying to describe ecosystem. (I9GF)

Later in her interview though, she included humans in a system as long as it could be defined differently, as something where human needs take precedence (have more of a share) over animal and plant needs.

Approaching from a different angle, I8C also expressed discomfort with the word “ecosystem.” For her, though, it was not the idea of balance that did not sit well, but more that the word was too discrete and did not include enough of the idea of *how different things work together*.

Incorporating these two participants' reluctance to use the word as well as the results from a preliminary test interview I created the first branch of the decision tree in Figure 3. As can be noted, if a person does not believe that ecosystems exist, they may perceive the world to work in entirely different fashion: either a

linear/mechanistic fashion, in a dynamic dance, or in an as-yet-unvoiced-way of ordering the world.

For those that accepted an ecosystem view of nature, different participants chose to describe ecosystems using words that spoke of processes, cycles, and boundaries. I4S touched on the concept of processes and cycles when she said that “ecosystems ebb and flow.” I11B chose to describe it as “a large[r] network that had a structure and consisted of life processes.”

Several interview participants viewed ecosystems as large entities, not reflective of discrete boundaries. They used terms like “surroundings” and assumed that an ecosystem equated with nature. Interview participant I3J defined the term ecosystem simply as our surroundings but included both the biotic and abiotic factors:

The ecosystem? Well, I think it means, um, *our surroundings with all of the things*: the animals, the birds, you know birds are animals, but all the plants, the climate, and the everything is part of our ecosystem, including our natural resources. The air above us, and all of it.

I1F, I4S, I10NM and I10VF also had all-encompassing views on ecosystems. According to I4S, “ecosystems can be anything and there are ecosystems everywhere” and for I10VF “nature’s everything.” I1F thought it’s a balance between the land, earth, water, and all the natural resources. Conversely, one reason I8C initially expressed discomfort with the idea was perhaps because she saw the term to be associated with discrete boundaries like a wetland that includes certain plants and...certain critters in there” (I8C) and she was careful to discriminate from a focus solely on a particular species and its requirements for survival (organismal biology)

and an ecosystem, which for her was “much more how things work together and how one [species] relies on the other for survival” (I8C). This view of things existing together acknowledges interrelationships between different organisms.

In sum, some interview participants accepted or negated the idea of ecosystems depending on what they included inside it. For some, the idea of an ecosystem necessitated a discrete boundary in space (I8C). For others, the size varied as individuals thought an ecosystem is centered around a single organism’s needs (I4S, I5M, I6Y) or centered around multiple organisms living together (I7DM, I7DF,) or existed as an all-inclusive network with biotic and abiotic factors (I1F, I3J, I2K, I11B, I12I). Varying size implied boundaries are flexible, but still located spatially. Processes and cycles were acknowledged in different ways depending on how interview participants viewed the center.

Of the interview participants, there were actually three people trained in wildlife management, one who had worked as a fisheries technician and a fifth person who was in the process of a getting a masters degree in Wildlife Resources in Idaho. Interestingly, the definition varied between these individuals from being one that an ecosystem included the habitat needs (food, shelter, water, etc.) for an individual organism (I5M, I6Y) to something described as the interaction between animals and plants (I8C) to the complex interactions between biotic and abiotic factors (I12I, I2K). I2K actually described an ecosystem using the watershed idea. Although these individuals were not the only people to describe ecosystems in these different ways, it

is interesting to note that these individuals, whose education might have included the greatest similarity in terms of biological learning, actually formulated their thoughts regarding ecology very differently.

Are Humans a Part of the Ecosystem?

The presence or absence of humans in ecosystems seemed to be an important factor in terms of how interview participants related to other animals. Here participants broke apart some of my existing stereotypes in this respect. Initially, I expected participants who held anti-wolf views to also believe in the separation between humans and nature. Interestingly, over the course of the interviews, more than one participant who expressed a wholistic view that included humans *in* nature also expressed anti-wolf sentiments where they were not welcome (I4S, I9GF, I9RM, I10NM, I10VF). “So anyway, I don’t see, I don’t think we ought to have wolves around here” (I10VF). “We still need to be absent wolves in order to raise livestock” (I4S). “I would be uncomfortable to encounter them” (I9GF).

Conversely, some of the research participants who expressed perhaps the most typically recognized “environmentally friendly” attitudes came from mixed perspectives in terms of whether they included humans in ecosystems or not and whether they then thought wolves had a place in said ecosystems. For example, I1F basically expressed sentiments that separated man from nature (wilderness). He was all right with the idea that animals had a place in nature, generally did not feel like wolves were going to try and be around humans unless their territory was encroached

upon. If one were to show up in his back yard, he would be concerned about it being there, mainly because it would indicate an ecosystem out of balance where the wolf's needs were not being met elsewhere and therefore driving it to investigate human inhabited areas as possible territory. I2K generally felt like humans' presence in ecosystems were negative and that wolves' were already present in the ecosystem where he lived – in effect almost excluding the two from co-habiting space – but it was from the perspective that humans needed to remove their presence more from the landscape. I1F offers an example of what might be considered conservationist philosophy whereas I2K's viewpoints may tend more toward preservationist in nature. As Figure 3 illustrates, there are several other perspectives whose philosophies are no less “earth-loving” or “eco-friendly” but management strategies hinge around questions of where humans fit into the ecosystem and then what part humans play in the health/balance of ecosystems. These nuances are not often made clear when such issues are discussed in mainstream media. The simple juxtaposition of preservationist versus conservationist philosophies, under-represents these other perspectives and contributes to labeling folks who harbor pro-environment sentiments as “other,” or as an outlying group. The majority of people harbor pro-environment sentiments with different underlying philosophical assumptions as to what humans' role within should be (see Figure 3).

“So, like in my mind, it’s probably overstated some. But I know they’re bigger than coyotes” (I10NM).

Seeing Wolves: Perception

Figure 4 denotes humans, now in the presence of wolves (and they with us). This bare sketch shows how both humans and wolves, when an encounter occurs, each engages in perceiving the other. Here we get to chew on the meat of this study. As such it has definitely been a substantial amount for me to gnaw on as I mulled over wolves and what it means to perceive. As I asked people about their perceptions of wolves, I realized “perception,” like the word “nature” in the title of this paper, was also a paradox. I was asking how people perceive an animal that actually was not present at the time of the interviews. So in a sense, it was a hypothetical perception. At the same time, by not having a wolf exactly present at the time (which would have occupied the interview participant's attention in another direction while I was trying to engage them in conversation), I allowed people to share more of the mental associations that the idea, the mental image of a wolf or wolves, brought up for them. However, one of the questions pertaining to wolves was if they had ever seen a wolf at all. So in that regard, when an interview participant shared with me their experiences

Wolves → Perceive Perceive ← Humans

Figure 4. Wolves perceive, humans perceive.

there, they were in effect sharing their actual (not hypothetical) perceptions as they had been incorporated into their memory.

I chose to use the word perception initially understanding that the act to perceive equated to what I meant when I said "I see" in the metaphorical sense as if I meant to imply "I understand." As I delved deeper into the meaning of the word, the choice of using it brought new insights. As the study progressed, more and more this word appeared as the one most appropriate to use. The ambiguity that comes with perception mirrors in a certain way the way we "see" wolves. As humans' perceptions of wolves have seemingly diversified, similarly, as we noted via our theoretical framework in chapter 2, the definition of perception has undergone its own development from being solely a topic of philosophical study to one examined within the realm of psychology and our every day reality. The complexity of how perception is defined has evolved similarly with the idea of an ecosystem as scientists have contributed new ideas regarding the inner workings of the psychological mind.

The Basics: What People Knew

Interview participants all had something to share with me with regard to their knowledge and the way that they perceived wolves. Even those who had never seen a wolf in real life still had insight to share about the mental models they carried from having seen images of them. Of the 14 interviews, six participants described instances where they believed that they had seen a wolf in the wild. Seven participants described situations where they had seen a wolf in captivity. Three shared their insight from

having a mental image (derived from a calendar, painting, or film) alone and two were not asked the question during the course of the interview.

Most people seemed to know these basics about wolves: (a) these animals are a type of canine; (b) they hunt for food; (c) they are larger than a coyote; and when asked, they could (d) generally describe a pointy eared, four-legged animal with tail, head, and shaggy fur.

Ambiguities

Beyond people's general knowledge however, it soon became apparent that gaps existed and that large areas of ambiguity or discrepancy continued to create gaps in knowledge about these animals. Questions came up repeatedly with regard to (a) identification, (b) interpreting behavior, and (c) and what change their arrival will effect in the landscape and for people's livelihoods.

Identification

Questions of identification came up in several instances as an important area to consider with regard to wolves. I often queried a participant more closely about how they were able to tell what they had seen was a wolf and not a coyote or hybrid between a dog and a wolf. A common reply that I heard was as I1F said: "In my head I know what they look like." I4S was even more specific in describing the ambiguity as she noted for the captive wolves that she had seen at a wildlife refuge:

I'd definitely be looking for more difference than I was, than I saw in those, between a, say a cross-breed malamute and a German shepherd. It could have been any – as far as I am concerned – it could have been any kind of a mix at all. I wouldn't have staked my reputation that that's what a wolf in the wild looks like.

I2K was the only participant who, when he saw a wolf in the wild, actually made an effort to back up his observations by measuring the size of the tracks left behind by the animals against the paw print of his own 120 pound German shepherd. He also noted the ways that the three animals he saw moved (easily) through deep snow in the midst of a blizzard and how his own large German shepherd with him at the time behaved when he saw the animals moving on the trail in front of them: "And he would just – he stopped. He wouldn't go and then I'd go on ahead and he would stay behind me," explained I2K. But even he, in another sighting when he saw an animal running on the skyline, was careful to recognize that hybrids can resemble wolves very closely, "it was a big dog. It was a big body. Whether it was a hybrid or a wolf I am uncomfortable to say cuz it moved across a lot of country real fast."

I3J mentioned how he had some familiarity with "prairie wolves" as they had been called where he lived. Brush wolves might be a common term for what are known elsewhere as coyotes. Confusion between coyotes and wolves is also a likely source of ambiguity. I1F, as an urban dweller, mentioned how he had seen wolves several times over the years – a few times in New Mexico and once in Canada. While the animals he described sounded similar, most of his sightings were of solitary animals which could either be an example of a dispersing young adult wolf or a coyote as these animals tend to be more solitary in nature (although they too have been known to aggregate in large packs in certain instances). The very fact that some of the sightings took place in New Mexico (a state where wolves faced serious eradication

efforts) during years when their populations were supposed to be quite low lends more credence to the possibility that these sightings might also have been of coyotes.

Interpreting behavior. Areas of ambiguity that related to their behavior included what wolves might be doing when observed in the wild. Several stories were told where the question "What do they want?" arose immediately as one of the first responses to sightings of the wolves. Additional areas included correctly recognizing family structure (if they run in packs or not, what is a pack?), distinguishing between wolves' ability and potential to do harm and their actual desire to do harm (either to cattle or to humans), and how controlled killing as a management option might affect relations both on a human level (easing the minds of ranchers) versus taking into account relations on a wolf level (disrupting social bonds and pack's structure).

What Change will Wolves' Arrival Affect in the Landscape and for People's Livelihoods

Interview participants acknowledged that wolves' arrival would affect certain changes to the landscape. I8C noted that "now we have to be more aware that yeah, there's a wolf out there." Many interview participants recognized that wolves' active presence in the landscape would definitely impact ranchers' livelihoods. Several interview participants spoke of how their chosen livelihood of farming or ranching resonated on a deep level that went beyond the economic pay-offs.

It's a two-edge sword because it's a way of life and that's one of the reasons you do it but also, it's a business...But you are so tied to it – because it's a way of life – that it's even hard to make business decisions sometimes because you – if it was just a business, you might close it up. But you won't because you love it, because it's your way of life. And so the two are welded here. (I9GF)

This response is part of what led me to draw the relationship between perception, interpretation and assessment, the encounter and subsequent action as seen in Figure 5. Figure 5 traces the paths that input travels within humans in order to come up with what is perceived. Input first enters via the five senses in a synaesthetic process as Abram (1996) describes. Humans then tap into their own mental models which are formed from a structure consisting of their knowledge base, logic patterns, beliefs, and their own particular “situatedness.” Education as a process can inform both a person’s knowledge base and their beliefs. Beliefs can be informed by a person’s spirituality, life philosophies, their relationship to nature, past experiences, and situatedness. Situatedness is comprised of a person’s community relations, their vocation, location as they relate to the natural terrain in which they live. Community relations can be inner (language to self, character and individual “nature”), intra-species (language/culture within our human species, social roles like family and community), or inter-species (language/culture between species, social roles). Past experiences affect life philosophies and beliefs and are linked by memory and awareness. A person’s situatedness, beliefs, and knowledge base feed back to create values and meanings into what interpretations they provide for the sensory input.

It is from here that a perception is offered up to a human when they encounter something. Questions are asked: Is it safe? Enjoyable? What is Known? Is it Other? Once a perception is determined, it can lead to a person’s actions, either a consciously chosen or an instinctual “startle” gut reaction. This greatly factors into the outcome of an encounter.

Human Perception

Figure 5. Human perception.

Figure 6 represents an axial graph of my findings with regard to how peoples' perceptions of wolves related not only to locale/proximity but also to the type of interaction that wolves might engage in with humans. Positive or negative perceptions of wolves were not cut and dry for the interview participants. Perceptions of wolves hinged on the type of interaction as well as how near a wolf was, either imagined or in reality.

I4S demonstrated this three-dimensionality very well. When asked how she would feel if she encountered a wolf she responded with two different sentiments depending on proximity:

In the wild? It would depend on the circumstances I think. Um, you know, if it were in my cattle, I would be angry... and I would hope to have a gun!...Um if it were somewhere else, if I were in Alaska or Canada, and I didn't have anything any vested interest in what the wolf was doing, it would be interesting. It wouldn't be any kind of mystic experience because that's just not the way I approach nature.

I9GF also reflected a similar duality: "It's not that you don't want them someplace else...But I definitely think the wolf is out of place when he's in my yard."

Curiosity came up repeatedly when paired with a disengaged wolf who either did not know or did not care about the people present. Several people mentioned wanting to watch a wolf and see what it did in the wild. In the case of I6Y this curiosity was based on the condition that the wolf not be able to see him. If that condition was met he would "want to observe it but not impede it."

Even the most pro-wolf interview participants recognized that proximity to wolves changed their perspective on them. The couple in my seventh interview had

3-DIMENSIONAL AXIAL LEVELS OF PERCEPTION LOCATED IN PLACE/SPACE

Figure 6. Axial levels of perception graphed by locale and interaction type.

had the privilege of raising several wolves in captivity from pups. They possessed unique insight and perspective on wolves' amazing character traits and social interactions having witnessed them first-hand over years of study. But even they, despite their obvious appreciation for the animal, when discussing wolves in the wild mentioned proximity as influencing their perspective

The people will say: I saw wolf over in Elkhorn. Which is five mountain miles away. And my reaction is: That's horrible. That wolf is going to get himself in trouble. And I'd rather he didn't come down this far (I7DM).

To which, I7Df responded: "And most of the time it turns out they're not wolves. They're very big coyotes." I7DM agreed.

Other reactions to sightings of wolves ranged from fearful to thrilled. While many admitted adrenaline was a factor, whether it turned into fear or an awesome thrilled feeling seemed to depend in part by how much knowledge or experience the person had with regard to wolves. I2K saw a wolf sighting in the wild as a special day. "Some of those kinds of things you might never see again but you are just kind of grateful that you got to," shared I2K. I8C, as a pivotal example, started out researching wolves in the wild having never seen one in the wild. When she first encountered a pack of wolves with her research partners, they had the eerie experience once they were hiking back down to the camp to turn and realize that two or three wolves had been following them. She describes this experience: "...we just kind of watched them and they eventually just kind of left. Went out – off into the darkness. So then I was freaked." This fear reaction in later instances turned into exhilaration when she

realized from experience that for close sightings of wolves in the wild were quite rare, and most “They scoot. Tail tucked and run away,” she shared.

For her initial sighting, she now looks back on this experience and figures that the three wolves were young sub-adults who were curious about them. For a person who may not know as much about wolves, it would be easy to see this experience as a threatening situation where their intention is unknown. I10NM and I10VF both shared their perceptions where wolves may move into an encounter with humans and exert their influence. I10NM shared a mental vision he had from a film of a man walking through the trees with a pack of wolves dogging him. “Every now and then one will make a rush at him. Luckily he has a stick to protect himself so they’re all sort of in equilibrium and they aren’t.” For I10VF though, these chosen encounters with humans may have a more sinister undertone:

There’s a scene in one of those books about the wolves circling the house. It’s sort of like they’re – dogging them is a good way – scaring them on purpose. Being kind of um, hey I can do anything I want. I’m the big dog. I can scare the shit out of ya if I want to. I might not do anything but I can scare you if I want to... Yeah, I do have a feeling like they can be not innocent. They can do things that are mean kind of.”

In an interesting twist, I1F chose to interpret a wolf showing up in close proximity from a completely different vantage point – that of looking through the wolf’s eyes and seeing things from a wolf’s perspective. Having several subsequent interview participants look at an encounter through a wolf’s eyes led me to consider wolves’ perception (see Figure 7). I7DF spoke of how allowing wolf hunting could be disastrous for a pack since usually a hunter might choose the largest member of a pack

Figure 7. Wolf perception.

to shoot since that might make the more impressive pelt. From the wolves' perspective this choice might mean that an animal in the alpha position might be shot and then the entire pack would lose the knowledge of that alpha or older member.

In this day and age, there is little doubt that wolves are sentient beings – capable of thought, learning and premeditated behavior. Animals possess a high intelligence and language that enables communication. Bass (1992) gives a notable example of wolves using forethought, memory and decision-making processes to attack four grizzly bears who had wandered too close to their den the day before.

On the following day the pack of twelve hunting members sought out the bears, an animal that has been known to kill and eat wolves. There was no evidence of threats usually made to avoid a fight, the wolf pack simply attacked the bears. Two of the yearling bears were killed. A young bear, a big sow, and most of the wolves were wounded. The attack was almost certainly made in an effort to defend the pups, it appears that the delayed attack was a deliberate decision on the part of the wolves. (pp. 38-39)

In another example noted wolf biologist David Mech shares a story with Strauss (1993) of a captive wolf who demonstrates learning and logic abilities of a wolf. A captive wolf observes the mechanism that closes and opens its gate. It then repeatedly attempts to reach the triggering wire cable by jumping eight feet into the air and grabbing the cable until the gate to its pen is lodged open and the wolf escapes.

“Wolves don’t learn tricks as easily as dogs do,” says Dr. Mech. “But that’s not because they can’t. They’re just not interested in tricks, but they will watch some event going on in their world and take from it their own ideas to solve a new problem in a different situation. Wolves are more clever than dogs when it comes to problem-solving.” (Strauss, 1993, p. 58)

This story is also referenced in the scientific literature by Fox (1971) and Packard (2003). In the review by Packard, she goes on to note that wolves exhibit significant

abilities toward decision making, learning specific consequences of their actions, associating a diverse set of clues with predictable situations, and emotional thresholds associated with the social context of learning and response to novelty. To Packard and other scientists,

At issue is the degree to which intelligent behavior in wolves reflects ancestral knowledge stored in the genome and the degree to which individual experience results in novel insight. (p. 65)

Just as humans have their different contributors toward perception that occur for them, wolves perceive their world as well. They too have a situatedness fed by the terrain where they live, that determines location for things like hunting, denning, territory and dispersal. The situatedness for a wolf also hinges upon what season might it be – is it pup-and-birthing time or the season-of-cold-and-walking-single-file?

Wolves must form their own beliefs about where to hunt, what is good to eat, and what signals danger in their world. Their past experiences, beliefs and situatedness all feed into their knowledge base with which they process any sensory input that occurs – thereby creating their perceptions. Packard (2003) notes in an experiment described by N. L. Heistand's dissertation where wolves were tested on their ability to master one to three rope tasks,

wolves behaved as if they had both the neuroendocrine programming that attracted them to situations in which they were likely to learn and the attentiveness to social companions that shaped their behavior in ways that were effective in attaining their immediate goals. (p. 64)

Elsewhere Packard notes how R. Peters proposed in 1979 that “wolves learn to navigate in familiar landscapes by forming learning associations analogous to a

cognitive map (p. 64). In Figure 7 I also allowed for some additional unseen/unknown possibilities to feed into these three things since we as humans cannot actually say with 100% certainty that we know all there is to know about the way that a different animal experiences the world.

CHAPTER V

CONCLUSION: MOVING TOWARD FUTURE DIRECTIONS

...the education part is more important than we first realized or I first realized. Getting that word to these smaller communities...I think a bigger percentage than we realized are willing to do that. (I2K)

Wolves, as an animal returning to the land they once called home, still occupy a special place in our psyche that digs down deep into the humus of our own situatedness in life, our memories, our individualized knowledge as we each have gained it thus far, our logic patterns, experiences, and beliefs as we hold them to be true. As North Americans, we often suffer a tendency in the media to paint a picture of how these animals are perceived as a black and white issue: pro-wolf versus anti-wolf. However, the truth is as much nuanced as the shades of grey that exist in the coat of a gray wolf. Many colors exist within the species of “gray wolves” – black, brown tinged with red hues, white, and so forth. Delving even further here, closer to the skin, the fur of one individual gray wolf can hold many tones, shades and colors – each guard hair can change from the base to the tip and then also depend even on where they are located on the body. Wolves are finding their way across the state of Oregon. Running in parallel to their journey, their presence challenges us to incorporate all

forms of learning that will influence the outcome. The WHY of this thesis (see Figure 8) has to do with the outcomes of a human-wolf encounter. As elucidated from the figures I presented earlier, perception is a process that occurs both on the side of the human involved and that of the wolf (or wolves). When an encounter occurs, the human checks in using a synaesthetic approach of all their senses as well as their mental models to assess the situation. So, too, does a wolf. But, given that a wolf's considerations are different than ours, they may deduce and approach such an encounter from their own wolf perspective – including therein, their own ecological situatedness, knowledge base and beliefs about us as either a threat, a food source, something to ignore or triggered instinctual response.

The outcomes of wolf-human encounter are of importance. Once an encounter has begun, the paths it could pursue depend on the what both the wolf and the human perceive. If, in their individual mental processes, the instinct is triggered, the path the encounter takes could shape very differently than if facultative chosen responses are able to be deployed, and analysis able to occur. Since we have images of wolves embedded in our culture through language, stories, and our education, if we are to enter this time in history armed with any new knowledge about wolves, we must take into account the many ways that they are perceived. In this way, wolves demonstrate how ecological systems have the potential to be impacted by a non-visible factor, a part of the unseen world. As Figure 8 suggests, each encounter with a wolf is surrounded by and moving through time and space. Each encounter is not fixed solely occurring within our landscape but one that adds itself to our cultural body of knowledge.

Figure 8. This is the WHY.

Figure 9 attempts to show how both seen and unseen components factor into any outcome from an encounter with wolves. In the “seen” realm – either one or both parties are aware of the other, they may care about the outcome, and perhaps a direct experience occurs. It is from here that we might try to assess the cost/benefit or danger/safety of a given encounter.

In striving to understand how perception might influence the outcome of encounters, I drew three axes to denote whether a person cares/does not care; if they are aware/not aware and finally if they have a direct, indirect, or no affect. If a person’s encounter with a wolf falls anywhere where they either care about, or are aware of, or are directly affected by the outcome of an encounter, I figured that touching any of these axial relationships, the outcome of an encounter would be within the “seen” world. On the other hand, if the encounter created an effect that was not felt directly, or if a person/wolf did not care or was not aware, then the outcome might not be seen. In this way we assess the effects, cost/benefit, or danger/safety of an encounter from one side of a butterfly’s wing, when really the effects occur on all levels.

I drew the butterfly as an image for different reasons. First is that the image of it flapping lends a three-dimensionality to a two-dimension picture. It reminds us that in every situation, things are in motion. Secondly, I drew the butterfly to help convey that for each action visible in the seen world, there are most likely other actions not visible but still in motion in the unseen world – all of which will affect the outcome of a situation. We might draw on these perception assessments to also influence our

3-D AXIAL LEVELS OF PERCEPTION IN MIND

Figure 9. Axial levels of perception in the mind (butterfly).

management decisions while forgetting the aspects of the unseen world that exist and are still connected to the outcome of each encounter.

The image of a butterfly having an impact upon both the seen and unseen world and therefore having a long-reaching effect on the pattern of things is not mine. Rather this is an idea that has taken root in our culture. I give credit to having heard and considered it more fully through talks given by Prechtel (2005b) as well as that “butterfly effect” concept where the flapping of a butterfly’s wings could create the conditions for a tornado to later occur, whereas, if the butterfly does not flap its wings, the conditions would not be present. Although this idea was popularized in the mainstream by Edward Lorenz and his work on chaos theory, it also appeared in a 1952 short story by Ray Bradbury where one butterfly dies under the shoe of a person who went back in time and subsequently affects the course of human history.

As an example of some of the hidden consequences that occurred after wolves repopulated an area, interview participant I7DF notes:

Such a success story of you know – the riparian areas recovering. The elk are no longer hanging out by the river, they’re up on the slopes. Now the beaver is back, there is more for the other animals to feed on, in the riparian area. The ecosystems are in much better shape. The carcasses left by the elk are fed upon by the golden eagle and the grizzly bear. Those things are wonderful.

That the return of wolves to an area might have some far reaching effects such as restoring the watershed health and resiliency of an area could then in effect potentially provide some benefits even toward those people that may be directly impacted with their presence through loss of livestock.

What will Lend Better Understanding Toward People's Perceptions and Definitions of Our Ecological Landscapes?

In answering this question, the first finding of this thesis is that people's perceptions of wolves are not as fixed in black and white as they are often portrayed by the media. Rather, perceptions can be multiple, layered, and vary depending on such factors as what a wolf is doing, how proximate they are to a human and what sorts of knowledge, philosophies, values, memories, experiences, and so forth are held by a person.

In the same way, our definitions of ecological landscapes are not dualistic. Many people value the ecological landscapes in which they live, work, and in which they have grown up. I posit the under-representation of these other perspectives contributes to labeling of folks who harbor pro-environment sentiments as Other or as an outlying group rather than recognizing that the majority of people harbor pro-environment sentiments with different underlying philosophical assumptions as to what humans' role should be. In reality, it becomes a matter of the language that is chosen to speak of these things that promote true understanding and will create a common ground for dialogue. In granting that all players (human and nonhuman) live and exist on a valued mutual ecological landscape – a commons – we find ourselves charged with the mission to build resilience in the system to build resilience in the system that will buffer the effects of change that are introduced into the system on so many levels with the return of the wolf.

The change that a wolf brings with it as it crosses borders from public to private land, traversing across land where they were once eradicated due to a hatred based partly on their effect on people's livelihoods and ability to survive in a grueling landscape touches on such things for us as our perception. It also feeds in from our economic realm and affects our governmental interactions on a societal level. Brick and Cawley (1996) note

The battle between environmentalists and their opponents is not for control of resources; it is a struggle for control of the government. The protagonists believe that control of the government will allow them to claim the federal estate in their own image of the wolf and the garden. But this belief is an illusion of control that is always transitory. As one observer put it "we can't buy solutions from the government, we can only rent them for a while until the landlord changes his mind." (p. 4)

The connection that people made between the government and wolves came out a couple ways in the interviews. I9RM expressed it thus

...I gotta reiterate something that is really important to me – and that's why are we spending so many tax dollars on something we don't need to do? Every time I got to pay all these taxes I gotta pay my blood boils. Thinking that – so damn much of it is being wasted.

I6Y tells the story like this:

My opinion about that – why that pulling something so deep – is particularly in the West, is...[these families] – you can trace their origins all the way back to Missouri and they came out here in the covered wagons! And they fought their way out here and it was a struggle. And they established themselves and when they got here – they took steps to control everything around them in the environment they were in, less the government...And they took care of the wolves...they got rid of them. And now the government steps in, and begins to say, you can't use the water, you can't use the land, and if you do, you have to do it in this manner and by the way, here's a wolf. It's that intrusion on them – ingrained in them from their grandparents and great grandparents that I have a right to be in here and pursue the freedoms that I do.

Kemmis (1990) speaks of how the West bred rugged individualism as determined souls were the only ones fierce enough to stick it out, repelling all those not willing to pay the price. The fact that these individuals had to share the land with the federal government as vast stretches of it were reserved for the “public domain” inserted a bureaucratic presence that often conflicted sharply with the rugged individualism. For Kemmis, this polarization of politics actually is missing a middle ground – a true “public thing” which in Hannah Arendt’s words “gathers us together and yet prevents our falling over each other” (pp. 44-46) . People have been coming together in unprecedented ways as the return of the wolf to our landscape becomes a reality. So the wolf in riding paradigm shifts not only on an ecological level but in terms of the way we handle and view governmental roles, education, and tell and retell our story to future generations.

In order to build resilience, it might be worthwhile for individuals, communities and government wildlife managers to continue to build upon the efforts that begin when we create and implement initial wildlife management plans, to see ourselves now as a part of a larger “learning organization” (Senge, 1994b), ecological in nature, under tutelage of the wolf. In considering wolves in our landscape, we find ourselves in the middle of an old story and attempting to answer the question “Who Speaks for Wolf?” (Underwood, 1983).

Brick and Cawley (1996) posit

When the wolf is viewed as less a threat than an opportunity, there is much that can be done to move the debate on to new and more productive levels. The land-rights world...can help bring the environmental movement back home to

defined real homelands and communities, both human and natural, instead of defending abstract philosophical principals and unpopular regulations. (p. 9)

For Meadows (2001) this type of thinking moves people in the realm of systems thinking. Instead of being blinded by the illusion of control, people begin to do a different sort of “doing” where instead of predicting the future, people begin to envision and bring it lovingly into being. Instead of trying to control all surprises, people can learn to expect surprise and learn from, and even profit from, them. By listening to what the system tells us, we can discover its properties and how our values can work together to bring forth something much better than could ever be produced by our will alone (Meadows, 2001).

To move forward in third order learning we must recognize all cultures’ perceptions of wolves as valid to some extent – the wolf is fierce, yet also loyal and intelligent and can be, but not always threatening in its demeanor depending on its own situatedness. Based on reviews of the ecology and human dimensions of the fear of wolves Linnell and Bjerke (2002) recommend a set of measures that should help minimize fear.

These include (a) keeping wolves wild through regulated harvest; (b) maintaining dialogue between rural residents and managers; (c) maintaining a healthy prey-base; (d) developing clear reaction plans in case of an aggressive wolf encounter; (e) allowing time for people to redevelop personal experience with wolves. This review of historical events has indicated that it is vital to take the beliefs and fears of

people seriously when developing conservation information strategies (Linnell et al., 2003).

Building reflexivity into our relations and dialogue with one another, we can strengthen our collective flexibility, skills, acceptance of decisions and resilience to handle the uncertainty that wolves introduce into the landscape and people's livelihoods with their presence. Chambers (2003) speaks of a strategy and tactics that can facilitate change in personal interactions and allow for complex, diverse, dynamic realities. By having outsiders take on roles that facilitate, listen, learn and respect locals, those who are normally dominated can begin to stand up and assert themselves. This contribution of local knowledge can bring to light dimensions which normal professionals may tend to miss or misperceive (p. 163). Change in behavior can then occur. They when say, a wolf or a pack of wolves start to become a nuisance and challenge the livelihood of a particular sheep or cattle rancher, the entities as make up this learning organization can utilize the creative talents and skills of its members to come up with a solution that works for all. So then, perhaps, we may become like Nabhan (1997) describes, a culture of habitat – where we learn from our elders and neighbors a way of living in a place worth dwelling in, that has abiding qualities where we allow ourselves to become more refined or better adapted than our genes alone can offer. On a management level, this might call for a return on a periodic basis to discuss not only current learning that includes scientific and local knowledge of wolves, but also to revisit any decision trees and have the fierce conversations (Scott, 2002) needed to affect change.

What is the Collective Story We Can Tell?

In today's world, information accessibility allows for greater assimilation and cross-fertilization between disciplines. As the magnitude of humans' ability to impact and change both the living and nonliving aspects of landscapes takes on global proportions, ecology emerges as a discipline that practically begs a versatility of its researchers and teachers to speak across disciplines and acknowledge connections therein regardless of a researcher's initial focus. Wolves cross boundaries – both internal and external. Their reach extends across different government, agency, cultural and internal psychological perception borders. Wolves generate fear or other unsettled emotions in us due to the unpredictability that they introduce into an encounter (see Figure10). The unsettledness occurs because an encounter with a wolf may herald a change in either ourselves in the structure of our lives, a stochastic (temporary yet significant) event, or be related to us indirectly via cultural pathways.

Wolves are an agent of change. The degree to which we believe this statement to be true, what type of change we think they might bring (stochastic, structural, self, or other) and how we react to their presence in this capacity depend upon a person's own orientation and perception. Let us tell our collective stories. Let us remind each other of the histories, the reasoning for past decisions and allows room now in our narrative about the wolf to account for new knowledge, the accumulated knowledge that we have learned in years since, additional realities and ways of interacting with our environs that may be no less valid than our original cultural roots.

CHANGE CHART

Wolves are an agent of change. Their adept innate tendencies and abilities predispose them towards "crossing borders." The degree to which you believe this statement to be true, what type of change you think they might bring (stochastic, structural, self or other), and how you react to their presence in this capacity depend upon your own orientation and perception.

Figure 10. Change chart.

Wolves are an agent of change. The degree to which we believe this statement to be true, what type of change we think they might bring (stochastic, structural, self, or other) and how we react to their presence in this capacity depend upon a person's own orientation and perception. Let us tell our collective stories. Let us remind each other of the histories, the reasoning for past decisions and allow room now in our narrative about the wolf to account for new knowledge, the accumulated knowledge that we have learned in years since, additional realities and ways of interacting with our environs that may be no less valid than our original cultural roots.

What Lessons Can be Learned to Inform Future Educators' Work?

We have followed the wolf and are trying to speak across the boundaries of ourselves (Hogan, 1996, p. 76). If an educator wishes to speak about wolves, it is important to realize such things as a person's orientation and perception will be at play from the moment wolves, as a topic of learning, are introduced into the learning environment (see Figure 11). As I11B noted "the wolf is more of a lightning rod." Since wolves are an animal that necessitates communication across cultures, creating exercises that encourage critical thinking in students and allowing for them to explore multiple viewpoints will go far to help promote understanding of other people's situations. Fostering a third order ecological intelligence in all students and deep awareness of nature will do much to help educate Oregon citizens of circumstances that may relate to wild wolves and their behavior. Making training experiential and interactive can engage the attention of those who might normally rebel against typical

What is the VALUE of One Sheep?

Figure 11. Questions for the future (sheep).

standard models of education were teachers act as experts. The stories that people tell – both real life experiences and known stories about wolves – can both lend insight into (a) ways that a person may perceive wolves and (b) provide a layered example that exists for addressing wolves as they may be observed in the landscape and the multiple connection points they make when they cross borders. In asking questions that stimulate systems thinking and the formation of learning organizations, such as those left in example in the sheep sketch, good conversations could be generated that allow people to reflect and share differing viewpoints regarding the commons, economic considerations that people may face, and decisions that may be a part of the paradigm shifts occurring in this day and age. If such forethought and learning can be implemented on a community-wide level for citizens of Oregon, it will increase people's familiarity with, knowledge of, and create a common language to speak of the issues at hand. This will enable quicker decision-making processes that, should a personal encounter ever occur with a wolf, may greatly influence the outcome - that "blink" of a second that Gladwell (2005, p. 11) intimates where our adaptive unconscious brain leaps to conclusions and comes up with a perception by drawing upon its knowledge base, beliefs, logic, situatedness and value as they are linked by memory and awareness. As ISM said "Somehow we need to reconnect people and I think through education."

It will be important to understand better from whence others approach the topic. To help others to better understand wolves and their contributions to our landscapes, it is important to

- Look for ways to build resilience in others' reactions
- Open dialogue and practice deep listening
- Be compassionate to others' process of change
- Have a firm grasp on the concept of change and the processes that a person, community, organization or business might go through when encountering change that a wolf might introduce into their situation
- Understand better the types of changes that might occur through understanding what types of system archetypes we are dealing with
- Understand potential perceptions a person might harbor and dig to reach where these perceptions originate (experience, belief, feelings, logic/knowledge, landscape or otherwise...)

With their innate abilities for crossing boundaries, wolves invite us to do the same. They change the playing field by necessitating cross-cultural communication (inter-agency, between various interest groups, and members of the community). In crossing boundaries, they ask that we begin to dialogue in new ways in terms of land management, problem solve and understand better and educate ourselves more about the living systems of which we are a part. This crossing of boundaries introduces change in the system, with it, we encounter new "territories" and question ourselves anew: "Who lives here?" "What do they want?" "How are we connected?" If we negotiate the crossing through communication, dialogue, problem solving, and are allowed opportunities to share our personal insight, we will be able to see the (eco)systems we are functioning within more clearly. This new knowledge can give us

potentially greater power through resilience to negotiate the changing landscape both cultural and ecological.

Ever important to remember is the fact that despite our best efforts at ecosystems management, we are dealing with two wings of the butterfly – the first wing – the seen, those decision elements we can control, but in each decision we make there are the unseen consequences that ripple out and come into effect as much as the first. Living with wolves as neighbors once again will not be an easy task. It will require work and attention in ways we may not yet foresee, or in ways we are unfamiliar. It will require of us to come together as a larger community recognizing our connections to others who live across the state from us, and support those who feel the impact the most. In this age where disciplines of study cross over and become more layered with an ever increasing library of knowledge to draw upon, we would be doing ourselves the most service to build into our learning a reflexivity and resilience that allows for adjustment rather than assuming we have all the answers. This resilience will enable us to approach life as a dance in new ways, understanding better how we reciprocate.

When a wolf howls outside the ring of light shed from our campfire, we can listen and learn those things that they might teach us – both with regard to our own internal fears founded or unfounded, as well as the boundaries that we have created in our lives, some of which may need to be crossed or new bridges formed to facilitate adequate communication to allow change in the system. I can only hope that the wolf's presence in this day and age allows for a resurgence toward greater ecosystem

“health.” May this then provide us with a greater resilience in preparation for the deep reaching change that global warming will effect.

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APPENDIX A
QUESTION GUIDE

. QUESTION GUIDE

1. "Please tell me about yourself and where you grew up."
2. "Please tell me about a typical day in your life these days."
3. "Why do you do _____? Tell me more about that."
4. "What is your first memory of being outside (in nature)?"
5. "What were some of the feelings you experienced then?"
6. "How have your feelings when you are outside in nature remained the same or have they changed?"
7. "You described the feeling of _____, can you tell me a bit more about how and where this occurred for you?"
8. "One of the words that people toss around these days is the word ecosystem. What is your understanding of what an ecosystem is?"
9. "Do you know what a wolf is? Can you describe it for me?"
10. "Have you ever seen a wolf? If so, where? What happened?"
11. "What is the closest you have ever come to a wolf?"
12. "Tell me about the first time you ever saw a wolf."
13. "What was your reaction when you saw the wolf?"
14. Or, if they have never seen a wolf: "How would you feel if you encountered a wolf in real life?"
15. "What is the role that you see wolves playing in relation to the ecosystem in which they live?"
16. "What do you think of wolves settling into Oregon (or Idaho)?"
17. "Do you care to go further and think about it now? Imagine a scenario... would you have different reactions depending on the scenario?"
18. "Can you describe for me similar instance where you have also felt this feeling _____?"
19. "So if you met a wolf, say in the wild, you might have more feelings of _____?"
20. "What would you do if you realized wolves were near where you lived? What would be your first steps?"
21. "What does wilderness mean to you?"
22. "You said earlier.... It seems to me that your initial reaction to wolves might be _____"
23. "I hope I am not upsetting you or flustering you but can you describe what a wolf looks like. Can you describe what you are envisioning when you say that a wolf is (big, scary, loyal, amazing, etc. – feeling stated here drawn from previous comments)."
24. "Have you seen wolves in other instances?"
 "Getting back to the idea of ecosystems, ... how do you think that you as a human may be related in any type of ecosystem way to a wolf? Where would the wolf be? Where would be say, touch-points where a human and a wolf might interact?"

25. "I heard you say – (give examples of different places that participant may have listed as interactions between humans and wolves so far.)... Can you think of any others?"
26. "Can you think of positive (or negative) effects that wolves might have on an ecosystem?" I will ask the opposite of things they may have previously mentioned.
27. "What is your understanding of balance within an ecosystem(or life structures if they do not know what an ecosystem is...)?"
28. "In your culture, do you think that people see themselves as separate from or do you always feel like you are around and in an ecosystem?"
29. "What type of ecosystem do you live in? What are elements of wild-ness that exist within this?"
30. "Where are the humans in this ecosystem, in this scenario?"
31. "When you say....do you mean?"
32. "What are some of the factors that come into the choices you make with regard to how you as a human interact with (your ecosystem)?"
33. "You say that you feel when you see (these wild elements – birds, insects, gophers, etc.) what do these things do for you?"
34. "Do you feel connected to them?"
35. "What things do you feel connected to in this life?"
36. "What is your philosophy on learning?"
37. "How does it happen for you?"
38. "What subjects interest you?"
39. "How do you like best to learn?"
40. "What is your philosophy on change?"
41. "What feelings does it bring up for you?"
42. "How is this similar or different to feelings you have about wilderness?"
43. "What are examples in your life where you have lived through a change that has been positive for you?"
44. "How does your understanding of the concept of an ecosystem relate to your life?"
45. "Describe the community you live in. Describe your ideal community. How do these two compare?"
46. "So, do you have any animals in your life that you have a relationship with? What is that like?"