EVOKING LANDSCAPE PRACTICES THROUGH ETHNOGRAPHIC FICTION

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Abstract

Landscape has long been of central concern to cultural geography. Historically, the conceptualization of landscape rested on discursive binaries of subject-object, culture-nature, and self-other. Recent developments in cultural geography attempt to collapse these binaries through relational ontologies of landscape and a focus on the experience of landscape through practice. Yet, difficulties persist regarding the representation of landscapes, especially given that non-representational and phenomenological approaches have expanded landscape inquiry beyond the singular focus of representation while advocating experimental methodologies and new styles of writing Recent work in geography has taken up narrative as a way of pushing the boundaries of landscape writing and representation. I continue this work by exploring the conventions and techniques of ethnographic fiction to convey student encounters with the landscape during a three week field course in Southern Colorado. Despite its title, ethnographic fiction is actually a mode of textual representation in creative nonfiction that uses literary devices to interpret data from field work and produce factually accurate accounts concerning the social production of experience and meaning. Specifically, the text conveys meaning by synthesizing story, character, scene/setting, dialog, and a personally engaged author into a compelling narrative about cultural practice. Ethnographic fiction can be adapted to focus on the human experience of landscape through practice, which opens the possibility of exploring recent geographical treatments of landscape interaction in post-phenomenology and non-representational theory through narrative. When applied in an appropriate and critical manner, ethnographic fiction can be an effective genre for evoking the sensuous and ephemeral moments of engaging with landscape through direct experience as well as writing and reading.

Chapter 1: Introduction

We lost John.

The landscape ate him.

Moments before we lost him, he was straggling up the rocky grade, his shirt a patch of blue sky that had fallen to earth. He looked at once ghastly pale and bright red, symptomatic of his disregard for sunscreen. His plodding steps betrayed a late night. We stopped before an outcrop of red mudstone, part of the Fountain formation made famous by the Red Rocks west of Denver, Colorado. Well, most of us stopped. As it turned out, John kept going.

This was a morning filled with an ambitious agenda. It was the final week of a three-week-long geography field course between the Universities of Missouri and Kansas and taught by Dr. Soren Larsen. Our goal for the morning was to climb Sheep Mountain, summit by late morning, and spend half an hour looking down on the field camp writing about the inverted experience of looking down at the place we had made home for the past three weeks, from the summit that we had gazed up at.

Sheep Mountain was one of the first things we saw every morning. It didn't look anything like a sheep, more like a slumbering bear. It was as though the field camp was constructed with the mountain in mind. It sat there, hunkered down on the other side of Four Mile Creek, staring at the field camp as we stared back at it across a flat of dry sage and prairie grasses. Every morning, it looked as still as a painting. The arcing sun chasing

the clouds across an azure sky revealed new tones and textures. Over the course of days and weeks, it remained an image, a vertical horizon. A nice view. Depthless.

As the hike up Sheep mountain progressed, the mountain began to unfold. It seemed less like we were hiking up it as we were into it. The rays of the sun cresting over Cooper Mountain to the south and east blinded us, and I soon felt the heat of the rocks. It was a struggle from the start to climb the 2,000 some vertical feet, but I held onto an optimism for this exercise. The purpose of the field camp was to expose students to a variety of field techniques in cultural and physical landscape interpretation. After a week of Sauer's cultural landscape analysis and with the Bureau of Land Management conducting forestry surveys for a mechanical thinning project, this week's curriculum focused on the experiential and phenomenological approaches to landscape. This morning, the intention was to give students a different perspective, a different way of experiencing landscape.

But we lost John.

And we could not find him. We called his name over and over. No response. We called his cell phone-- cut to voicemail. We didn't understand. It had only been a few minutes and he was moving so slowly. He had not looked good and we were worried. The landscape that had drawn our eyes upwards from the windows of our cabins in the valley below scattered us across its face. After we climbed up the outcrop, Cade, an adventurous spirit and student in the camp, volunteered eagerly to continue towards the summit with the hope of meeting John there. Soren decided to follow Cade for some of

the way. Lindsey, another student, and I ventured horizontally across the mountain, each of us filled with dread that we would come across that blue shirt sprawled out on the slope.

Lindsey and I became trackers, following the imprints of tennis shoes along the side of the dusty red outcrop. We scrambled through the pinyon-juniper, which afforded stability amidst a sea of loose granite fragments. Lindsey called John's name and her voice echoed throughout the valley. We heard the calls of Soren and Cade, ringing so loud across the mountain that it would surely disturb the residents of the faux adobe homes lined out into neat 35 acre parcels below. Then we would listen for a response, our ears staining with anticipation. Nothing but stillness. It would have been peaceful, staring down into the valley if not for the tension of an absent John. Lindsey and I continued following his ghostly presence until the tracks faded into the gravely slope.

I decided to turn up and glass the summit with my binoculars, looking for a sign of Cade's red shirt. Lindsey returned to the outcrop to meet Soren and wait in case John came back. But he never did. My glasses spotted Cade near the summit. And at the summit, sitting on a boulder, was John. Seeing him up there, looking out across the valley, so nonchalantly, simmered my blood more than the blazing August sun. I returned to Lindsey, held out my binoculars, and pointed up to the summit. After a few moments, she put down the binoculars, revealing expressions of momentarily relief that quickly changed to frustration. Shaking her head, she turned and sat down, legs dangling over the outcrop, eyes burning a hole into the light brown clapboard cabins of the field camp below. Soren returned, looked up towards the summit, and shook off the disappointment. We found John, but lost the landscape.

At that moment, I had a premonition, a sinking feeling that slid with me back down the mountain. Soren instructed us to head back to the camp as the sizzling sun chased us down the slope and I knew the field camp was lost, and my research with it. The month-long summer camp was expected to have anywhere from 12-10 graduate and undergraduate students, but the unprecedented decision to make it optional for the graduate students and a lack of promotion yielded only three: Cade, John, and Lindsey. Despite the low enrollment, the camp still happened, probably for the last time.

As a master's student interested in place-based and environmental education, the field camp represented a unique opportunity to study the learning outcomes related to a landscape approach to geography field education. When a student misidentified a juniper tree as an aspen during the oral final exam, I had little hope for any positive outcomes. The student field journals, pre and post field camp questionnaires, my own notes from participant observation, and subsequent lack of findings from semi-structured interviews that I analyzed after the camp confirmed my worst fears. Furthermore, the low enrollment of three students made the discovery of any discernible patterns in the ethnographic data collected unlikely and discouraged any hope of pursuing my original question. The field camp was dead and my thesis an unexpected casualty.

But underlying the "data" was the landscape. And as I worked through the "data" again, I noticed that the landscape was not some passive stage on which the field camp took place. The landscape would irrupt, would insert a noticeable presence in meaningful ways that began to take shape. These entanglements occurred through what cultural geographers term "practices of landscape." The anxiety provoked by a looming storm over the summit of Mount Princeton, a formidable fourteener, the tangles of ground

juniper and the steep slopes that we grappled with while conducting forest surveys for the BLM, the rush of water riffling through boulders in a mountain stream, the mystery and wonder evoked under a clear, starry night. These encounters with the landscape became interesting and meaningful.

But the question of how to represent these encounters with landscape haunted me. How could I reflect on these experiences in ways that captured some of the embodied, affective, and ephemeral moments? The pursuit of this question of representation led me to the discovery of a cultural geography grappling with similar issues (Meinig 1983; Lorimer 2006; Wylie 2010a,b).This vein of cultural geography was interested in experimentation with narrative, story, and other forms of creative writing. Moreover, a seminar I was taking that semester addressed similar questions of representation in ethnography, the method I employed at the field camp. In this seminar, I discovered my saving grace, ethnographic fiction, which is a genre evolving out of ethnography and travel writing that incorporates literary techniques in writing factual accounts of cultural practice. Like a phoenix rising from the ashes, a new research project and strategy for writing it was born.

This thesis explores evoking the experience of landscape through practice. I use ethnographic fiction as a strategy of representation that seeks to capture and enliven these landscaping experiences during a month-long field camp in Southern Colorado. The organization of the thesis is as follows. The first chapter situates the landscape concept in geography, and how considerations of non-representational and post-phenomenological theories are reconfiguring the landscape from representations of coherence and order viewed objectively from a detached subjectivity to a fluid milieu experienced and lived

through practice. The second chapter outlines ethnographic fiction as a representational strategy for evoking the affective and embodied experiences of landscapes of practice. The final two chapters consist of two essays of ethnographic fiction. Chapter three is an essay evoking the practice of climbing a fourteener entitled, *Ascending Mount Princeton.* Chapter four is the second essay detailing the practices of working on a Bureau of Land Management mechanical thinning project entitled, *Ordering the Forest.* These essays signify a movement into relatively uncharted waters of representation in cultural geography. Through these essays, I seek to answer Meinig's (1983) call for geographer to not only be critics of art, by creators of art as well. This thesis outlines my argument for positioning research and writing practices of cultural geography as an art and details my use of ethnographic fiction as a means of expressing meaning embedded in the practices of landscape.

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Chapter 2: From Landscape to Landscaping.

Beginning in earnest with the work of Carl Sauer, landscape became central to the lexicon of cultural geography. The concept has evolved from an inert, external composition of forms culturally imposed on nature and viewed objectively by a detached subject to an immersive and dynamic place where nature-culture and subject-object are in dynamic relation. In cultural geography and other disciplines, the landscape is on the move. No longer static, pre-figured, or pre-given, the landscape is currently conceptualized as fluid, dynamic, temporal, and relational. It is now more milieu than tableau. Whereas landscape once was built on binary structures such as self-other, culture-nature, and scene-seen, it is now animated by the tensions that inhere in the space between oppositional terms (Rose & Wylie 2006). Today, cultural geographers are actively reworking and reimagining the landscape through engagements that move beyond representation, or "othering" (Matless 2003; Rose 2002; Rose & Wylie 2006; Wylie 2007; Crouch 2010). These relational, hybridized ontologies realize landscape as process, inquiring into not only *what* the landscape represents, but also *how* the landscape (and our relationships with it) works.

In this review, I will examine one strand in the literature that seeks to transcend the limitations of binary thought by reflecting on landscape as practice and process. The aim of such work has been to close the distance between subject and landscape, so that the two are almost, but never quite, intertwined. Thus, my focus is on the practices of landscape, or "the embodied acts landscaping" (Lorimer 2005: 85) and how this process of landscaping can be represented. As I shall show in greater depth later on, geographers continue to grapple with the politics and poetics of landscape representation, albeit in

ways which exceed traditional representational politics. Through attempts to enliven landscapes and enact landscape practices, geographers are turning increasingly to creative and narrative outlets, breathing life into the landscape through stories.

Landscape is a term of tremendous breadth, complex origins, and myriad meanings that stretch far beyond the bounds of cultural geography. As such, a fully comprehensive treatment of the landscape requires a book, perhaps even in a series format. Several book-length texts already provide excellent coverage of the topic (see Cosgrove 1984, 1985; Cosgrove & Daniels 1988; Barnes & Duncan 1992; Matless 1998; Muir, 1998; Wylie 2007). The initial aim of this chapter, by contrast, is to foreground how landscape is, in a sense, "quintessentially visual" (Wylie 2007: 55).

For most of the twentieth century, geographers and others typically approached the landscape through vision and placed great emphasis on its visual, symbolic, and ideological features. Contemporary geographers then began to consider the affective, embodied and material aspects of visioning the landscape and attempted to push landscape study beyond the confines of vision, representation, and constructivist thinking. One thread in this literature has focused on animating landscape through practice, which is the topic of my discussion here. Considering landscape practices demonstrate how the landscape is a more than visual phenomenon, it has a disruptive capacity. While these non-representational and post-phenomenological modes of scholarship reframe the landscape through engagements with affect, embodiment, and materiality, my aim is to steer clear of scholarly attempts to consider the non-conscious and non-cognitive, leaving that for practitioners in neuroscience and psychology. Instead, I turn to work that perhaps unwittingly recognizes the insurmountable challenges of

representing that which often eludes representation, focusing on the strategies for storying the landscape through creative writing and experimentation with literary devices. These emerging modes of representing landscape, while respecting the limits of representation, tacitly acknowledge, though perhaps begrudgingly, that landscapes (among other worldly things) are already representations. These representations, however, are conceptualized as performances that require methods for animating and enlivening landscape writing so that it becomes more engaging and evocative.

Landscape Origins in Cultural Geography.

The origins of the Western conceptualization of landscape are convoluted. It first entered cultural geography through Carl Sauer's seminal 1925 essay, *The Morphology of the Landscape*. Sauer derived the meaning of landscape from the German term, *landschaft*, meaning a bounded piece of land (Olwig 1996; Wylie 2007). Sauer (1963: 321) expanded further upon this definition and its significance for geography:

> The term 'landscape' is proposed to designate the unit concept of geography, to characterize the peculiarly geographic association of facts…Landscape is the English equivalent of the term German geographers are using largely, and strictly has the same meaning: a land shape. In which the process of shaping is by no means thought of as simply physical. It may be defined, therefore, as an area made up of a distinct association of forms, both physical and cultural.

The landscape was a "naively given object of study," and the geographer was to understand the "phenomenology of landscape in order to grasp in all of its meaning" (Sauer 1963: 320). Sauer relied heavily on empirical, firsthand observations to ascertain the morphology of the landscape, the shapes and forms of nature molded by culture (Wylie 2007). This view of landscape derived from Goethian phenomenology in that morphological study, "need not seek for something beyond the phenomena" (Sauer as quoted in Duncan and Duncan 2010: 226). This approach to phenomenology emphasized visual perception, or critical attention to form and pattern (Duncan and Duncan 2010). Sauer was primarily interested in the study of the cultural landscape, which he defined as "fashioned from a natural landscape by a cultural group… Culture is the agent, the natural area is the medium, the cultural landscape the result" (Sauer 1963: 343). Sauer's cultural landscape included people as agents upon the land, but the emphasis was primarily the material landscape.

For Sauer, landscape was an unproblematic and straightforward concept, but the etymological origins are more complex. As Olwig (1996: 630) showed, *landschaft* refers not only to a "restricted piece of land," but also to the "appearance of land as we perceive it" Hartshorne (1939: 154) argued that confusion resulted "from the use of the same word to mean…a definitely restricted area…or a more or less definitely defined aspect of unlimited extent on the earth's surface." Cognates in other languages also contribute to the complex meaning of landscape. The Dutch word *landschap* emphasizes the aesthetic aspects of landscape, whereas the Scandinavian word *landskab* refers not only to a region but also to law and cultural identity (Olwig 1996; Wylie 2007). While contemporary geographers have developed notions of landscape in terms of identity, community, and

justice (Mitchell 1996, 2003; Matless 1998; Henderson 2003), Sauer was concerned with the landscape as a material artifact, artfully composed from nature and culture.

Landscape, vision, imagination.

Whereas Sauer's morphological analysis of landscape focused on an external, material landscape, geographers working within a humanistic framework recognized the imaginative and visual aspects of the landscape, initiating a long and rich tradition that extends through the cultural materialism of the "new cultural geography" of the late 1980s and the even more recent reengagements with phenomenology. In this section, I will show how human geographers critiqued Sauer's unproblematic imposition of a superorganic culture upon a material landscape (Zelinsky 1973; Duncan 1980; Jackson 1989) and turned toward subjective, lived experience through the lenses of idealism and phenomenology. I then move into a more sustained critique of humanistic conceptualizations of landscape.

Like Sauer, humanistic geographers continued to take the materiality of the landscape into account: the landscape is something "out there," something real and solid. Their innovation was to develop the subjective dimensions of landscape, the idea that the landscape is perceived, conceived, and organized by a gazing subject who experiences and knows it primarily (if not exclusively) through the faculty of sight. Donald Meinig made this clear in his famous essay entitled *The Beholding Eye:*

> We may certainly agree that we will see many of the same elements-houses, roads, trees, hills-in terms of such denotations as number, form, diversity and color; but such facts take on meaning only through association, they must be fitted together according to some coherent body of ideas. *Thus we confront the central problem: any landscape is composed not only of what lies before our eyes, but what lies within our heads* (1979: 34, emphasis added).

For historical and humanistic geographers such as Meinig, the human imagination is a fundamental component of the subjective experience of landscape. Yi-Fu Tuan, for example, defined landscape within the philosophical framework of idealism by contending that "landscape appears to us through an effort of the imagination exercised over a highly selected array of sense data. It is an achievement of the mature mind…Landscape is such an image, a construct of the mind and of feeling" (Tuan 1979: 89). For Cresswell (2003), humanistic geographers conceptualized the landscape as an image. Cresswell goes on to say that "some humanists believe landscape exists only inside the heads of people as a perspective-as a way of ordering the world" (272). Tuan's work on imagination and landscape certainly supports this position, but the rise of "new cultural geography," a phrase coined by Stephen Daniels (1989), in the 1980s and early 1990s opened up new terrain for theorizing the visuality of the landscape within more critical material, historical, and ideological conditions.

Like humanistic geographers, critical materialist scholars also privileged the inherent visual aspects of the landscape. However, they placed an emphasis on the historical and material conditions of this way of seeing. Cosgrove and Jackson (1987: 87)

showed concern with the way humanistic geographers emphasized "idealism and subjectivism in the intellectual examination of mind and matter." Similarly, Daniels (1985) contended that humanistic treatments of landscape are purely subjective and emotional, failing to acknowledge the historical and material facets of the landscape and its representation. These facets can be illuminated by examining landscape art and its material manifestations within a class society.

In this sense, landscape is not only something "out there"; it is also a mode of visualization. Wylie (2007: 56) identified three metaphors for landscape as a way of seeing: landscape as a veil, landscape as a text, and landscape as a gaze. Whereas the first two metaphors illustrate examinations of the landscape by cultural materialists through representational works of art, cinema, literature, and poetry, the third serves as a feminist critique of the masculine gaze imposed on the landscape. I will now consider each of these metaphors in turn.

Landscape as veil.

Denis Cosgrove was the first to place the visuality of the landscape in proper historical perspective in his ground-breaking work, *Social Formation and Symbolic Landscape*. He traced the landscape concept out of 15th century Northern Italy, writing that "the landscape idea emerged as a dimension of European elite consciousness at an identifiable period in the evolution of European societies: it was refined and elaborated over a long period during which it expressed and supported a range of political, social, and moral assumptions, and became a significant aspect of taste" (1984: 8). For Cosgrove, the development of linear perspective in art facilitated a new genre, landscape

painting, which was supported by the new bourgeois landowning class in post-Renaissance Europe, often through direct commissions. The perspectival depiction of the landscape, by extension, legitimized private ownership of land and labor by making it appear natural. These "natural" landscapes, however, concealed the actual labor that went into the production and maintenance of the estates being depicted, and also the working conditions for those laborers (Wylie 2007).

Much of Cosgrove's (1984; 1985) argument focused on the artistic genre of landscape painting. Landscape painting has received tremendous attention by art historians, geographers, and cultural theorists (see Mitchell 1994 for an excellent treatment of representation and power in landscape art). This literature is too broad to go into detail here, but it is important to note that Cosgrove (1985: 47) positions landscape as a "visual ideology" in which art and literature "sustain mystification" (58). Inspired by the cultural-materialist literary works of John Berger (1972) and Raymond Williams (1985), the goal is to demonstrate how landscape as expressed in art and literature is complicit in promoting capitalism and private property ownership. By linking artistic representations of landscape with the occlusion of inequities within capitalist systems of production, Daniels (1989) is able to contend that landscapes are duplicitous. Landscape appears to offer an appealing aesthetic of the rural idyll and harmonious unity of society and nature, but it actually works to conceal the material conditions and inequalities that exist in the world (Wylie 2007).

Wylie (2007) identified three aspects of the cultural materialist conception of landscape. First, landscape is understood as a representation that is conceived of in symbolic, pictorial, and/or imaginative terms. What we see in and read about a landscape

is representation, not the ostensible landscape itself. Second, landscape is intensely visual. It is through linear perspective that the landscape becomes a way of seeing constituted within the binary of subject and object. As Cosgrove (1985: 55) stated:

> Landscape is thus a way of seeing, a composition and structuring of the world so that it may be appropriated by a detached individual spectator to whom an illusion of order and control is offered through the composition of space according to the certainties of geometry.

Wylie (2007: 59) elaborated on this statement:

> As a way of seeing, therefore, landscape is the accomplice and expression of a classical subject-object epistemological model, one whose central supposition posits a pre-given reality which an independent subject contemplates, represents, and masters from a position of cohered detachment.

This interpretation of landscape in Cosgrove's illustrations of elite visions of landscapes represent control, order, and power by a specific, privileged social group.

Finally, Wylie (2007) pinpointed the specific interpretation of landscape from a cultural materialist perspective. He excavated the new cultural geographer's often extreme focus on representation in a quote from Cosgrove and Daniels (1988: 1):

> A landscape is a cultural image, a pictorial way of representing, structuring, or symbolizing surroundings…a landscape park is more palpable but no more real, no less imaginary, than a landscape painting or poem…And of course, every study of a landscape further transforms its meaning, depositing yet another layer of cultural representation.

The key for Wylie is that this definition conflates image with reality (2007: 69). By collapsing the distinction between a landscape image and reality, cultural materialists contend that the former is as equally as real and valid due to its ideological function.

This ideological function of landscape representation is what Matless (1992: 41) identifies as a "veil." This metaphor elicits the distinction between how a landscape is represented and the reality behind that perception, and that landscapes can effectively hide the social and natural realities they ostensibly convey (Wylie 2007). For example, as a way of seeing for Europe's elite class, landscape symbolized dominion over the land by naturalizing that representation while simultaneously occluding the social reality (e.g., enclosures, serfdom) behind its production (Wylie 2007). The primary difference here between the humanist perceptions of landscape and the cultural materialist leanings of new cultural geographers is that the former are more concerned with the subjective meanings of landscape by an autonomous individual, whereas the latter treat landscapes as representations that have a hidden ideological purpose within a specific set of historical and social conditions. Ultimately, "Landscape, as a particular type of visual representation, mystifies, renders opaque, distorts, hides, occludes reality" (Wylie 2007: 69).

Landscape as Text.

Although the landscape as an ideological veil proved to be a useful conceptualization for cultural geographers, a more nuanced view emerged in the late 1980s and 1990s. Wylie (2007: 70) noted that the "task of the landscape critic is no longer to rent the veil asunder, but to search among its folds, along the 'weave' of its 'fabric.'" This view treats landscapes and their associated artistic and written representations as "text." Since the landscape-as-text approach closely aligns with the theoretical implications of the landscape as a veil, I will not take the time or space to explore this approach fully. Rather, I will skim the contours before addressing some of the feminist critiques of landscape as a way of seeing and the constructivist pitfalls associated with the representational paradigm of landscape put forth by new cultural geography.

The landscape-as-text school implies that a landscape can be read, much like a narrative or in the post-structural sense, threads of interweaving narratives. This way of "reading the landscape" suggests that landscapes have a readership as well as author(s). The notion that landscapes can be read has carried far into the studies of vernacular landscapes (see *The Interpretation of Ordinary Landscapes*, Meinig 1979; *Understanding Ordinary Landscapes*, Groth & Bressi 1997). Humanistic geographers like Pierce Lewis (1979) provided "axioms" for reading the landscape or like Merwyn Samuels (1979), suggested that landscapes have authors.

Although the geographers engaged in the practice of reading landscape as a text have recognized this as well, they are most interested in how the dominant readings are

articulated as expressions of cultural power (Wylie 2007). The notion that landscapes can be read as texts is most clearly developed by James and Nancy Duncan (1988) who, according to Wylie (2007), drew upon the textual analysis of Roland Barthes, which emphasized the creation and conveyance of cultural meaning through semiotics, or systems of signs and signifiers. Most significantly, Barthes (1977) adds a post-structural twist to the theory of semiotics by emphasizing *intertextuality*, or the way in which meaning is *constructed* within infinite referential and discursive arenas.

Working in the context of the "crisis of representation" occurring in the social sciences during the 1980s, in which cultural theorists and practitioners across a broad range of disciplines began to recognize the inherent fallacies of writing about the "other" from a single, objective authority, geographers applied Barthes and other cultural and literary theorists' conceptualizations of intertextuality to landscape (Duncan and Duncan 1988; Barnes and Duncan 1992; Duncan and Ley 1993). According to Duncan (1990: 17), intertextuality implies that a "landscape is an ordered assemblage of objects, a text, it acts as a signifying system through which a social system is communicated, reproduced, experienced, and explored." The key here is the primacy placed on the construction of landscapes. For Duncan and Duncan (1988: 120), "as geographers the textualised behaviour that concerns us is the production of landscapes; how they are constructed." According to Wylie (2007: 80), "in this constructivist sense, all meaning is intertextual…necessarily implying that all meaning is representational," and through this constructivist epistemology, the world itself is constantly being constituted through the images of the world. The way that landscapes are ideological and exclusionary is

accomplished through the representations of discourse, for those, Matless (1992: 41) wrote, are "what the world is made of, really."

Despite the emphasis placed on intertextuality, instability of meaning, and the belief that landscapes are ultimately representational and discursive, constructivists are careful not to cleave landscape from its material essence. For instance, Duncan and Duncan (1988: 125) view landscapes as "transformations of social and political ideologies into physical form." Barnes and Duncan (1992: 5) note the "landscape's fixity," and Duncan (1990: 15) "admits to 'an impatience with groundless idealism. Ideas take place on earth.'" Through the processes of intertexuality, the material landscape is to be read in conjunction with representational forms of literature and art in order to glean symbolic and ideological cultural meaning.

The Gaze of the Landscape.

Whereas the preceding sections addressed the geographer's treatment of the landscape through cultural materialist and constructivist approaches, the next section hones in on a series of critiques concerning landscape and vision put forth by feminist geographers.

The examination of landscapes as expressions of elite and ideological power culminated in a set of critiques put forth by Rose (1993). Drawing from conceptualizations of the textuality of landscapes, Rose (1993 argued that geographers present interpretations of landscapes as contested terrains from viewpoints that are "uncontaminated by contestation" (Wylie 2007: 83). Rose (1993: 101) put forth that "the metaphor of landscape as a text works to establish an authoritative reading, and to

maintain that authority whenever emotion threatens to erupt and mark the author as a feeling subject." Thus, landscape is ultimately a masculine way of seeing positioned historically within the dualities of male/culture-female/nature: "Historically in geographical discourse, landscapes are often seen in terms of the female body and the beauty of nature" (p. 87); the female is associated with nature and the male with culture (Wylie 2007: 84).

The Cartesian distinction between the mind and the body solidifies these dualities. "This separation, fundamental to the Western scientific tradition of detached observation, frees the masculine gaze of geographers upon the landscape from any sensual, fleshy association. Their vision of landscape is thus able to become (or be presented as) the disembodied gaze of 'objectivity'" (Wylie 2007: 84). Thus historically, there has only been one view of the landscape, dominated by a masculine gaze of rigid 'objectivity,' and subsequent suppression of the object of that gaze.

Rose's (1993) arguments seem to suggest that due to the inherently masculine geographical discourse on landscape, we may be better served to jettison the concept altogether instead of perpetuating the stereotypically and culturally ingrained associations of nature and culture. This consideration is reaffirmed by Catherine Nash (1996: 149): "Feminist critiques of the concept of landscape within cultural geography have made its use questionable." But instead of dismissing the concept of landscape altogether, Nash (1996: 149) suggested reclaiming the vision of the landscape:

> Rather than simply assert the oppressive nature of images of feminised landscapes or of women's bodies as terrain, it is necessary to engage with them to disrupt

> their authority and exclusive pleasures and open up possibilities for difference, subversion, resistance and reappropriation of visual traditions and visual pleasure….Pleasure in research, writing or looking at landscape and the body is political, but this does not render this representation or vision automatically unacceptable.

She recommended opening up the landscape to other positions and forms of vision by inverting the male-female/culture-nature binary, thus imagining the male (as opposed to the female) in the landscape. She did this to reclaim pleasure in vision and landscape for a feminist cultural geography (Wylie 2007: 87). Nash (1996: 159) asserted that rather than seeing landscape through a male or female gaze, "it is more useful to think of a multiplicity of shifting viewing positions, gazes or ways of seeing." With this, Nash (1996 revealed that ways of seeing through landscape transcend pre-suppositions of a single gaze on the landscape.

Production of Landscape.

Whereas cultural materialists remained focused on the ideological superstructure of society consisting of social norms, institutions, cultural products and values, little attention was given in that work to material production and exchange and in particular, the social relations of labor (Wylie 2007). This section briefly examines another strand of Marxist and radical treatments of landscape in order to highlight the emergence of an ontology of landscape that focuses on the process and production instead of representation and deconstruction. Though not directly connected, the emphasis on the

temporal and processual elements at work in making the landscape foreshadows literature that seeks to animate the landscape through relational ontologies of practice and process.

Don Mitchell (1994: 9) critiqued the preferential treatment cultural materialists gave to representation:

> Theories of 'landscape as text' understand the landscape to be both an outcome and a reflection of cultural values….Although these recent theories of landscape textuality are often quite sophisticated in methodology and politics, they also often suffer from a neglect of the facts of landscape production. Within this methodology, readable landscapes are already there to be decoded; the process of their production is rarely enquired after.

Cultural materialism, in other words, sees representational landscapes as already complete. Instead, Mitchell argued for understanding how landscapes are produced through myriad material processes, rather than passively consumed through symbols (Wylie 2007). In other words, processes of power in the landscape take precedence over the landscape as representations of power.

For Mitchell, a focus on the production of landscapes requires adherence to the historical-material tenets of Marxism (Wylie 2007). Hence, "the production of the landscape morphology is an essential moment in the surplus value in capitalism" (Mitchell 1994: 9). Wylie (2007) contended that the acceptance of capital accumulation as the driving force behind landscape production provides a viable alternative ontology to that of representation and symbolism. Mitchell, however, claimed that landscapes are

never finished; they are always caught in moments of production, shaped by social groups with differential access to power (1994 Landscapes hold double-meaning in that just as they are never-finished outcomes of productive forces, these forces are constantly naturalized and occluded by modes of representations of the landscape itself (1994). With a renewed focus on processes of production, Mitchell applied a critical Marxist lens to produce a labor theory that conceived of landscape as always in the making rather than a finished product.

Revisioning Landscape.

Before developing my argument concerning the animation of landscape through practice, it is necessary to demonstrate how vision and envisioning are embodied acts that cannot be separated from the landscape. Deconstructing the gaze is essential, for as Cresswell (2003: 273) contended, the "contemplative gaze obliterates the world of the practical." This deconstruction requires redefining vision as an embodied practice.

By now, the attentive reader of landscape is probably wondering, "Where is J.B. Jackson?" In addition to Jackson's immense contributions to the study of vernacular landscapes, he did much to incorporate mobility and practice into the study of landscapes. This is exemplified by his proclamation, "far from being spectators of the world, we are participants in it" (Jackson 1976: 2). Referring to the school of geographers that framed landscape as a way of seeing, Cresswell (2003: 275) noted that "If the equation that links landscape to vision has frequently erased practice, then J.B. Jackson's mobile view of landscape began to show how vision is a practice." Citing two influential essays by Jackson, *The Accessible Landscape* (1988) and *The Abstract World of the Hot Rodder*

(1997), Cresswell (2003) showed how Jackson's focus on technologies of speed and mobility transformed the way people participated in landscapes. Through mobility, Jackson demonstrated how the gaze of the landscape is less a view from above and more of a series of views from within.

Theories of practice and embodied vision have developed out of Merleau-Ponty's 1962; 1968) phenomenology of body and embodiment. Railing against the firmly ingrained notions of Cartesian dualities, Merleau-Ponty sought to re-establish the body as already in the world. The body is not separate from thought, nor is it separate from the world. The "body is the very basis of my intention and awareness; it is not a puppet figure animated by directives and representations emanating from a disembodied consciousness" (Wylie 2007: 148). For Merleau-Ponty, embodiment "is the very basis of experience" (Crossley 1995: 44). It is through this foregrounding of embodiment that we can begin to understand how vision is an embodied practice.

Wylie (2007: 150) noted that Merleau-Ponty sought not only to re-locate the body in the landscape, but he also worked to" redefine vision in corporeal terms." As we are embodied beings in the world, vision has to come from a point of view within that world, not from without (2007). In a series of papers influenced by Merleau-Ponty, Wylie (2002a; 2005; 2006) charted a course for developing an embodied account of vision in the landscape. Drawing on Merleau-Ponty's thesis of reversibility, which contended that the body is both an object and a subject, Wylie (2002a: 454) posited envisioning the landscape as an "intertwining of vision and visibility." Focusing on a hike up Glastonbury Tor, Wylie (2002a: 454) made the keen observation that "through being embodied…we can see the Tor, climb it, and see from it." This intertwining renders a

viewing subject as the object of another's view, thus collapsing any distinction between the subject and object. Thus, for Wylie (2006: 520):

> Landscape is not a way of seeing the world. Nor is it 'something seen,' an external, inert surface. Rather, landscape names the materialities and sensibilities with and according to which we see. Neither an empirical content nor a cultural construct, landscape belongs to neither object nor subject; in fact, it adheres within processes that subtend and afford these terms.

Placing vision in an embodied, worldly context opens up possibilities for engaging landscape relationally. As I show in the next section, the relational immersion in landscape occurs through practice.

Animating Landscape through Practice.

Perhaps symptomatic of the "crisis of representation" in the social sciences and the subsequent frustrations with constructivist epistemologies, poststructural considerations of landscape through phenomenology and non-representational theory have flourished over the past decade. Taking a relational approach to landscape, non-representational theories (Thrift and Dewsbury 2000; Thrift 2001) view constructivist and representational conceptions of landscapes to be "deadening." For constructivists, human bodies are waiting to be inscribed with cultural meaning and social codes, while nature is a social construct, or a set of ideas about what nature actually is, rather than a set of biophysical processes (Wylie 2007). Instead of decoding the symbolic and ideological

from static and complete landscapes, which essentially are inscriptions of meaning, geographers turned to the affective, performative, material and temporal aspects of the landscape that emphasize fluidity, motion, and change.

Geographers attempted to move beyond the visual and seemingly static epistemologies of landscape to approaching landscape through questions of *how landscapes work* (Schein 1997). This approach concentrates on practice to reveal landscape as a skein of affective processes and events (Rose 2002; Rose and Wylie 2006). These ways of encountering landscape disrupt binary thought through the relational ontologies of phenomenology and non-representational theories.

One such way of encountering landscape in the past decade has been through practice and performativity. These conceptualizations of practice have widened from structural approaches of Bourdieu (1977) and De Certeau (1984) to include poststructural theories of performativity (Butler 1993), and non-representational theory(Thrift and Dewsbury 2000; Thrift 2008). As noted by Merriman et al (2008), though engagements of practice have contributed much to understandings of how landscapes are animated, engaged, and lived, there remains some uneasiness about how these theories of practice are sometimes nonchalantly adopted and put to work, especially when considering questions of power, politics, and representation. Instead of overriding these concerns, I address them when appropriate throughout this section.

I begin with an examination of some of the inspirations driving this approach, namely the work of Tim Ingold, whose 1993 and later revised 2000 seminal paper, *The Temporality of the Landscape*, served as a key point of departure for cultural geographers theorizing landscape through non-representational or phenomenological

conceptualizations of practice. For geographers, this paper has provided fruitful theoretical grounds for excavating fresh approaches to the landscape. I use Ingold's paper as a sort of pivot point for thinking about landscape through vision and concreteness towards its temporal, embodied, and relational dimensions. Wylie (2007: 153) noted that new cultural geographers "were concerned to develop analyses that implicated landscape images and texts within systems of cultural, political, and economic power…they defined landscape as a particular set of cultural values, attitudes and meanings: a 'way of seeing' the world." To be sure Ingold (2000) believed this definition to be of critical value to the project of landscape, but Wylie (2007: 154) continued stating that, "on a more fundamental level it divisively enshrines and perpetuates a series of dualities-between subject and object, mind and body, and, especially, between nature and culture." Furthermore, as this division is deeply embedded within the disciplinary context of geography (physical and human), Ingold wrote that the conceptualization of landscape is plagued by a "sterile opposition between the naturalistic view of the landscape as a neutral, external backdrop to human activities, and the culturalistic view that every landscape is a particular cognitive or symbolic ordering of space" (2000: 189).

Ingold (2000: 179) referred to this constructivist epistemology as the "building perspective," the essence of which is "that worlds are made before they are lived in." The problem with this perspective, for Ingold, is that the world needs to be constructed within the mind prior to any engagement with it (2000: 178). As opposed to the building perspective, Ingold (2000: 185) turned to Martin Heidegger (1971) to develop the "dwelling perspective." While the tenets of the dwelling perspective rest heavily on phenomenology, a philosophy itself not immune to critique (see Pickles 1985), the crucial

point made by Ingold (2000: 173) is that "it is through being inhabited, that the world becomes a meaningful environment." To Wylie (2007: 158), "the dwelling perspective thus focuses upon 'the agent-in-its-environment, or what phenomenology calls being-in-the-world, as opposed to a self-contained individual confronting a world 'out there.'" By positioning the subject as a part of its environment, the dwelling perspective works to collapse sterile binary thought, bringing the detached and disembodied subject an embodied and immersive landscape.

It is through the dwelling perspective that the landscape began to be conceived of through notions of embodied engagement, rather than something perceived and constructed from a distance by a detached observer. Ingold (1993: 156), through the dwelling perspective begins to define the landscape as "the world as it is known to those who dwell therein, who inhabit its places and journey along the paths connecting them." But in dwelling, there is building; sets of practices that make dwelling a possibility. To account for these embodied practices, Ingold (ibid: 158) defined the taskscape, for "tasks are the constitutive acts of dwelling." The taskscape is "an entire ensemble of tasks, in their mutual interlocking…just as the landscape is an array of related features…the taskscape is an array of related activities" (ibid.).

But for Ingold, the taskscape is not to be differentiated from the landscape. In fact, the two can be collapsed as the premise of dwelling is that it happens in-the-world. "*The landscape as a whole must…be understood as the taskscape in its embodied form: a pattern of activities collapsed into an array of features"* (ibid: 162 original emphasis.). Thus tasks become embodied acts of dwelling which in turn congeal into the features that make the landscape. What is essential to understand here is that the unfolding of practices

make the landscape. Landscape becomes "the ongoing practice and process of dwelling…a milieu of involvement" Wylie (2007: 162). Thus, for Ingold and subsequent geographers reworking landscape from a dwelling perspective, practice is what constitutes the landscape, and the landscape constitutes practice.

Although Ingold's thesis on the temporality of the landscape as a form of dwelling configured by sets of interrelated practices served as a springboard for a raft of writing on practices of landscaping, geographers have expanded the theorizations on nature-culture and subject-object relations in order to develop more refined and nuanced views that move landscape through post-phenomenology and vitalist philosophies. Wylie (2007: 166) marked this shift as moving from "images of landscape to landscaping." This shift is concerned with immediacy through the heightened attention to more affective engagements with the landscape through multi-sensory experience. These up-close engagements are foregrounded by the phenomenological notion that "humans do not act as subjects in the world but are constituted as perceiving beings at the interface between subject and object" (Hetherington 2003: 1938).

As a result, the intimate, personal, and richly detailed phenomena characterize landscapes of practice. These are practices of arctic expeditions (Wylie 2002b), cycling (Spinney 2006), driving (Merriman 2004; 2006), reindeer herding (Lorimer 2006), gardening (Crouch 2003), rock climbing (Lewis 2000 & Ness 2011), photography (Yusoff 2007), and walking (Wylie 2005; Lund 2012)—all of which embed subjectivities and performance in landscape. In these examples, landscaping is approached through ethnographic and performative methods emphasizing creativity and experimentation (Kusenbach 2003; Lauerier & Philo 2004; Dewsbury 2010). Through a privileging of the

close-up and intimate spaces of practice, these studies demonstrate how practice does not take place on or across a pre-configured landscape, but illustrate how practice is enfolded within its materiality (Wylie 2005).

But dwelling within a landscape does not automatically imply constant and complete states of immersion, as Heidegger's (1962) notions of dwelling suggested. When walking along the Southwest Coast path in England, Wylie (2005) expressed a need to move beyond dwelling in the phenomenological sense of Heidegger and Ingold (1993) towards post-phenomenological theorizations of Lingis (1994;1998), Deleuze (1993), and Deleuze and Guattari (1994). "Walking does not embed the self 'in' landscape, nor does it put in motion a relation in which some auratic sense of self and place emerges…accounts of landscape-as-dwelling run the risk of presenting subjects and landscapes as already conjoined" (Wylie 2005: 240). When Wylie (2005) walked the path, he struggled through "fern-choked gullies" and experienced landscapes that resisted complete immersion. Wylie (2005: 240) turned to Deleuze (1993: 26) to read beyond simply dwelling to argue that being-for-the-world precedes being-in-the-world; "self and world overlap and separate in a ductile and incessant enfolding and unfolding: 'a torsion that constitutes the fold of the world and the soul'…the self is pressed up against the landscape, at one and the same time part of it, emergent from it and distinct from it, like a blister on a toe." 5738753030

Emergent engagements with these small-scale microgeographies of practice have not escaped critique. Critical materialists have cast phenomenological approaches to landscape as people-centered, highly individualistic, and neglecting social and economic forces of power that structure society (Wylie 2007). Others such as Nash (2000) and

Cresswell (2002) have commented that a focus on individual agency is only concerned with "a realm of bodily habits, tics, routines, and reflexes lying outside of both conscious bodily thought and the shared social world of codes, norms, and conventions" (Wylie 2007: 164). The focus on the affective has also prompted concerns that such geographies reify emotion, thus marginalizing voices that speak to corporeality, intersubjectivity, and the politics of position (Thein 2005). Saldhana (2005) shared similar, though more global concerns, arguing that a focus on practice may not take social differences into consideration. Perhaps most relevant to my own focus on landscaping, Cresswell (2006) posited that practice and affect cannot be understood outside their larger social context.

The primary critique of non-representational and post-phenomenological engagements with landscape is that they are by and large apolitical endeavors that neglect the power relations that order and structure the world (Merriman et al. 2008). Yet these overtly structural approaches to geography often fail to grasp that the practices and processes that animate landscape are inherently an expressive politics (Thrift 2008; Anderson 2010; Rose 2010). The main difference is the epistemology through which these power relations and political expressions are analyzed. Take for example, Cloke and Jone's (2001) study of orchards. Through a focus on the practices of a small-scale sixty-two acre orchard, they were able contrast it with the emerging forms of industrial fruit production and processing typical of Eastern Washington. Another notable example is Scott's (2006) analysis of walking and climbing practices of Spanish colonizers in Peru, and how the imperialist images of domination and conquest were undermined by the terrors of walking in a remote and rugged landscape. Merriman's (2006) study of driving the M1 demonstrated how the movement and speed of motorists influenced the

landscape through architecture and landscaping designed to be consumed at continuous high speeds. In effect, Merriman demonstrated how practices flowing through mobility completely transformed the aesthetics of entire landscapes, a feat that required tremendous capital investment and regulatory oversight. What these studies of landscaping practices demonstrate is not a representational approach that inscribes worldly entities and phenomena with political meaning, but one that conveys how politics are inherent in and animated by the multitude of practices that make landscapes.

Thus, a focus on practice does not neglect the political, but instead addresses and even animates power relations from different ontological perspectives. Counterposed to a representational politics that clings to notions of agents, structures, and causality, non-representational and post-phenomenological accounts disperse the political into composites of intensities and affects that focus on agencies over agents and possibilities over limitations (Rose 2010). Whereas my aim is not to stake out nor contest the political agenda of non-representational theory or representational politics (see Amin and Thrift 2005; Smith 2005; Thrift 2008), I do acknowledge that like everything else in the world, practices cannot be untangled from the political. As Rose (2007) has demonstrated, landscapes are emblematic of sites of political struggles and thus the practices of landscaping do in many ways animate these contestations.

Moving away from, but not beyond, the politics of representation and practice, one of the primary aims of landscaping is to highlight how practices engage the non-human elements of the landscape through deconstructions of the culture-nature binary inherent in the very foundation of conventional understandings of landscape (Duncan and Duncan 2010). A notable adaptation of Ingold's dwelling perspective is Cloke and Jone's

(2001) study of the practices of orchard growing in Somerset, England. In their paper, they specifically adopt Ingold's dwelling perspective to account for the "rich intimate ongoing togetherness of beings and things which make up landscapes and places, and which bind together nature and culture over time" (2001: 651). For Cloke and Jones, one of the problems with the notion of dwelling is its rootedness in a highly romanticized vision of the rural idyll that suggests predictability and stability. Furthermore Wylie (2007: 182) commented that Ingold's dwelling suggests a seasonal temporality which is "essentially rhythmic," and endorses a "vision of simple rural toil" that is attractive to Cloke and Jone's study of orcharding.

Another issue with the dwelling perspective is the overdetermination of humans and culture within nonhuman environments and landscapes. Cloke and Jones (2001) contended that humans *and* non-humans dwell in the landscape and express performative agency through their own sets of practices. To remedy this, they adopt perspectives from Actor-Network Theory (ANT) to further refine the notion of dwelling. ANT is a theory developed out of the work of Bruno Latour (1993) concerned primarily with the interrogation of the human/nonhuman divide. The disruption of the nature-culture binary has been a critical line of researchers for geographers working through topological, hybrid, and relational ontologies (Whatmore 2002; Pile et al. 2004; Castree 2005; Greenhough and Roe 2006). For Cloke and Jones (2001), the concern was to recognize the agency of the orchard trees themselves as caught up in the networks of human and nonhuman relations that make the landscape.

In addition to Cloke and Jone's (2001) critiques of dwelling, Hincliffe (2003: 220) also makes a distinction that resonates with Delueze's suspicion of phenomenology

in that Ingold's dwelling perspective risks romanticizing humans in an ahistorical and ageographical landscape. Moreover, conflating the Heideggerian notion of dwelling with the lifeworld of Merleau-Ponty serves to "reinstall human transcendence and open up old fault lines between humans and the rest" (2003) Furthermore, Whatmore (2006: 603) contended that throughout the history of landscape in cultural geography, the "making of landscapes…is an exclusively human achievement in which the stuff of the world is so much putty in our hands." By recognizing the alterity of nature in landscape, that nothing can ever be fully represented or known, the human subject is decentered, opening up spaces for non-humans.

Of particular interest is the way the nature-culture binary is often perceived through constructivist approaches that inscribes cultural meaning in a manner that essentially writes off nature. Demeritt (1994: 172) clearly identified this preference for culture over nature:

> Landscape metaphors of cultural production have, both in theory and practice, served to make nature ephemeral and epiphenomenal. These metaphors treat nature as a blank page or an empty stage on which the drama of culture is written and acted out…In moments of metaphorical extravagance the material 'reality' of landscape disappears altogether.

But despite recognition that culture has often been given preferential treatment over nature in the landscape, the problem with nature is how it is to be accessed and represented, for "our natures are always culturally mediated" (Massey 2006: 36).

Hincliffe (2003: 209) contended that "the natures that we (possibly rightly) want to include in landscape histories are unlikely to be innocent." In other words, perceptions of nature in science and beyond are wrapped up in discursive fields of politics and history. Hincliffe (2003) cautioned against conceiving nature as some timeless space, abstract property, or pristine idyll that we as humans are meant to return the earth to in contrast to a constructed, culturally determined view of nature.

Inspired by actor-network theory and the vitalism of Delueze, Hincliffe (2003: 220) instead argued that nature in the landscape needs to be inhabited through practice, that nature can only be understood as "highly differentiated natures," as opposed to one dominant vision of nature, that always contain a degree of unexpectedness and uncertainty that cannot be accounted for through representational politics.

Thus, what is known as nature or the non-human components of landscape are to be known through encounter and practice, that is to say, learning how to be affected (Latour 2001). This contention avoids "bestowing forms of agency onto non-humans by including them in representations of landscape, nor "speak for them," (Hincliffe 2003: 222). Instead, we need to recognize that culture and nature are not binary oppositions, but "marked by imperfect articulations, and will be matters out of joint" (221). The line of engagement and inquiry here becomes more relational than stable, asking not what being-in-the-world or what nature is, rather how being-in-the-world unfolds and how we inhabit nature through embodied encounters. For Hincliffe (2003), nature is not derived from the abstract "deliberation or the production of universal rules," but instead through practical engagements.

But Hincliffe (2003) seemed only to rearticulate the views of Ingold (1993; 2000) in a Deleuzian sense of becoming that all too conveniently replaces notions of dwelling. Humans and non-humans become entangled through experience, activity, and skill. Massey (2006) built on Hincliffe's arguments for nature in the landscape, but provided a more effective articulation of opening up space for inhabiting nature. After reflecting on Skiddaw Mountain, which overlooks the English Lake District, Massey (2006: 35) wrote:

> Skiddaw is composed of Ordovician slates, which were laid down as sediments some 500 million years ago. However what snagged my attention as I was thinking of this history was that *when* they were laid down, in a sea that we now call the Iapetus Ocean, they were one-third of the way south of the equator towards the south pole. It was hundreds of millions of years later that these rocks of Skiddaw crossed the equator on their way through this latitude, now and later still that they were formed into anything we might call a mountain. What is important here is not the formal knowledge…but what one allows it to do to the imagination. For me, initially, this dwelt upon the thought that these are *immigrant* rocks, arrived 'here' from somewhere else.

What Hincliffe (2003) and Massey (2006) hoped to convey is that nature is not a foundation for landscape. It should not be conceived through metaphors of harmony and balance. As the above excerpt demonstrates, nature is not local or fixed; nature is mobile. We do not bestow agency onto nature; it subsists within biophysical processes. For

Massey (2006), nature is not foundational but is radically anti-foundational; it consists of multiple trajectories moving not towards harmony and balance, but towards the unexpected. Thus, Massey (2006: 46) conceived the landscape as "events, as happenings, as moments that will again be dispersed…one constantly emergent, ongoing, product of that intertwining of trajectories is what we call the landscape." And human practices of landscaping constitute a set of trajectories that provide a conduit into encountering landscape. It is through our practices that we inhabit landscape. By learning how to be affected, possibilities emerge for engaging the multitude of intertwining trajectories, events, and stories.

Although these relational, hybrid, and topological geographies do much to expand the landscape beyond a limited focus on cultural practices, cohesiveness, and stability, and are much more inclusive of 'nature,' Rose and Wylie (2006) and Wylie (2007) suggested that this extreme emphasis on relationality threatens the purchase of the landscape concept. By positing the world through the paradigm of a topology that prizes fluidity, mobility, and change, the landscape becomes static and sedentary (Sheller and Urry 2006). Rose and Wylie (2006: 472) noted that landscape "folds uneasily with movement." Moreover, the topographic, areal, and coherent connotations of landscape clash with the vitalist and topological notions of incessant becoming and relationality (Wylie 2007). In a world constituted by relational topologies, the landscape ceases to become a coherent entity.

In addition, by conceiving of landscape as a network of topological relationships in which every dimension has equal ontological status, landscape runs the risk of becoming flat and dull. For Wylie (2007: 206), these topological geographies resemble "a

cross-hatched isotropic plain- A Christaller space. Here every point, every object, is accorded an equal weight and value…a topology without topography- a surface without relief, contour, morphology or depth." Flatness replaces depth and the landscape dissolves into incessant relationality. Furthermore, if there is a tendency in cultural geography for subjectivities to become too hardened and stable, then the possibility exists for an irreducible relationality in topological geographies. As Harrison (2007: 592) observed, "in the proliferation of biophilosophy, the unstoppable materialism of actor networks and constructivist totalisations of the social or cultural, few have been asking about the breaks and gaps, interruptions and intervals, caesuras and tears." Beyond pointing to non-relational phenomena that constitute worlds and landscapes, it is the radical decentering of the subject into relationality that eventually negates the significance of meaning.

The revelation of the nonrelational pushed geographers to engage with themes of absence, loss, haunting, and distance in the landscape. This has been most fully developed by Rose (2006) and Wylie (2009), whose work applied Derrida (1982) and Levinas (1969) to landscape, but also resonates with Ingold's (1993) observation that landscapes are "pregnant with the past." Through Levinas, Rose (2006) described the cultural as an exteriority, something off in the horizon that no subject is able to possess but always strives towards. Rose described culture as "dreams of presence…an imagination of and a movement towards, presence" (2006: 538). Thus, humans can never possess culture, since it has no presence beyond imagination. Instead, humans and culture become manifest through materiality. Because culture has no place, it can only reside in a materiality that is given meaning through "movements of care" (Rose 2006: 547).

Developing position similar to Rose, Wylie (2009; 2010a) drew upon Derrida to conceive of the landscape in terms of absence and loss. In a study of a series of memorial benches set around Muilon Cove, Wylie (2007: 279) explored possibilities of the non-coincidence of self and world. Standing beside the benches memorializing the dead, looking out into the distant sea, Wylie provided another possibility for landscape that chafed against the flow of the proliferation of landscaping studies highlighting the engaging, relational, and immersive qualities of landscape. For Wylie, the absence of the dead is a presence, one that does not provide a phenomenological coinciding of self and world, but is predicated on a distant horizon.

Although ongoing practices enlace self and world, the landscape is never permanent, nor is it always fulfilled. Just as the landscape serves as a site to gather and collect dreams, memories, subjectivies, and practices (Rose 2006), there always remains the potential for scattering and dispersal (Wylie 2009). And yet, another binary is introduced through the presence of absence and the absence of presence. This is why "the problem, the tension, of landscape is a tension of presence. It is the tension of regarding at a distance that which enables one to see" (Wylie 2007: 213). Just as the presence of the landscape is constituted and experienced through practice, it is also influenced by absence, whether or not it is perceived.

The tensions stemming from the binaries intrinsic to landscape can be negotiated, but never fully resolved. But this does not mean that the concept need be jettisoned. As Rose and Wylie (2006: 475) put forth, "Landscape is tension. The concept is productive and precise for this reason and no other." The tensions between subject and object, nature and culture, presence and absence animate the landscape, making it a lively concept that

does not provide an ontological grounding for the world, but seeks to frame it through perspectives that account for fluidity and change, depth and perspective. "*Often calling from a distance, stirring us not just to stand, look, measure, and read but to follow, landscape names the creative tensions of selves and worlds. This is the animating quality of landscape*" (Rose and Wylie 2006: 479, emphasis added).

If these tensions are productive, there still is some unease with the landscape, especially when considered alongside the cognate concepts of space and place. Cresswell (2003) and Merriman et al. (2008) have expressed this concern with landscape. The concept is antiquated, loaded with historical baggage to be of any useful analytical quality, and is too rigid to accommodate movement and practice. "It is too much about the already accomplished and not enough about the processes of everyday life" (Cresswell 2003: 269).Considering the historical baggage carried by the landscape, the concepts of place and space appear more analytically useful for the social sciences. As evidenced by the length and exhaustiveness of this review, I believe that the landscape still retains valuable purchase in cultural geography, not just for its potential tensions, but also in its enduring allure. As a material grounding and a sensual aesthetic, it captivates the imagination. The landscape stimulates and excites. In many ways, the landscape possesses similar qualities as a painting, a sculpture, or even a good book. It does more than provide a framework of analysis; it serves as a medium of the artistic expressions of land and life. The landscape performs.

Landscape, Practice, Art?

In 1983, D.W. Meinig advocated that geographers engage with the humanities; that geography has the potential to be an art, and that geographers are not just critics, but also creators of that art. As a concept in geography that so well encapsulates the imagination as well as the world, the landscape has the potential to blur the divide between social science and art. In recent years, geographers have rediscovered the power of story and narrative, especially for expressing non-representational and post-phenomenological phenomena, as these forms of expression accommodate the range of experience and representations of landscape (Brace and Johns-Putra 2010; Price 2010; Cameron 2012; Daniels and Lorimer 2012). These experiments with narrative styles convey a desire by geographers to move into creative writing, and by doing so, demonstrate the artistic and creative value of landscape. Furthermore, in conceiving the landscape as a set of ongoing events and practices, creative writing provides an outlet for evoking human interaction in and with landscape. Stories about practices serve to evoke the landscape as it happens and as it is drawn together through activity.

Although geographers have a long history of engaging with narrative, it has been approached predominately from a purely social science perspective. Before moving into a more detailed exploration of narrative and story in landscape, it is necessary to outline some broad observations of their use in geography. Cameron (2012) noted that the definitions and uses of story in geography vary. Story has been used as a mode of academic expression, an object of study, a method for tracking and organizing relations, and as cognate for discourse or narrative. Traditionally, geographers used story/narrative to attend to overarching, large-scale, and structural discourses (Short and Godfrey 2007;

Naylor 2008). But as Lorimer (2003) and Naylor (2008) showed, geographers have turned their attention to how stories reveal the particular, small, and intimate events and phenomena that often work against grand narratives. Before turning to the application of narrative to landscape practices, I touch on efforts to rewrite landscape that seek to overcome order and stasis, and reveal instead the ephemeral, affective, and relational dimensions of landscape.

Just as with the turn towards a relational ontology of landscape, it is important to note that the following consideration of innovative landscape writing does not signify an escape from representation. Rather, representation is reconceived as a lively act, both practical and performative. Dewsbury (2002: 438) noted:

> Non-representational theory takes representation seriously; representation not as a code to be broken or as an illusion to be dispelled, rather representations are apprehended as performative in themselves; as doings. The point here is to redirect attention from the posited meaning towards the material compositions and conduct of representations.

Thus, non-representational theory simultaneously recognizes the world prior to cognitive thought (McCormack 2005) but does not attempt the impossible task of abandoning representation. Creative writing about landscape harnesses a suite of narrative techniques that elicit the affective capacities of representation and evokes a "more-than-representational" landscape (Lorimer 2005). In what follows, I aim to highlight a selection of works by geographers that explore and express practices of landscape through narrative and story. These creative-scholarly hybrids offer unique articulations of

landscape that breathe life into representation, while raising a unique set of challenges waiting to be overcome.

> *The woods cleared and for a time the Path found open air and a level course upon a billowing landscape, with fields of pasture running right up to the cliff-edge and the grey-blue sea sponging in the background. Odd to be edging microscopically along a flat wedge of land that dropped so suddenly and vertically. Then it crinkled into a series of abrupt, densely vegetated rises and plunges, twisting and creasing through steep coombes. I found myself, as happened every day, in the thick of it* (Wylie 2005: 239, emphasis added)

One of the most intimate expressions of landscaping through the use of narrative is the practice of walking (Wylie 2002b; Lorimer and Lund 2003; Wylie 2005; Lund 2011). Although a passage like the preceding one may seem atypical for an academic journal article, it is rich in details of geography by foot. This was Wylie's (2005: 236) intention- not to provide a social analysis of trail use, or the natural history of the South West Coast path in England, but instead to "describe some of the differential configurations of self and landscape emergent within the performative milieu of coastal walking." In his hike up Glastonbury Tor (2002b) and his walk along the coast (2005), Wylie's aim is to convey how incredibly dense theories on embodiment, vision, and materiality play out through practice. To be sure, his prose was dispersed by reference to theories of Deleuze and Derrida, Heidegger and Merleau-Ponty, and in the end his prose

serves as a supplement to the development of theory. Yet, circulations of the academic and creative prose evoke an invigorating method that challenges the firmly ingrained hegemony of scholarly representation.

> *Each night in the tents, eyes blinded by the luminous intimacy of the landscape are treated with zinc sulphate and cocaine, then swaddled in rags and tea leaves. Frozen feet and hands are placed upon the warm chests and stomachs of consenting companions in a series of awkward embraces, unlikely arrangements of bodily parts. Antarctica demands, above all, that the frontiers of one's body be rigorously established and maintained* (Wylie 2002b: 259, emphasis added).

The application of narrative can also serve to reframe and revitalize conventional histories (Cameron 2012; Lorimer 2003). In his retelling of the famed Antarctic expeditions of Norwegian Roald Amundsen and Englishmen Sir Robert Falcon Scott, Wylie's (2002a) narrative tuned into the embodied, material, and mobile practices of dwelling in a frigid Antarctic landscape. Wylie's narrative incorporated direct passages from the two explorers' journals in a chronological sequencing of events interspersed with the familiar academic tone that highlights contrasting approaches to movement and landscape. In this juxtaposition of two competing visions, associations of masculinity, heroism, and conquest are reconfigured as Amunden's techniques of respect, tolerance, and care in moving *in* the landscape, which proved to be more successful than Scott's indifferent, imposing, and ultimately fatal attempts to move *across* the harsh and icy

landscape. What Wylie's narrative accomplished is to foreground the actual practices of the explorers as essential to the unfolding of the expeditions. These expressions of the small and intimate creatively reinterpret a well-worn story from a period of European exploration that captured the dramatic spirit of these expeditions beyond a stale historical account in order to provide a (re)presentation from an unfamiliar register.

> *But, you have not studied with your own eyes the long, upward sweep of the land that lifts sheer at the northern corries and then once on high stretches out across the granite expanse of the mountain plateau, nor the stands of pines that survive on the lower slops, nor the sharply incised ravine that must be crossed to reach the grazing grounds. And, since I cannot take for granted that you know this topography and its particular brand of local information, these responses require careful animation* (Lorimer 2006: 497-498).

Whereas the intention of employing narrative techniques in Wylie's (2002a; 2002b; 2005) pieces was to supplement and advance complex theories on landscape, embodiment, and vision, the ambit of Lorimer's (2006) article on a relocated reindeer herd from Scandinavia to the Scottish Highlands is to develop a narrative in and of itself. This narrative sought to reanimate the landscape not only through the practices of herders, but through the herd of reindeer and other non-human agents, with only a modest contribution to the development of theory. Thus, Lorimer (2006: 497) relied more on a narrative structure that strayed from the strictures of academic journal writing, and

instead turned to "matters of conduct, form, and style in a longer heritage of landscape study." This is a study grounded more in exposition than concept, more in practice than theory. Lorimer's evocation of the herd of reindeer in the Cairnigorns is a biography, a memoir, a love story, a historical account, an ethnology, and an ethnography all wrapped into one. Through gathered memories of herds and herders, he succeeds in addressing his own questions of "how best to encounter the textures and cycles of work that leave a landscape replete with meaning. What creative strategies might by employed to reanimate, however temporarily, this embodied relationship between individual subjects and the environment?" (2006: 504).

Lorimer's attention to the style, tone, and craft of writing practice brought to the surface a key underlying aspect of landscape writing: that the author brings the landscape back into the spaces of writing. The landscape is written as it is remembered and imagined. Thus, while I have focused primarily on landscape practices as they are represented, questions and concerns of creativity, authorship, and power still linger uneasily in the background.

These questions point to three unproductive tensions, not within the landscape, but between landscape writing and representation, which I outline here. First, although these creative engagements with the landscape have kept pace with non-representational and post-phenomenological theories of landscape, cultural geographers continue to grapple with their own subjectivity. The most glaring issue, arguably, is associated with the authors of creative landscaping practices positionality. Writers in this vein are criticized primarily for being white, male, and British (Merriman et al. 2008), which is reminiscent of the feminist critiques of landscape as a masculine way of seeing. In

addition to the problems of positionality, this work is marked as being overly introspective and trends towards solipsism (Blacksell 2005; Morris 2011). Furthermore, as Wylie (2010a) elaborated on extensively, there is the problem of subjectivity and authorship, which have been exhaustively critiqued and deconstructed. This unease with authorship perhaps stems from Barthes' (1977: 142-48) "death of the author," or Derrida's (1997: 163) claim that "there is no outside text." Wylie (2010a) turned to Derrida and Delueze to reproduce a "ghostly" subjectivity, a minimal trace of authorship seeking to appease some of the more anti-humanist tendencies of non-representational theory. While theoretically sound, it does little to free Wylie from a position of European masculinity, and instead works to obscure his subjectivity rather than reflect upon it.

A second tension in this creative-scholarly approach to landscape addresses problems with evaluation and critique. Braun (2008) and Price (2010) noted that story and narrative remain unproblematized and taken for granted in geography. This critical realization is reflected in Cresswell's comments in Merriman et al. (2008) that while geographers such as DeSilvey (2006), Lorimer (2006), and Wylie (2006) write expressive and beautiful prose, their poetics prevent any sort of intervention or critical evaluation of the texts, unlike other forms of social science writing and analysis. What Cresswell argued was that until a frame of evaluation is adopted, these works preclude any sort of academic engagement.

A third tension, one that chafes against the previous ones, is that while these works inject a sense of creativity and vitality into academic writing, they remain situated within the confines academic prose. Underlying the use of the creative styles and narrative is a largely academic structure of content and academic tone. Wylie (2010a,b)

may pine for a creative geography that engages with performing and creative arts, but he remains constrained by the structures of academic peer review and his own positionality as an academic. These circumstances point broadly to the limitations of academic writing, namely that its purpose and intention do not quite coincide with those of creative writing and story, despite attempts to dissolve the tension between the academic and creative through the employment of non-representational and post-phenomenological perspectives.

Although these tensions haunt creative approaches to landscape representation, they do not preclude continued exchange and debate. In the next section, I address how ethnographic fiction, a subgenre of creative nonfiction emerging out of ethnography and travel writing, is well positioned to work through some of the tensions involving the politics of representation, reflexivity, and evaluation of creative approaches. The intention is to demonstrate, through my own engagement with creative writing, how techniques of ethnographic fiction can be used to animate the landscape through practice.

Chapter 3: Ethnographic Fiction

Once considered to be an underused method in geography (Herbert 2000), ethnography is now a mainstay in a suite of qualitative methods used by geographers (Cloke 2004; Davies and Dwyer 2007; Watson & Till 2010). Ethnography is an intersubjective, qualitative research strategy used to understand how people experience their worlds through interconnected processes such as place-making, inhabitation of space, forging networks, and representing and decolonizing spatial imaginaries (Watson and Till 2010). Whereas the traditional objectives of ethnography are to gain an understanding of cultural meaning through direct immersion of the researcher into a cultural group, geography borrows ethnographic methods from anthropology in order to develop further understandings of spatial processes constituted through everyday practices.

My aim for this section is not to provide a broad overview of ethnography and participant observation research in the field, but to demonstrate how ethnographic research does not end with the coding of field notes, for as Clifford and Marcus (1986) recognized, ethnographic research continues through the writing process. Rather, my intent is to highlight a specific genre of ethnographic writing known loosely as ethnographic fiction, and how this style of writing can serve to evoke landscape practices. Anthropologists and ethnographers have long experimented with literary styles and forms, and ethnographic fiction represents a crystallization of the ethnographer's oft shunned desire to write lyrical prose. To cut through any ambiguity in the broad conjunction of the terms "ethnography" and "fiction," I consider ethnographic fiction to be a genre of ethnographic experimentation with literary styles to represent "events that

actually happened but the factual evidence is being shaped and dramatized using fictional techniques" (Sparkes 2002: 5). This definition resonates with Geertz's (1988: 141) term *faction*, "imaginative writing about real people in real places."

In this section, I take a cue from Brace and Johns-Putra (2010) by providing insight into my creative writing process, rather than focusing solely on the finished products. After a brief review some of the precursors to ethnographic fiction writing, I delve into specific writing and evaluative techniques that I employ in two essays seeking to evoke landscape practices. Then I delineate differences between ethnographic and fiction writing. Finally, I outline the collaborative methods I used to draw participants into the essays.

As alluded to above, the incorporation of literary and fictional techniques is not new to ethnographers. According to Langness and Frank (1978), the earliest recorded ethnographic novel was Bandelier's *The Delight Makers,* written in 1890. Given the small number of anthropologists in the early 20th century, Langness and Frank (1978) also noted that they wrote a lot of ethnographic fiction, reflecting an early desire for ethnographers to be producers of literary works, and not just interpreters of cultural meaning. But with the rise of positivism and an injection of funding from the National Science Foundation, the literary became suppressed in ethnography (Richardson and Lockridge 1998). Clifford and Marcus (1986) and Behar and Gordon (1995) noted ethnographers keeping literary works hidden from the watchful eyes of Papa Boaz. Some ethnographers, as Elenore Smith Bowen (1954) did with *Return to Laughter,* adopted pseudonyms to write more literary ethnographies.

One of the outcomes of classifying ethnography as a science was the production of an academic monograph and a less prominent reflexive account that featured the voice of the ethnographer, perhaps best exemplified by Malinowski's (1922) *Argonauts of the Western Pacific* and the subsequent 1962 publication of *A Diary in the Strict Sense of the Word,* which comprised a more reflexive account of his fieldwork. Adhering to a rigorous empiricism, the monograph excluded the situated perspective of the ethnographer and instead described cultural practice from an objective, and detached perspective, often dubbed the voice of god, leaving no room for the ethnographer. This authoritative voice situated the ethnographer in privileged position of speaking for the "other."

The influx of poststructural thought into ethnography elicited questions of writing practices of ethnographers, namely the power relations between the ethnographer and the researched. Ethnographers began to recognize writing as central to their project, and that its unproblematized history "reflects a persistence of an ideology claiming transparency of representation and immediacy of experience" (Clifford & Marcus 1986: 2). Though ethnographers had experimented with the craft of writing for some time, Clifford and Marcus' (1986) *Writing Culture* represented a watershed moment in ethnography and the social sciences more broadly. The privileged position of the ethnographer came under scrutiny, power relations were examined, literary techniques were brought into the mainstream, and ethnographic truths surrounding cultural meaning were deconstructed.

Perhaps most importantly, this poststructural turn in ethnography acknowledged the limits to representation- that all ethnographies are fictions (Clifford 1986). Clifford (1986:6) contextualized this observation not only in the sense of the Latin root "fingere," something made or fashioned, but also of invention of things not real, whether intended

or not. This is not to be interpreted as an endorsement for ethnographers to make up or falsify data. Rather, the point he made is that ethnographic truths can never be whole, but only partial and incomplete. The author never has complete control of the text, rather "power and history work through them" (Clifford 1986: 7). Inherent in the destabilization of the god-like authority of the ethnographer was the radical undercutting of conventional ethnographic productions and subsequent interpretations of meaning in the study of cultural practice.

The intent of *Writing Culture* was to liberate ethnography from the constraints of binary thought prevalent in academic writing at the time. Clifford (1986) noted a need for ethnographers to encourage more innovative, experimental, dialogical, and reflexive writing. And yet, there was something decidedly absent from the collection. Despite the call for change in ethnography, the style, form, and even content of the essays in *Writing Culture* were much the same: dense theory developed and expressed through a flat, dull, and impersonal voice of a detached subject. Moreover, as Behar and Gordon (1995) observed astutely, the project lacked the voice of women. And this is a critical observation of a landmark text that has arguably had a tremendous impact on representation and writing in the social sciences. Behar and Gordon (1995) noted that women anthropologists were often critiqued by their male counterparts for not being analytical enough. And yet, *Writing Culture's* legitimizing of the experimental and creative served to ground this new ethnography firmly in a masculine subjectivity. Women were never acknowledged for their contributions and instead relegated outside the revolution in ethnography (Behar and Gordon 1995).

Behar and Gordon's (1995) follow-up to *Writing Culture, Women Writing Culture*, accomplished much of what the former set out to achieve, but never realized. The anthology recognized the ironies of exclusion in the ethnographic project, and served to give voice to the marginal and relegated. Furthermore, the project's refusal to "separate critical writing from creative writing" liberated styles of writing long considered inferior to the scholarly monograph and provided a medium for truly experimental ethnography to occur in the form of plays, short stories, poems, biographies, life histories, fiction, and fieldwork accounts (Behar and Gordon 1995: 7). And most relevant to my project, it heralded the incorporation of fictional techniques and collaborative work in ethnography. This is not to argue that the agenda put forth in *Writing Culture* should not be discredited or abandoned, rather the two collections should both be carefully considered in the construction of ethnography.

The insights into the project of ethnographic writing developed through *Writing Culture* and *Women Writing Culture* serve as a springboard into my own experimentation with the genre ethnographic fiction in that they both advocated for and legitimized the techniques that I employ in evoking landscape practices. I now turn to the techniques of ethnographic fiction, which encompass a wide range of ethnographic, literary, and fictional styles and devices. I also provide a set of criteria for evaluating this work, thus addressing a common critique of adopting a literary approach in social science research.

Referring to ethnographic texts, Stephen Tyler (1986: 129) commented:

> Because its meaning is not in it but in an understanding, of which it is only a consumed fragment, it is no longer cursed with the task of

> representation. The key word in understanding this difference is "evoke"…since evocation is nonrepresentational, it is not to be understood as a sign function, for it is not a "symbol of," nor does it "symbolize" what it evokes.

This passage underlies the sole intention and purpose of ethnographic fiction writing, to *evoke* the meaning of experience in cultural practice. Every literary and narrative technique in ethnographic fiction writing is intended to perform an evocative function. Evocations enact the text; they allow it to perform and engage the reader. Evocation is central to conveying experience, and though Tyler's (1986) argument parses evocation from representation, I believe that evocation works through, and even exceeds representation. In my essays, I craft representations that seek to accomplish this through attending to the well-established intricacies of literary style and form of ethnographic fiction, and utilizing these techniques to evoke the experiences of landscape through practice. I separate these techniques into two categories, writing techniques and evaluative techniques. When relevant, I cite my two essays on landscape practices, *Ascending Mount Princeton* (*Ascending*) and *Ordering the Forest* (*Ordering*)

Writing Techniques

In order for my essays to be evocative, to engage the reader, I had to show and not tell the events as the happened. To do this, I approached the essays through what Denzin (1997: 12) termed an "evocative epistemology" where the readers can "imaginatively feel their way into the experiences that are described by the author." Yet, the phrase, show don't tell, is elusive. The discrepancies between subjective interpretations of showing and

telling are difficult to discern. Furthermore as Rhinehart (1998) noted, showing through writing is a skill that must be constantly honed through trial and error. Developing essays on landscape practices required constant experimentation with literary devices.

Following Rhinehart (1998), I also turned to works by master writers for inspiration and insights into the writing methods. Cultural geographers who turned to narrative often cite examples such as Berger's (1979) *Pig Earth,* a collection of poems and short stories of peasant life in the French Alps, or to W.G. Sebald's (1998) *The Rings of Saturn*, an evocation of English history through an ambulatory journey around Suffolk. I looked to these works for inspiration and evocative examples as well.

In addition to these works, I also plumbed the pages of one of my favorite novels, Norman Maclean's (1976) *A River Runs Through It*, for examples of evoking the intersubjective encounters of humans in a landscape, moments where the two entangle and become one. His vivid descriptions not only capture the practices of reading a river, or the rhythms of casting over a torrent of water into the stillness of a deep hole, but also how the mind merges with the body and into the landscape, dissolving any distinction between thought, action, and landscape.

As writers like Maclean demonstrate in their works, evoking experience by showing rather than telling happens through the use of aesthetics, using craft to create art. According to Richardson and Lockridge (1998), aesthetics refers to the structure of an essay, how the parts relate to one another to produce a coherent whole. I employ literary techniques such as tense, point of view, characterization, setting, dialogue, which in turn contribute to the foundational techniques of verisimilitude and kinesis in order to

structure my essays. I discuss my experimentation with these relevant techniques in *Ascending* and *Ordering.*

In *Ascending*, the use of present tense works to convey the immediacy of climbing a mountain. It keeps the reader in the moment and creates a flow to the narrative akin to a stream of consciousness. Moreover, the use of present tense conveys events as they are happening, and not as they happened, which works against the deadening effects of representation. In *Ordering*, present tense is employed to enact the surprising and unexpected, moments when the landscape inserts itself into practice in both disruptive and wonderful ways. In both essays, the present tense evokes a landscape of constant change.

Cultural geographers have long been troubled by the problematics of subjectivity, especially with the dangers of presenting a limited and narrow subjective perspective as universal (see Nash 1996; Wylie 2010a). In *Ascending*, I address this concern through the literary technique of point of view. In order to evoke multiple experiences of climbing Mount Princeton, the story unfolds in the first person from two different perspectives. I received inspiration for this shifting point of view from Sebald's *The Rings of Saturn.* Sebald shifts tense from past to present and point of view from third person to first in order to not recount, but to express the past in the present from the perspective situated in a different time. Using this strategy, the past is evoked as present, not retold from an outside perspective, but from within. Though I maintain the present tense throughout, I use Sebald's techniques to shift from one subjectivity to another.

Point of view must originate from somewhere. Thus, characterization is an important technique in my essays. The characters are what propel the narratives, and are

essential to evoking landscape practices. Characterization in literature is similar to lived experience in ethnography (Richardson and Lockridge 1998). And in ethnography, the ethnographer has become a character in his or her own right (see Hurston 1935; Rose 1987; Behar 1996). My strategy with characterization is not to develop characters in their own right, but to demonstrate characters through their interactions with landscape. The focus then is on intersubjective experience of landscape.

It is also important to note that not all characters are afforded equal weight. For instance, as the ethnographer with the primary authority and responsibility in the production of the text, I am often situated as the main character. Occasionally, like in *Ascending,* another character's point of view becomes the dominant perspective in order to evoke a different facet of experience. Characters are meant to serve a purpose in the narrative. And the purpose or function of a character is related to importance. Richardson and Lockridge (1998) and Lorimer (2003) highlight the importance of relations between the major/central themes of a story or narrative to the minor/central. Inspired by Charlotte Gill's *Eating Dirt*, an ethnographic fiction of tree planters in British Columbia, I use characters to highlight these relations. In *Eating Dirt*, Gill uses minor characters to interact with the main character in order to highlight relations between actual tree planting practices and the overarching policies of timber companies and government conservation agencies. She also characterizes historical figures to relate past forestry policies and practices to contextualize the present. The characters in *Ordering*, all serve a specific purpose, whether it is to highlight a notable event, demonstrate a forestry technique, or convey a specific Bureau of Land Management policy.

Characterization also includes dialogue. In the acknowledgement of post-human developments in cultural geography, I also recognize the setting, the landscape, as a character. Burroway (2010) showed how the setting is fundamental to character development as all characters' actions occur somewhere. Recognizing the landscape as a character gives it agency and decenters the human subject. It works to highlight the ways in which the landscape interacts with other characters in the narrative, foregrounding relationality as opposed to human characters acting on an empty stage or filling a void through action. The landscape has the capacity to act as well, and developing it as a character is a strategy for evoking action.

Dialogue is a useful technique for conveying information and meaning in a narrative or story. Dialogue promotes the expression of different points of view (Narayan 1995). Both Clifford and Marcus (1986) and Behar and Gordon (1995) advocated for the incorporation of dialogical techniques in ethnography in order to recognize polyvocality or the expression of multiple points of view, which were traditionally textualized exchanges between ethnographer and informant. However, Behar (1996) and Gottlieb and Graham (1994) used dialogue extensively to convey events and practices in their ethnographies that didn't reflect exact transcriptions, which subjected these texts to criticisms regarding replication and falsification. Burroway (2010) noted that developing dialogue is difficult due to the vagaries of memory. Yet, as Rhinehart (1998: 204) argued, "Exact recordings of words said are less important than what the sayer meant to say." In *Ascending Mount Princeton,* I employ internal dialogue in order to evoke the struggle of moving through a harsh and unforgiving landscape. In *Ordering the Forest*, dialogue

serves to present the interactions and conflicts of understanding and interpretation that occur between the characters, as well as to evoke different perspectives.

Perhaps the most important literary technique of evocative ethnographic fiction is verisimilitude. According to the Oxford English Dictionary, verisimilitude is the appearance of being true or real. Its etymology includes the Latin roots of *verus*, meaning true and simili, meaning like. In literary terms, verisimilitude equates to believability. "Truth, in this type of writing, is not a realist narrative but rather a sensual, magical, truth. The feeling of experience-verisimilitude-is what the writer is after" (Rhinehart 1998: 204) As purveyors of cultural "truths" verisimilitude is paramount to writers of ethnography.

Ethnographers achieve verisimilitude first through the notion of 'being there,' meaning the authors went into the field and collected data through participant observation and interviews, among other methods (see Clough 1998; Diversi 1998; Finley & Finley 1999; Frank 2000; Krizek 1998; Rhinehart 1998). But verisimilitude is not an independent literary technique. It works through all other literary devices employed by the writer. Tense, point of view, character, dialogue, and aesthetics (craft), all contribute to the verisimilitude of the text. From the broadest sense, the narrative or story must make sense; the parts must create a coherent whole. The characters must be believable. In *Ordering*, I attempt to create believable characters by describing them solely through the observations I made through participant observation. Dialogue is also an important technique in crafting believable characters. Using ellipsis to represent pauses and hesitations, and invoking colloquial phrases, imperfect grammar, and interjections such as "like, uh, um, huh," create believable dialogue. Crafting inner monologues that stream,

come on as a rush, or seem jumbled evoke thought-in-the-making, as it actually happens. In *Ascending*, I rely on alliteration to keep the prose flowing, to enact a sense of movement in the reader. And as Rhinehart (1998) made clear, detail is important, but too much detail detracts from the believability of the narrative. It is often better not to say enough than to say too much (cf. Chekov). A narrative that strives to over-explain, to present from an omniscient perspective rather than a situated point of view, where only partial meaning can be uncovered, will fail in achieving verisimilitude.

If the goal of ethnographic fiction is to evoke cultural meaning through the incorporation of ethnographic methods with literary techniques, the purpose of the evocation must be addressed. In other words, why write ethnographic fiction? What is the point? For Richardson and Lockridge (1998), the purpose of ethnographic fiction is kinesis. Texts have the capacity to be affective and the story or narrative should move the reader in some way. Kinesis is necessary for engaging the reader, for a story that fails to move the reader ultimately fails its purpose. And underlying kinesis are questions of meaning in the text. An ethnographic fiction piece must convey some sort of meaning in order to achieve kinesis, though the meaning need not be fully answered or understood. Richardson and Lockridge (1998) put forth that kinesis is achieved through mystery; the text stirs the imaginations of the reader, is thought provoking, and leads the reader to question the significance of events and experiences evoked in the text.

Evaluative Techniques

If the evocation of cultural practice and meaning through literary techniques that work to achieve verisimilitude and kinesis through the text is the aspiration of ethnographic fiction, a set of criteria for evaluation need to be applied to ethnographic

fiction writing. And here I must point out that techniques for writing and techniques for evaluation are not mutually exclusive. A reader's propensity to be affected by a text and to invest in the believability of the narrative are forms of evaluation. Familiarity with literary techniques and interpretations of how the author of ethnographic fiction employs them to affect verisimilitude and kinesis provides a solid ground for evaluation. These have been explored in great detail in the literature, which recommend evaluating ethnographic fiction writing based on attention to detail, reflexivity, evocation, aesthetic coherency, insightfulness, kinesis, and verisimilitude (Denzin 2000; Ellis 2000; Richardson 2000). As social scientists, geographers expect a more rigorous or specific set of criteria, especially alongside the more prevalent analytical styles of writing. But when considering the wide range of affective capacities a narrative or story has on a readership, and the swath of subjective interpretations a readership applies to a narrative or story, a lack of consensus on meaning and evaluation will undoubtedly persist. Regardless, Richardson (2000: 254) provides an inclusive and cogent set of criteria for evaluating ethnography that incorporates literary styles to evoke meaning

1. Substantive Contribution: "Does the piece contribute to our understanding of social-life?"
2. Aesthetic Merit: "Does this piece succeed aesthetically?"
3. Reflexivity: How did the author come to write this text…Is there adequate self-awareness and self-exposure for the reader to make judgments about the point of view?"
4. Impact (Kinesis): "Does this affect me? Emotionally? Intellectually? Does it move me?"

5. Expresses a Reality (Verisimilitude): “Does it seem ‘true’- a credible account of a cultural, social, individual, or common sense of the real?”

This set of criteria is not intended to be the ideal standard, but does provide a good starting point for judging a piece of ethnographic fiction. As Rhinehart (1998) noted, writers are constantly experimenting with new techniques to evoke events, experience, and meaning. This suggests that the measures of evaluation will constantly be keeping pace with the inventiveness of ethnographers.

The difficulties in assessing ethnographic fiction are perhaps symptomatic of the blurring boundaries of ethnography and fiction. To be sure, the intent, style, content of the two genres often engenders different expectations inherent in the evaluative process. Narayan (1999: 134) does contend that the traveling between ethnography and fiction has been extremely valuable for anthropology, but cautioned against dissolving the border to the point where both genres of writing become lost. She provided four guiding landmarks that aid in the necessary recognition of a border: (1) disclosure or process, (2) generalization, (3) the uses of subjectivity, and (4) accountability. Narayan (1999) contended that the expectations for ethnography and fiction will inevitably be different for ethnography and fiction. For example, writers of pure fiction are not held to the same rigorous standards of disclosure or process and accountability as ethnographers. Furthermore, whereas ethnography tends to draw generalities of meaning from the particulars of cultural practice, fiction does just the opposite, relying on generalities to evoke the particulars (Narayan 1999: 140).

As made apparent throughout this review of ethnographic fiction, ethnographers constantly grapple with the inherent anxieties of representing the “other” and themselves.

Historically, ethnographers have been concerned with representing subjectivity from the "native's point of view," which was attempted through participant observation (Geertz 1976). Later representations of subjectivities expanded to include the fieldworkers/ethnographers themselves through confessional and reflexive styles of ethnography that exposed the nature of ethnographic research or included the affective dimensions of fieldwork (see Behar and Gordon 1995; Clifford and Marcus 1986; Tedlock 1991). However, some ethnographers, like Meyerhoff (1980) in her work with elderly Jews, have created new possibilities and spaces for hybrid subjectivities to emerge. Kaminsky (1995) observed that Meyerhoff extensively elaborated on interactions with her informants, even recombining separate characters in some instances. She justifies this by claiming the creation of a "third voice," a hybrid that expresses the collaboration of the ethnographer and informants and provides opportunities for speaking for the "other" (ibid: 5-28). Though these creative liberties cause certain unease with ethnographers who adhere strictly to objective forms of representation, fiction writers rarely have the same qualms regarding representations of subjectivities as ethnographers (Narayan 1995).

Collaborative Ethnography

I sat in Soren's office, tape recorder on the table beside me, a list of questions on my lap. I knew what my first essay was going to be about, the hike up Mount Princeton. I wanted to interview Soren in order to gather his experience about the hike and put it into narrative. I sensed that his experience was much different than mine, and I wanted to write his perspective directly into the narrative as a counterpoint to my own. I began by asking if he wanted to recount his experience or answer a set of questions relating to

movement, haptics, and experience of the landscape. We decided that it may be easier for Soren to recount his experience and then for me to ask questions as the interview progressed. So he started from the moment he woke up to the summit of Mount Princeton, and all the way back down again.

I listened to the interview twice, transcribing moments that sounded relevant or interesting while letting others pass. When I began to write the essay, I felt that something was missing. The narrative recounting of the events existed in the interview as a coherent whole, but I felt that there were some intangibles that exceeded his recollections that my questions intended to get at, but couldn't address. This frustrated me. How could I capture his thoughts at certain points in the hike, what was it like for him moving along the scree slope? At the summit? What thoughts entered his mind at certain moments? Even these questions were inadequate to address the excessive, fleeting and affective capacities that emerge from interactions unfolding self and landscape. So, I started to write, filling in the unattainable dimensions with my own thoughts of Soren's experience. My intent was not to misrepresent him, but to give him the opportunity to respond and reflect on these moments when he read the narrative.

Soren and I met again for a second interview, after he read *Ascending.* As we worked through the essay, Soren explained passages that captured him well, and those that didn't. Through other passages, he was able to understand the facets of experience that I was trying to evoke such as the feel of the road in the steering wheel of the van, the precariousness of the rocks under his feet in the scree slope, his sense focus while hiking up a steep grade. Most of the time, the experience I sought to evoke eluded both of us, lost on the mountain forever, only vestiges remaining in our memories and imaginations.

But beyond trying to capture our dual experiences on that mountain, something else was happening; we were collaborating on a story. In a sense, we were writing it as we lived the experience, *together*.

Lawless (1993:5) referred to bringing the text into an ongoing dialogic exchange between the author (ethnographer) and characters (consultants) as reciprocal ethnography. The purpose of reciprocal ethnography is to challenge the politics of representing subjectivities by recognizing the power relations of the privileged academic narrative over community conversation (Lassiter 2001). Lassiter (2005) further distinguished between reciprocal and collaborative ethnographer, the former suggesting a medium exchange such as an interview, the latter emphasizing an equal ground where the positionalities of the ethnographer and the "other" conjoin through a mutual production of the text.

Though I engaged in reciprocal ethnography through interviews, I also experimented with a limited form of collaborative ethnography. Lassiter (2005) contended that a truly collaborative ethnography like Lawless' (1993) *Holy Women, Wholly Women* requires collaboration at every step in the ethnographic process, from data collection, to interpretation, to writing. Due to time and resource constraints, I focused on using the texts as a centerpiece for conversation. When writing *Ascending*, I collaborated with Soren to produce a narrative that strived to evoke both of our experiences. I took this further with *Ordering.* After writing the first draft, I sent an email to the three students involved and asked them to read through the draft, and write in or edit their own experiences. All agreed to collaborate, and though their input ultimately was limited due to a perceived lack of understanding my intentions, and the limited time and resources

available for further iterations of collaborative editing, I provided them the opportunity to be a writer in this process, and incorporated all of their revisions and additions. As Lawless (1992: 310) stated, "Equally important to us as scholars is that our interpretations are *not* the 'last word,' that our interpretations are not necessarily the right or insightful ones" (emphasis original). I wanted these narratives to express more than polyvocality through the voice of the ethnographer; I wanted them to express some form of collaboration with those represented in them.

This section outlines the emergence of ethnographic fiction, a genre born out of the "crisis of representation," the recognition that representations are not innocent; they are fictions, partial truths, influenced by power relations and history. Despite the recognition of the shortcomings of representation, ethnography's flirtation with fiction, narrative, and literary techniques has opened up new opportunities to enliven representation that parallels recent gripes in cultural geography with landscape representation. As a genre primarily concerned with cultural practices of people in places, ethnographic fiction, with a little experimentation and imagination, affords many exciting possibilities for evoking the landscape through practice. Following a list of my data sources, the next two chapters consist of my attempts at using ethnographic fiction as a representational strategy for evoking practices of landscape. I do not provide any introduction other than the review of landscape and ethnographic fiction outlined above. It is my intention for these essays to stand without recourse to explanation.

Data Sources

- Personal experience
- Field notes from participant observation
- Student field journals
- Semi-structured interviews with instructors Soren Larsen and guest instructor Curt Sorenson, students, and residents of Garden Park, CO.
- Aerial images, the University of Kansas and Bureau of Land Management contract, Bureau of Land Management data collection sheets.

Chapter 4: Ascending Mount Princeton

Ascending Mt. Princeton

Dawn breaks over the Collegiate Peaks. The blackness fades out, giving way to a translucent technicolor blue. The blue spreads through the sky, withering away the stars, settling into the San Isabel National Forest campground deep in the Sawatch Mountain Range. The Douglas and White Firs filter the blue through networks of needles and it casts them in a somber hue. But things are happening. Little movements. Scurries and sounds. Chirping and chipping. Things circulate, entangle, detach. The blue blankets the campsite, settling on the trees, the cars, the tents in the camp pads, campers breathing out night rhythms.

A rush flows out of me and suddenly I am in my tent. Though the passage from sleeping to waking eludes me, the dreary effects of being suddenly pulled into consciousness weigh on me, a sort of fuzzy emergence into consciousness. I respond, rubbing my eyes and uttering an empty yawn. I rise, inciting a tingling numbness in my thighs. Squatting to unzip the tent flap and I step into the blue. I emerge from my cocoon into an airy world. The sweet coniferous smell does little to lift me. I am dragging. *12 hours from now, I'm going to be sitting at the campsite having a cigarette-a day well done. And so okay, the next twelve hours are filled with uncertainty and probable physical hell, but let's do it. There is nothing left to do now but do it.*

The dull orange cooler invites me to begin the daylong hydration process. I fill up my water bottle, a certain companion for the next twelve hours. As I stand near the picnic table, the water flows through me; a cold sensation from inside enlivens my senses. The air envelopes me in a chilly embrace and my warm breath projects foggy forms of ghosts. The campground appears crisp in the receding blue. The needles of the Douglas Firs separate and sharpen and we both come into focus. As I mingle with the water, I notice my arms and legs. My extremities register the cold, coursing sensation of the water flowing down my throat and through my chest, dripping down my arms.

I am peaceful in the silence, marveling in the grandeur-the immensity- of this small campground. Smells elicit fragrant memories, a mixture of conifers and crisp mountain air. I think about bringing my boys to this place. Wishing they are here with me, exploring Chalk Canyon, panning for "gold." Our bonds evident in the landscape here as we share in its treasures. Even at this early hour I long for a fire, a bottle of wine, my wife.

The opening of the van door and the emergence of Matt reels me into presence. He appears caught between the fading black of the night and the blue of the morning as he takes off his glasses, rubbing his eyes and blinking rapidly, ridding himself of last night's dreams. Matt approaches me, mumbling a *good morning Soren,* words stumbling through his throat and falling out his mouth. Each of us undoubtedly dwells on the impending hike up Mt. Princeton, unmade memories playing out possibilities in our heads. I turn and Matt follows to the back of the van. I swing open the doors and survey the breakfast scene, digging through plastic totes. Breakfast is normally not a priority for me, but the mountain is looming and I know I will need the energy that a plain bagel with cream cheese provides.

As Matt eats, I begin to gather myself for the hike, hoping that my actions will rouse the others. The rigorous requirements of the mountain, the sun, and the wind onto my feet, legs, arms, and head as I slide my feet into my boots, tightening the laces, pulling my green fleece over my head, my hat following, and assemble my backpack. As the leader of this raggedy band this is the time to assert my authority, to incite action. But nothing is happening. My silence echoes the stillness of the camp. The sun brushes the gray craggy peaks encircling the campground, slowly erasing the dreamy blue of dawn. The continual change in light not only brings changes in the look and feel of the camp and surrounding environs, but also in my thoughts. The road up to the radio antenna towers marking the beginning of the hike jumps into the foreground. It dwarfs the fourteener, and my chest tightens. My eyes dart around the campsite, not looking at anything and looking for everything at once. A surge courses through me, a culminating wave of potentials that propagates into action.

Prior to sensation, I am already moving through a routine exercised by anxieties, desire for motion for motion's sake and the determination to get the fuck up the mountain and get back down again. Movements are happening and I emerge through them. My actions contrast sharply with the still din of the background. I open and shut coolers, unzip and zip backpacks, looking down with the gravely dirt, pacing. Walking to the water cooler, toothbrush in hand, unleashing the ice cold flow, and I continue marching along this insipid routine. I feel the absence of the sleeping students as a presence; an affirmation of my passive silence.

Finally, Cade and John emerge from their tent, Cade looking stoic and John flashing his trademark shit-eating grin. Jaohn drops some sort of whatever and the two begin their mimetic morning rituals in the unfamiliarity. I continue opening and shutting, unzipping and zipping for there are more souls sleeping that require arousing. If I continue moving my routine forward, making the preparations for the hike, they will rise.

Collective movements beginning to animate the campsite. Lacey appears, yawning while walking hesitantly towards the van, each step plodding with overdetermined deliberation. Cade back in the tent, the swishing of the fabric betraying his movements. Matt's girlfriend Emma materializes under the douglas firs, a tired smile. And of course, John. His eyes glazing into the char of the fire ring; his tooth brushing foams the edges of his mouth, a rabid dog. My actions fading into the background hum of activity. Against the whir of motion, the rhythms of awakening and assembling-a sense tugs at me-the stillness of two tents across the road renders them visible. I walk away from the movement, across the road to a new world of silence. My footsteps crinkle upon the sharp gravel of the campsite pad, an unfulfilling resonance. The two tents remain

silent. A field of firs frames the two domes. Turning to my left, I stare motionless, piercing the blazing orange bubble blistering out from the ground. I consider calling forth air residing deep within my still breath, an untapped potential sure to affect action. Yet, the potential propagates a silent path.

Assembling a group and getting ready to go is not an easy thing to do, especially at five in the morning. The person languishing in the orange tent, Dan, concerns me. He is a stranger to our group, sharing only the common goal of hiking the mountain. Dan oozes out of the orange blister, a manifestation of mild annoyance. He slowly assembles himself for the trek, pulling together the various components that transform human into mountain climber. Hiking boots, socks, shorts, backpack, and water. I acknowledge the blue tent. *Knock Knock Knock. Dr. Elliott? Will you be joining us today?* Dr. Elliot mumbles, *No…..staying here today.* Sigh. Dan must complete our motley group.

The van coaxing silently, we straggle into seats, Matt leads the way, slumping into the middle bench seat. John is last, bursting through the threshold into the back and instantly sleeping. It's so quiet early in the morning. The students in the back of the van are silent. The road is smooth. I register the tick-tuck tick-tuck of the van's turn signal. Squinting, the rays of the sun constrict with what I see. The road perpetuates continual movement forward; the van follows, complicit in the motion. The silence breeds an intimate space in the van. A nascent nostalgia that cannot last forever…

We turn off the county road, driving through Frontier Ranch, a Young Life youth camp. We cross under the Mt. Princeton Entry gate, a ranch style sign and the world changes. Noise displaces silence, a rising chatter emanating from the rear of the van signals impending excitement. The road flows into a choppy ocean, waves of relief

washing over me as tires and gravel crunch. I am finally grappling with the road dominating my anxieties. The undulations flow up through the wheels to the shocks, transforming the rhythms of the road into me. Heads bob up and down in the rearview mirror as my hands lock onto the steering wheel for stability.

As the van climbs, the road travels through me, a series of discombobulating motions. I become a van-being traversing the dips and hugging the slope-side of the road. It cuts and winds up and follows the slopes, twisting and turning makes it difficult to discern the shape of the mountain. Throngs of pines and aspens shelter the crumbling road, revealing only glimpses of open air and rocky outcrops of granite jetting out from blankets of pines that drape the slopes. We reach an outcrop of kaolinite eroding into loose, shifting sands. We move into the swales undercutting the road bed. Entering a swale, my hands clench the steering wheel. Pressing through the swale, we pitch up towards the ridge. The road disappears, the windshield filling with wisps of sun soaked blue and I grab at the emptiness. In an instant, I imagine the van bouncing off trees and boulders down the slope; *I am going to kill these kids!* Though I see the empty air through the windshield, I also see authorities knocking on the doors of the poor parents, mothers falling onto their knees with cries of anguish. Tires slipping for a surface as I heave into the mountain. Hands grasping and clutching the backs of seats. The weight of the tires touches and we return to earth.

The kaolinite patch travels with me up the road. I will need to traverse it again on the way down. The van pitches and dips. I inhale…release…

We stop.

Two cars block the path. The sheer terror from moments ago shifts to petulance. Bodies transfer, ambling from one vehicle to the other. They reassemble and continue upwards. We snake along behind with the bends around the mountain slope. The road constricts movement, squeezing us along until we run into another jam. An aging white VW Bus squats across the road, facing our convoy. The bus turns its wheels and fashions a new road out of the steep slope running parallel to the road. The maroon SUV in front of us drives past, barely brushing its side-view mirrors along the mirrors of the bus, tires sinking into and pushing the road over the ridge buttressing the other side. The van engine idles and murmurs of disbelief float from the backseats. We are next.

Perhaps in the interest of self-preservation, Cade springs out of the van and walks forward. Turning, he holds his hands up and reproduces the distance of the tires to the drop over the ridge. Clenching the steering wheel, I inch forward precariously, feeling the cringes in the backseats. I let go, trusting Cade hands, the sunlight glinting between quickly vanishing. The trees reaching upwards from below the ridge act as arms, coaxing the van along. I find a spot in the road just beyond the hood of the van. Inching forward, we scrape the razor thin sheet of air, the slightest of separations between us and the bus. Cade's expression reflects the moment the tires till the loose soil, crumbling the edges of stability. *I just want to stomp on the gas and blast through this shitty predicament!* Yet, I don't. My eyes cling desperately to the spot on the road, hoisting the van through the chasm, knuckles clenching the wheel. *Whew...* Eyes that were assuredly closed open and the back exhales. We continue upwards and come to rest in the radio antennae tower lot, snug with the assemblage of vehicles at the base of the hike.

I shed the van and engage the legs and lungs, warming to a rhythm. I walk uphill with the road. As I walk, the road pulls me back down the mountain. My endorphins explode and blood flows. I push down on the road, its resistance breeding repetition, a perpetual cycle of legs and lungs. My lungs pump the thin air, a constant cycle. Matching the pace of Cade and John, I feel good. I feel alive. Though my motion translates into a flowing upwards, a swale pushing through a sandy beach, there is a lagging, the tug and pull of the kaolinite road.

Walking purposefully behind Soren, Cade, Lindsey, and John, Matt thinks to himself, *it's only a matter of time before the racing begins.* It is a constant thought; a nagging voice on repeat and the road gives me time, inviting me to mull over this inevitability; forming a switchback, zig-zagging up the mountain, follicles of aspen and fir popping from the mountainside. The trees cement the sandy slopes. They are spindly sculptors, building and shaping the surface. As I am trudging along the slinking road, the trees hold me close to the mountainside, keeping me from flying off, from becoming a wisp of wind.

The trudge up the first leg of the switchback continues. At the bend, stopping, the trees fall away revealing the resplendent Upper Arkansas River Valley. The bare outcrop composes me, immersing me in the scene. A mossy green carpet spreads outward from the mountain into the valley floor. It spreads-stretching its tendrils along thin river ribbons inscribing the dull brown flatness below. Roads overlay a dreaming reality. Beyond the flatness begins the layering of Paleozoic and Mesozoic granite layering of the eastward Mosquito Mountains. Slumping and sluggish they pour down into the valley

like molasses, hazy in the dusty sunlight. Milky sheets of clouds sliding across reveal sun-rays, giving the air a soft texture, pulling earth and sky together in a warm embrace. We connect, but only for a moment. I feel a slight tug, a prodding. Emma stands gazing out, but the look she betrays is already moving upwards with the road. The others are already receding upwards in a mountaineering sprint. Hesitating, we greet four hikers who also stop to drink in the beauty from the vista. The beauty doesn't quench our thirsts, so Emma and I drink from our water bottles. The hikers are Princeton graduate students. Two just finished law school. After conquering the hallowed halls, they aim for what they imply is a more visceral challenge. We nod in affirmation. We trudge on.

Emma and I enter the play, the dance scripting the man-mountain. Trudging-Stopping, Trudging-Stopping, Trudging-Stopping. Each movement a rehearsal for the next. The mountain leads this waltz, occasionally stepping on a toe, tripping on a loose rock. I spy a gray jay-no a Clark's Nutcracker-perching silently on an evergreen. The gray blends in with the green, except for a little white eye-ring, a small instance of recognition. My excitement upon spotting this bird supersedes me, breaking the surface tension and agitating our perceptively separate worlds. The Nutcracker nimbly drops from the surface to inner depths between mountain folds below, out of sight, but still resonating.

Trudging-Stopping, Trudging-Stopping. Shedding stocking hat and fleece, sun-rays soak me with warmth. The mountain wraps the road around its southern flanks, eliciting a persistent disorienting discomfort swelling with each step. A loud *Hey guys, up here!* cascading down the mountain slope jerks my head around. Soren stands waving and pointing back to a sinewy strip of gray slashing up the slope. While the road's roadness,

its tire and foot-worn texture belies a sure and true pathway up the mountain, the true trail hides in its authenticity, a rugged staircase of stone winding up the slope. An incorporation of ascension.

Leaving the road, the trees, I feel Emma's presence behind me. The mood of the landscape shifts against a graying sky. The sudden incline of the stone staircase brings the world in close: lichen-stained rocks, tufts of heathery grasses, dirt-nearly smudging my nose. Climbing, the slope rolls away like a bowling ball, revealing tawny-green tundra, tiny red bells brushing the rough grasses, foregrounding the barest of bare granite bodies. The mountain unravels outward like a ribbon. As it bulges upwards, Mt. Princeton sheds its verdant skin, exposing grey rock melding with grey sky. I am looking with awe and utter trepidation from within this forlorn landscape. I am now hiking with a mountain, an assemblage of intensities inspiring later reflection.

> *Mountains symbolize permanence, stability, strength. As I looked across the great void at Mt. Princeton, all of my strength drained from me as I realized the sheer magnitude of the mountain-valley landscape; the distance that needed to be traversed. Princeton hunkered down like a beast. Its contours pulled my eyes across its ridges and jagged edges. Left to right, foreground to background. It is then that the past-present-future converged and melted together before my eyes. Perhaps it was the past week's focus of field camp on geological processes, but I swear that I could see the surface come alive. The large cirque bowl composes the eastern slope, the imprint of a past glacier, funnels the mountain down into the valley. Streambeds braiding the mountain slope reveal glacial melt and routes of runoff. Despite the apparent naturalness of Princeton, I couldn't help but wonder*

if I was witnessing past marks of mining activities. A sea of rocks comprises the mountain surface. The rocks betray a fallacy, the mightiness of the mountain. Princeton is crumbling. It is decaying into the valley. The stability is destabilizing. I still felt weak.

We trudge along a path imprinting the alpine tundra. The green heather forming this trail, defines it, verifying its presence. Without the tundra, hikers would hike aimlessly, the craggy horn as a beacon. Treading this well-worn path, it is difficult to conceive of its connection with the Mountain. Princeton seems so distant, and yet, we are walking with it. How are we walking something that is still so far away?

I feel the tug again, a growing awareness that everyone except for Emma is racing. They become smaller and smaller and disappear around a bend in the slope. This tug is incessant, nagging, annoying. It is a belittling tension. I wonder if the rest of the group feels the tug, too. The tension of my lagging, holding them back, breaks up the cohesiveness of our group. I thought of this then, and continue to think about this even as I write. Am I not "man" enough for moving so slowly and deliberately? Am I feeble, weak? I am reminded by my thoughts after hiking the Continental Divide the day before hiking Princeton. My journal from the Continental Divide trek interrogates this tension.

Climbing the Continental Divide today elicited this feeling of being torn between the group and the landscape. I quickly noticed that the students, Emma, and even Soren were intent on reaching the Continental Divide, a 3 mile hike, very quickly. As I moved along the landscape, I saw so many flowers, heard sounds of birds, stellar jays mainly, pikas, and marmots, and felt the heaviness of the overcast sky. Through the presentation of these sensory delights, the landscape invited me to

explore inwards, rather than move through or even travel across. Thus, I felt the tug of our group to move forward even as the landscape beckoned me to slow down and breathe in. Once I reached the Continental Divide, I was amazed at the scenic vista and imagined all of the water rushing westward. This is the line that decides where a raindrop will begin its journey across the United States! However, I couldn't be awestruck for too long as the tug pulled me back towards the eastern side of the divide. I was like a raindrop, my destination predetermined. On the hike back towards the van, I looked at the expansive valley below, lush and green, with a thin ribbon of blue meandering through its flattest plain. The valley looked and felt huge. It seemed untouched and even unconcerned about the world beyond the mountains. It was then that I realized one particular aspect of the relational nature between self and landscape. My small body promotes the immensity of the valley- I conceive it to be expansive only as a function of my own size. In relation to the rest of the world, this valley is very very small. Maybe this is why we as humans have trouble believing in the course of environmental degradation that we are currently pursuing. It happens at such a large scale that we do not often confront it in our daily lives. We see the lush green valley and think that everything is great, not seeing what lies over the mountains. Perhaps the solution is not to look out or move across the landscape, as we did while hiking the Continental Divide, but to dive into the landscape. This move inward will undoubtedly open up new relationships, incite new discoveries, and even help us comprehend the grandness of life, the immensity of scale, by spending more time coming to know the minutia of detail in the landscape.

As Emma and I trudge along, me ever so aware of the rapid rhythm emanating from my chest, I ponder the thoughts in my journal entry alongside my anxieties. The demands of Mt. Princeton differ from the Continental Divide. The latter is smooth, the slope is a steady railroad grade; cloaked in pines and splashed with wildflowers, opening vistas that draw you inwards by drawing your vision outwards. The former is harsh, jagged, and austere. The climb is steep, unsteady, and punctuating. Mt. Princeton pulls you deep within yourself- even as you seem to exist in the edges between- your rhythms, movements, and trials. Struggle replaces curiosity. Discovery and wonder are not constant, but fleeting.

The alpine trail tilts upwards tediously. Boots slip on the sandy soil. Hands clench. Beads of sweat form and begin to follow the folds of skin. I walk, four steps, one breath, three steps one breath, two steps, one breath, one step, one breath. Emma and I stop. Hands on hips, Emma grimaces. I ask, or rather gasp, about her back. She says it feels really good. The hiking is helping. I place my hand over the flutter and though I am standing upright, I sink into the tundra at the rapid beating. My heart is galloping as I am trotting. Images of collapse materialize. We consume water and continue.

Suddenly, the tenor and mood of the landscape shifts. The grass dissipates, and a teeming sea of rock unfolds. The trail becoming the rocks, the world even more gray. Desolate and bleak. We reach the shore of the sea of granite. Angular, jagged rocks slowly sliding down, forming a scree slope. The stones are cut in various shapes and sizes by erosional processes of water and wind. The wind. It sweeps around with the mountain slope, blasting us, drying the sweat off our faces, rippling our hair. When the wind whips by, felt and unseen, it carries traces of me across the mountain. Squinting, I step forward

into the sea. The path slicing across the slope is a mere ghost, a spectral presence of past hikers.

Scampering-hopping-sliding-stopping. With each sliding step, I move mountains. My hiking boots precariously gripping to tilting surfaces. When I move, the mountain moves with me. It is a sideways scramble across the slope. Though I feel the sheer immensity, the vulnerability of exposure on a bare mountain, my world only exists in the few steps from one cairn to the next. A leap, a bound, a slip-arms and hands shooting outwards-grasping at nothing for balance and composure. A step into the unknown. Miniature rockslides flow with every footfall.

With the vastness of the landscape receding into intense concentration and choreography of movements, I forget. The path leveling, I forget about the distance of the journey upwards. I forget my breathing. I forget about the racing palpitations of my renegade heart. Every thought, feeling, sense, bodily function is subsumed in improvised movements with the rocks. I exist at the edge, between hiker and mountain. I reflect every lichen stained rock, I subsume gusts of wind, the trail spurs me forward, challenging every step, favoring constant movement. As I move, it moves. I look for the familiar signs, little towers of rock, trail beacons. Each step elicits a response, a hollow clunking, a sudden movement, a shifting orientation.

CHEEEEEP! CHEEEEEP! The calls emanate all around from the landscape, originating in the various cracks and folds of the stony slope; pulling me out from intense negotiations with the trail. The tenor of the landscape slows, the pace abating. The sounds spread my vision outwards and the slope expands with my gaze. Flashes of grey weaving

in and out of the grey rocks. Pika. Pausing, it tilts its rabbit head upwards, radial ears twitching, sniffing with pulsating nostrils.

Pikas enliven the dreary mountain landscape. They pour through the rock gaps, making worlds in spaces between. As we watch, I wonder what the life of a pika is like on this desolate mountain slope. I try to imagine myself as a furry bundle of energy, scampering among the rocks, navigating through tunnels that shield me from winged threats. I wonder what the horizons of the landscape might be for a pika. Do they know this mountain? Do they ever gaze up at the peak, beyond the fields of granite? I find knowledge of the stony slope through observing their movements. But, I am a bipedal being with only the capacity to wonder what it is like to scamper through the rocks on all fours, to stretch towards the truth of that experience, yet fall short in every attempt. The pikas take notice of Emma and me, wrinkle their noses, and continue collecting thistle.

The slowing to observe pikas draws me into the broader context. The sheer distance along the rocky ribbon and the immensity of the experience, clinging to a craggy slope, hemmed in by the vastness of valley comes sharply into focus. I feel the tug again. The pull to progress towards the summit is unyielding. Emma and I continue to mingle with the loose rocks, feeling as stable as a mountain goat on a sandy beach. We squeeze past a group heading back down. Their forlorn expressions betray defeat. The older gentleman in the front frowns at the grey sky. *It looks a little menacing. Don't want to take any chances.* His adult offspring and their significant others frown disapprovingly at his back, disappointment, perhaps resentment can be felt from their faces.

After our bodies and words mingle, the elder hiker's concerns linger with me. They color the sky with a deeper hue of grey, push the wind around the slope a little

faster, and an unstable rock betrays my next step. Slipping turns to sliding. My right leg travels downslope with the inconstancy, leaving the rest of me behind. *Are you ok?* Emma asks, concern gathering in folds around her eyes. The somber grey in the clouds and mountains bring forth the blue in those eyes, warming me with encouragement. I am up and moving again, sinking deeper and deeper into each step and each surface. The landscape returns from its expanse of heights, depths, and folds to an undulating, shifting line along a slope.

Trudging-stopping, trudging-stopping, trudging-stopping. This lineal landscape, slicing through a claustrophobic expanse, favors movement. Repetition stretches any sense of time into purgatory. Arrival at each cairn resets a non-existent stopwatch. They are never-ending intervals marking duration, and I interpret them as moments marking active transitions from walking to looking, and back to walking again. Occasionally, a gust of wind destabilizes a moment, or a pika cry affects my attention. But perpetual transfers from one rock to the next along with the series of over-conscious choices constituting them subsume most of the active whirring and humming in the landscape. These shiftings consume all concentration, extending time and space through endless cycles of motion.

The path splits ahead, demanding a decision. The actual path continues a level bearing around the slope. It does not ascend to the summit but instead recedes into the rock field on the other side of the bowl. Another switchback departs the path perpendicularly, zig-zagging straight up the side of the slope to the top of a ridgeline. Which way to continue? A couple struggling on their return along the former makes our decision easy and we begin the upwards sway, swinging back and forth. Bounding up this

sudden incline, gravity begins wrapping its tendrils around my calves. The steepness of the slope pounds in my chest, so I focus a few feet in front of me on the dirt path, conscripting my legs and lungs in an oscillating dance, leaving my heart out of it entirely. Instead of slugging up the slope, I climb my breaths and steps-straight along one zig, turn and straight up the accompanying zag. However, the mountain climbs me as I it: deadening my legs, constricting my lungs, chasing my heart midway to the ridge. I slow to a stop in the place that connects the switch to the back.

My chest is heaving, lungs struggling to satisfy the insatiable thirst of my heart for oxygen. Emma continues to climb, the consistent movements upward gratifying her sore lower back. I open my pack and inhale a handful of Smarties. My friend Adam, who recently climbed a fourteener, recommended consuming sugar, specifically, Smarties or Jolly Ranchers, during my climb. Now, I eat his advice without question and it seemingly assuages the strained circulations-the twitching of muscles, tingles in my neck and head, tightening thighs - of my body. I continue upward, increasingly stopping over and over again for more water and Smarties.

I am standing on the spine that leads to the head, the summit of Princeton. Looking west, the scene beyond the spine engulfing me in awe. A series of horns, arêtes, and cirques crowns a chalky grey mountain range. The jagged white peaks extending forever into the horizon. In the foreground, Mt. Antero, thrusting up through the purest of forest greens that I have ever seen in increasingly pine beetle brown forests of Colorado. The clouds begin to dissipate, revealing the sky blue sky is becoming paler with the horizon. The mountains ripple from past glacial movements. Ice scars drag down their slopes. Standing across from this mountain range-breathing heavily, numb- shimmering

in the sunlight, feels like a daydream. The shadows from the clouds, the patches of sunlight playing on the slope make the mountain look like a mirage. In the late morning glimmer it is too perfect, too surreal.

I squint hard, not quite accustomed to the emerging rays splintering the grey sky, wondering if anyone is scrambling up the slope of Antero. The sound of boots and rocks heading in my direction prompts me to look up. I take out my binoculars and glass the curving spine of Princeton, hoping to see someone from the group. I wonder where they are; have they summited already?

On the slope, Soren, bent over, hands on his thighs, breathing heavily. He looks up, so close to the summit yet many cycles of legs and lungs, of starting and stopping away. This is an instance where proximity does not assume nearness. The wind, rain, and feet of mountaineers hasten the crumbling of rocks into a sandier substrate. The rocks are looser here, slipping and sliding, boots and bodies tumbling and twisting towards the peak. As he resumes the hike, which is quickly turning into a climb, waves of discouragement crash through him; a familiar sensation from the previous three years of hiking Princeton.

I know that I will be stopped here again before too long, Soren thinks. *I know that I will have to stop many many more times before I reach the summit.* Climbing this steep and unstable slope elicits past sensations; the sluggish burning in the hamstrings as the ascent becomes more viscous with each step. The landscape becomes staccato, a series of

interruptions as legs and lungs suffer momentary collapses. I accept this reality and fight through these struggles. Each step a movement towards fatigue- an accelerating slow motion to solitary discouragement. There are little victories. Small moments of celebration occur, maybe a cooling wind against a sweaty neck, or a spontaneous glimpse of the flatness of the valley so far below.

100 yards from the top, I look up as Cade and John's voices tumble down, already there. I look back downslope. I see a little speck down amongst the scree, Lindsey. I turn the rest of myself towards her anxiously and postpone my summiting. Other hikers pass, and I inquire about Lindsey. Responding to the concern undoubtedly emanating from my expression, one woman reassures me, saying, *she's fine, she just has a headache.* Adopting a chiding tone, *Be sure she drinks a lot of water.* Thanking the woman, I sit and watch Lindsey grapple with the mountain. She enacts the same starting and stopping routine performed by every hiker along this route. She nears, breathing heavily, but giving a determined look to reach the summit.

Despite the panoramic view, free from the obstructions closer to sea level, confined only by the horizon, the experience on the summit is anti-climactic. The hike up Princeton is a lapse into solipsism. Though other hikers are present, my focus is at the surface, where the man meets the mountain. It is a constant negotiation between self and slope. Climbing a mountain is simultaneously an experience in isolation and dialogical engagement with the landscape. Reaching the summit is social. Every year this surprises me. The rounds of glad-handing, cheering, smiles glinting in the sunlight. I recall a summit two years ago, a man sitting reading *The Economist* as if he was sitting in an office or at home on the couch. The summit is a strange, paradoxical place. The social

distances enforcing conventions in more typical spaces of human interaction, a city street, a board room, even an elevator, collapse on the summit. Suddenly, I have a handful of instant albeit temporary friends. Snippets of personal biographies flow through fleeting engagements manifesting in the composing and capturing of a group photo, or waiting to sign the Mt. Princeton log.

The log surprises me, never have I seen it. I sign for the first time, marking this summit as the first officially recorded and recognized, and yet, perhaps degrading the authenticity of this hike, making it more formal. Suddenly, Lindsey's frizzy head of hair pops up into the foreground. Almost instantaneously as if we have all been quietly waiting for this moment, Cade, John, and I converge to congratulate her. Lindsey's first step at the summit completely transforms her. She is no longer dragging; she is alive, her smile radiating, tingling body visible with excitement as she collects her trophies: the viewscapes, photographs, congratulations from other hikers. All of us standing on this little island, heads brushing the clouds.

I look for a small rock to take down with me. In the past, I find a rock, bring it with me, and inscribe Mt. Princeton 14,197 ft on it; another memento of accomplishment to adorn my desk at home. My eyes search for a certain color and pattern, chalky white with black specks. I am not sure what type of rock this is and I know I really should find out; they are everywhere. The shape of the mountain in miniature, and almost weightless. I pick one up and it disappears into my pack.

Below the summit a pounding heart unsettles the quiet. Emma looks at Matt, lips purse and eyes crinkle with concern, but betray the desire to keep moving up. Matt looks

downcast, thinking, *why did I have to spend the ride back from the Continental Divide reading about acute mountain sickness?* My legs and lungs feel the mountain in them, but seem willing to move on. I sit a moment, and tell Emma to move on without me. She frowns at this pronouncement, *are you sure?* I tell her I will follow at my own pace. She moves upwards hesitantly, each step away with growing confidence.

My intention is to follow her all the way to the top. I scamper up the steep slope, my boots slipping on the loose rock. The larger rocks guide me, unfolding a path upwards. Each step unleashes a thousand heartbeats. The memories of EKGs, the doctors, the blood work of the past year travels from my mind down to my heart transforming it into a drummer on steroids. I stop and breathe. Voices float from down below.

As I move upwards, more and more people pass. An older couple march up the slope like big horn sheep, hiking poles in hand. Two couples pass, the women practically crawling. I wonder if they can hear my heart thudding in the open air. Each step blurs my vision, steals my breath. I begin to see faint electric greens, reds, and purples. The world begins to dissolve, my steps becoming more unsteady. My vision frays, the mountain depriving me of the landscape's splendor. I sink on a rock and watch hikers flow past. My eyes close, the rhythm expands and accelerates, bursting through my chest, a steady staccato reverberating throughout. Eyes open, I look up towards the summit, so close that I can almost reach out and touch it. I imagine the fate of the overworked horse. Never stopping, a horse will gallop until its heart explodes. My heart galloping, the back of my neck tightening, I begin the descent. Flooding sensations collide and spark, annihilating coherent consciousness…

Soren gazes over the Upper Arkansas River Valley that bathes in a warm glow. His weary eyes couple with hastily acquired knowledge of Central Colorado to compose a shifting scene. In the distant southeast, Pikes Peak, just barely thrusting over the hazy curvature of the earth. A colossal triumph of elevation over distance that is surely the background of the background in this scene and recognizable only through its symbolic influence that undoubtedly pulls the gaze of many others sitting atop other fourteeners in south central Colorado. Unfolding outwards in my gaze from Pikes Peak are the Mosquito Mountains, rounded shoulders that have been peeling away for over 65 million years; lumpiness contrasting sharply with the ice-chiseled severity of the mountain range I stand. The anti-clinal rifting, an ever-widening flatness, encourages the flow of the Arkansas, which nourishes the Buena Vista and Jameson Village, speckling the valley below.

I follow the flow of summer vacation traffic on U.S. 285 south from Buena Vista. The highway follows the course of the river through the rift valley with my eye not far behind. Turning right, my eye travels the county road towards Mt. Princeton. The road glimmering in the sunlight even as the sky grays around me. As the road disappears into the mountains, my gaze suddenly collides with the radio antenna towers, shattering the scene I am so diligently composing; striking chords of unease and uncertainty. *The road.*

Surrendering grace to gravity, Matt tumbles down the mountain slope. Free from the tug of the group, the mountain peak, each step forward faster than the previous,

giving himself to the valley floor; descending through an undulating sea of thought-feelings, nearing the surface only to dive deep again; caught in the rationalization of emotive experience. Something bubbles near the surface, a thought drawing it out. *Vision fraying…wobbling knees. Just get lower. Don't faint. You made the right decision. Doesn't matter if you didn't summit (the only one who didn't summit).*

One by one, the group slips off the summit. Dan trail-blazing downwards, shrinking rapidly. I lead the rest of the group, our feet sliding and sifting through the crumbling slope. *Hope Matt is doing okay…man Dan is flying. What is up with that guy? Not sure how anyone can move down this steep, loose slope so quickly.*

Fleeting optimism sliding out from under me, I fall. A thistle leaps towards me, a lonely soul in a sea of grey, grabbing my hand as a million little needles penetrate my skin, a constellation of bloody pinpricks. A thin man decked out in running gear, complete with the holster water bottles, glides past me, running rocks as if he were on a level track. He smiles and waves. *I am a failure. Why is this happening to me? Why does this fucking feeble heart of mine have to destroy this experience?* The thoughts and accompanying anger explode out of me. My pace quickening to catch my rage, just trying to escape out from under the summit.

There's Matt- heading straight down the spine, into the cirque. What's he doing? Just want to get down, sky looking more ominous, road getting closer.

There's an alcove in the rocks just around the hump in the slope…maybe I can hide out in there forever, the rest of the group passing me by. Anger, humiliation, defeat and despair. Friction between the coarse grey rubble and me. The thudding abating. *Maybe just stand in the open and wait for the impending lightning to take me away.*

A barely conscious register that I am matching Dan's pace. *Slow down for Emma and Lindsey?* I speed up, returning to the scramble through the scree slope. The road looming under every loose rock; every stumble or trip brings me back from the drive back down the mountain. *God Dammit let's just get there already.*

I can hear their footsteps and wince with each footfall. The hollow clunk of hiking books unsettling stones. *Perfect. God know how long of a head start and they've already caught up to me. Pathetic.*

Catching up to Matt. *He looks pissed.* Silence. The sound of slightly out of sync scrambling through the loose landscape. Flowing like beads of water, paths of least resistance. *Can't wait to get behind the wheel and put a cap on this day. That damn road is getting closer.*

Heart settling into a rhythm as we ease into the alpine tundra. The grey pushing across the sky, clouding thoughts furiously swirl in overcast eyes. A laugh, a question, a stare. A high five from somewhere. Pulling tiny pinpricks from my hand. Just wanting to

be alone on this mountain away from everybody, not recognizing until much later that I already am.

Chapter 5: Ordering the Forest

Excerpt from 2012 Field Camp Syllabus:
Session A: Landscape Ecology of Southern Rocky Mountain Forests
During the physical component of the course, students will work collaboratively with staff from the Bureau of Land Management (Royal Gorge Field Office) to collect data for a long-term, ongoing project that examines the potential of mechanical thinning to mimic the effects of wildfire, namely by reducing stand density, diversifying the age-species structure, and creating patch heterogeneity and connectivity at the landscape scale. Students will work on-site at BLM locations, often at elevations of 7000 feet and above, to gather data related to vegetation, soils, and wildlife. Using these data, students will prepare a report that describes preliminary findings regarding the project's central question.

Kansas University and BLM Stewardship Monitoring Contract/Agreement

2012 Statement of Work

Background: The Royal Gorge Field Office (RGFO) in Canon City, Colorado has on-going forestry projects that involve utilizing small low value trees as a renewable energy source. The Bureau of Land Management (BLM) is very interested in developing markets and utilizing forest biomass. The forestry projects with in the Royal Gorge Field Office have the following goals:

1. Improving forest health.
2. Reducing fuel loading and the potential for catastrophic wildfire occurrence.
3. Reducing wildfire severity and improve firefighter safety.
4. Creating markets and infrastructure for continued biomass utilization.
5. Support the local forest product industry.
6. Protect watersheds, soils and improve wildlife habitat.

During the summer of 2006, the Kansas University (KU) field camp students and BLM forester spent a day on the Arkansas Mountain Stewardship treatment area establishing 3 permanent pre-treatment monitoring plots. Students were asked to evaluate the experience and provide feedback. These students thought it was very worthwhile day and enjoyed working on the monitoring of the forestry treatment. From 2007-2011, the KU field camp students have established over 50 permanent plots on BLM forestry projects throughout the RGFO. As new projects are developed new pre-treatment plots shall be established and as projects are completed post-treatment data shall be collected. In 2012 students will be completing both pre-treatment as well as post-treatment plots.

Kansas University and BLM Stewardship Monitoring Contract/Agreement Continued…

Objectives: To observe and measure biotic indicators to assess if treatments are moving stands toward prescription goals and desired future conditions. To have treatment data to display to public and provide graduate students with research opportunities.

Indicators to be monitored:
- Reduced stand densities
- Maintain large tree component
- Create more variability (clumpy distribution)
- Maintain or accentuate structural variability
- Increase crown base height
- Reduced detritus (litter and woody debris)
- Reduced down woody fuels
- Increase cover and diversity of native herbaceous plants
- Increase ponderosa pine regeneration versus Douglas-fir
- Increase wildlife habitat diversity
- Increase frequency of low intensity fire
- Measure changes in soil PH
- Measure changes in soil organic matter

Where: All forestry treatment areas and plots will be within a 75 mile radius of Canon City, Colorado.

When: Collect data in the last week of July, starting Monday on the 30th. Collecting data at the same time each year will help insure consistent plant species composition and development metrics.

How: Permanent plots will be established under the guidance of the RGFO Forester. A minimum of 3 plots per larger treatment area will be established and 1 plot for smaller forestry projects. Six different surveys listed below shall be carried out by the students on each permanent plot.

1. Complete repeat photographs from plot center.
2. Gather tree inventory data.
3. Gather fuels load data.
4. Gather wildlife utilization data.
5. Gather understory (Grass, forb, and shrub) diversity data.
6. Collect soil samples.

This agreement calls for collecting permanent plot data during the summer 2012. Future years will be based on out-year funding. The BLM agrees to provide technical expertise, equipment, and $834.00 to assist with administrative costs. Kansas University Department of Geography agrees to provide the students to collect the data and student transportation to the sites. The 6 different surveys listed above will be completed for

each plot. A total of 6-7 plots will be completed in the summer of 2012. Payment will be made when the work has been completed.

Kansas University and BLM Stewardship Monitoring Contract/Agreement Continued…

The provisions found in contractual provisions attachment (Form DA-146a, Rev. 1-01) which is attached hereto, are hereby incorporated in this contract and made a part thereof.

BLM Approving Official Kenneth Reed Date 6/7/2012

KU Approving Official Terry A. Slocum Date 6/7/2012

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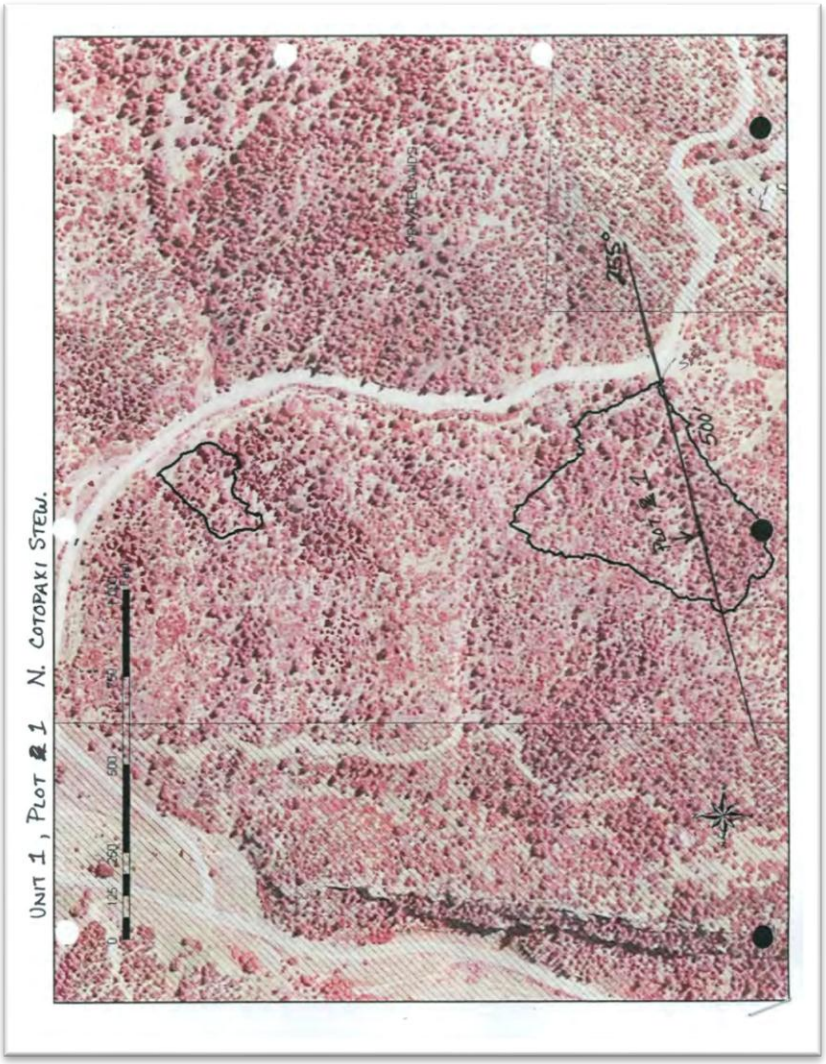
N. Cotopaxi Stewardship Unit 1 Plot 1 7/30/12



"So here we are…the first site of the day. We're establishing a pre-treatment plot in this unit," Ken Reed says in his gruffy surfer voice as he squints into the late July sunlight. Standing in his whitewashed jeans, the tongues of his dirt-worn hiking boots poking out, wearing a paint-stained National Public Lands Day shirt from 2008, a faded Colorado Avalanche hat shading his tan face, that sharply contrast with his white goatee, Ken looks more like one of his summer seasonal employees than a forester with more than 20 years of experience working with the Bureau of Land Management at the Royal Gorge Field Office. The students- Cade, John, and Lindsey-, Soren, and I stand around aimlessly, our quizzical looks reflecting my own uncertainty about what to do now, what a pre-treatment plot actually is, and how to go about establishing one.

After a brief introduction at the BLM headquarters in Canon City, we headed west on Highway 50, past the Royal Gorge and the string of rafting and zip-lining companies, following the Arkansas River. Though the river was barely a thin sheet flowing along and through a ribbon of rocks, schools of white water rafts carrying summer thrill-seekers continued to scrape over the riverbed, their paddles pushing off of boulders. Liz, a summer seasonal employed with the BLM from the University of Colorado Pueblo, said that she heard on the news that they planned on making smaller two person rafts in order to adapt to decreasing flows on the Arkansas. A kind of sadness lingers with this story. Out the window of the van, fly-fishermen impatiently casting bright pink and orange lines around the flotsams of rafters in a knee deep river in full hip waders, battling for their share of the remaining flow.

Even at 9 in the morning, the sun already begins to burn our necks. The first site is not what I had originally imagined. A scrubby stand of pinyons and junipers adjacent

to a twin-tire tracked dirt road that disappears over the crest of the hill to the south towards the Wet Mountains, drawing my vision. We gather in a small clearing feathered with sage and a smattering of yellow flowers. “I thought we would be hiking a few miles up some mountain,” Lindsey says.

…sites are selected?” A question from somewhere interrupts, piquing interest.

“We try to be as random as possible in our site selection. But we like to have public support of this project.” Ken looks west up the hill, nodding at the rooftops and second story windows bouncing sunlight through the trees.

“The sites selected are also often north facing.” Ken adds.

“Oh, why would that be?” Soren asks.

“Most of the trees are a good size for thinning.”

“Oh right right,” Nodding.

“Why do you need public support?” John asks.

“Yeah, good question. Well most residents are concerned about their trees. They’re one of the main reasons that they chose to live up here.” Ken continues staring at the roofs, rubbing his goatee, mouth slightly agape, thinking.

“There’s…Fairplay Stewardship, up by Southpark. Anyway, you guys will get to go up there tomorrow to work on a couple of post-treatment sites .We did some thinning there last summer. Reduced the stand density to around 70 trees per acre down from about 7-800. One of the units is really close to a development.”

Cade’s arms fold, catching my eye. I follow his gaze as he looks down towards a pronounced mound of iridescent arrays of pinkish pebbles, chips of feldspar granite excavated by harvester ants to construct their home. These small and isolated mountains

dot the clearing. The ants clear-cut the thin cover of grasses dominating most of the clearing we stand in, creating a firebreak of bare ground surrounding their fortress. They move busily, almost frantically around their hilltop domain, not in a predictable order, but scattered. Restless like our group. Postures shift, feet scuff the sunburned soil. John twirls a blade of grass that looks like a fluffy fox tail in his hand.

"Well after the masticators came in some people voiced some concern about possible blowdown from high winds. Honestly, I was a little concerned myself," Ken laughs nonchalantly, in his cool hippy-surfer tone, "Even some nights where wind reports from the area kept me awake. Thought…shit… for sure some trees would go down and damage a few homes…ruin some people's view out their backyards anyway. " Ken looks over towards Lindsey and laughs again, cocking his head back and to the right with a wry grin. "Yeah we had some nights of baaaad winds."

"Anything ever happen?"

"Haha! Let's just say the only trees that fell were from the masticator that summer." This remark garners smiles from the group. I imagine a giant treaded machine front loaded with mouth of rotating circular saws, chewing through the forest. My nose wrinkles from the smell of drifting cigarette smoke. Lindsey's nose crinkles with disgust.

"But the main reason that we like to have the support of the public is because this project is common sense. If we don't thin the trees, the chances will be greater that a devastating fire will occur. These stands are just too damn crowded. Getting them thinned out decreases those chances, and you know, it benefits wildlife, improves the understory, supports the local economy through timber sales…"

7-31-12 BLM Tuesday: Excerpt from Cade's field journal

It is becoming ever more apparent that that the sights the BLM chose to clear are close to residents in the area. Ken even said that this is to encourage locals to accept tree clearing. The politics of the operation are becoming ever more apparent. Working in a post-treatment sight made me realize the sheer amount of clearing they are doing. I can see why some locals might view it as clear-cutting, because it won't be clear how vegetation will grow until well after a year after the clearing. I am becoming very torn on this issue. I understand the positive environmental aspects, but I still need to be fully convinced that this is for the common good of the community + not just the gvt. Making $ on our public land.

7-31-12 BLM Tuesday: Excerpt from John's field journal

The more we hear locals justify the thinning process the more I question. What is the need to prove validity of this project to those who already agree?

My thoughts on the topic. Before fire mitigation, small, isolated fires were common but caused little damage to homes. Mother-Nature finds her own balance, the same way reservoirs effect the down-cutting effect of moving water, fire mitigation effects the natural processes of forrest ecology. The motivation, in my eyes, is cutting trees is to benefit the BLM twofold. First, the wood to be removed is sold for a profit. Second the BLM will lease the land to ranchers in need of additional ground. I'm torn in terms of understanding.

"All right, that's about enough of me," Ken clasps his hands. "Let's get rolling." Looking over our heads towards the truck, he asks, "Liz- do you have that image of the first plot?"

"No Logan has it," Liz replies. Logan, the other summer seasonal with us, holds it up, his oafish stature prominent even at a distance. His flowing bright orange hair blows back slightly from the breeze as he jogs the aerial photo over. As he comes closer I could see his square jaw, formed into the perfect pouch for some chew.

"Ok," Ken says. "Who has a compass in their vest?"

"I do," Cade and I say in almost unison, me raising my hand feebly.

"Have either of you read a oriented with a compass and a map?" Ken pauses…"Or do you all only know gps?" He says with a grin that makes it difficult to tell

whether he is joking or disappointed, eliciting no responses from the group beyond sidelong glances.

"I've done some orienteering before," I say, but Ken ignores me.

"Well, here's what you do…can I see your compass?" He asks me. I fumble to unstring it from my vest before handing it to him.

"Thanks…okay first thing you want to do is hold the compass out parallel to the ground at about breast height…we do most things at breast height out here." He pauses, looking around for a laugh. "Then you take this ring here and twist it to get your heading in degrees...hey Logan let me see that." He nods towards the aerial image and Logan hands it over. "So…turn it to 255-" A snapping sound, barely perceptible amidst Ken's compass tutorial, steals John's attention, erasing the glaze gelling over his eyes. As quickly as it makes an acoustic presence it vanishes, leaving behind only a crinkle of curiosity. It's only been ten minutes in the field and already he is tired, wanting to be back at home in Lawrence wrapped up with his girlfriend, or at the very least, back at the field camp over in Garden Park, where he can explore the caves along Fourmile Creek, searching for signs of cougars or snakes.

"The degrees we are heading, 255, should match up with this arrow here." Ken points to the direction of travel arrow, a large hollow shape outlined in red that extends out from the chest when held properly. "But to make sure that we are moving along the right bearing, we have to stay true to north," Ken says, drawing a befuddled look from Lindsey. "That means keeping this needle here in between these red lines the whole time you're walking. That means you have to stop every few feet or so and check to make sure that the needle's between the two red lines."

“Yeah it’s called keeping the red in the shed,” I interrupt.

“It is?” Liz gives me a quizzical look. “I’ve never heard of that.”

“Well whatever it’s called, keeping that needle steady will get us to the plot center. Now who wants to lead us in?” Ken asks, “We’re heading that way and the starting point is somewhere over there.” He points west towards a stand of pinyon and juniper and strides confidently towards the trees. In between quick glances from the compass face to some landmark in the distance, Ken stumbles and drops to his knee, his outstretched hand wavers as he steadies himself, and is soon back on his feet as if nothing had happened.

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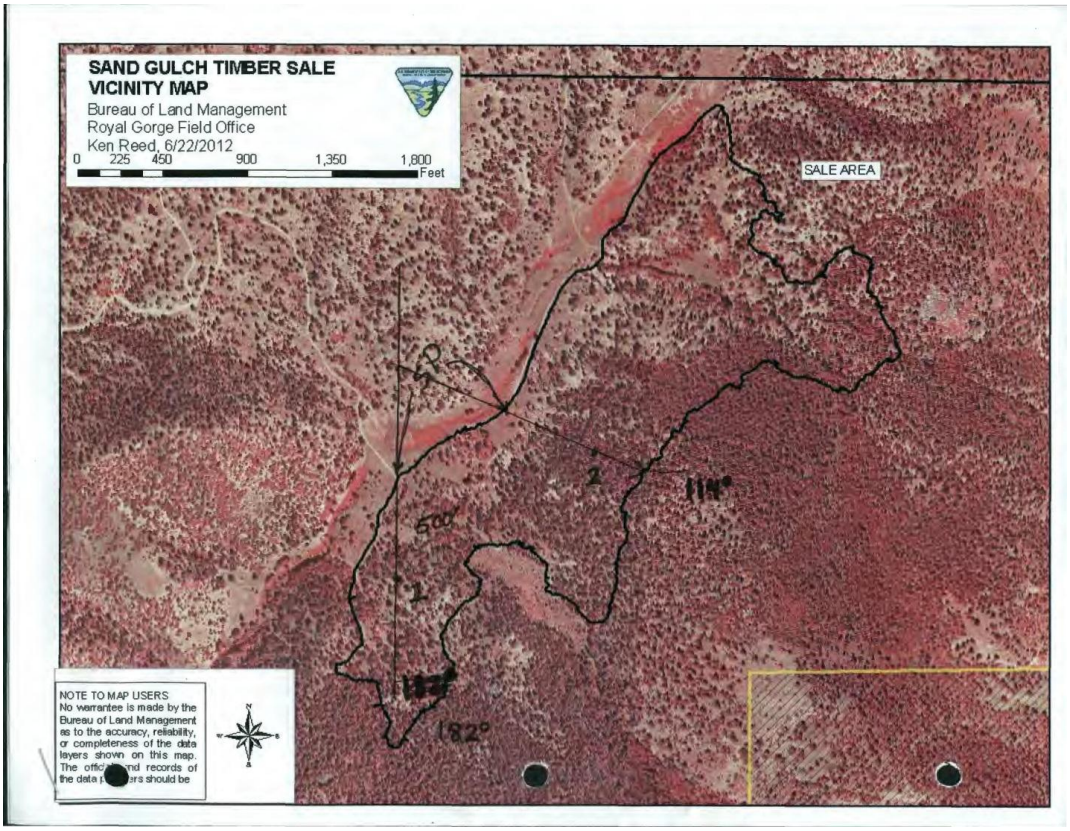
Excerpt from Royal Gorge Field Office/University of Kansas Forest Restoration Monitoring Protocol:
Field Methods: Collect the data in the last week of July and the first 2 weeks in August. (This will help assure the consistency of plant species composition and development.) This time period coincides with the University of Kansas Geology field camp. Plots will be taken July pre-harvest, first July after harvest, first July post-burn, July 3-5 years after post-burn plot.
Permanent Plot: Minimum 3 plots per cutting unit/maximum 20 plots per stewardship treatment area.

- *From an easily identified starting point of the harvest unit to be sampled proceed a distance and azimuth into the unit.*

Sand Gulch Timber Sale Plot 1 **8/2/12**



Liz was the only BLM employee who came out with us today. We had lost well over an hour winding up and down gravel roads with Liz sitting in the middle seat, looking out the windows and muttering "This looks familiar…no there weren't Ponderosa Pine at the site...this turn looks right." We passed a sign, "Leaving Public Lands." "No…maybe not…" We kept driving, the van shaking violently as we rumbled along the road, past long drives with private property signs hanging prominently on the fences, winding up through stands of Ponderosa-Douglas Fir, only to be plunged down into pinyon-juniper. After watching the clock on the dash in the van on and off for forty five minutes, Liz finally thinking that we were on the right track, the road rose suddenly,

and a line of gigantic transmission lines replaced the trees. It was then that we had this collective sinking feeling that we were definitely not heading in the right direction.

"Oh we need to go through a cattle gate," Liz revealed. "I don't remember these power lines when we came up here in the spring."

The frustration suffused on everyone's faces suggested that might have been nice to know earlier, before we drove around aimlessly, wasting away our morning. After another hour of bouncing in the van seats, we eventually made it through the cattle gate, past a small herd of cattle, giving us blank stares with their empty black eyes. Finally, the road dumped us into a clearing, surrounded by steep slopes blanketed with conifers to the north and south. The van came to a stop, and everyone scrambled to escape, discombobulated from the long, rough ride. I exchange a look with Cade, he shakes his head slowly with disappointment, muttering under his breath, "Like anyone will ever find this site again."

Standing in the field exposed to the fresh rays of sunlight, the cool breeze teasing my hair feels like being born into a new world. From the road, the peach colored sandy soil drops dramatically towards the southeast, held loosely in place by a thin cover of sage grasses, tufts of sun sedges, accented by the brilliant yellow of golden bean and pure white yarrow. The fir filled slopes to the south and north follow the downward slant of the clearing before converging in a wide v to the southeast. The slopes cradle the Sangre de Cristos, rising dramatically in the distance, their majestic pale pink peaks like waves lapping against the shores of the pale blue sky. Taking in this scene, so perfectly orchestrated and composed, fills me with strength and a rejuvenating hope that despite the early setbacks, the world is a beautiful place, and today is a good day to be here.

"So we have to go 500 feet in on a bearing of 182 degrees. That's south." Soren and Cade stand hunched over an aerial image of the site. Soren looks up from the image through sun-glared shades, masking twitches of thought in his eyes. The distance and degrees are scribbled on the image, over the false color composite trees that look like red blotches with dirt smudged over them. A black dot where the dirt road veers away from a scraggly clustering of trees marks the starting point, which is connected to the plot point with a swift and confident pen stroke. On the image the ground is flat and depthless; the route is razor straight, as the crow flies, with only a few interruptions of trees.

Orientation translates to a series of actions, not only a number and line on a page. Is south to the left or the right? Which way does that road run? Towards the Sangres. There in the southeast, so we must have to head that way. I look over at Soren, who is already moving towards the mountains along the side of the road, pausing to glance down at the image as he shifts between two perspectives, trying to match the trees in the aerial image with trees in the landscape, navigating mediums. John heads south along the edge of the road without any hesitation, neck craning as he looks for trees with blue ribbons, marking the unit boundary.

The site depicted on the image covers a large area, several acres, and our task is to pinpoint a spot no larger than a quarter. We all follow Soren, except for John, in his own world; striding ahead confidently in a blaze orange surveyor vest, carrying a cardboard box filled with the equipment:

```
     Plot Center Wires
     GPS Unit
     Tatum
     Plot Sheets
     Plot # Target (sheet with number on it covered with
plastic)
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Compasses
Digital Camera
Copies of previous plot photos
10 BAF Prism
D-Tape
Plot Frame (50 by 50 cm)
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And this was only what was on the list provided by Ken. We also had three surveyor vests filled with all sorts of items: tape measures, pencils, more prisms, compasses, three books on grasses and forbs of the Rocky Mountains, and dried bits of leaves leftover from previous wearers. There was also a Dobbenmier frame for measuring grass/forb species cover.

"I think this is the starting point," says Soren. After stepping through a minefield of cow pies, crinkled and cracked from days of baking in the hot summer sun, we reach a spot just off the dirt road, in between two firs, blue ribbons wrapped up in their fluffy boughs. "Okay." Soren twists the ring on the compass to 182 degrees. "Make sure the red's in the shed," I say reflexively, potentially sparking annoyance from the group as I am sure to say this every time someone uses a compass. With his hand quivering ever so slightly he raises the compass to chest height, parallel to the ground, and looks down the imaginary heading, a technique known as "sighting."

And we're off, the aerial image belying the incredible steepness of the grade. We trod along with Soren as he paces- up the slope, dodging more cow pies, jumping over a fallen log, skirting patches of ground juniper, shrubby mats of sharp needles that spread low throughout the ground, forcing out all other growth from the tallest of white firs, to the tiniest harebell- pauses to sight another tree, shrub, or rocky outcrop that lies along the azimuth. We sift upslope in delayed unison with Soren's movements as he counts off

paces, one two three four five six seven eight nine ten eleven (50 feet) one two three four five six seven eight nine ten eleven (100 feet) one two three for five six seven eight nine ten eleven (150 feet)…

Following Soren brings me back to the first day that I led us into the plot. Ken was attempting to explain the best way to pace off a distance. I had spent a week earlier in the summer teaching middle school kids from Columbia, MO how to orienteer, so I was interested to compare my instructions for pacing to Ken's.

"Ok, so basically, what you want to do is take one step…like this." Ken strides out with his left leg. "Be sure to take a normal step though. Don't stride out too far." He takes another step with his right leg. "So that's once pace right there." So far so good. I glance over at John, who is watching a swallowtail butterfly flitter through the sunlight, head cocked slightly to the side, mouth ajar, not paying any attention to Ken. "So yeah…I guess about 4 paces for me is ten feet. I would just go with that."

My eyes travel from the tip of Ken's Avalanche hat, to the toes of his boots, sizing him up. Not for a fight, but to compare our heights. Ken is at least a few inches shorter than me, our paces are most likely not in sync. When teaching the students how to orienteer, I showed the students how to figure out their pace using a tape measure. Students paced along ten meters, lips mouthing every other step, marked by hands patting against thighs. We repeated this three more times before testing our accuracy by pacing off in all directions from an autumn maple. Mine ended up being around 8 paces for every ten meters. Instead of converting my pace in meters to feet, I decided to adopt Ken's.

Now, trudging up the slope, chest heaving slightly, I wonder if Soren is borrowing Ken's pace as well. He stops again, looking up and back down at the compass, bringing the group to a halt. The bearing runs straight through a giant tree trunk of corky ridges, furrows, and the stubble of past branches now littering the forest floor, leading up to tired limbs sagging with whorls of flattened blue-green needles that barely brush his hair. He leans to the right, eyes scoping, craning his neck beyond the truck to find a new target, but nothing really stands out in the tangled undergrowth. Stepping cautiously to the other side of the trunk, Soren glances back down at the compass, making sure the red is in the shed and that the direction of travel arrow just above the housing is still reading 182 degrees. With a quick grimace, He resumes walking, negotiating the terrain between the compass and the slope as his lips silently record the number of steps he takes, pacing the 500 feet, striding towards that tiny spot on this massive outcrop of tangled growth.

"I think…yeah this is it. We're…here" Soren says, though the look on his face suggests that something is off. He immediately turns and heads back down the slope. We all exchange bewildered glances, suggesting that we were all wondering the same thing, *how are we going to complete this plot on such a sheer slope.* Cade shakes his head in disbelief. John sighs melodramatically, "Well…this…is going… to suck." Liz takes a long drag on her 120 Virginia Slims.

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Excerpt from Royal Gorge Field Office/University of Kansas Forest Restoration Monitoring Protocol:

- *Record. Establish a permanent **plot center** in the unit by putting in a looped wire. GPS the point and record in degrees and decimal degrees.*

"GOD DAMMIT!" Cade is pissed, "Could've really used a fucking gps for this shit." Usually one with a calm and collected disposition, he looks up, face flushed and sweaty from the sheerness of the slope, arms outstretched in resignation, shocking this otherwise calm world, where gentle breezes lightly brush sun-kissed faces, the sweet smell of fir, with the sun glinting faded pink hues of the Sangre de Christos, the tension that had been building all morning finally broke. Startled, we all look up from unpacking and organizing the tools we would need to establish and survey the pre-treatment plot. The plot center happens to fall right on top of a dead snag of fallen timber, and the pin will not go in easily. The pin, no more than a glorified metal camping stake, is the center of the universe. Everything revolves around this miniscule spot in the landscape delineated by Ken and sanctioned by the BLM. It is the point whence all transects extend. It orients all of the repeat photographs. Its coordinates are recorded by a thousand dollar paint splattered Trimble GPS unit. All of our activity: observations, measurements, surveys, records are bound together by this point no bigger than a quarter. It is the 1/100 acre plot center in a stand of acres. Once the coordinates are recorded and all measurements are collected, a looped wire with orange ribbon replaces the pin, marking the plot center for future visits.

Cade sighs, bringing his tall, lanky frame close to the earth and starts trying to pound the pin through the dry, dead timber before saying fuck this and moving the pin to a bare patch of soil a few inches away, forsaking the emphasis Ken placed on accuracy, a sure act of blasphemy. Lindsey and I glance at each other, feeling Cade's frustration after

two hours of being lost on a rough and rolling dirt road as Liz struggled to find the site.

Finishing her cigarette, Liz goes over to help Cade.

Excerpt from Royal Gorge Field Office/University of Kansas Forest Restoration Monitoring Protocol:

- *Take wide angle photos in all cardinal directions, approximately two feet above plot center. Use digital camera with the widest angle telephoto setting.*

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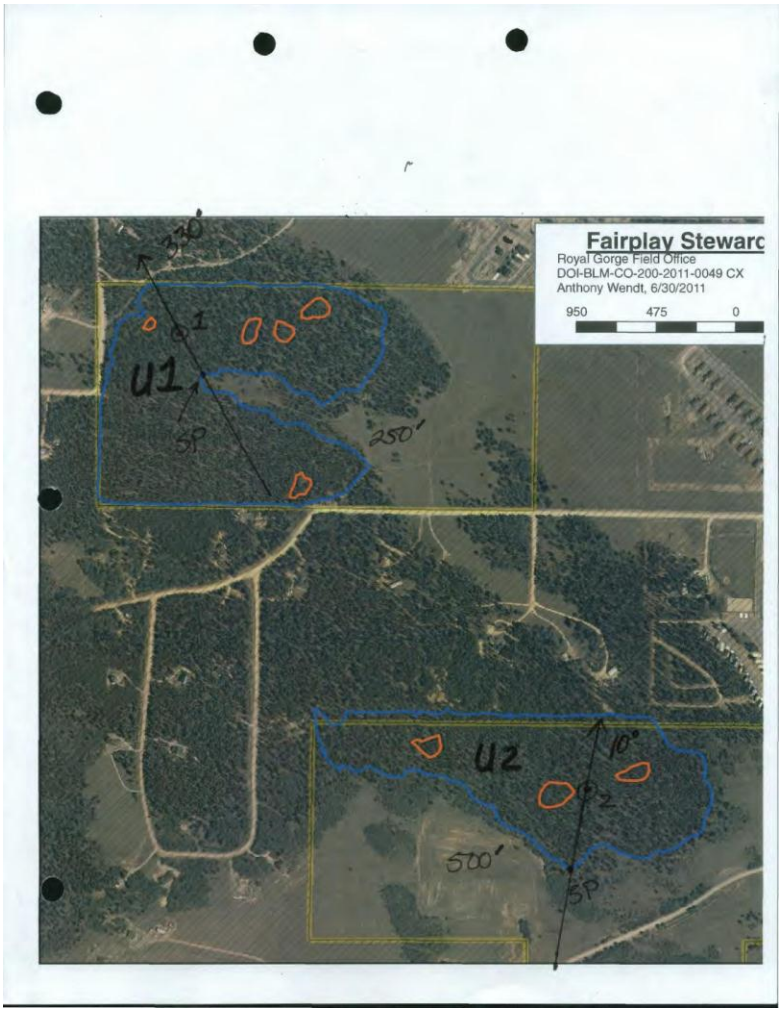
Fairplay Stewardship Area **8/1/12**



"Damn. We forgot to take the pictures," Cade says as he slaps his palm on his forehead. We just finished packing up all of the gear and were on our way back to the van after completing two post-treatment plots. Ken was walking around inspecting the unit since this was the first time that he had seen it post-treatment, so he wasn't there to make sure we completed all of our tasks.

"I'll get the frame out," I respond, bending down to grab it out of the cardboard box. I hastily assemble the frame, a 2 by 3 rectangle of thick metal wire that lays flat on the ground, oriented to the north from the plot center. Three smaller metal rods fit into the frame, dividing it into three sections. I struggle to connect the rods to the frame, popping one out as soon as a put the end of another one in. Lindsey comes over and pulls on the frame, making more space for the rods to fit in.

"Can you get a compass? This needs to be aligned due north."

"Hey I've got one Matt," Still wearing his surveyor vest with a compass attached, Cade walks over the pin and sights 0 degrees. I move the frame into position, cursing when the rods fall out again as I align it with Cade's stance.

I grab the Olympus point and shoot camera once the frame is in place. It's the same camera that my parents had back in the late 1990's, except this one is splattered with red paint. As I crouch over the pin, I am flooded with uncertainties about completing the simple task of taking a picture, knowing that someone before me has taken a picture from this spot before me and someone will take one during the next visit to this site. I think that I am supposed to hold the camera two feet above ground from the frame's center. But how did the person before me take the picture? Was he or she over the plot center, oriented with the frame? Did he or she even use the frame for a reference? I still

wasn't exactly sure the purpose of the frame, if I was supposed to keep the camera in the middle of it or over the plot center when I took the picture. It seemed too elaborate a device to maintain the consistency of repeat photography, when I don't even know if the previous photography was trained the same way as me, or even followed the directions as I am. Was I supposed to hold the compass and take the picture?

"You snap the pic Matty, and I'll point you in the right direction." Cade answers my silent question.

Cade stands behind me as I crouch, taking a picture to the north, before he orients me to the east, west, and south. In the moments leading up to the pressing of the shutter for each picture, I imagine a straight line extending out from the lens, the focal point, trying to keep it consistent, straight, objective; trying to take the same picture four times. My outstretched arm shakes slightly as I hold the camera out. The shutter clicks, capturing a scene to be placed into a binder containing a pre-treatment image of the same scene.

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Excerpt from Sampling Vegetation Attributes Interagency Technical Reference. Cooperative Extension Service USDA: Forest Service, NRCS, Grazing Land Technology Institute and Department of the Interior: BLM :

D. Daubenmire Method

1. General Description The Daubenmire method consists of systematically placing a 20- x 50-cm quadrat frame along a tape on permanently located transects. The following vegetation attributes are monitored using the Daubenmire method:

- *Canopy cover*
- *Frequency*
- *Composition by canopy cover*

2. Areas of Use This method is applicable to a wide, variety of vegetation types as long as the plants do not exceed waist height.

5. Training The accuracy of data depends on the training and ability of the examiners. Examiners must be able to identify the plant species. They must

receive adequate and consistent training in laying out transects and making canopy coverage estimates using the frame.

Excerpt from Royal Gorge Field Office/University of Kansas Forest Restoration Monitoring Protocol:

- *Grass/forb/shrub species diversity. A 100 LF Dobbenmier permanent transect will be established along a bearing of 0 degrees starting from the plot center.*

Sand Gulch Timber Sale **8/2/12**

The 0 degree bearing, due north, that I must follow falls along a downslope line choked with ground juniper and thick clumps of weedy-like aspens and conifers, dead branches hanging down from their trunks, scraping along a rough and rocky ground. I glance at Lindsey, a college student volunteering with the BLM with dreams of working beyond a cubicle. She stares down towards the forest floor. "I'll do the transect," I say, not very excited about the prospect of overlaying a perfectly straight line through the tangled brush.

Donning a surveyor vest, tape measure in one hand, compass in the other, I align myself due north. The sun ebbs and flows through the needles and leaves as schools of clouds billow overhead, pillows that fluff the air with a calming wind, strong enough to feel, but not strong enough to rustle movement in the trees. My eyes line up with the heading on the compass, trying to construct some navigable path down this incredibly steep slope, 100 feet through tangles of seedlings and saplings all jockeying for precious glimpses of sunlight. Hooking the end to the pin marking the center of the study area, I grab the handle of the tape measure, a large wheel that spits out distance, and hunch over,

bringing my eyes down close to the peep site notched just above the compass mirror that aligns vision with an object in the distance. Finding a distinct landmark to keep me aligned to 0 degrees is difficult; the trees become a jumble of disorienting lines that blur my vision. Their shadows crisscross the forest floor, casting out lines of darkness. Adjusting to the grainy din of the understory, I spot a fir with several dead and drooping limbs that seems to stand due north.

The first few steps towards the tree occur in a small opening. A loud snapping noise follows a step as a crackling forest grasshopper flies up, a flash of yellow wings right in my face. It hovers in the air for long moment before disappearing into the foliage. With each step the tiny explosions increase and as the grasshoppers jump and fly, they scatter my focus and pull me off my bearing. I gain momentum as I walk downslope slipping across rough patches of uneven bedrock with each step until the forest closes around me. I become part of the struggle to persist in the dense undergrowth, to snap away branches that claw at my face and body, bending and twisting around those that can't be broken. Reaching my first target, I look back up towards the pin and Laura, who is sighting me with a compass to make sure I am on the correct heading.

"Do I look all right?"

"Yeah," she calls with a hint of uncertainty in her voice, barely visible through the dense foliage. "I think you're on target."

Again, through the peep site, I search for my next target along the azimuth. Three skinny trunks shooting upwards from the floor into the snarl of branches above stand out amidst the confusion. From my line of sight, the bearing travels through an opening between the middle and left trunks. The undergrowth, layers of fallen branches, needles,

and duff litter the floor and walking this transect becomes a battle to move forward, to progress the one hundred feet. While grappling with the vegetation, trying to stay honest to the heading becomes a second thought. Upon looking back, I realize that my path has not been exactly straight. The tape winds around trunks of trees, is hung up in their branches, tangled in a thick mat of ground juniper. Pulling the tape towards me doesn't straighten it out as the forest refuses to relinquish its hold.

"The tape is all messed up. You'll need to straighten it out." I turn back to see that Liz, a summer seasonal with the BLM, has joined Lindsey up at the pin, which anchors all activity in the plot. "The numbers on the tape measure need to be face up all the way down the transect," Liz adds, "They can't twist around at all."

"I got it, I got it!" I yell back with misdirected annoyance stemming from my struggle with the forest.

Ignoring Liz, I continue to lay the transect. At 95 feet I run into a clump of fir saplings which obstruct my path. I struggle to weave the large tape measure in and out of the snarled mess of needless limbs while maintaining my bearing. The tape measure gets caught between two of the trees, and I let go in resignation, working instead to extract myself from the snag in order to walk around to the other side and pull the tape measure through.

"How's it going? Are you getting it straightened out?" Liz asks impatiently, and I imagine her standing up there expressionless, a Virginia Slims 120 dangling out from the corner of her mouth.

"I'm working on- " A shadow moving rapidly over patches of sunlight on the slope steals my attention. I look up as a large hawk flies low right over my head, just

barely skirting the tops of the trees, towing a black squirrel in its talons. The weight of the squirrel drags the hawk downwards as it pumps its wings rapidly to stay in the sky. I'm almost close enough to see every single detail and strain to capture them: the pale white underside, bulging secondaries, the thin band on the end of the fanned tail, stained with the faintest blush of pink I have ever seen, scaly talons ripping into the limp, black body of the squirrel. The hawk dips, flaring its wings so that individual primaries become visible, struggling to alight in the crown of a douglas fir no more than 30 feet from where I stand wondering how it was going to land with its full talons. Just as it kisses the boughs of the fir, another hawk screams over the trees in close pursuit, wings outstretched, revealing a streaky dark underside and the signature crimson tail of the Red-Tailed Hawk. Its unencumbered talons uncurl towards the squirrel-laden hawk, who banks hard away from the fir and out over an adjacent draw with the darker Red-Tail pursuing closing the gap of blue between them. They are beyond the trees and drifting over the empty sky. I am left behind standing more than a few degrees off of due north, tape measure caught up in the branches and the compass dangling from my vest, disoriented.

"Did anyone just see that?" I ask Liz and Lindsey.

"Yeah I saw," Liz says with a slight smile.

"That was so cool!" Lindsey says, beaming. "That first one with the squirrel was like totally being chased by that other hawk! I bet you wish you would've had your camera handy for that one!" She rib with a teasing twinkle in her eyes.

"What do you think that first one with the squirrel was?" Liz asks. The first two days of work with Liz, we talked a little about different bird species she has seen while out in the field, so I was fortunate to share this moment with her.

"I don't know, the second hawk was definitely a Red-Tail, "I say lips pursed in concentration as I struggle to picture the hawk against the pale blue sky. "Even though it was so pale, I'm thinking it was a Red-Tail."

"Well I don't know about that," Liz responds doubtfully. "It just looked too white and I didn't see any red on the tail."

"But there are light morph Red-Tails. Not all Red-Tails, especially the first years have red tails."

"It could've been a falcon. I just don't think it was a Red-Tail. Now that other one chasing it…that was definitely a Red-Tail."

"Yeah, but it was way too big to be a falcon."

We continue to argue for a few moments more about the identification of the white raptor, before I return back down the slope to finish straightening the transect, feeling despondent. The thrill of watching those two hawks in a competitive dance for survival among the tree tops overcome with feelings of inadequacy, discouraged by Liz and my obsession with naming that hawk. Not being able to find the right words to describe senses of awe and wonder instilled by an event in nature rarely witnessed, when the world seems to be the most real. Instead we cling to the more comfortable confines of classification, trying to make order and sense of something that eludes complete understanding. We're scared of the uncertainty that accompanies the elusory moments of wonder. So we distract ourselves with names.

Down at the end of the transect 100 feet away from the pin, the tape finally untangled from the brush, I re-sight with the compass, making sure that the tape runs along the 0 degrees bearing. Since I am pointing back up at the pin, the needle wavers slightly from the unsteadiness of my hand between 179 and 185 before settling on 180.

"Ok we're ready!" I finally yell up to Liz and Lindsey after what seems like hours of setting up the transect.

"I think you're a little off," Liz yells back down at me. "I'm getting 352 degrees."

I check the heading again. The needle aligns perfectly with 180 degrees, due South. "My compass says that I am right on."

"I think we're going to need to do this over, you're about 8 degrees off of North."

With this statement, everything collapses, reigniting the frustrations stemming from fighting through the forest of prickly needles and sharp branches, steep slopes and slippery terrain to lay the transect. There was no way in hell that I was going to wind up the tape and start again from the beginning. "I'm right on. My compass reads 180 degrees, so yours should read 0."

"I'm still getting 352." She repeats.

Muttering obscenities, I reluctantly trudge back up along the transect to the plot center and stand next to Liz.

"Ok, look at my compass," I say standing next to her at the plot center. "It reads 0 degrees."

"You must be holding it wrong," She says, "Mine definitely reads around 350-352."

At this point I almost give up, baffled as to why it matters that the transect, a little thin line running through an expansive stand of trees is off by a few degrees, even though

I know that it isn't. Much to my relief, Liz concedes, finally realizing how painful it would be to redo the transect.

"I suppose it will be all right," She sighs a melodramatic sigh, "Being off a few degrees shouldn't affect it too much."

With the issue resolved, Lindsey grabs the frame and lines it up with the five feet marker on the downslope side of the tape to begin the Dobbenmier survey. I grab the data sheet and Liz grabs her stack of field guides. Later, she tells me that she forgot to set the magnetic declination on her compass, causing her sighting of the transect to be off by about 8 degrees.

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Excerpt from Royal Gorge Field Office/University of Kansas Forest Restoration Monitoring Protocol:

- *Species occurrence and abundance will be recorded pre and post treatment. Read the left side of the tape at 5 foot increments, avoid walking or trampling of vegetation prior to completing survey*

Fairplay Stewardship Area Plot 2 **7/31/1**

Frame 1: 5 feet

"Geez, this frame is so easy!" Lindsey exclaims as she crouches over the Daubenmire frame, a small rectangle 20 cm tall by 50 cm wide. The frame rests on the forest floor, currently littered with wood chips, like landscaping mulch in a flowerbed.

"No kidding." I answer, hastily scribbling the following information at the top of the frame plot data sheet:

Cover Class:	1	2	3	4	5	6	7	8	9	10
Cover Range:	0-5	5-12.5	12.5-25	25-37.5	37.5-50	50-62.5	62.5-75	75-87.5	87.5-95	95-100
Midpoint of Class:	2.5	8.75	18.75	31.25	43.75	56.25	68.75	81.25	91.25	97.5

Observer(s): KU field camp Monitors

Date: 7-31-12 Plot #: 4

Allotment/Location: Fairplay Stud Area #2

Notes:

FRAME PLOTS:

	Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Canopy Coverage	Frequency %	Spp. Composition
1																								
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
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34																								
35																								

Number of Spp. occurrences in a cover class x midpoint of that cover class

Canopy Coverage: Number of frames observed (20)

Number of Spp. occurrences

Frequency: Number of frames observed (20)

Species Composition: Canopy Coverage

Total Canopy Coverage

Canopy Coverage Vegetation Total (Do not include Bare Ground, Litter, or Rock)

Calculating Trend:

Trend Index- a trend index is used in evaluation of trend data. The trend index is computed by adding the following factors:

a. Composition of key species in percent
b. Cover (live vegetation) in percent
c. Frequency of key species in percent
d. Litter cover in percent

	Composition	Cover	Frequency	Litter	Total Index
1980	25%	27%	32%	18%	127
1985	54%	58%	61%	21%	148
1990	30%	42%	49%	31%	173

The following illustrates steps required to compute the trend index:

1980 1985 1990

The index for the first year is set at 100. Each year thereafter the trend index is computed relative to the first year. Example:

(previous yr. total) 127 – 148 (current yr. total)

(previous yr. index) 100 x x=116.5

100 116.5 136.2

"I think this one is a 10 for litter," Lindsey says.

"Hold on…just a sec," Still writing. "Ok." I look up from the clipboard towards the frame. 100% wood chips, classified as litter, fill the frame. We are in the post-treatment site that Ken referenced on the first day. Even though I have never seen a masticator before, while standing on the chips of wood from recently disintegrated trees now constituting the forest floor, the remaining left huddling in wide-spaced clumps, allowing the gray sky to penetrate the remnant canopy, I could imagine it decimating the forest, tree by tree. The ground feels soft and spongy, imprinted with the treads of the masticator into a think mat resembling particle board. When stepping back and taking in the whole scene: the ground, the trees, and the sky, green grasses dominant the forest floor. But from our position, hunched over and looking down, we see mostly brown.

Using the chart at the top of the data sheet, I enter in the code for the percentage of the frame that is litter, 10 or 95-100%. I also record a 0 for bare rock and soil, as one or more of these three things is always present in a frame as a substrate.

Cover Class:	1	2	3	4	5	6	7	8	9	10
Cover Range:	0-5	5-12.5	12.5-25	25-37.5	37.5-50	50-62.5	62.5-75	75-87.5	87.5-95	95-100
Midpoint of Class:	2.5	8.75	18.75	31.25	43.75	56.25	68.75	81.25	91.25	97.5

Observer(s): KU fieldcamp Monitors

Date: 7-31-12 Plot #: 2

Allotment/Location: Fairplay Stwd Area Utah

Notes:

FRAME PLOTS:

	Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		Canopy Coverage	Frequency %	Spp. Composition
1	Bare ground	0																							
2	Litter	10																							
	Rock	0																							
3																									
4																									
5																									
6																									
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Canopy Coverage: Number of Spp. occurrences in a cover class x midpoint of that cover class / Number of frames observed (20)

Frequency: Number of Spp. occurrences / Number of frames observed (20)

Species Composition: Canopy Coverage / Total Canopy Coverage

Canopy Coverage Vegetation Total (Do not include Bare Ground, Litter, or Rock:)

Calculating Trend:

Trend Index- a trend index is used in evaluation of trend data.
The trend index is computed by adding the following factors:

a. Composition of key species in percent
b. Cover (live vegetation) in percent
c. Frequency of key species in percent
d. Litter cover in percent

	1980	1985	1990
Composition	25%	27%	32%
Cover	54%	58%	61%
Frequency	30%	42%	49%
Litter	18%	21%	31%
Total	127	148	173
Index	100	116.5	136.2

The following illustrates steps required to compute the trend index:

The index for the first year is set at 100. Each year thereafter the trend index is computed relative to the first year. Example:

(previous yr. total) 127 = 148 (current yr. total)
(previous yr. index) 100 x
x=116.5

Frame 2: 10 Feet

A few wisps of green poke out of the brown. We squat down close, straining to estimate the cover class of the grass, which is a numeric classification based on an ocular estimation of a percentage range, or so we were told by Ken and Liz. Essentially, we were using our collective vision to break down the various soils, rocks, litter, grasses, and forbs into numbers representing percentages in the dobbenmier frame.

"What do you think?" I ask Lindsey.

"Well it's mostly litter," She responds, "So that's easy."

"Yeah, there is a tiny bit of bare ground over in this corner," I say, pointing to a spot, a missing piece of the dobbenmier puzzle. Looking over pensively at Lindsey, my pen eager to start writing in data for the frame, I ask again, "So what do you think?"

She looks back down at the frame, reaching out to touch the bare spot of earth, "I would say a nine for litter…and maybe a 1 for the bare ground?"

"Yeah that's what I'm thinking too," and then I see the green again, "But we need to figure out what this grass is…maybe sun sedge?"

"I would say, yeah, yeah that's pretty much got to be sun sedge," Lindsey head bobs enthusiastically in agreement. "We could probably ask Liz," she adds, glancing over towards Liz, who is sitting on the ground with a stack of field guides and zip-loc freezer bags beside her. Squinting, she holds a thin blade of grass with a brittle-looking awn up towards the sky and then reaches down and begins flipping through one of her field guides. "Hey Liz!" I call over to her.

She looks up with a look of annoyance at being interrupted, "Yeah?"

"Can you help us id these grasses"

“Yeah,” and she immediately buries her face back into her guide.

Fortunately, sun sedge was a common occurrence during our first run through of the Daubenmire at the N. Cotopaxi Unit. We learned to identify its clustering shape and to feel the thinness of the slender, yellow-tinged green blades. Yet trying to identify an individual using these general characteristics were often not enough. One or more, possibly even all might not be evident. The sun sedge had to teach us to look for difference in apparent homogeneity, the character of each individual influenced by micro-local conditions as well as broad forces. Some blades were long and slender, while others short and shriveled, trapped under the sizzling rays of the summer sun. A favorite of cattle, some might be clipped to the base, only traces of life barely poking up from the dead clump of previous leaves. Yet they might all be sun sedges. And to know the species we had to find the reserve to learn their gestures.

Sun sedge was common, so even in the midst of doubt it was always a good guess. “Yeah it looks like sun sedge to me,” I agree with Lindsey, “What do you think…should we put one?”

“One sounds about right,” Lindsey agrees, “But what about this little one?” Her index finger strokes one of two tiny weed-like leaves poking up from the litter. The lobes of the leaves are deeply serrated and feathery, and look as though they could be plucked like a string.

“I’m not totally sure,” I respond, scanning the ground around us for similar looking plants. “It’s definitely a forb though.” We both catch ourselves looking over towards Liz, who is still sitting on the ground, looking from grass to guidebook and back to grass again. We stare, me hoping that our twin gazes are enough to garner her

attention. Moments pass before she looks up, eyes peering out from under the brim of her hat. Sighing, she stands up and walks over.

"What do you got?" She asks.

"We're not sure what that little one is," I say, beginning to notice a creeping uneasiness up the back of my neck. Not knowing the species of this miniscule forb brings me anxiety, a mounting sense of inability. "Do you know what it is?" I ask sharply, my words fringed with impatience.

"Hmmm…" She is on hands and knees, her face close up to the tiny two leaves. "That is a yarrow," She says as her head tilts up with certainty.

"Ok…a yarrow, wow. I should have known that," I respond shaking my head as I remember Glenda showing this forb to us just yesterday. I spent the entire year before working with the Fish and Wildlife Service on the patchwork prairies of Western Minnesota. We spent many days out in the field identifying dozens of grasses and forbs that comprise small patches of the landscape. But individual species appear different in different landscapes. Even the aspens of Colorado looked different to me. In Minnesota, they appear huddled together in round clumps, their bark more grey than the soft white of bark of the aspens in Central Colorado.

"I would probably say that it's a one," Liz says as she stands up, brushing dried up needles and small bits of pulverized wood off of her jeans. "I'll walk down this transect and try to identify some of these other one before you get there."

"Thanks," I say. I turn to Lindsey, but she already has the frame up and is moving on to the next plot. I hastily scribble in "yarrow" and a one before catching up.

The data goes onto the inventory sheet:

Cover Class:	1	2	3	4	5	6	7	8	9	10
Cover Range:	0-5	5-12.5	12.5-25	25-37.5	37.5-50	50-62.5	62.5-75	75-87.5	87.5-95	95-100
Midpoint of Class:	2.5	8.75	18.75	31.25	43.75	56.25	68.75	81.25	91.25	97.5

Observer(s): KU fieldcamp Monitors

Date: 7-31-12 Plot #: 2

Allotment/Location: Fairplay Stwd Area UA

Notes:

FRAME PLOTS:

	Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		Canopy Coverage	Frequency %	Spp. Composition
1	Bare ground	0	1																						
2	Litter	10	9																						
	Rock	0	0																						
	Carex sedge	0	1																						
	Yarrow	0	1																						
6																									
7																									
8																									
9																									
10																									
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Canopy Coverage: Number of Spp. occurrences in a cover class x midpoint of that cover class / Number of frames observed (20)

Frequency: Number of Spp. occurrences / Number of frames observed (20)

Species Composition: Canopy Coverage / Total Canopy Coverage

Canopy Coverage Vegetation Total (Do not include Bare Ground, Litter, or Rock:)

Calculating Trend:

Trend Index- a trend index is used in evaluation of trend data.
The trend index is computed by adding the following factors:

a. Composition of key species in percent
b. Cover (live vegetation) in percent
c. Frequency of key species in percent
d. Litter cover in percent

	1980	1985	1990
Composition	25%	27%	32%
Cover	54%	58%	61%
Frequency	30%	42%	49%
Litter	18%	21%	31%
Total	127	148	173
Index	100	116.5	136.2

The following illustrates steps required to compute the trend index:

The index for the first year is set at 100. Each year thereafter the trend index is computed relative to the first year. Example:

(previous yr. total) 127 = 148 (current yr. total)
(previous yr. index) 100 x

x=116.5

Frame 3: 15 feet

“This one has like… a lot going on!” Lindsey says.

“Yeah, let’s see if we can get it all down right,” I say, still a little nervous about misidentifying something.

“Well…lots of litter again, but not as much as the other frames,” Lindsey notes.

“Yeah it looks like there’s some moss,” I pick at the tufts with my fingers, pulling back when I realize how loose the moss is attached to the soil. “Do you think we should call this litter?” I ask Lindsey.

She frowns slightly, “It’s still pretty green though.”

“Ok, it’s just a little bit any, should we say a one?”

“Sounds good to me.”

“It also looks like we have some lichen too,” I say, noticing a sea green foliose on some of the litter.

“That’s lichen?” Lindsey asks. “Hmmm.”

“Yeah,” I respond. “Have you ever heard the joke about lichen?” I ask.

Lindsey shakes her head no.

“Well, Freddy Fungus took a lichen to Alice Algae, and…” I pause to produce an attempt at dramatic flair, “their marriage was on a rock!”

Lindsey laughs, though I can’t tell if it is forced or natural. “What?” She shakes her head and looks back down at the frame.

“Because…well….lichens are fungus and algae combined, so…” I trail off, my corny joke missing the mark. “Well let’s put a one for lichen.”

"We need to figure out these still," Lindsey points to a cluster of three forbs, all bearing a set of oval leaves with sharpened ends. "Guess we'll need Liz again," her eyes roll.

"Hey Liz!...We have another one for you?" Liz looks up again from comparing a plant with the pictures and descriptions in her field guide. Soon she is over on her hands and knees, looking closely at the cluster.

"I think I just saw that one down the transect a little ways…pretty sure its golden bean."

"Golden beam?" I ask.

"Golden bean, " Liz responds with an emphasis on the "n." "It's difficult to tell with these pictures in the guide books, but that one is pretty common."

"So…should we go with that then?" I ask, looking for approval.

"Sure," Liz says in a hollow sort of tone, a tone that is missing something.

"Should we put a three you think?" Lindsey asks.

I look to the data sheet to see what percentage range three represents; 12.5-25%.

"Well we already have a 6 for the litter, a two for the bare ground, a one for moss and one for lichen. Let's just put it as a two. Sound good."

"Yeah that's probably closer," Lindsey responds. And the data goes into the column on the sheet.

Cover Class:	1	2	3	4	5	6	7	8	9	10
Cover Range:	0-5	5-12.5	12.5-25	25-37.5	37.5-50	50-62.5	62.5-75	75-87.5	87.5-95	95-100
Midpoint of Class:	2.5	8.75	18.75	31.25	43.75	56.25	68.75	81.25	91.25	97.5

Observer(s): KU field camp Monitors

Date: 7-31-12 Plot #: 4

Allotment/Location: Fairplay Stud Area Ut

Notes:

FRAME PLOTS:

	Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		Canopy Coverage	Frequency %	Spp. Composition
1	Bare ground	0	1	2																					
2	Litter	10	9	6																					
3	Rock	0	0	0																					
4	sun sedge	0	1	1																					
5	Yarrow	0	1	0																					
6	Goldenbean	0	0	2																					
7	Lichen	0	0	1																					
8	Moss	0	0	1																					
9																									
10																									
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Canopy Coverage: Number of Spp. occurrences in a cover class x midpoint of that cover class / Number of frames observed (20)

Frequency: Number of Spp. occurrences / Number of frames observed (20)

Species Composition: Canopy Coverage / Total Canopy Coverage

Canopy Coverage Vegetation Total (Do not include Bare Ground, Litter, or Rock:)

Calculating Trend:

Trend Index- a trend index is used in evaluation of trend data.
The trend index is computed by adding the following factors:

a. Composition of key species in percent
b. Cover (live vegetation) in percent
c. Frequency of key species in percent
d. Litter cover in percent

	1980	1985	1990
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Cover	54%	58%	61%
Frequency	30%	42%	49%
Litter	18%	21%	31%
Total	127	148	173
Index	100	116.5	136.2

The following illustrates steps required to compute the trend index:

The index for the first year is set at 100. Each year thereafter the trend index is computed relative to the first year. Example:

(previous yr. total) 127 = 148 (current yr. total)
(previous yr. index) 100 x
x=116.5

Frame 4: 20 feet

There is more bare ground in this frame. It's as if the masticated wood had been beaten and stirred in with the soil, making a thick layer of dark brown, almost black humus. Lindsey and I decide that the bare earth takes up a little over a quarter of the frame, so we class it as a four. The bare earth does not intrigue us. What does is the small cluster of green growing out of the bare earth. The rosettes of four to five leaves, narrow at the base and widening as they move from the center, burst out of the ground only to be subdued by the dry air and hot sun.

"Seriously, that looks like it could be anything!" Lindsey exclaims.

I nod, sharing her frustration at not being able to identify these seedlings, even with the help of a field guide. Again, I look over to Liz, field guide in her hand, but this time, a cigarette replaces an unknown forb. I inhale, ready to call her name, but no words leave, only my paltry breath. Instead, I scan the ground outside the frame, looking for a similar looking rosette of spoon shaped leaves. I find one a few feet from the frame, and pull it out of the ground. It uproots with surprising ease.

"I'm going to go ask Liz if she know what this plant is," I say to Lindsey, who looks at me quizzically.

"Ok!"

I follow the drifting trail of smoke to Liz, who doesn't look up from her book of Rocky Mountain grasses. "Hey Liz, do you think you could tell me what this plant is?"

After a long moment, she looks up. "Hmmm," Taking it in her hands and spinning it around, looking carefully at the lighter underside of the leaves. "I think that this might

be pussy toes, but I'm not exactly sure." She reaches for a plastic bag and places the forb inside. "Let's just call it unknown one for now."

"Ok sounds good," I reply, and feel this sudden release. Liz gave us an out, making it acceptable to not know names.

"We're just going to call it an unknown," I inform Lindsey when I return to the frame.

"Good, because we got this other one in here too," Lindsey points to a bunch of pathetic looking grasses that even cattle would pass over. Barely exuding vibrancy, clinging to the palest of greens, the grasses bend low to the earth, hunched over and worn. Their thin wispiness scattered throughout the frame makes it difficult to turn their presence into a percentage.

"Well I guess we can call it unknown two," I say, free from the confines of naming. "What should we give it? A two?"

"Hmmm, yeah, yeah, I'd say that works." Lindsey responds. We note the moss, the lichen, and a small pinkish rock barely visible, embedded in the earth. Then we move on to the next frame to begin the process again.

Cover Class:	1	2	3	4	5	6	7	8	9	10
Cover Range:	0-5	5-12.5	12.5-25	25-37.5	37.5-50	50-62.5	62.5-75	75-87.5	87.5-95	95-100
Midpoint of Class:	2.5	8.75	18.75	31.25	43.75	56.25	68.75	81.25	91.25	97.5

Observer(s): KU fieldcamp Monitors

Date: 7-31-12 Plot #: 6

Notes: Allotment/Location: Fairplay Stwd Area Utah

FRAME PLOTS:

	Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		Canopy Coverage	Frequency %	Spp. Composition
1	Bare ground	0	1	2	4																				
2	Litter	18	9	6	7																				
	Rock	0	0	0	1																				
	Sunseige	0	1	1	0																				
	Yarrow	2	1	0	0																				
6	Goldenbean	0	0	2	0																				
7	Lichen	0	0	1	3																				
8	Moss	0	0	1	1																				
9	Unknown 1	0	0	0	1																				
10	Unknown 2	0	0	0	1																				
11																									
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Canopy Coverage: Number of Spp. occurrences in a cover class x midpoint of that cover class / Number of frames observed (20)

Frequency: Number of Spp. occurrences / Number of frames observed (20)

Species Composition: Canopy Coverage / Total Canopy Coverage

Canopy Coverage Vegetation Total (Do not include Bare Ground, Litter, or Rock:)

Calculating Trend:

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(previous yr. index) 100 x

x=116.5

The frames, small, discrete, defined, begin to blur together. I am always behind Lindsey, racing to write in the data as she moves quickly on to the next frame. From frame to frame to frame, the process repeats itself in a seemingly endless gazing at bare earth and masticated wood, with the occasional sun sedge or rock sprinkled in between. Occasionally I catch myself looking off into the distance, staring through the spaces between the brilliant white aspens, trying to grab onto this landscape that stretches beyond the dobbenmier frame. But mostly, I see the splintered trunks of trees half eaten by the masticator, the chips of wood, and the subtle cover of green spread throughout the brown. And then I have to catch Lindsey, who is already at the next frame.

I was so intrigued by Lindsey's desire to do only the Daubenmire survey, that I asked her about it later in the fall when I ran into her on the University of Missouri campus.

"Cause you did that the most, of everything right?" I asked.

"Ummm," she replied, "Yeah I did, I tried to do that the most anyway,"

"Why did you try to do that most of the time," I immediately hone in on her response, leaning forward and looking more intently at her.

"Well it was just…I don't know…I thought it was really interesting how each area had like different plants, and wildlife, and stuff…"

"Mhmm."

"So that was kinda cool, I mean I wanted to have the chance to identify plants…even though I knew NOTHING about ANY of the species in the forest!"

"Yeah, Yeah!"

"So it was really interesting to learn the natives and…" her voice trailing off, "other stuff..AND I didn't really want to do any of the mathy type stuff…I just wasn't in…that…"

"The more measurement type stuff?"

"Yeah," Lindsey responds without pausing, Oh my gosh…yeah… I don't know…"

"I don't know…I kinda wanted to keep doing the Daubenmire stuff because I was getting good at it, you know? I was like yeah 50 percent there, 20 percent there."

"Oh…you mean when estimating the cover?"

"Yup" Nodding.

"I thought that was hard!" I say, "I have a hard time looking at something and then uh estimating the percentage in uhhh that frame."

"Yeah! Uh huh."She says yawning and then revealing something really telling about her process.

"Yeah I would just like think about the last one, and that was like mostly this to see if it was close-"

"Oh! So you would reference the previous frame to determine the one you were looking at?"

"Yup that's exactly what I did…I would try to remember, how it all went…" She pauses for thought, "Yeah so I mean, I knew that I didn't have to be super accurate or anything cause I remember, like Glenda or whatever her name was being like 'Yup that sounds good' and like whenever I would say something she'd say. 'Yup sure!'

Though I shuddered at the thought of using off the cuff estimations in a long term government run monitoring project that had direct management implications, I

wasn't completely surprised by her remarks. I often felt that I did the same; always second-guessing my accuracy. And the frames did blend together after a while, making it easy to succumb to apathy; especially when looking at a 1000 square cm frame in a unit comprised of hundreds of acres.

Frame 13: 65 feet

More bare ground, litter, and rock. Some golden bean. And then something new. Waxy round leaves that bleed dark green from their centers that fades into a lighter tone around the edges. It seems different from the other blades and leaves of green encountered along the transect. It has an aura of self-assuredness, that even though the rains are infrequent and the air is hot and dry, it will grow, perhaps even flourish. I look up for Liz, to grab her attention, but then Ken walks over.

"Hey how are you two doing?" He asks with a twinkle in his eye. "Enjoying all this wide open space?"

"Yeah it feels huge in here," Lindsey replies, "I think we're getting it down pretty good."

"Good deal."

Before he turns around to leave, I ask him, "So why are the trees clumped together with all the open space in between?"

"Well, that's kind of a little experiment of mine. There's an elk hear that runs around here and this should give them some real prime edge habitat for forage."

"That makes sense…" I respond, glancing over at the houses through the trees and then remembering what I wanted to ask him. "Say, Ken…would you know what any of these plants are?" I gesture towards the orbs of leaves.

"Haha!" He chuckles, "I'm a tree guy, not a grass guy." I nod, smiling as he gives me a good luck look and heads over to check on Cade and John.

If only Glenda was here. I thought, thinking back to yesterday at N. Cotopaxi, when she taught us how to do the Daubenmire and fuel loads transects.

I became enthralled with her when I first saw her at the BLM Field Office in Canon City yesterday. Her subtle beauty brought to life in the mountainous landscape, becoming ever more vital in the late July morning, the sun radiating off her bronze skin, a loose strand of raven black hair escaping her blaze orange cap, flirting with the soft summer wind. She was like a sunset in the desert sky, with all the shades of pinks and purples layered over the radiant reds and oranges as the sun drifts below the horizon.

"Let's see what this one is," Glenda says, squatting down next to the frame. She runs the blade of grass gingerly through her thumb and forefinger. "This looks like needle and thread grass."

"How can you tell?" Soren asks while Lindsey looks on over Glenda's shoulder.

"Well, do you see how the blade curls at the tip? Kind of like a curly cue." Soren, Lindsey and I all nod in unison. "The awn also has this wispy fuzz on it too."

"What about this one?" Soren asks, "Is it yarrow?"

"Yup!" Glenda says. "This is a really common one. Even if it doesn't have the trademark flat and white flowers at the top, you can look at this really thin, feathery leaves."

"They kind of look scaly!" Lindsey says. She reaches out, hand placed firmly on one knee, running her fingers through the strings of leaves. "Very cool."

A few frames later, we come across a tangle of desiccated blades still planted firmly in the bare earth. “Now how in the hell are you supposed to figure out what this one is?” I say.

Glenda draws close to the grass, feeling it with her fingers, closely examining the base of the blades. She then looks around outside the frame.”Ahh, here we go. See this grass over here?” She points at a grass clump, bright green blades shooting stiffly out of a mass of dead browns. “That’s sun sedge over there…see the dead blades around the base? That is pretty characteristic for this grass.”

“So this other one is sun sedge too?” Lindsey asks.

“Yeah, see you can tell from the dead grass. This one just doesn’t have any visible blades…maybe because it’s right in the sun, or it was foraged.”

“Wow,” I mutter, “Identifying grasses is so hard…how do you do it when they all look so similar?” I ask.

“Well I’m not that great at it. I’m way more familiar with rangeland grasses cuz that is where I work the most.”

“How long have you been doing this?” I ask.

“About ten years…so I start to know what to look for after a while.”

“You mean like the morphology or anatomy of the grasses?” Soren asks.

“Yeah, and if they are a common grass or forb of this area. That really helps actually.”

We nod in agreement; I, amazed by her knowledge of the flora scattered about the forest floor. Though we all gather around the same frame, looking at the same plant species, it is like we are in different landscapes that only overlap on the edges of experience. Glenda looks into each grass and forb with over ten years of accumulated

rangeland knowledge. It is this profound knowledge that I am in awe of. As we walk through the survey, frame by frame, Glenda opens up a whole new way of looking at the landscape; through the grasses and forbs and out to their myriad connections. She exudes an essence of mastery over the foliated landscape, revealing the unique differences of the plant life that looks so similar to our immature eyes. She teaches us to look for the subtle hue of yellow trapped in the blades of the sun sedge, the smooth red stems of currant, the pale thin purple bulbs of a penstemon, and the stringy blue-green blades of Arizona fescue. Though the Daubenmire mediates our interaction with the landscape, Glenda expands our experience, opening up possibilities only accessible through her.

But we don't have Glenda with us today, and Ken only works with trees. This time though, Liz stops by to see how we are doing. I ask her about the forb.

"Oh that's kinnikinnick," She says. "It's common."

And the data goes onto the sheet.

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Cover Range:	0-5	5-12.5	12.5-25	25-37.5	37.5-50	50-62.5	62.5-75	75-87.5	87.5-95	95-100
Midpoint of Class:	2.5	8.75	18.75	31.25	43.75	56.25	68.75	81.25	91.25	97.5

Observer(s): KU fieldcamp Monitors

Date: 7-31-12 Plot #: 2

Allotment/Location: Fairplay Stud Area Ut

Notes:

FRAME PLOTS:

	Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Canopy Coverage	Frequency %	Spp. Composition
1	Bare ground	0	1	2	4	7	5	5	1	1	8	9	7	5										
2	Litter	10	9	6	7	5	4	6	10	10	4	5	5	4										
	Rock	0	0	0	1	1	5	1	1	0	1	1	5	1										
	Sun Sage	0	1	1	0	1	0	0	0	0	0	0	0	0										
	Yarrow	0	1	0	0	0	0	0	0	0	0	0	0	0										
6	Golden bean	0	0	3	0	0	0	0	0	0	0	1	0	2										
7	Lichen	0	0	1	3	0	0	0	0	0	0	0	0	0										
8	Moss	0	0	1	1	1	0	0	0	0	0	0	0	0										
9	Unknown 1	0	0	0	1	0	0	0	0	0	0	0	0	0										
10	Unknown 2	0	0	0	2	0	0	0	0	0	0	0	0	0										
11	Aspen seedling	0	0	0	0	1	0	0	0	0	0	0	0	0										
12	Unknown 3	0	0	0	0	0	0	1	0	1	0	1	0	0										
13	Unknown 4	0	0	0	0	0	0	0	0	0	0	0	0	0										
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	1980	1985	1990
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Total	127	148	173
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(previous yr. index) 100 x

x=116.5

Lindsey and I finish up the Dobbenmier frames; seven more instances of placing the white and red striped frame onto the ground. Although I can't see it, I imagine a little flower nestled delicately in the shadow of a snag somewhere in this stand, far away from our 100 foot transect and plot-frame. A small tendril of wonder, waiting to be discovered, but never found. Instead we have two more unknown grasses, and one is probably a brome, planted sometime years back for cattle. By frame 20, 95 feet, we have it all: the earth, rock, litter, and vegetation, observed and broken down into measurable data. The landscape inscribed into columns and rows.

Cover Class:	1	2	3	4	5	6	7	8	9	10
Cover Range:	0-5	5-12.5	12.5-25	25-37.5	37.5-50	50-62.5	62.5-75	75-87.5	87.5-95	95-100
Midpoint of Class:	2.5	8.75	18.75	31.25	43.75	56.25	68.75	81.25	91.25	97.5

Observer(s): KU fieldcamp Monitors

Date: 7-31-12 Plot #: 2

Notes:

Allotment/Location: Fairplay Stwd Area U2

FRAME PLOTS:

	Species	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		Canopy Coverage	Frequency %	Spp. Composition
1	Bare ground	0	1	2	4	2	5	5	1	1	8	8	7	5	3	6	9	3	1	3	5				
2	Litter	20	9	6	7	5	4	4	10	10	4	5	5	4	8	5	3	9	9	7	6				
	Rock	0	0	0	1	1	5	1	1	0	1	1	3	1	0	1	1	1	0	2	1				
	Sun Sedge	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0				
	Yarrow	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
6	Golden bean	0	0	2	0	0	0	0	0	0	0	1	0	2	1	2	0	0	0	1	0				
7	Lichen	0	0	1	5	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
8	Moss	0	0	1	1	1	2	0	0	6	0	0	0	0	0	0	0	0	0	0	0				
9	Unknown	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
10	Unknown	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0				
11	Aspen Seedling	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0				
12	Unknown 3	0	0	0	0	0	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0				
13	Unknown 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0				
14	Kinnikinnick	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1				
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Canopy Coverage: Number of Spp. occurrences in a cover class x midpoint of that cover class / Number of frames observed (20)

Frequency: Number of Spp. occurrences / Number of frames observed (20)

Species Composition: Canopy Coverage / Total Canopy Coverage

Canopy Coverage Vegetation Total (Do not include Bare Ground, Litter, or Rock:)

Calculating Trend:

Trend Index- a trend index is used in evaluation of trend data. The trend index is computed by adding the following factors:

a. Composition of key species in percent
b. Cover (live vegetation) in percent
c. Frequency of key species in percent
d. Litter cover in percent

	1980	1985	1990
Composition	25%	27%	32%
Cover	54%	58%	61%
Frequency	30%	42%	49%
Litter	18%	21%	31%
Total	127	148	173
Index	100	116.5	136.2

The following illustrates steps required to compute the trend index:

The index for the first year is set at 100. Each year thereafter the trend index is computed relative to the first year. Example:

(previous yr. total) 127 : 148 (current yr. total)
(previous yr. index) 100 x

x=116.5

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Excerpt from Royal Gorge Field Office/University of Kansas Forest Restoration Monitoring Protocol:

- *Fuel Loads: Modified Brown's transect will be established on a bearing of 90 degrees starting from the plot center. One, ten, one hundred, and one thousand hour fuel loads will be measured and recorded*

Fairplay Stewardship Area Plot 2 **7/31/12**

Extending out from the pin, the thin white ribbon of tape traverses 100 feet, following a 90 degree bearing, due east. The whiteness of the tape almost glows under the overcast sky, highlighted by the faded greying brown of the woody mulch that litters the forest floor. Not a bare patch of earth can be seen along this transect. The occasional green blade, escaping the crushing weight of the wood litter, breaks through, adding a trace of color to the gloom. But we don't care about the green anymore, regardless of whether it is the ubiquitous sun sedge, or the fluffy cotton head of a James Galleta. The focus has shifted to the brown; the brown that baked under the sizzling sun of the summer drought, turning ashen from its rays, an extensive swath of kindling primed for ignition.

Excerpt from Vitorelo et. al. "Masticators for fuel reduction treatment: equipment options, effectiveness, costs, and environmental impacts." 2009 Council on Forest Engineering (COFE) Conference Proceedings: "Environmentally Sound Forest Operations." Lake Tahoe, June 15-18, 2009:

Masticators chunk, shred, grind, break, or in other ways reduce the size and character of standing and down material (Jain et al. 2007), and thus alter the size, distribution, and depth of fuels, affecting fire behavior (Weatherhead 1977, Rothermel 1983, Kane et al. 2006). Mastication may increase surface fire hazard for 2 to 3 years as the small fuels that are produced are easily ignited because of their large surface area-to-volume ratio (Weatherhead 1977, Kane et al. 2006, Jain et al. 2007, Hartsough et al. 2008). Despite this, mastication reduces the hazard of catastrophic fire and potential for canopy ignition by raising canopy base height, increasing resiliency to fire, and may reduce flame height and fireline intensity (Coulter et al. 2002, Glitzenstein et al. 2006, Kreye 2008).

Towering over the plot center, Cade squints into the viewfinder of the clinometer, a palm-sized box that mechanically expresses the principles of trigonometry, targeting Lindsey's forehead as she stands one hundred feet away at the opposite end of the transect.

"The slope is 4…no 6 degrees," he says.

"Ok…got it," I write it down on the fuel load data sheet.

"Man it is so hard to see through that thing!" Cade says. "I'm trying to keep both eyes open, and the gauge thing on the inside is wobbling all over the place."

"Yeah it hurts my eyes," I respond. "Yesterday when estimating the tree heights on those big Pondo Pines, my eyes kept getting crossed…making everything really blurry."

"Instead of double checking the slope reading, I continue to fill out the fuel load data sheet, Lindsey grabs the one hour fuel calipers and Cade says, "I can do the one hundred and one thousand hour fuels."

"So we go from 15'-20'?" Lindsey asks. "I wonder why we only count this part?"

"Yup…I think Glenda said yesterday that it's a random section of the transect that is away from all the activity near the center of the plot."

"Oh yeah, I suppose it wouldn't be very accurate where we've all been stomping around, kicking up sticks and whatnot!"

"Ok I'll get started," Lindsey says as she bends down near the 15' mark on the tape. She uses her index and middle finger to begin picking through the thick layers of mulched material, her lips quietly counting each individual piece of wood.

"Oh I don't think you count that one!" I say as Lindsey's finger touches a long and skinny stick lying close to the tape, almost touching. "Glenda said that we should only count fuels that cross or touch the transect."

"Oh yeah," Lindsey says. "Well that's being a little picky."

"Yeah no kidding…I mean, look at all of this…" I gesture to around the forest floor, covered deeply with a thick mat of wood mulch, remnants of the masticator. Ken said earlier that the masticator reduces the potential for a catastrophic fire by changing the structure of the fuels, thus reducing the possibility of a crown fire. "We can control surface fires, but once they break into the crown, we are done for," he had said solemnly.

"It's a lot of wood chips…now where am I?" Lindsey resumes counting, her fingers sifting through the disintegrated wood, like counting grains of sand at the beach. We reach twenty, and she looks up, rubbing her eyes and blinking rapidly.

"Weeellllll that pretty much made me blind," She says. After trying to count over her shoulder, my eyes feel the same way, burning and blurring from the demands of moving quickly from one tiny scrap to the next as they sifted through her fingers. Counting this sheer number of small fuels, even along a skinny transect blurs the vision and the mind. "I'm pretty sure that I counted some of those twice."

"What'd you get?" I ask.

"Ummm…48 I think."

48 one hour fuels; all counted in a five foot span no less than half an inch wide. We breeze through the ten hour fuels as there is much less of them.

"Ok I've got 11 for one hundred hour fuels and 5 for the one thousand hour fuels," Cade says as he walks over towards me.

The final task of the fuel loads inventory is to measure the duff and litter depth at 45' and 75' on the transect. "I'll do the 45'," I say to Cade.

"Ok," he turns and heads down the transect towards the 75' mark, tape measure in hand.

The litter and duff at the 45' mark is shallow. I brush away a thin cover of mulch, making a small hole in the litter and put one end of the tape measure to the soil. The demarcation between the two is abrupt; fresh litter pressed like particle board over the brittle soil, no mixing or mingling. About three quarters of an inch. And no sign of any duff, that ephemeral layer of material passing from desiccation to decay, refreshing the horizon.

"Hey guys come check this out!" Cade exclaims. Lindsey and I amble over. The 75' spot for the duff and litter measurement falls on the edge of a small bump in the terrain. "It's like two feet deep here!" Lindsey's mouth and eyes open wide as she peers into the hole made by Cade. "I almost needed a shovel to get to the soil!"

He takes a final measurement: 7 inches of duff from a rotted out stump below one and a half inches of litter. As we stand looking around the forest, the white siding of houses barely visible on the forest edge, Cade says, "You know… I would not be happy if I lived over there. This place is going to blow up. I mean, why didn't they just cut these trees down and sell them off to a lumber yard?"

Cade walks over to Ken, who is finishing the tree inventory with John, supposedly to ask him this question.

"Hey Ken, so what do the residents around here think of all this?" Cade asks.

"Well a lot of the residents weren't too happy when they found out what was going on here," Ken laughs and his eyes sparkle under the overcast sky. "Hell, I was a little nervous myself about this site…kept me up at night."

"What were you worried about?" Cade asks.

"Well you know before we go through and thin, we mark the trees we want to cut with an 'x' and…" Ken can't hold back a chuckle, "And you know Cade, most of the residents thought that we were marking the trees to be saved." Ken laughs some more and Cade betrays a look of incredulity.

"That's ridiculous!" Cade exclaims. "I mean, an 'x' on a tree usually means it's going down."

"Yeah…I bet you can imagine what happened when they looked out their windows and saw that most of the trees were gone!" Ken adopts his familiar pose, rubbing his goatee and looking off into the distance. "So many people were pissed after the cutting occurred."

"What were they pissed about? I mean, aren't you guys cutting down the chances of a huge fire?"

"People like their trees, Cade, people really like their trees. Hell, most move out here just so they can be near them!" He guffaws. "But hey, I need to go walk around here quick and check things out." Ken turns to leave and Cade walks over to where I am slowly packing up the fuel load equipment after straining to pick up scraps of their conversation.

"Man that is messed up," Cade exclaims, his eyes more wide and face suffused with an intensity bordering resentment. "BLM could do a better PR job that's for sure."

"Yeah no kidding," I respond, "I wonder how many lawsuits they are battling because of stuff like that."

"Probably a shit ton," Cade estimates, perhaps accurately. "I mean, they even take all the good, and healthy trees." He gestures around to the clumps of firs remaining.

"Yeah but I think they just do that for timber sales if I can recall correctly," I interject. "I think this is a stewardship area, and it sounds like the way Ken has this site planned out is to improve elk habitat, so I don't know if they are taking all the good trees necessarily."

"I don't know Matt…" Cade responds, "I think they just want lumber. It seems to me all they care about is board feet or whatever it's called…" He pauses and stares at the splintered ground for a few seconds. "I'd like to think otherwise, but in this economy…who really knows?"

We finish packing up in silence. My ears straining to identify the chirps of a bird flitting in the tree tops. The houses seem even more visible through the thinned forest.

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Excerpt from Royal Gorge Field Office/University of Kansas Forest Restoration Monitoring Protocol:

- BAF plots will be taken to collect certain tree and snag data. Only trees over 5 inches DBH will be recorded and measured. Individual tree measurement includes tree species, height, diameter, crown base height, and crown ratio.

Cotopaxi Plot #2 **7/30/12**

"Hey Matt, Lindsey, why don't you guys come over here and let me show you how to work the prism," Ken calls us over to the plot center with a nonchalant wave of his hand. "One of you should have one in your vest."

Lindsey and I start digging through the pockets of our orange surveyor vests, "Hey cool, I've got one," Lindsey says.

"Alright Lindsey, you're up. Take that prism out of the little pouch there."

Lindsey pulls the prism out of the pouch and turns it around in her hands. It is a small rectangular piece of glass with slightly rounded edges. She holds it up to her eye, squinting through glass that looks foggy from years of use. “Woah!” She exclaims. “That’s weird.”

“Hold it up and look at that tree,” Ken suggests pointing to a Ponderosa Pine a few feet away.

“Oh wow…that like pretty much cut that tree in half!” Lindsey hands the prism to me, and I turn it over in my hands. The prism is thick on one end, gently tapering off at the other, giving it a wedge-like shape. I hold it up to my eye, and look through the glass at the same tree. At first, I think that I am seeing two trees. “Does this thing make a double image or what?” I ask. “Oh, wait…ok I think I see.” The section of the tree appearing through the prism looks detached from the rest of the trunk, moved over to the left, just barely touching at the top and bottom edges of the prism.

“Yeah basically what you guys are seeing through that prism is a section of the tree that is offset from the rest of it.” Ken explains.

“So what’s the purpose?” I ask.

“We use these to establish variable plots in order to determine if a tree is ‘in’ or if it is ‘out.’ Can I see yours quick?”

Ken takes the prism from me and looks through it at the Ponderosa Pine we were looking at moments ago. He then slowly pivots around the plot center, stopping momentarily to examine a small Douglass fir. He purses his lips, and quickly moves to the next tree in a counter-clockwise motion, not even stopping to check it with the prism. He turns on his heels 180 degrees, mentally checking off each tree. Still trying to figure

out what Ken means by a tree being "in," or "out, " and what a variable plot is, I cannot tell if he is looking at trees within our proximity, or towards the trees further than a few steps away. "Ok…I think I have pretty good guesses which trees are in, and which are out," he says with a lopsided grin.

Lindsey and I must look confused, since Ken explains what to do next. "What we are doing here is establishing the basal area of trees per acre with this prism."

"So are we trying to figure out the area of trees per hectare, or something?" My voice trails off with uncertainty at the end of my question.

"We're looking for the area in feet of trees per acre. The basal area is essentially the diameter of the tree, which we will get from DBH, which is the diameter of the tree at breast height, after determining which trees are in or out of our plot…so Lindsey, are we counting that tree or not?" He points to telephone pole size pine. "You have to look through the prism like I just showed you…be sure to look at the tree about breast height…" Lindsey lowers the prism slightly, her face tightening with concentration. "Now does the offset part align or overlap with the rest of the tree?" Ken asks.

"Hmmm…" Lindsey adjusts the prism, her brows furrowing even deeper as she leans closer to the prism. "Let…me…see…"

"Do you see any space between the offset and the tree?" Ken asks her. "Keep both of your eyes open."

"Uhh…well…yeah I think there is space."

Ken takes out his own prism. "Try it again."

In a frantic motion, Lindsey brings up the prism to her eye again. "I'm not really sure," she says.

"Here let me look." She hands me the prism and I look through it, taking care to hold it a few inches away from my face, orienting it towards breast height. After a few moments of adjustment to this bizarre refraction, I can see through the prism that the trunk is only offset slightly, overlapping heavily with the rest of the trunk. "There's no space," I say, uncertainty fringing my tone.

"Then that tree is in," Ken replies. "A tree that is in will overlap in the prism and there is a space between when looking through the prism at an out tree."

"Does that just mean that they are too far away?" I ask. Despite figuring out how to use it, the prism is still a foreign object. I'm still unsure of how it works, and what its purpose actually is.

"It could be that, but mostly a space means the tree is too small to be counted. We are only looking at the trees that are close to the center of the plot. So that one is in. Let's tally it on the sheet…where is the sheet? Liz! Liz! Do you have that data sheet for the tree inventory?"

Liz looks up from the Daubenmire transect, cigarette held firmly between her lips. "Yeah…I got it."

"Why don't you come help us out? You can go with Matt and I'll go with Lindsey after we get these trees down." Liz walks over briskly. "We should be able to pound this out real fast in the post-treatment plot." Our movements within this plot are more capricious, unrestricted by the wide open spaces between the free standing Ponderosa Pine, and small clumps of white and Douglass fir. This is a forest of extreme contrasts, giant trees dwarf an understory of grasses and forbs barely escaping the clutches of the forest floor, giving room for seedlings and a handful of saplings to stretch their boughs.

"Here you go," Liz hands the clipboard with the data sheet off to Ken, who writes 001 in the tree number box, and 122, the code for Ponderosa Pine, in the species.
"Lindsey, how are things going?" Ken chides, "You mastering that thing yet?"

In the midst of our questioning, Lindsey continued to work with the prism. The look on her face belies uncertainty in identifying the variable plot with the prism. "I'm not sure if my eyes are right for this," She says, "I like can't really tell…"
"Well let's have Matt finish these off then, and you can check his work."

I take the prism and move to the next tree, a Ponderosa Pine whose trunk I could fully embrace. Through the prism, the tree moves in and out of focus, blurring and sharpening before my hand settles. The offset section barely touches the rest of the trunk. "Hmmm I don't know…this one is really close. Are they in if the offset part is touching the tree, or does it have to overlap?"

"You might have a border tree…let me take a look." Without taking out his prism, Ken stoops over my shoulder and peers through mine. "Yup, that's a border tree, meaning it could go either way. For these we'll count every other one, unless it's a nice looking tree-haha-then we'll count it!" he says jokingly. "You know, Liz, you and Matt should go start taking data for those two Ponderosa's over there, "he points to the pair of thick pines growing up mere feet from one another. "Lindsey and I will start keep going with this prism."

"Ok," Liz with apathy oozing from her tone. We start to head over to them before Liz turns back, "Hey Ken, what should we label these two?"

Ken looks around the plot counterclockwise, briefly assessing each tree nearest in his field of vision. His gaze finally coming to the two Liz and I are heading towards. "I'm

guessing that there will be about 8 or 9 trees in the plot that will need to work-up, so just call that one 8…and that one…yeah go with 9."

Though the trees are scattered throughout the stand, the two pines stand apart. My eyes follow the deep ridges and furrows that flow up the trunk, forming large plates of naked bark. The mature red hues of the bark disappearing into ladders of branches holding out bundles of long green needles gives these trees a distinctive appearance. As we near, my head tilts back progressively, comprehending the immensity of these two sturdy pines. They are a forester's wet dream with impressive girths several board-feet thick, limber trunks rising straight into the sky. When we reach the first tree, my hand feels the smoothness of its bark.

"We are going to record five measurements on each of these trees. Do you have the sheet?-oh yup," Liz asks me as she steps closer, realizing that the clipboard is in my hand.

"So, the first one is species, so write Ponderosa Pine in that box there," She points to a blank box on the sheet. "Actually, you can write the code 122 for short."

"Should we use the scientific name?" I ask her.

"No, that's ok. Next we'll do the DBH to get the diameter. Oh and remember to mark this one as number 8 on the tree number box."

Reaching into my vest, I take out the perfectly round spool of d-tape, a familiar object from previous undergraduate work with graduate students from the University of Minnesota geography department, sampling in the forests of Minnesota and Oregon. I scan the trunk for a crevice around breast height to stick the sharp metal tooth at the

beginning of the tape. As I reach for the tree- “What I do to measure is wrap that end you have there around the back, and then cross it over with the end in your other hand.”

Sticking the tooth into the spongy bark, “This is how I’ve done it before,” I say. The tooth holds the tape in place, right at breast height, giving me two hands the walk the tape around the broad, limbless trunk. “68 inches DBH.”

“Ok, that looks right,” Liz checks over my shoulder, “You might have some trouble doing that the way that you measured it if we have to do a fir later.”
Ignoring her comment about my measuring technique, “Ok what do we have to do next?”

“Grab your tape measure and do you have a clinometer in your vest? We’ll do the height and then the crown ratio after that.”

Ponderosa Pines are trees shaped by fire. Their bark is smooth, self-pruned from limbs that invite surface fires up into the canopy. My eyes must travel a great distance up the naked trunk to reach the green crown. It sits like a fluffy ball on top of a stick. The height to crown ratio is an indicator of tree health, Liz says. It is an ocular estimation of the fullness of the crown, or coverage.

“What do you think the crown ratio is for that tree?” I ask Liz, pointing to a white fire over twenty feet tall. The limbs on one side of the fir are full of green needles while the opposite needles barely clung to the limbs near the bottom of the crown, deadened in the shadow of a douglas fir.
“mmmm, I might say a 60%.”
“Ok, so how do you estimate it?”

"The crown is the needles of the tree, so it can extend all the way down to the base," Liz explains. What I do is imagine one of those cartoon Christmas trees as the 100% crown ratio and pretty much compare everything to that."

"That seems accurate," I mutter skeptically, picturing the image of a cartoon Christmas tree, it's equally proportioned limbs cut into straight angles. "What would you guess for this tree? The crown obviously doesn't extend all the way to the ground like a Christmas tree…but they shed their limbs that are closer to the ground as they grow."
"I don't know…I'd say 80% maybe."

"But the crown fills the canopy. It looks healthy and full all the way around the trunk," I respond.

"True," Liz says, "I'm not sure if it extends down far enough though…I mean, look at that one over there." She points to another Ponderosa Pine, the limbs making up the crown more elongated, stretching down the trunk, but still far from the forest floor.

"Yeah that one's canopy is different, but it looks like a lot younger." I say, noting the smaller girth and dark, rough bark. "Besides, that one doesn't even have a full crown. It looks thin on that one side."
"So what do you think the crown ratio is?" Liz asks me.

"Definitely closer to 100%. The crown might be high up, but all the limbs are covered with needles, I don't see any dead, or sickly looking limbs."

We continue going back and forth. Ken looks up from working with Lindsey, and catching wind of our argument he comes over.
"What's going on?" He asks.
"We are just trying to figure out the crown ratio for this pine," Liz mumbles.

“Hmmm,” Ken purses his lips. “What are you thinking?”

“I think it looks pretty healthy,” I respond, my confidence waning in the face of Ken’s experience.

“What were you thinking of giving it?” He presses me.

“Umm…it looks a lot like100% to me.”

“And I was thinking 80%,” Liz adds hastily.

“I came over here for this?” Ken’s mouth and eyes expand in disbelief. I can’t figure out if he is joking slightly, or completely serious. “Logan and I just had this conversation. And you know this Liz. There is no such thing as a perfect tree!” He shakes his head while looking at the ground before looking up, giving us both a hard stare.

“There is no such thing as a perfect tree.”

“Okay, I guess we will put an 80%” I say to Liz.

“Let’s call it 90,” Liz answers.

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Excerpt from Royal Gorge Field Office/University of Kansas Forest Restoration Monitoring Protocol:

- *1/100 acre fixed plots will be conducted to collect seedling and sapling data. Individual tree measurement includes, tree species, height, diameter, and crown ratio.*

The distant echo of thunder follows a flash of lightening. The sky had been harboring clouds all morning fills with darker shades of gray. The lightening splintered the sky for the briefest of instants, burning an afterimage in the eye. The faint rumble of thunder contrasts with the growing idleness in the plot, heads titling towards the sky, but only for a moment.

The sky grumbles, but Soren barely notices as he counts rings of a tree core. His lips move faintly as he carefully moves his fingernail up the core, pressing lightly on each

trace of latewood that marks the boundary from fall to spring. He extracted the core using an increment borer made in Sweden. Finding the center of the tree at breast height, he pressed the bit of the auger into the thin, scaly bark and twisted the handle, boring a hole into the tree no thicker than a pencil. The borer creaked with each twist deeper into the soft pulp and Soren's biceps tightened, a grimace belied the ease of the work as each turn of the handle became more forgiving. Satisfied that the bit made it to the center of the trunk, he inserted the metal extractor into the hollow center of the borer. When the teeth of the extractor struck wood, he gave the handle a clockwise half-twist that sunk the teeth into the wood core, severing it from the rest of the tree. Filled with anticipation, Soren pulled the core out from the borer and the budding anticipation wilted as he realized that he didn't hit pith; the dark brown pinprick marking the tree's first year of growth. Back in the present moment, Soren's fingernail comes closer to the end of the core, where the rings huddle closer together, fading into the spongy wood. The subtlety of the rings dries his eyes, and he draws the wood closer. 118 years old. Whew. He looks down towards Matt, who is sitting on a granite outcrop, finishing with the soils sampling. "Hey Matt…would you mind double checking my counting?"

"Sure thing," I hop up and grab the core sample from Soren, grimacing at the series of tiny rings towards the end of the core finely grained into the tawny wet wood. The tone of the wood reflects the midafternoon sunlight, straining my eyes as I move from one ring to the next. I try to reach out to the rings with my vision, touching each one with my eyes, making sure of its reality before moving on to the next ring. Each passing from early wood to late is like a step. Towards the end, my eyes begin to stumble and trip

over the rings, and the passage from one to the next becomes more uncertain. “Hey Soren, I got 111 for the age.”

“Hmmm,” Soren’s lips purse, his brow furrowing and the depth of his eyes deepening in thought. “Let’s just meet in the middle…so I counted 118 and you counted 111…so that would be…”

“Maybe 114?”

“Yeah, that sounds good,” He hesitates briefly before writing it on the data sheet. “That sounds good.”

Sitting on a granite outcrop, Liz flips through a guide to Rocky Mountain grasses, cigarette smoke trailing from her fingers. Wanting to be home with her boy, discovering that rare juniper hairstreak in the backyard, its delicate legs perched on the patio chair. It sat still for minutes, allowing her and Max to look closely at its oxidized copper wings. Her sullen expression bears hints of inadequacy and doubt. Why couldn’t she identify those grasses? Her second season out of the scrublands of Pueblo and up into the mountains and all she has done is tag trees to be felled with spray paint. Now, for one week, she is pulled from the endless monotony of painting those little orange x’s, sometimes hundreds per day, to train some college students in surveys she rarely practices.

The D-tape comes out from John’s vest and wraps around the Ponderosa Pine. “15.8,” he says to Cade.

“Think it might rain?” Cade asks as he writes 15.8 on the data sheet next to number 007 species 122.

“Uhhh…” John looks up, “I don’t know, maybe.”

"Man, I just want to be done with this bullshit already. Three plots in one day!" Cade complains.

"Yeah, it's pretty bullshit," John says. "Let's just get this done." They move onto the next tree, 008, species 108 (Lodgepole Pine) and the d-tape comes out again.

"Hey Cade," Logan calls, 66 feet away from the tree, clinometer in hand, tape running from his feet to the side of the tree. "I got 47 for the height on number 007." Cade nods, writing it in, another step in a seemingly endless cycle of tasks. At least we have both Liz and Logan here to help out today, he thinks. Their presence reprieves them the dullness; while Logan estimates the tree heights using the clinometer, Cade and John fall into idle chatter, drawing out the remaining measurements.

"Where's your new place at again?"

"Well I used to live at the Grove, just off Clinton there."

"Where'd you move to?"

"Closer to downtown, on Kentucky."

"39 feet for number 8 Cade."

"Ok got it."

"Yeah I'm kind of getting done with all the partying, so I thought I'd move away from that."

"Right on," John nods as he wraps the D-tape around the final tree in the plot, the tape coming together in the shape of an x. "Yeah I'm kinda tired with being up until-"

"Hey John! What the hell are you doing with that?" Comes a thunderous boom from Ken who appears from behind a patch of gambel oak, making a black imprint in the

receding flash left by lightening. He'd been gone all day, and for most of the week, leaving us with Liz for most of the plots.

"Show me how you measured that again," Ken demands, his tone forceful, briefly widening John's eyes as he hastily re-wraps that D-tape around the tree, making sure it meets in a straight line. "Just like this…I mean, this is how I was shown how to do it," bending closer to read the measurement, "10.8."

"But why are you measuring it above that knot?" Ken asks his eyes narrow further with each passing second, "You're not doing it at breast height, and it's wider above the knot than below it." His finger presses below the knot, a doughnut shaped lump that bulges against the peeling bark, a remnant of a branch.

"Uhh I thought this was breast height for me," John responds, a defensive look surfaces in his eyes.

"Ok you're like 6 foot. Breast height is four and a half feet. Plus you're standing upslope, which is going to skew your reading" Ken says gruffly with eyes that glint like steel.

"The slope isn't that steep," John counters while he hastily re-wraps the tape around the tree trunk so the tape meets in a straighter line.

."What'd you get there?" Ken asks.

"10.3"

"Let me see...no John…" he moves the right end of the tape up slightly, "That's 10.6. Come on guys! We need to be more accurate." Shaking his head, "Do you see the difference from where you measured and where you should be measuring? Cade, Let me see that sheet." He grabs the clipboard with the inventory sheet out of Cade's hands. His

eyes move down the clipboard, before stopping and looking towards one of the trees in the plot."

"Where is the lodgepole pine?"

"What one is that?" Cade asks bending over to look at the sheet.

"Is that number seven over there? You've got it down as a 108. That's lodgepole pine. Does that look like a lodgepole pine to you? Ken peppers Cade and John, who struggle to respond.

"You should have 122 for Ponderosa Pine," Ken sighs, his hand tilts his Avalanche hat up on his head. "Damn you guys, now we're going to have to do all of these over again. Liz! Logan!" Ken snaps is fingers, "I need you two to go through and recheck these trees again."

A flash of lightening splinters the sky over our heads, disrupting all activity on the plot. Over the booming thunder Ken yells, "We're not stopping for a little lightening. I've kept crews working until the lightening singes the hairs on their heads. I'm not about to let you all off so easy. Now let's finish this plot off. Come on Matt, come on Lindsey, come on John. Let's move!"

Lindsey, Soren, and I stand frozen, our tasks completed, helpless and uncertain about how to help. Liz and Logan work with Cade and John to finish rechecking the DBH's from all of the trees in the plot amidst rolling crescendos of blinding flashes of lightening and reverberating thunder, the tone of which changes from a distant rumble to a deafening crack sounds like the splitting of the granite bedrock below our feet. The clouds so close that they turn the air around us gray. The DBH tape is wrapped frantically around each tree and new measurements are recorded. Each flash of lightening brings

increased awareness of the vulnerability that a storm brings to an open forest. The tension mounts, building in everyone's expressions. Another crack and the sky falls apart, washing away Ken's sudden demanding diligence and we scatter, tingling skin in anticipation of the next bolt of lightening to chase us across the clearing to the shelter of our vehicles. We hastily shake hands with Ken, Liz and Logan as the rain splashes down our faces, our cotton shirts soaking up the splatters, begin to cling to our skin.

Soon we are in the car and bouncing along the twin tire tracked dirt road, tires beginning to sag into the wet soil. A light comes on in the dash of the van and our ears our pierced by a series of three BEEPS that repeat incessantly. We weave up and down, around the retention ponds that attract clusters of cows, and out to the highway. The beeping stops with the emergent flatness of the smooth concrete road. Two Golden Eagles stare at us, perched on the telephone pole across the road. Liz said that they might be there. She had seen them before in the spring. As we drive past, one of the eagles stretches its wings and dives low in the opposite direction, over the ditch running alongside the road. Out the passenger window, two Northern Flickers fly alongside the van. They disappear behind a roadside tree, but as we pass, the stout black antlers and cloudy white rump of a pronghorn antelope stands out in the distance amidst the grassland scrub. Its gaze follows our van across its horizon. From the front seat, I look in the back to see Cade, John, and Lindsey, the forest landscape, though now receding, continues to linger in their expressions.

References Cited

Amin, A. and. Thrift., N. 2005. What's Left? Just the Future. *Antipode* 37:220-238.

Bandelier, A. F. 1890. The Delight Makers. New York: Dodd, Mead & Co. .

Barnes, T. J., & Duncan, J.S. 1992. Writing Worlds. London: Routledge.

Barthes, R. 1977. Image, Music, Text. London: Fontana Books.

Behar, R. 1995. Introduction: out of exile. In Women Writing Culture, ed. Behar, R. and Gordon, D. Berkeley: University of California Press.

Behar, R. 1996. The Vulnerable Observer. Boston: Beacon Press.

Behar, R. and Gordon., D. 1995. Women Writing Culture. Berkeley: University of California Press.

Berger, J. 1972. Ways of Seeing. Harmondsworth: Penguin.

Berger, J. 1979. Pig Earth. New York: Pantheon.

Blacksell, M. 2005. A Walk on the South West Coast Path: a view from the Other side. *Transactions of the Institute of British Geographers* 30:518-520.

Bourdieu, P. 1977. Outline of a Theory of Practice. Cambridge: Cambridge University Press.

Bowen, E. 1954. Return to Laughter. New York: Harper.

Brace, C. and. Johns-Putra., A. 2010. Recovering inspiration in the spaces of creative writing. *Transactions of the Institute of British Geographers* 35:399-413.

Braun, B. 2008. Environmental issues: inventive life. *Progress in Human Geography* 32:667-679.

Burroway, J. 2010. Imaginative Writing: The Elements of Craft. London: Longman.

Butler, J. 1993. Gender Trouble: Feminism and the Subversion of Identity. London: Routledge.

Cameron, E. 2012. New geographies of story and storytelling. *Progress in Human Geography* 36:573-592.

Castree, N. 2005. Nature. London: Routledge.

Clifford, J. 1986. Introduction: Partial Truths. In Writing Culture: the Poetics and Politics of Ethnography, ed. Clifford, J. and Marcus, G. Berkeley: University of California Press.

Clifford, J. and. Marcus., G. 1986. Writing Culture: the poetics and politics of ethnography. Berkeley: University of California Press.

Cloke, P. and Jones, O. 2001. Dwelling, place, and landscape: an orchard in Somerset. *Environment and Planning A* 33:649-666.

Clough, P. 1998. Crises of schooling and the "crisis of representation": the story of Rob. *Qualitative Inquiry* 5 (3):428-488.

Cosgrove, D. 1984. Social Formation and Symbolic Landscape. Madison: University of Wisconsin Press.

———. 1985. Prospect, perspective, and the evolution of the landscape idea. *Transactions of the Institute of British Geographers* 10 (1):45-62.

Cosgrove, D. and Daniels, S. 1988. The Iconography of the Landscape. Cambridge: Cambridge University Press.

Cosgrove, D. and Jackson, P. 1987. New directions in cultural geography. *Area* 19:95-101.

Cresswell, T. 2002. Bourdieu's geographies: in memorium *Environment and Planning D: Society and Space* 20:379-383.

———. 2003. Landscape and the Obliteration of Practice. In Handbook of Cultural Geography, ed. K. Anderson, Domosh, M., Pile, S., and Thrift, N. London: Sage.

———. 2006. You cannot shake that shimmie here: producing mobility on the dance floor. *Cultural Geographies* 13:55-77.

Crossley, N. 1995. Merleau-Ponty, the elusive body and carnal sociology. *Body and Society* 1 (1):43-63.

Crouch, D. 2003. Spacing, performing, and becoming: tangles in the mundane. *Environment and Planning A* 35 (1): 1,945-1,960.

———. 2010. Flirting with space: thinking landscape relationally. Cultural Geographies 17 (1):5-18.

Daniels, S. 1985. Arguments for a humansitic geography. In The Future of Geography, ed. R. Johnston. London: Methuen.

———. 1989. Marxism, culture and the duplicity of landscape. In New Models in Geography, ed. Peet, R. and Thrift, N. London: Unwin Hyman.

Daniels, S. and Lorimer, H. 2012. Until the end of days: narrating landscape and environment. *Cultural Geographies* 19 (1):3-9.

Davies, G. and Dwyer, C. 2007. Qualitative methods: are you enchanted or are you alienated. *Progress in Human Geography* 31 (2):257-266.

De Certeau, M. 1984. The Practice of Everyday Life. Berkeley: University of California Press.

Deleuze, G. 1993. The fold: Liebniz and the Baroque. Minneapolis: University of Minnesota Press.

Deleuze, G. a. G., F. 1994. What is philosophy? London: Verso.

Demeritt, D. 1994. The nature of metaphors in cultural geography and environmental history. *Progress in Human Geography* 18 (2):163-185.

Denzin, N. K. 1997. Interpretive Ethnography London: Sage.

———. 2000. The practices and politics of interpretation. In Handbook of Qualitative Research, ed. N. K. a. L. Denzin, Y. London: Sage.

Derrida, J. 1982. Margins of Philosophy. Brighton: Harvester Press.

———. 1997. Of Grammatology. Baltimore: Johns Hopkins University Press.

DeSilvey, C. 2006. Observed Decay: Telling Stories with Mutable Things. *Journal of Material Culture* 11 (3):318-338.

Dewsbury, J. D. 2010. Performative, Non-Representational, and Affect-Based Research: Seven Injunctions. In Sage Handbook of Qualitative Geography, ed. D. Delyser, Herbert, S., Aitken, S., Crang, M., & McDowell, L. London: Sage.

Dewsbury, J. D., Wylie, J., Harrison, P. and Rose, M. 2002. Enacting geographies. *Geoforum* 32:437-441.

Diversi, M. 1998. Glimpses of street life: representing lived experience through short stories. *Qualitative Inquiry* 4:131-147.

Ducan, J. and Duncan, N. 1988. (Re)reading the landscape. *Environment and Planning D: Society and Space* 6:117-126.

——— 2010. Doing Landscape Interpretation. In The Sage Handbook of Qualitative Geography, ed. D. Delyser, Herbert, S., Aitken, S., Crang, M., & McDowell, L. London: Sage.

Duncan, J. 1980. The superorganic in American cultural geography. *Annals of the Association of American Geographers* 70 (2):181-198.

Duncan, J. 1990. The City as Text: The Politics of Landscape Interpretation in the Kandyan Kingdom. Cambridge: Cambridge University Press.

Duncan, J. and Ley, D. 1993. Introduction: representing the place of culture. In Place/Culture/Representation, ed. J. L. Duncan, D. London: Routledge.

Ellis, C. 2000. Creating Criteria: An Ethnographic Short Story. *Qualitative Inquiry* 6 (2):273-277.

Finley, S. and. Finley, M. 1999. Sp'ange: a research story. *Qualitative Inquiry* 5 (3).

Frank, K. 2000. The management of hunger: using fiction writing in anthropology. *Qualitative Inquiry* 4:474-488.

Geertz, C. 1976. "From the Native's Point of View": On the Nature of Anthropological Understanding. In In Meaning in Anthropology ed. Basso, K. and Selby, H. Albuquerque: University of New Mexico Press.

———. 1988. Works and Lives: The Anthropologist as Author. Stanford: Stanford University Press.

Gill, C. 2011. Eating Dirt. Vancouver: Greystone Books.

Gottlieb, A. and Gottlieb, P. 1994. Parallel Worlds: An Anthropologist and a Writer Encounter Africa. Chicago: University of Chicago Press.

Greenhough, B. and Roe, E. 2006. Towards a geography of bodily bio-technologies. *Environment and Planning A* 38:416-422.

Harrison, P. 2007. How shall I say it...? Relating the non-relational. *Environment and Planning* A 39:590-608.

Hartshorne, R. 1939. The nature of geography: a critical survey of current thought in the light of the past. *Annals of the Association of American Geographers* 29 (3-4).

Heidegger, M. 1962. Being and Time. Oxford: Basil Blackwell.

———. 1971. Poetry, Language, Thought. London: Harper Row.

Henderson, G. 2003. What (else) we talk about when we talk about landscape: for a return to the social imagination. In Everyday America: Cultural Landscape Studies after J.B. Jackson, ed. Groth, P and Wilson, C. Berkeley: University of California Press.

Herbert, S. 2000. For ethnography. *Progress in Human Geography* 24 (4):550-568.

Hetherington, K. 2003. Spatial textures: place, touch, and praesentia. *Environment and Planning A* 35:1933-1944.

Hinchliffe, S. 2003. Inhabiting- landscapes and natures. In Handbook of Cultural Geography, ed. K. Anderson, Domosh, M., Pile, S., and Thrift, N. London: Sage.

Hurston, Z. N. 1935. Mules and Men. New York: HarperCollins Publishers.

Ingold, T. 1993. The temporality of the landscape. *World Archaeology* 25 (2):152-171.

Ingold, T. 2000. The Perception of the Environment. London: Routledge.

Jackson, J. B. 1997. Landscape in Sight: Looking at America. New Haven: Yale University Press.

Jackson, P. 1989. Maps of Meaning: An Introduction to Cultural Geography. London: Unwin Hyman.

Kaminsky, M. 1995. Introduction. In In Remembered Lives: The Work of Ritual, Storytelling, and Growing Older, ed. B. Myerhoff. Ann Arbor: University of Michigan Press.

Krizek, R. 1998. Lessons: what the hell are we teaching the next generation anyway? In Fiction and Social Research, ed. A. and B. Banks, S. London: Altamira Press.

Kusenbach, M. 2003. Street Phenomenology: the go-along as ethnographic research tool. *Ethnography* 4 (3):455-485.

Langness, L. and Frank, G. 1978. Fact, Fiction and the Ethnographic Novel. *Anthropology and Humanism Quarterly* 3 (1-2):18-22.

Lassiter, L. E. 2001. "Reading over the Shoulders of Natives" to "Reading Alongside Natives," Literally: Toward a Collaborative and Reciprocal Ethnography". *Journal of Anthropological Research* 57 (2):137-149.

Lassiter, L.E. 2005. The Chicago Guide to Collaborative Ethnography. Chicago: University of Chicago Press.

Latour, B. 1993. We Have Never Been Modern. London: Harvester Wheatsheaf.

Latour, B. 2001. Good and Bad Science: The Stengers-Desprest Falsification Principle. In Bodies on Trial, ed. M. a. B. Akrich, M. Durham, NC: Duke University Press.

Laurier, E. and Philo, C. 2004. Ethnoarchaeology and undefined investigations. *Environment and Planning A* 36:421-436.

Lawless, E. 1992. “I was afraid Someone Like You…an Outsider…Would Misunderstand”: Negotiating Interpretive Difference between Ethnographers and Subjects. *Journal of American Folklore* 105:301-314.

Lawless, E. 1993. Holy Women, Wholly Women: Sharing Ministries through Life Stories and Reciprocal Ethnography. Philadelphia: Philadelphia University Press.

Levinas, E. 1969. Totality and Infinity. Pittsburgh, PA: Duquesne University Press.

Lewis, N. 2000. The climbing body: nature and the experience of modernity. *Body and Society* 6:58-81.

Lingis, A. 1994. Foreign Bodies. Bloomington: Indiana University Press.

Lingis, A. 1998. The Imperative. Bloomington: Indiana University Press.

Lorimer, H. 2003. Telling Small Stories: Spaces of Knowledge and the Practice of Geography. *Transactions of the Institute of British Geographers* 28 (2):197-217.

——— 2005. Cultural Geography: the busyness of being more-than-representational. *Progress in Human Geography* 29 (1):83-94.

——— 2006. Herding memories of humans and animals. *Environment and Planning D: Society and Space* 24:497-518.

Lorimer, H. and Lund, K. 2003. Performing facts: finding a way through Scotland's mountains. In Nature Performed: Culture and Performance, ed. B. Szerszynski, Heim, W. and Waterton, C. London: Blackwells.

Lund, K. 2012. Landscapes and narratives: compositions and the walking body. *Landscape Research* 37 (2):225-237.

Maclean, N. 1976. A River Runs Through It. Chicago: University of Chicago Press.

Malinowski, B. 1922. Argonauts of the Western Pacific: An account of native enterprise and adventure in the Archipelagoes of Melanesian New Guinea. London: Routledge and Kegan Paul.

———. 1967. A Diary in the Strict Sense of the Word. New York: Harcourt, Brace & World.

Massey, D. 2006. Landscape as provocation: Reflections on moving mountains. *Journal of Material Culture* 11:33-48.

Matless, D. 1992. An occasion for geography: landscape, representation, and Foucalt's corpus. *Environment and Planning D: Society and Space* 10:41-56.

———. 1998. Landscape and Englishness. London: Reaktion.

———. 2003. The Properties of Landscape. In Handbook of Cultural Geography, ed. K. Anderson, Domosh, M., Pile, S., and Thrift, N. London: Sage.

McCormack, D. 2005. Diagramming practice and performance. *Environment and Planning D: Society and Space* 23:488-507.

Meinig, D.W. 1979a. The Interpretation of Ordinary Landscapes. Oxford: Oxford University Press.

———. 1979b. The beholding eye: ten versions of the same scene. In The Interpretation of Ordinary Landscapes, ed. D. W. Meinig. Oxford: Oxford University Press.

———. 1983. Geography as an art. *Transactions of the Institute of British Geographers* 8:314-328.

Merleau-Ponty, M. 1962. Phenomenology of Perception. London: Routledge.

———. 1968. The Visible and Invisible. Evanston, IL: Northwestern University Press.

Merriman, P. 2004. Driving places: Marc Auge, non-places, and the geographies of England's M1 Motorway. *Theory, Culture & Society* 21 (4/5):145-167.

———. 2006. A new look at the English landscape: landscape architecture, movement, and the aesthetics of motorways in early postwar Britain. *Cultural Geographies* 13:78-105.

Merriman, P. et al. 2008. Landscape, mobility, practice. *Social & Cultural Geography* 9 (2):191-212.

Meyerhoff, B. 1980. Number Our Days. New York: Touchstone.

Mitchell, D. 1994. Landscape and surplus value: the making of the ordinary in Brentwood, CA. *Environment and Planning D: Society and Space* 12:7-30.

———. 1995. The Lie of the Land: Migrant Workers and the California Landscape. Minneapolis: University of Minnesota Press.

———. 2003. California living, California dying: dead labor and the political economy of landscape. In Handbook of Cultural Geography, ed. K. Anderson, Domosh, M., Pile, S., and Thrift, N. London: Sage.

Mitchell, W. J. T. 1994b. Landscape and Power. London: Routledge.

Morris, N. 2011. Night walking: darkness and sensory perception in a night-time landscape installation. *Cultural Geographies* 18 (3):315-342.

Muir, R. 1998. Approaches to Landscape. Basingstoke: Macmillan Press.

Narayan, K. 1995. Participant Observation. In Women Writing Culture, ed. Behar, R. and Gordon, D. Berkeley: University of California Press.

Narayan, K. 1999. Ethnography and Fiction: Where is the Border? *Anthropology and Humanism Quarterly* 24 (2):137-147.

Nash, C. 1996. Reclaiming vision: looking at landscape and the body. *Gender Place and Culture* 3:149-169.

———. 2000. Performativity in practice: some recent work in cultural geography. *Progress in Human Geography* 24 (4):653-664.

Naylor, S. 2008. Historical geography: Geographies and historiographies. *Progress in Human Geography* 32:265-274.

Ness, S. 2011. Bouldering in Yosemite: emergent signs of place and landscape. *American Anthropologist* 113 (1):71-87.

Olwig, K. 1996. Recovering the substansive nature of landscape. *Annals of the Association of American Geographers* 86:630-653.

Pickles, J. 1985. Phenomenology, Science, and Geography: Spatiality and the Human Sciences. Cambridge: Cambridge University Press.

Pile, S., Harrison, P. and Thrift, N. 2004. Patterned Ground. London: Reaktion.

Price, P. 2010. Cultural geography and the stories we tell ourselves *Cultural Geographies* 17 (2):203-210.

Rhinehart, R. 1998. Fictional Methods in Ethnography: Believability, Specks of Glass, and Chekov. *Qualitative Inquiry* 4 (2):200-224.

Richardson, L. 2000. Writing: a method of inquiry. In Handbook of Qualitative Research, ed. N. K. a. L. Denzin, Y. London: Sage.

Richardson, L. and Lockridge, E. 1998. Fiction and Ethnography: A Conversation. *Qualitative Inquiry* 4 (3):328-336.

Rose, D. 1987. Black American Street Life. Philadelphia: University of Philadelphia Press.

Rose, G. 1993. Feminism and Geography. Cambridge: Polity Press.

Rose, M. 2002. Landscape and labyrinths. *Geoforum* 33:455-467.

———. The problem of power and the politics of the landscape: stopping the Greater Cairo Ring-Road. *Transactions of the Institute of British Geographers* 32 (4):537-554.

———. Envisioning the Future: ontology, time, and the politics of non-representation. In Taking-Place: Non-Representational Theories and Geography, ed. B. a. H. Anderson, P. Surrey: Ashgate.

Rose, M. and Wylie, J. 2006. Animating Landscape. *Environment and Planning D: Society and Space* 24:475-479.

Saldanha, A. 2005. Trance and visibility at dawn: racial dynamics in Goa's rave scene. *Social & Cultural Geography* 6:707-721.

Sauer, C. 1963. The morphology of landscape. In Land and Life, ed. C. Sauer. Berkeley: University of California Press.

Schein, R. 1997. The place of landscape: a conceptual framework for interpreting an American scene. *Annals of the Association of American Geographers* 87 (4):660-680.

Sebald, W. G. 1998. The Rings of Saturn. London: The Harvill Press.

Sheller, M. and Urry, J. 2006. The new mobilities paradigm. *Environment and Planning A* 38:207-226.

Short, B. and Goodyear, J. 2007. The Outhwaite controversy: A micro-history of the Edwardian land campaign. *Journal of Historical Geography* 33:45-71.

Smith, N. 2005. Neo-critical geography, or, the flat pluralist world of the business class. *Antipode* 37 (887-899).

Sparkes, A. C. 2002. Fictional representations: on difference, choice, and risk. *Sociology of Sports Journal* 19:1-24.

Spinney, J. 2006. A place of sense: an ethnography of the kinasethetic sensuous experiences of cyclists on Mt Ventoux. *Environment and Planning D: Society and Space* 24:709-732.

Tedlock, B. 1991. From Participant Observation to the Observation of Participation: The Emergence of Narrative Ethnography. *Journal of Anthropological Research* 47 (1):69-94.

Thien, D. 2005. After or beyong feeling? A consideration of affect and emotion in geography. *Area* 37 (4):450-456.

Thrift, N. 2001. Afterwards. *Environment and Planning D: Society and Space* 18:213-255.

———. 2008. Non-Representational Theory: Space, Politics, Affect. London: Routledge.

Thrift, N. and Dewsbury, J.D. 2000. Dead geographies- and how to make them live. *Environment and Planning D: Society and Space* 18:411-432.

Tuan, Y.-F. 1979. Thought and landscape: the eye and the mind's eye. In The Interpretation of Ordinary Landscapes, ed. D. W. Meinig. Oxford: Oxford University Press.

Tyler, S. 1986. Post-Modern Ethnography: From Document of the Occult to the Occult Document. In Writing Culture: the Poetics and Politics of Ethnography, ed. J. a. M. Clifford, G. Berkeley: University of California Press.

Watson, A. and Till, K. 2010. Ethnography and Participant Observation. In Handbook of Qualitative Geography, ed. D. Delyser, Herbert, S., Aitken, S., Crang, M., & McDowell, L. London: Sage.

Whatmore, S. 2002. Hybrid Geographies: Natures, Cultures, Spaces. London Sage.

———. 2006. Materialist returns: practising cultural geography in and for a more-than-human-world. *Cultural Geographies* 13:600-609.

Williams, R. 1985. The Country and the City. London: Chatto and Windus.

Wylie, J. 2002a. An essay on ascending Glastonbury Tor. *Geoforum* 33:441-454.

———. 2002b. Becoming-icy: Scott and Amundsen's polar voyages. *Cultural Geographies* 9:249-265.

———. 2005. A single day's walking: narrating self and landscape on the South West Coast Path. *Transactions of the Institute of British Geographers* 30:234-247.

———. 2006. Depths and folds: on landscape and the gazing subject. *Environment and Planning D: Society and Space* 24:519-535.

———. 2007. Landscape. London: Routledge.

———. 2009. Landscape, absence, and the geographies of love. *Transactions of the Institute of British Geographers* 34:275-289.

———. 2010a. Non-Representational Subjects? In Taking-Place: Non-Representational Theories and Geography, ed. B. a. H. Anderson, P. Surrey: Ashgate.

———. 2010b. Cultural geographies of the future, or looking rosy and feeling blue. *Cultural Geographies* 17 (2):211-217.

Yusoff, K. 2007. Antarctic exposure: archives of the feeling body. *Cultural Geographies* 14:211-233

Zelinsky, W. 1973. The Cultural Geography of the United States. Englewood Cliffs, NJ: Prentice-Hall.