

**THE ECOLOGY OF PARADOX:
DISTURBANCE AND RESTORATION
IN LAND AND SOUL**

by

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ABSTRACT

This heuristic study explores environmental disturbance and ecological restoration in several North American settings in order to uncover epistemological, philosophical, aesthetic and ethical considerations revolving around those place-based processes. With fire as one of the central metaphors of this work, the initial place-based chapter examines Northern New Mexico's Pajarito Plateau to explore the region's fire ecology. The study then moves to the Pacific Northwest to draw from wild salmon restoration efforts in urban Seattle habitat. The third place-based chapter focuses on the Midwest grass and farmlands in order to investigate the seeming contradictions between managing prairie landscapes for agricultural commodity versus biological diversity. In the final chapter, the metaphorical implications of disturbance and restoration are explored in terms of individuals, communities and as a society.

In explicating the philosophical and phenomenological foundations of disturbance and restoration, personal experiences are used in the study as examples to develop applied practice of paradox. It also examines and illuminates correspondences between ecological and eco-psychological cycles of disturbance and restoration within the context of paradox, which for the purpose of this work is defined as any place or context where seemingly contradictory elements coexist without canceling each other out. Drawing from landscape and

literary sources, the study seeks to extrapolate a metaphorical correspondence between exterior and interior realms of paradox. The conclusion is that attention to processes of disturbance and restoration in nature can yield wisdom that informs our relationships with our ecological surroundings, our communities, and our individual selves. Furthermore, specific practices can emerge to help humans deal more healthfully and strategically with the complex, divisive issues of our places and times.

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TABLE OF CONTENTS

Abstract.....	i
Acknowledgements.....	ii
List of Figures.....	iv
Chapter I: Place-Based Paradox.....	1
The Gift of Pain	
Correspondence	
Borrowed Senses	
Placing Perception	
In the Realm of Paradox	
Chapter II: Fire Walk on the Pajarito.....	22
Ruination	
Fire Walk on the Pajarito	
Burning Question	
Chapter III: The Mists of Time.....	83
Time Transing	
Cinematic Ecology	
Nurse Logs	
Wild Time: A Stitch in the Social Fabric	
Chapter IV: Thinking Like a Prairie.....	152
Roots and Routes	
Soil Building/Soul Building	
Ghost Roads	
Rumination	
Eating Oil	
Fundament/Firmament	
A Diversity of Disturbance	
Chapter V: Practices of Paradox.....	229
Religio	
Shattering	
Seeking Refuge: Carrying Capacity of the Soul	
Controlled Burns	
Endarkenment	
Works Cited.....	289

LIST OF FIGURES

Salmon Woman..... 109

CHAPTER I: PLACE-BASED PARADOX

THE GIFT OF PAIN

And the world cannot be discovered by a journey of miles, no matter how long, but only by a spiritual journey, a journey of one inch, very arduous and humbling and joyful, by which we arrive at the ground at our feet, and learn to be at home.¹

- Wendell Berry

Day begins with a search for life in a place of death. I'm walking to Keene's Greenlawn Cemetery, seeking peace in an otherwise hectic day. As I enter, my breathing slows, shoulders relax. Redwings, thrushes, and wrens call from tree and cattail perches on Beaver Creek's expansive marshes. Wildflowers bloom from wood and road edge. Greenlawn has witnessed its share of angst and grief, yet I find pleasurable refuge here amid a profusion of wildlife.

A shadow passes to my right. I look up as a turkey vulture tilts and veers over the ridge. Fitting, I think, to encounter here a creature that transforms decaying death into soaring life. While vulture searches for road kill sustenance, I've been in pursuit of philosophical nourishment contained within religious upheaval, debilitating illness, familial angst, and existential crisis. It's not that my own disturbances are all that striking; what intrigues me is how our internal

processes of destruction and resurrection can mirror those of landscapes, and how ecological processes often defy divisions humans habitually make.

As the graveyard vulture disappears over the hill to the east, I reflect on another time when the shadow of death passed over me. If our bodies can be perceived as a metaphorical landscape, then a naturally occurring disturbance regime of physiological ruin once cleared space in me for restorative new growth, provided the quixotic gift of pain, and perhaps set me on this enduring quest to explore the ecology of paradox.²

Awakening one morning, I couldn't dress without bolts of excruciating pain shooting up my spine and down my legs. Debilitating discomfort intermingled with growing numbness in my face and extremities. The symptoms baffled my environmental education center's on-call physician, as well as the orthopedic surgeon I was referred to. On a hunch, our savvy on-site nurse made an appointment with a neurologist who immediately sent me to the hospital.

A spinal tap confirmed a diagnosis of Guillan-Barre; a viral induced illness which attacks and damages nerve endings along the spinal column (including those controlling function of vital organs). Paralysis or death was a distinct possibility. Restoration seemed a universe away. I lost over twenty pounds from my already slim build. Hands and feet felt as lifeless as cinder blocks. My face was completely paralyzed, except for my jaw. Incapable of making the necessary seal to swallow, I manually held my lips closed. Unable to close my eyes to sleep at night, I gently pushed the lids down, like lowering the shades.³

Painfully aware of my limitations, I found I could not walk more than a few steps unaided. One evening I tried to carry a stack of dirty dishes to the kitchen counter and tumbled in a clattering heap as the whole dining room fell silent. Another time, out at the basketball court, I tried to take a jump shot. My feet never left the ground and I fell flat on my face. To handle the physical pain attending devastated nerve pathways, I took heavy pain medication. But I was at a loss about how to handle the psychic pain. My body now a foreign landscape, feeling a burden on my friends, I fell into a deep depression.

As with land, perhaps body too requires its periodic cycles of disturbance and restoration. Renowned for his work with leprosy patients in India in the mid-20th century, Dr. Paul Brand almost literally stumbled on the knowledge that became the basis for his ground-breaking medical work and for his book *The Gift of Pain*, co-authored with Philip Yancey. One morning Brand watched a leper stumble off the roadway, badly fracturing his ankle. Picking himself off the ground, the man walked on as if nothing happened. Recalling his training in neurology, a light went on for Brand.⁴

He posited that those afflicted with leprosy had lost the neural ability to feel pain. Formerly, any physical contact with such patients was discouraged – the fear that their very flesh was diseased overrode any empathetic impulse. Brand surmised that lack of sensation led to accidental wounds, which unexamined and unfelt became infected and gangrenous. He devised an

ingenious training program to cultivate bodily awareness in his patients, to help compensate for their sensory deprivation. Even those of us without such illnesses, posits Brand, will go to great lengths to avoid pain, not realizing its gift to us of teaching presence.

My neurologist cautioned me that nerve regeneration, to the extent that it was possible (some never recover), could be as excruciating as the onset of the illness. "Move into the pain," he urged counter-intuitively, "that's evidence that your nerves are healing." I consciously willed myself to stretch and exercise, despite the agony, lest I permanently lose precious mobility. "Congratulate me, I have a new pain," I'd joke with friends, cognizant of the thin and permeable membrane between my own disturbance and restoration.

Evangelical Christians speak of being born again in Christ. In recovering from the Guillan-Barre's disturbance, I was resurrected by the contradictory calculus of searing pain equating a return of the potential for pleasure. I was slowly reborn into the body I'd taken for granted. Each new sensation, each returning motor function, was an absorbing lesson in physiology and cause for celebration. Formerly deadened taste buds reveled in the return of familiar flavors. My friends threw me a party when I learned to whistle again. In an effort to recover balance, I renewed a childhood compulsion and walked along the tops of railroad tracks. I gradually found my bodily center and a

compensatory balance despite the lack of sensation in my feet. In the span of a year, I'd regained most of what I'd again know of sensation and mobility.

I learned to accommodate my impairments even as I strove for further healing. That day I'd face-planted on the basketball court, I vowed that I'd once again dunk a basketball. Eighteen months later on a sunny Vermont summer camp afternoon, with half the staff and kids bearing witness, I barreled down the lane and barely eked the ball over the front rim. With that dunk, my journey through physiological and attitudinal restoration may not have ended, but by the time I had arrived again to the ground at my feet and at home in my body, having discovered a new world of quixotically inseparable pain and pleasure, each informing and amplifying the other.

Buddhist meditation seeks to bring us alive into the present moment, to notice, then let go. Each sensation, each emotion, becomes a messenger, a teacher. Encountering suffering, anger, sorrow or anxiety, our own or others, we may split from it or get lost in it. The point is not to splinter or wallow, but to move through the conflict and contradiction to the underlying patterns of coherence beneath the raw emotions. I think of these teachings, and the lessons of ecosystems of paradox and of my own body, as I seek to craft space to hold these disparate elements, suspending avoidance and withholding judgment.

CORRESPONDENCE

That restoration can be found in the midst of disturbance is the essence of paradox, which I define as any place or context where seemingly contradictory elements coexist without canceling each other out. We tend to think of life and death, confusion and certainty, light and dark, and disturbance and restoration as inherently oppositional. My quest has been to learn from the land how to better hold such contradictions in creative tension.

Such learning is a matter of correspondence; in the literal sense of the word a mutual responsiveness between person and place. Most plant and animal communities lend themselves to an analysis of disturbance regimes. Many, particularly those degraded by negative human influence, are in need of restoration. With something like what biologists refer to as a “search image” senses ingrained by the twining of disturbance and restoration begin to see ecological paradox everywhere. I chose areas of study that were on the margins; forgotten or neglected, damaged lands, throwaway places. These are where we may more readily see how countervailing forces can resolve themselves in a more complex pattern of connection than we normally observe.

Wondering how we might better attend to our own inherent personal and societal contradictions, I turn to three exemplary places of paradox as my mentors; the Pajarito Plateau in New Mexico, greater Seattle, and prairie remnants scattered throughout the Midwest. Considerations for choice of study

included geographically disparate locales, differing levels of human inhabitation (virtually none, heavily urban, thickly settled to sparse), and a commensurate range of human inputs into disturbance regimes and restoration efforts.⁵ Most particularly, I chose places which carried unique and compelling contradictions, whose stories make up the bulk of this work. Landscapes like this exemplify paradox; enfolding destructive forces and invigorating responses with a natural ease seldom approached by humans. My bias of learning from land to better understand self and society requires a bit of explanation.

As a boy growing up in an isolated corner of rural Pennsylvania, I constantly looked to my hills and fields for guidance and its creatures as role models, but I did not find a language for the correspondence between self and place till years later. Browsing a used bookstore in Seattle, I pulled a slim volume off the shelf whose title intrigued me. *Sanctuary* by Steven Levine (best known for his writings on death and dying) is an account of the escape he and his wife made from their stultifying Southern Cal existence to be caretakers for an entire year at a remote Arizona wildlife sanctuary.⁶

I bought the book and devoured it that night. I envied the earthy calm of their daily routines, how their grounding (both literal and figurative) helped heal the land and something of themselves as well. In one particular passage, Levine noted that learning about and working closely with wild nature, we inform and transform our own inner nature.⁷ I was inspired to ask "If I were a wildlife sanctuary, how would I steward myself?" Engaged with questions of

correspondence and complementary processes between interior and exterior ecosystems, I have crafted a discipline I call “metaphorical ecology.”⁸ Ecological processes become a lens for understanding the dynamics within, between, and around us. This practice forms a particularly useful lens on our personal variations of disturbance and restoration.

We all experience our share of rough stretches. My two sisters were simultaneously facing the ravages of cancer when I happened upon John Berger’s *Restoring the Earth: How Americans Are Working to Renew Our Damaged Environment*. A chapter entitled ‘The Prairie Makers’, chronicling efforts to revitalize deeply disturbed Great Plains habitat to ancestral prairie glory particularly struck me as relevant. Short, mid and long grass prairies evolved amidst periodic conflagration. Researchers set test plots aflame, no doubt with trepidation. Inured to eons of fire, prairie species would theoretically hold competitive advantage over recently introduced non-native species.⁹

Fire proved its mettle in creating space for new growth of indigenous prairie plants. In a micro-environment free from competition with weeds, indigenous species thrived. Other natives, responding to the subtly altered chemistry of the soil, prospered. Soul-scapes, like landscapes, are subject to periodic disturbances. I wondered if painful experiences might similarly alter the micro-environment of body, psyche and soul. Perhaps people, like prairie lands, could find rejuvenation amidst devastation.

At some levels the distinctions between metaphor, image, dream and reality can blur. Describing these dynamics defies reason and syntax. Words such as ecology, place, psyche and soul are slippery, at once overly broad and frustratingly vague. In articulating place-based examples and stories of disturbance and restoration, I connote a set of encompassing dynamics more than a catalog of species, habitats or habits. Drawing from the lexicon of systems theory, I am interested less in the sum of parts of any given place, community or person, than of the emergent properties of the whole.

The emergent properties of paradox are not found in either side of our nominal contradictions, but in what cultural psychologist Charles Johnston calls the "third space."¹⁰ Rather than hardening into one side or another of oppositional stances we need to maturely incorporate each other's perspective. In doing so we arrive at a place that is neither the right side of the road or the left, nor even the line down the middle, but an overarching space that encompasses contradictory stances but also something beyond either side. Landscapes and their resident organisms model for us ways of holding our own incongruities in creative tension. In moving beyond knee-jerk contradictions, the challenge may be as much perceptual as intellectual.

BORROWED SENSES

Awhile back I lingered near a small vernal pool in the cemetery and listened to a sunset sonata in the key of tree-frog. A student of mine has been undertaking fascinating research into sound and nature. He recently shared a passage from W.A. Matieu's 'The Musical Life' that described how certain sounds contain many levels of tone that can be discerned with careful attention.¹¹ I concentrated on the texture of frog sound. For quite some time I could only sift out the calls of separate frogs but gradually I began to hear a lower undertone beneath the co-mingled voices. Letting go into the listening, another subtle note emerged from spring peeper cacophony. Before I moved on past the pond, I'd detected at least four nuanced variations on the collective *Pseudacris crucifer* voice.

As many times as I've listened to tree-frog song, in that episode I'd found new information I'd never considered before. Was it my ears alone that facilitated the learning? My perceptual intake that evening was a matrix of tree-frog, my student, and the words of Matieu within the milieu of a temperate April evening and bath-tub warmed brackish water. Stripped of context, I might have heard everything but learned nothing.

Perhaps our perception in any given moment in a particular place at a specific time is never ours alone, but is informed by other people, organisms, times and places. These "borrowed senses" make up a part of our "perceptual ecology," a term pioneered by Mitch Thomashow and explored at length in his

Bringing the Biosphere Home: Learning to Perceive Global Environmental Change. In 'A Place-Based Perceptual Ecology' Thomashow emphasizes that close attention to intimate details of the local landscape is the foundation for environmental understanding and forms the basis for what he terms "practices of perceptual ecology."¹² Perception of paradox is similarly rooted in sensory exploration with attention on seemingly irrational elements in the landscape.

Coherence is a word we often use to refer to the quality of our comprehension. My dictionary defines this as 'marked by logical consistency.'¹³ In explicating place-based paradox, I deliberately sought out illogical inconsistencies. Finding what Gregory Bateson called "patterns that connect"¹⁴ within the incongruous matrix of particular places required a fundamental shift of perception. We normally screen out extraneous and contradictory information as we take in the world; we simplify to make sense of our existence. This is not unlike chaos theory; beneath the apparent disorder is a pattern of order that connects the seemingly random pieces into a larger fabric. In "making sense" of paradox, I cultivated perceptual perspectives to better incorporate seeming contradictions. These "practices of paradox" will be introduced throughout the place-based chapters which follow, and explored more deeply in the closing chapter, but first I will elaborate a bit on the role of place.

PLACING PERCEPTION

Several years ago, I committed to daily pre-sunset walks through the cemetery as part of an essay I was developing contrasting experiences of “novelty” and “nuance.” I sought a way to track subtle changes in one specific locale over a modest course of time vs. recording novel experience in far-flung places. Those walks were a kind of courtship for what has now become a committed relationship with Greenlawn Cemetery.

Place commitments, like our human ones, are laced with intimacy and inference, and thus require constant attention and a probing intelligence. This morning I walk the marsh perimeter, searching for signs of Keene’s devastating October 2005 flood. Errant drain pipes and wood platforms have been hauled away, though a tan and sienna maze of loose brush and branches still tangles the boles of streamside trees. The creek’s namesake beaver have not returned, but it’s a good year for blackbirds, red-tail hawks, and the first bluebirds I’ve seen in some time. Startling azure and white violets shout from each stretch of lowland grass, lapping like waves against the upper limit of the previous flood zone. Wild strawberries, heal-all and skunk cabbage have also found this place more to their liking. It is now difficult to recall the post-flood deathly stillness of October. Here in the marsh, Autumn destruction has paradoxically resolved in more nuanced Spring revival.

Without ongoing intimacy with this place, I might have missed the details that add up to a pattern of regeneration, missed the nuances of how disturbance created the conditions for renaissance here. Disturbance as an ecological force on particular landscapes resets the successional clock, clears new ground and breaks older components down, while releasing space and nutrients for new growth. In the pattern lexicon of Greenlawn, there is an ongoing call and response between certain species and certain kinds and levels of disruption. In a way, from the perspective of intimate connection with a place like Greenlawn, to speak of the systole and diastole of disturbance and restoration as separate makes no more sense than to see in breath and out breath as unrelated.

Both chronologically and epistemologically, my place-based paradox quest begins in New Mexico, the setting for my first chapter. Recalling what I had learned the time my nerves caught on fire, I traveled to the fire-inured landscape of Northern New Mexico's Pajarito Plateau, where rejuvenation interpenetrates devastation. I hoped to discern patterns of disruption and connection in a place where periodic devastation was a necessity to ecological integrity. Fire may create clearing and deconstruct matter to make nutrients for new growth, but I wondered with what assurance we could wield it.

As I learned from the Pajarito example, on landscapes as vast and complex as the Colorado Plateau, patterns of destruction and renewal play out at scales that may be much more fine-grain than we usually consider in managing such regions. Reintroduction of fire plays out like an exercise of opening a set of

Russian dolls; each successively smaller scale carries nuances unaccounted for at the previous one. Successful administration of controlled burns, for example, may require a level of unprecedented managerial intimacy for forest rejuvenation to cascade across scales.

From a concentrated focus on disturbance and its spatial scale, I next shifted my attention to ecological restoration and its temporal scale. My second place-based chapter, entitled 'The Mists of Time,' takes place in and around greater Seattle in the Pacific Northwest. I contemplated the quirky dynamics attending restoration of a wild species in an urban habitat. Just as disturbance is an ecological coin with more than one side, perhaps there might be a shadow side to practices of restoration as well, especially related to native/non-native species composition.

How do we account for time as well as space in the calculus of restoration science? In working on inner-city watersheds resource managers have all but declared open warfare on non-native species such as Himalayan blackberry and Scotch broom. How long does it take for something to be considered native? After more than a hundred years of persistent, wide-spread and large scale human disturbance not only resetting the ecological clock but potentially slamming the original dynamics into eternal snooze, one wonders whether such places themselves can any longer be considered native.

For my third place-based chapter, 'Thinking Like a Prairie,' I chose prairie habitats scattered across three Midwestern states. Where deeply rooted human

communities now contest notions of economic commodity and ecological diversity over nearly every square inch of soil, I looked to remnant native grasslands to show me how to think more like a prairie, and furthermore, to discern the diversity of ideological and philosophical insights available at the ecotone of disturbance and restoration in places where humans are neither excluded nor omnipresent.

If spatial considerations were the emergent properties of the Pajarito chapter, and temporal constructs the stuff of the Seattle scenario, then issues of human interplay with landscape were foremost in these prairie stories. In writing of such places, Author and Kansas' Land Institute founder Wes Jackson asks how we might become "native to this place."¹⁵ This is a particularly challenging setting in locales where the species composition has been reduced to variations of corn, soybeans and wheat. Are such places even native anymore? When we lose species diversity, we lose their way of thinking. How do we alter our inhabitation in preservation not only of our agricultural enterprise but of a multi-faceted prairie lexicon as well?

Just as I'd borrowed senses to discern the undertones amid tree frog sound, I borrowed perspectives from other writers, researchers, and organisms, and from experiences in other times and places to better discriminate patterns of paradox amid the high-desert plateaus of New Mexico, the urban watersheds of Seattle, and the tall, short and mid-grass prairie expanses ranging across Iowa, Nebraska and Kansas.

In response to ethnographer Keith Basso's question about the nature of wisdom, Western Apache elder Dudley Patterson replies "Wisdom sits in places."¹⁶ Each aspect of the local landscape is intertwined with story gathered to that place. Through a lifetime of contemplating a land and thinking about the associated stories, a person may "drink" wisdom from each place.¹⁷ In the same passage, Basso continues "The experience of sensing places... is thus both roundly reciprocal and incorrigibly dynamic. As places animate the ideas and feelings of people who attend to them, these same ideas animate the places on which attention has been bestowed..." If we pay deep, sensual attention to place, perhaps we can gather some of the richness of story and wisdom present there. Basso concludes "When places are actively sensed, the physical landscape becomes wedded to the landscape of the mind, to the roving imagination, and where the mind may lead is anybody's guess."¹⁸

Without the agency of place, my study would have been an absurd and empty exercise. The landscapes became partners in collaboration. Perceptual intimacy allowed me to partake of their stories. Metaphorical ecology became a means for translating place stories into human purview. In this fashion, place becomes an oracle for human understanding. Oracle refers to a medium of prophecies, but also connotes one who gives wise advice. To encounter place as oracle is to co-create with land gathering points for shared wisdom.

IN THE REALM OF PARADOX

At sunset on “all hallows night” I head to Greenlawn with a candle and a trash bag. Around Halloween, many Latin Americans celebrate *Días de Muertos*; Day of the Dead. As the sun sets on November 1st, families move en masse to the graveyard with candles, flowers, drink, picnics and music for vigil and revelry at the gravesite. They stay all night; sprucing up the monuments, visiting with each other, partying with the ancestors, and celebrating the twining threads of life and death amid the dead and the living.¹⁹ Their’s is a refreshingly intimate and joyful relationship with death, underscored with simple regular practices.

At Greenlawn, I have found a Russell plot that I have adopted (not related to me as far as I know). I light the candle, clear leaves and grass clippings from the recessed headstones. I scour the area for garbage. Afterwards, I quietly commune with my ancestors known and unknown, contemplating the waning light to the west, the alternating glow and fade of my own life, and the infinite promises that might be hidden in darkness or death.

My humble “Day of the Dead” ceremony is a practice of paradox, illuminating a pattern of interrelatedness between the seemingly oppositional forces of life and death. My closing chapter, ‘Practices of Paradox,’ highlights a number of the systematic approaches enacted through journeys across quixotic landscapes and within my quicksilver self. Its central theme, *religio*, draws from the Latin root words for both connection and flexibility. It may not be enough to

discern complex connection, or even to reach across epistemological divides, but the work of paradox extends into weaving a living fabric encompassing seeming contradictions at intimate scales on a continual basis, at any moment in time.

I couldn't sleep the other night, a humid and sticky May evening. Nearing one a.m., I rose, dressed and walked towards the cemetery. As I crested the hill near the west entrance, marsh mist fuzzed the rising moon. It hung like a lopsided tennis ball, casting a diffuse orange light. As I wound down the hill towards the marsh and Beaver Brook, I reached a cool raft of air sunk to the valley floor. Crickets called from the shaggy grass. Pickerel frogs chortled in the shallows. Fireflies flitted between streamside trees.

I was at once in a very particular place and a universal one. Fog shrouded details. Imagination filled in the gaps. I was a boy chasing fireflies in a Pennsylvania field. I was a man on a reconstructed marsh in Seattle, one of the few places in the city where crickets lived. When one enters the realm of paradox, boundaries fuzz, edges soften, times transpose, perceptions swerve. No longer hitched to a fixed point in place, time or attitude, our attention drinks in the wisdom of a place and connects that information to our own innate insight. Greenlawn night is alive with organisms and perceptions I would have missed if I'd lain in bed, sweating in my restlessness.

One of the enduring paradoxes of my quest is that close attention to places laced with discomfit and contradiction yields such a strong sense of resolution and comfort. Letting go my own fixed pictures and rigid perceptions, I

form new patterns that connect me to a vastly more diverse attitudinal and epistemological universe. I inhabit a more tolerant – and self-tolerated – place. As William Stafford concludes, in his poem 'Representing Far Places;'

*It is all right to be simply the way you have to be,
among contradictory ridges in some crescendo of knowing.²⁰*

In encouraging a journey of discovery, Wendell Berry asks us to remain physically local and travel spiritually within ourselves in order to root in the place where we stand. I've become increasingly rooted in my New Hampshire abode, though I might be made of more migratory stuff. Crisscrossing North America these last years, I've come to think of myself as at home in this entire land mass, as if my body and being exhibit complexity and integrity at a continental scale. Relentlessly exploring distant deserts, mountains, rainforests, river and prairies, I've found a roundabout way home to the ground at my feet. But that ground has shifted, as have my concepts of home. The effort to bridge contradictions, internal and external, create habitat for what Lauret Savoy calls a "biodiversity of the mind."²¹ Thoughtfully taking in attitudes, beliefs or habits that may contradict our own ironically leaves us that much more at home.

PLACE-BASED PARADOX ENDNOTES

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⁹ John J. Berger, ed., Restoring the Earth: How Americans Are Working to Renew Our Damaged Environment (New York City: Alfred A. Knopf, 1985) 106-22.

¹⁰ Most well known by this author: Charles Johnston, The Creative Imperative: A Four-Dimensional Theory of Human Growth and Planetary Evolution (Berkeley, CA: Celestial Arts, 1986).

¹¹ W. A. Mathieu, Musical Life: Reflections on What It Is and How to Live It (Boston: Shambhala Publications, 1994) 197-98.

¹² Mitchell Thomashow, Bringing the Biosphere Home: Learning to Perceive Global Environmental Change (Cambridge, MA: MIT Press, 2002) 74-104.

¹³ The New Century Dictionary of the English Language (New York City: Standard Reference Works Publishing Company, 1957) 273.

¹⁴ Gregory Bateson, Mind and Nature: A Necessary Unity (New York City: Bantam Books, 1979) 3-4.

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- ¹⁵ Wes Jackson, Becoming Native to This Place (Washington D.C.: Counterpoint, 1994).
- ¹⁶ Steven Feld and Keith H. Basso, ed., Senses of Place (Santa Fe, NM: School of American Research Press, 1996) 67.
- ¹⁷ Ibid. 71.
- ¹⁸ Ibid. 55.
- ¹⁹ Chloe Sayer, ed., Mexico: The Day of the Dead (Boston: Shambhala Redstone Editions, 1993). Also, Rosalind Rosoff Beimler, with photos by John Greenleigh, The Days of the Dead (San Francisco: Collins Publishers, 1991).
- ²⁰ From the poem 'Representing Far Places;' William Stafford, Traveling through the Dark (New York: Harper & Row, 1962) 75.
- ²¹ Lauret Savoy, Glenbrook Writers Retreat, Workshop Discussion, Marlborough, NH, Oct. 2004. Lauret is on the faculty at Mount Holyoke and co-editor of Colors of Nature.

CHAPTER II: FIRE WALK ON THE PAJARITO

RUINATION

"I walk in beauty," say the Navajo. "I drive in beauty," I'd scribbled in my journal as the gas gurgled into the nearly empty gas tank of my rental car at a Reservation pump somewhere in Arizona's Dine land. I'd started this sojourn in Los Angeles two mornings ago. The spectacular mountains of Western and Central Arizona showed gaunt and mangy: Colorado pine borer beetles had devoured acre upon acre of pinions and ponderosas. If there was a gift in this disturbance, it was hidden from my discerning eyes.

After a night in Prescott, I'd traversed the remainder of Northern Arizona to this dusty gas station some 40-50 miles shy of Canyon de Chelly National Monument. Pushing on to Cortez, Colorado, I would hike into Mesa Verde as the park entrance opened the following morning. Mesa Verde, which had reeled in the aftermath of the 20,000+ acre bite of the Bircher and Pony Mesa fires in the summer of 2000 was further devastated by the intense Long Mesa burn in July, 2002.¹ From a roadside pull-off, I'd picked my way through a lunar emptiness, the blackened detritus of pinyon/juniper a fallen tangle where the wind had blown their withered remains.

At last in New Mexico, I would pass the glistening bulk of flashy new casinos while the last rays of sun warmed the stony back side of Shiprock. I'd

encounter nary another car until I reached Bandelier's Ponderosa Campground, where I dropped into an immediate sleep, adrift in ponderosa-scented dreams haunted by stone-eyed mountain lions awash in flame.

I'd flown more than 3,000 miles and driven another circuitous 1,200 to discover how the two might be inextricably interwoven. Ahead of me was a 15+ mile loop circumnavigating Frijoles and Alamo Canyons, the plateau where Yapashi Ruins and Stone Lions lay, the terrain touched and torched by La Mesa and Dome fires in 1977 and 1996. As I stuffed water, food and gear into my pack for my fire walk on the Pajarito, I reflected on what had drawn me to these lands and compelled me to understand the story of its flames. My first journey to Bandelier National Monument in 1989, then a trip I couldn't take in 1996, primed me to learn all that I could about that corner of the Pajarito, and of the cultures and the fires that had interlaced with one another.

I'm obsessed with fire.² "Love is a burning thing" sings Johnny Cash in his rendition of June Carter's 'Ring of Fire.'³ However it's not fire I burn for, but this particular place on the Pajarito Plateau in Northern New Mexico's Bandelier National Monument. It is a landscape born of, continuously carved by, and perhaps destined to perish in fire. Seven years after we'd met, seared by love of that place, I craved its embrace and feared its ruination.

In September 1996, I'd attended a nature writer's conference near Taos, New Mexico and afterwards scheduled time to ramble through some of my favorite lands in the region. The ruins of Yapashi and the nearby shrine of Stone

Lions topped my list. But when I headed south to renew my connection, friends told me not to bother. Until further notice, the trail to Stone Lions was closed. Several months earlier, the Dome Fire had ravenously swept across Bandelier, devastating some 17,000 acres in its passage.⁴

Enduring relationships take time, but I do believe in the possibility of love at first sight. I recall my first hike in Bandelier in April 1989 as if I'd walked it yesterday. From our non-designated campsite at the end of a logging road on National Forest land, at the edge of a mesa overlooking the spread of the Monument, my girlfriend and I set out on an ambitious hike traversing Frijoles, Capulin and Alamo canyons. From all we encountered that day on our intended route, what I remember most was the part we hadn't planned at all.

As Tiana and I stood overlooking White Rock Canyon late in the afternoon, a notation on our map caught our attention – 'Stone Lions' – located just off a trail meandering onto the plateau far from the more visited portions of Bandelier. Our curiosity aroused, we set off. About five miles in, we came across broken shards of pottery, the bare suggestions of kiva walls, and other hints of village life. This was the ruins of Yapashi, a town abandoned by Ancestral Pueblos to the hot sun and high winds some 500 years ago.

This was physically a ruined place, but imaginatively intact. Somehow these whispered suggestions and vague remnants evoked more of the presence of the people who had dwelt here than we'd encountered the previous day as we

strolled a paved trail past the carefully preserved pueblo village of Tyuonyi and climbed the faithfully restored cliff-side relics near the Visitor Center in Frijoles Canyon. At Yapashi, the presence of the ancestral Pueblans still felt fresh and alive. Maybe it was the lonely wind humming across the top of the mesa, or the complete absence of other hikers out there that day, or perhaps it was the mystical pull we anticipated ahead of us.

Exhausted but alert we trudged a few hundred yards further as the trail dog-legged around shaggy pinyon and juniper. We almost tripped over a ring of deer and elk antlers. Faded bundles of feather and fabric hung nearby. At the center of the clearing, weathered, hand-carved sandstone figures of two adult mountain lions reclined languorously beside one another. Over fifteen years later, I still can not explain why I was so captivated and overcome by that encounter, any more than I can explain what of that place sings down my blood and whistles through my bones like a high desert wind through ancient canyons of memory. I knew that I would gladly walk those many physical miles to see Stone Lions once more – and that I would walk a thousand metaphysical miles to feel that way again.

Love is indeed a burning thing, as is at times our quest for knowledge. As if enflamed, when I returned home from my aborted trip to Stone Lions in 1996 I combed through all I could read on the Dome Fire and its considerable damage. I could find no mention of Stone Lions, but found numerous references to earlier conflagrations on the Pajarito (especially 1977's La Mesa fire), and of the role

these periodic disturbances played in maintaining the vitality and integrity of fire-inured landscapes. Scribbled citations led to still other works. Soon a tier on my bookshelves groaned under thick books on wildlands fire ecology and history. Somewhat reassured by the larger picture, I was yet plagued by doubts. I could find scant comfort in the statistics and theories of wildland fire ecology, not knowing if my beloved had survived the test of flame.

This chapter evokes not only my journey to witness the aftermath of the Dome Fire, but also explores historical fire on the Pajarito – especially 1977's La Mesa⁵ – and how that area was made ripe for such conflagrations. I first lay down a brief foundation of geologic, climatic, and cultural history, filtered through the lens of fire ecology. The main body of the essay relates my walking journey with fire and through place, memoir and metaphor along the trail to Yapashi Ruins and Stone Lions ruins.⁶ Not all that seems ruined is destroyed. I also contemplated what wildland fires in a fire-inured landscape might teach us about our wildfires within, of our intertwined cycles of interior disturbance and regeneration. I conclude with observations bridging antiquity and modernity, controlled burns and out-of-control wildfire, and the role of periodic disturbance in enlivening Pajarito ecology.

Every fire needs three things; fuel, oxygen and ignition source.⁷ A number of factors contribute to the fuel load on the Pajarito; including cultural and historical land use practices and policies. Ever-present environmental and cyclical climatic

factors provide the 'oxygen' required to feed the burn. Both human and non-human sources serve as ignition flashpoints in these fire stories, but sometimes it's difficult to discern the difference.

Though the Dome fire officially began in late April on Santa Fe National Forest Land before spreading into Bandelier, in reality the conditions that led to it had been centuries in the making and thousands of miles in circumference. The Pajarito was born of fire, in a ruination of stone. In this hotbed of geologic activity just west of the Rio Grande, two separate massive volcanic explosions occurred between 1 and 1-1/2 million years ago. The surrounding Jemez Mountains trace the arc of what had been a 30,000 foot volcano. The nearly 100,000 acres of lush grasslands and mixed woodlands of nearby Valle Grande occupy a huge caldera 12-15 miles in diameter courtesy of the most recent eruption. The rhyolitic tuff plateau of the Pajarito incorporates the detritus spewed from those eruptions.⁸

Primal fire left its mark. Forces of water also shape and reshape these plateaus through the erosive grinding of seasonal streams and year-round rivers, most particularly the winding Rio Grande which follows the primeval track of the Rio Grande Rift, a 30 million year old giant seam in the Earth running from central Colorado southward to a few hundred miles north of Mexico City.⁹ If paradox represents a rift in reason, then the antediluvian features one finds in Southwest canyon and mesa country eludes human rationale. Those of us who are accustomed to time measured in nanoseconds and tracked in day planners

struggle to comprehend the comparative geologic speediness with which eons of persistent waters wore through several hundred feet of volcanic tuff.

The deep-earth fires of volcanic activity on the Pajarito may have created the fundament and the persuasive plateau waters may have carved the firmament, but transformation of the raw materials of tuff and stone to the stuff of life required other forces at other scales of space and time. In addition to geophysical forces, climatic factors both on macrocosmic and microcosmic scales helped create the conditions that high desert biotic communities could exploit. Lightning fires, along with anthropogenic sources of ignition, are deeply ingrained in the character and function of greater Southwest ecology.¹⁰

Each year, triggered by the Southwest Asian Monsoon wind flow pattern, the Arizona (or Mexican) Monsoon brings moist, tropical air from the Gulfs of California and the Southeast Pacific into contact with the hot, desiccated atmosphere rising over the Southeastern deserts. It's an incubator for thunderstorms, which can strike the land with thousands of bolts in any given summer tempest. All too often, precipitation evaporates before it ever hits the ground, a pattern persistent enough that it has earned a name, *virga*.¹¹ Aridity, an abundance of fuel, and lightning strikes, form a great recipe for wildlands fire.

Stephen Pyne surmised that "if fire did not exist, nature would have had to invent it."¹² Hot, humid climates possess sufficient biological agents of decomposition to keep up with rapid growth, while cold dry regions own slow rates. In landscapes with temperate climates however, the rate of biological

growth generally exceeds that of biochemical decomposition. Geologically induced decomposition alone could never keep up the pace. By the agency of heat (pyrolysis¹³) and combustion, fire speedily degrades biotic material into readily accessible chemical fuel for new plant growth. Here resides fire's mutually enhancing contradiction; while destroying existing life with its fierce and consuming passage, fire simultaneously deconstructs matter and generatively redistributes nutrients to serve new growth.

A continually shifting mosaic of plant and animal communities characterizes post-ice age North American landscapes. This kaleidoscopic array of physical and climatic changes necessitates an adaptive flexibility. Fire also helps recycle biotic communities in addition to physical nutrients, clearing the way for new complexes of organisms.¹⁴ Over time, plants, animals and habitats evolve defensive and opportunistic adaptations in response to the climatic and physical forces. The geologic scramble of the Pajarito, carved by intermittent mesa rivers and raked by lightning-lit fires, lent shape to the biologic tangle of single and multi-celled organisms, plants and animals adapted to its mesas and canyons. This is a place defined both by its ruination and its recovery.

Wind, water, volcano, fire; from one perspective these elemental disturbances turned solid stone to ruins. But the geologic, climatic and physical forces which fractured the surface of the Pajarito ultimately made this place inhabitable to humans and other species. Might such generation and rejuvenation always reside just the other side of the coin of ruination? In

physically traversing the Pajarito and following the trail of flames from 1977, 1996 and 2000 fire events, I also explore the manner in which destructive disturbances such as fire might also create conditions for resilient growth.

Humans hold a contradictory relationship with fire; we fear its consuming destructive nature even as we yearn for its warmth and service. Pyne boldly states that fire is both a natural and cultural process.¹⁵ Overlapping – and oft crashing – waves of ancestral Pueblans, nomadic Navajo and Apache, Conquistadors from Spain and Mexico, and Anglos manifesting their various destinies, each with complicating cultural norms informed anthropogenic fire use and response. Diverse peoples have inhabited the volcanic cliffs, crevices, canyons, and mesas of the Pajarito country for more than 3500 years. Each has left their mark on this land. Campsites of archaic hunter-gatherers date as far back as 1750 BC, while their descendents, Keres (a Uto-Aztecan tongue) and Tewa (a member of the Kiowa-Tanoan language family) speaking peoples, continue to live in San Ildefonso and Cochiti Pueblos. Since the late 1500s, the Hispano presence has permeated the history of the Pajarito.¹⁶

In the mid-1800's, Anglos brought the English language (among other dubious gifts), as the area went through a series of rapid transformations through the rest of the 19th century. North and west from any Pajarito vista one sees the murky haze of the coal firing plants.¹⁷ Scientists and technicians undertaking the Manhattan Project first erected prefabricated buildings in Los Alamos in 1941. Currently, prominent antennae and stark white outbuildings

belonging to Los Alamos Nuclear Test Labs dot the plateau. An occasional vehicle can be heard whining up the twisting incline up Highway 4 and past Bandelier National Monument.¹⁸

Bandelier was carved out of the southernmost section of the Pajarito by presidential proclamation in 1916.¹⁹ Though most guests seldom make it further than the visitor center and masonry ruins of Frijoles Canyon, dozens of trails crisscross over 30,000 wilderness acres laced with ancient human artifacts. Bandelier does not let us forget the works of ancient human hands, nor the effects and limits of natural processes.²⁰ But in this paradoxical landscape, even designated wilderness at times requires management. National Forest Service, the National Park Service, and the Bureaus of Land Management and Indian Affairs policies and practices intermix and sometimes conflict with each other in management of Pajarito natural, historical and economic resources.

Our modern relationship with fire is particularly incongruous. In the early 20th Century, federal agencies sought to absolutely eliminate fire from their lands. However, following decades of dedicated suppression throughout much of the inter-montane West, a signal shift in fire management practices took place in the late '60s through the '70s, officially welcoming fire back into places like the Pajarito. It was thought that prescribed burns, carefully applied, might reduce excessive fuel loads while restoring some of the vigor to dry-land fire-adapted trees.²¹ But well intended actions sometimes hide tragic consequences. When National Park Service employees at New Mexico's Bandelier National Monument

began a controlled burn on a corner of their land on Thursday evening, May 4, 2000, the intention was to thin 300-900 acres of crowded under-story and tangled deadfall to reduce the potential for worse fires. What started as part of National Park Service's management plan for protecting the area ironically turned disastrous when wind whipped the flames into frenzy.

In a rapid and tragic turn of events, the fire soon spread to adjacent lands managed by the department of energy. Now perhaps the most well-known of Pajarito's conflagrations, Cerro Gordo ultimately consumed in excess of 47,000 acres and swallowed hundreds of buildings, including some facilities on Los Alamos land, threatening the region with the potential for nuclear contamination from their extensive research holdings.²² This was ruination on a grand scale.

Under safe conditions, well-timed disturbances of the sort planned for Bandelier that day in May can help protect high desert and dry montane forests from the potential for uncontrolled fire. The Bandelier burn radically backfired – literally – as reports speculate that it was the backfire set to try to contain the original controlled burn that escaped and ravaged the area, crowning into the ponderosas and scorching much of its path down to bare soil. However, even devastating fires can yield restorative consequences. Ironically, the restoration and reestablishment of many species in fire-inured ecosystems like the Pajarito is keyed to periodic fire disturbance. Such environments are ecosystems of paradox, laced with intertwining and sometimes tangled strands of destruction and renewal. Perhaps every ecosystem is rife with such apparent contradictions.

Understanding the contradictory yet complementary nature of disturbance and restoration might teach us about how such forces play out in our communities, our economies and policies, our cultures, perhaps even our personal lives.

On my next journey back to the Pajarito following my aborted attempt to see the ruins and the lions, on a Bandelier employee's recommendation I'd turned onto Forest Service Road 289 (also known as the St. Peters Dome Road) and headed south towards the origin point of the 1996 Dome Fire. The Pajarito region languished in the midst of a particularly extreme dry spell that year. The ponderosa and mixed conifer forest was densely stocked with a thick understory, making for a heavy tinder-dry fuel load. The forests near the Dome Wilderness were ripe for a blow-up.

Two touring German youths had been camping on Santa Fe National Forest Land. They left a smoldering campfire behind on April 25th that was all the opportunity the woods needed.²³ The Dome fire was attacked early, but quickly overpowered its assailants. Early on, FSR 142 served firefighters as both a control line and an escape route. Initial flames torched mainly ground fuels, leaving dense supplies of dry canopy yet unburned. Steep, unwieldy topography, combined with higher than expected winds and several communication and decision making snafus, made for a tense situation. On the 26th, a crown fire originating in one of the unburned areas jumped the road. Runaway flame forced forty-eight firefighters to deploy their fire shelters in three

separate locations during a one hour period. Thankfully only a couple of individuals suffered burns with but one engine destroyed by the runaway flames.

As I neared the intersection of FSR's 289 and 142, the landscape felt strangely familiar. I took out my old topographic map and realized that Tiana and I had turned down this very road seeking a camping place more than a decade before. I gingerly drove my rental car over the deep furrows, stony lumps and icy slopes for about half a mile before the road became impassable. I found a place to turn around, parked, and walked to the top of a nearby ridge.

It wasn't easy going. In many places the way was tangled with thorny undergrowth, complements of the recovering plant life that followed the path of flames. In some areas, however, it seemed like a fire had never occurred. Tall, strong ponderosas with barely a singe on their flanks swayed resplendent in the wind. Near the ridge top I discovered scattered piles of lava stone, perhaps the remains of some ancient ruin, perhaps the detritus left after even the soil had burned away. I sat in a stand of ponderosas near a couple of stately Doug firs.

Though most trees seemed untouched by fire to my untrained eye, a foot and a half of charred tree remain poked out of blank earth just to my left. There, the flame consumed even the soil for over a hand's width around the remaining trunk. I knelt down and reached into one of the gaps where deep roots had sunk into the earth. My hand still groped empty space even with my arm inserted up to my shoulder. As rapacious as a fire can be it can also quite capricious; to consume even the root hairs of one tree yet leave its next door

neighbor standing. In ecosystems of such dramatic unpredictability, I wondered how we come to terms with the ways and means of fire.

I'd learned that the Dome Fire command team hoped that the fire could be bounded by La Mesa's burn areas, Alamo and Capulin Canyons, the steepness of the Dome Wilderness terrain, and FSR 289. They feared the fire, in the path of prevailing winds, would race north and east onto the heavily fueled Los Alamos National Lab lands.²⁴ Later I drove along FSR 289 into the heart of the fire zone. Mile upon mile of bare, broken spires covered the ridges and mesas like burnt, blackened quills on dead porcupines. My exploration of FSR 142 gave me no idea of the immensity of the Dome's devastation. Had the fire splashed out onto the plateau near Yapashi? Temperatures that could obliterate soil could easily splinter stone. Could the lions survive such an onslaught? Fire destroys – fire rejuvenates. I feared not only the ruination of Yapashi's and Stone Lions fragile relics, but of the destruction of something delicate within me tied immeasurably to that place, a bond perhaps beyond regeneration.

FIRE WALK ON THE PAJARITO

I sip coffee made from strong black beans blended with roast pinyon nuts as I write these words. I've lit a small rectangle of juniper incense. Tish Hinajosa's 'Aquila Noche' croons from the CD player.²⁵ A sprawl of relevant maps and books covers the floor around me. Both the phone and answering machine are turned off; I want nothing to disturb my reverie. Immersed in the tastes, textures, aromas and memories recalling my trips to Bandelier National Monument, I vividly recreate my travels through time and space in search of the stories written on the Pajarito landscape by fire, in particular the account of what had become of Yapashi Ruins and Stone Lions. Once more I stood at the portal of a Bandelier trailhead, ready for adventure into a place of enchantment and mystery, disturbance and rejuvenation.

As I lift my pack to my shoulders and start my walk, the sun has yet to show itself over the immense canyon walls in the deep crevice carved by Frijoles Creek. Though it is cool in the shadows, I am glad. That means both time and temperature remain in my favor as I begin my climb up the trail towards Frijolito ruins. Halfway up the steep trail to the ruins, I pass an older couple planning to hike down towards the Rio Grande after checking out Frijolito. We talk briefly, pausing to admire the view across to the abandoned village of Tyuonyi and the cliff-side caves and ruins further up Frijoles Canyon. The Pajarito, though settled

from the late 1100s on and used for even longer as a seasonal hunting and gathering land, experienced an unprecedented building boom towards the end of the 1200s that saw many of the largest pueblos constructed that visitors see today at Bandelier.²⁶ In October of 1880, Adolph Bandelier stood at the brink of Frijoles Canyon. With his first glimpse at the remains of the Tyuonyi community house and the series of cave dwellings strung along the cliff, he saw not only the ancient past but his own future beckoning to him. That night he wrote in his journal of "the grandest thing I ever saw."²⁷

This morning I gaze from the overlook at the ancient village across the canyon with Frijolito Ruins, a 1400's Ancestral Pueblan village on the south rim at my feet. Unlike the painstakingly restored stonework of Tyuonyi in the basin, Frijolito erodes untended, becoming slowly imperceptible to those passing.²⁸ I think of how the earth slowly swallows the works of humans, whether products of beauty or of ugliness. Even as this gradual ruination testifies to ephemeral humanity, the ecological recovery of landscapes like these bears witness to the ultimate authority ecological forces still hold.

No one knows for sure just why residents deserted these many large pueblos. Perhaps the answers reside in an even more distant past. An earlier round of abandonment of various Ancestral Pueblo sites in and around the Four Corners region took place around the middle to late thirteenth century. Some postulate that long term droughts dried up water resources. Others guess that the villages depleted the forests they depended on for firewood, shelter and

food. Some muse that a mysterious 'enemy' first drove these settlements to their cliff fortresses then ultimately to flight.²⁹ Around this time, a particularly intense cycle of erosion cut deep arroyos through alluvial terraces bordering plateau streams. Whatever the ultimate cause of abandonment, as water tables dried up and cultivated plots turned barren, these Ancestral Pueblo people (whom archaeologists called 'Anasazi' from the Navajo term for ancestral enemies' since the 1930s, a term that current Pueblo people find offensive), disappeared in search of more fertile realms.³⁰

Though the ruins of Frijolito intrigue me, I do not pause long there to listen for the whispered traces of the ancients. I press on to view the plateau's recovery from La Mesa fire. I'm also anxious to get to Yapashi and beyond that to witness, how if at all, the Dome fire impacted the territory of the Stone Lions.

What Pyne calls 'cultural fire' likely came to North America in the tool kit of humans who first migrated across the Bering Strait in prehistoric times. By stimulating game-friendly grasslands and open forests, early indigenous use of fire reshaped environments into ones which hearkened back to the African savannah that birthed humanity.³¹ Though prehistoric evidence of anthropogenic fire is notoriously difficult to interpret, early humans in the Southwest, like their counterparts elsewhere in the semi-arid West and prairie Midwest, probably used flames to facilitate hunting as well as a means for communication across distance and a weapon in warfare and intertribal conflict.³²

With sketchy evidence about whether SW natives practiced 'slash-and-burn' swidden agriculture, researchers surmise that indigenous peoples of the Colorado plateau at some point discovered the beneficial application of fire and ash on both wild gathered and domesticated plants.³³ Ample evidence exists that pre-settlement Native Americans indeed set fires, both intentionally and unintentionally, though the scale of this use can not be proven by fire scar evidence.³⁴ Hunting for history on the path of fire, we pursue will-o-the-wisps that flash and flare from sight and certainty. Fire may leave traces, discernable by expert dendrochronologists, but it also can cover its tracks.

In historical times, the Apache, Athabascan-speaking interlopers who came to the region somewhat contemporaneous with the Spaniards in the 1500's, used broadcast fire extensively for all the usual purposes of hunt, defense and war, but also mistakenly assumed that fire promoted rain.³⁵ Pyne suggests, with no small irony, that continual Apache raiding on other Native and Hispanic livestock through the 1870's may have helped keep overgrazing in check.³⁶ Reading this, I wonder if this is akin to acknowledging AIDS, malaria, and starvation for their role in limiting human population growth.

Certainly, the late 1800's through the better part of the 1900s saw intense degradation of grasslands and rampant evidence of severe erosion. In the Jemez for example, patching together fire scar records from the 1600's and early 1700's, researchers surmise that fires began to burn with high frequency but low

intensity at surface levels. Frequency reduced considerably in the 1750's as formerly nomadic Navajo began shepherding in well defined settlements.

Increases of Hispanic grazing of sheep and cattle along with Anglo ranching presence through the late 1800's also diminished the frequency if not the intensity of local fire regimes. Norms evolved to trample eons of lightning-induced fire further promoted by centuries of ancient anthropogenic broadcast fire.³⁷ A quilt of continuous grassland amid open forests, which carried low-intensity fires without overly damaging the mature trees, was replaced with patchy clusters of grass, thickening brush, and well spaced stands of native trees. As stands of ponderosas and other conifers grew more dense, it was believed that grazing's loss would eventually be forestry's gain. Events through the 20th Century would call this optimism into question.

About a mile from the Frijolito ruins, the trail forks. The right spur hugs the rim of Frijoles Canyon, and heads towards the heart of La Mesa burn. I take the left fork, striking southeast across a rolling mesa. After another mile I glimpse a smallish hump of land through the trees to my right, Corral Hill, near which remnants of an old corral can still be traced. Evidence of camps and corrals used up through the earlier parts of this century checker the Monument area, attesting to Ancestral Pueblans historical use of this land.

Just as collisions of different air masses and wind patterns give form to intense weather, perhaps a cultural storm occurs when different peoples collide.

Wrenching changes to ancestral Southwest ways of life pulsed through the region as first Coronado in 1540, and later waves of Spaniards and Mexicans, came into contact with indigenous peoples. The search for gold and other rich minerals to fuel the Spanish empire was a primary impetus, but the Catholic Church's search for fresh souls to save was also at play.³⁸

The culture clashes between Church and State, for souls on the one hand and tribute on the other (and forced labor for both), and between both and the Pueblan peoples, created a vigorous tension in New Mexico for the first 150 years or so of Hispano exploration and settlement that resulted in the firestorm of the 1680 Pueblo Revolt. After successfully expelling the Spanish, and shakily maintaining their independence for twelve years, the remarkable Don Diego de Vargas led a bloodless – at first – reconquest of the lands they'd lost.³⁹

Little record remains of Spanish presence in the Pajarito area again till the mid-1700s. It is likely that these newcomers to the Pajarito, like many other settlers throughout the west, learned to follow the Native practice of periodic use of fire to clear patches of land for planting or to encourage fresh plant growth and more delectable forage for their animals. Perhaps they shifted the normal cycle of lightning-set fires from their summer peaks to spring or fall burns that more suited their purposes. Though the Hispano presence on the plateau did strain an already taxed plateau ecosystem, given their relatively insignificant population effects, the Pajarito remained quite productive.

Hispanic newcomers were products of a deeply connected community that valued shared resources and banded together to help each other in need. Their land grants were often viewed as community property, shared by extended family and friends.⁴⁰ Strict boundaries proved unimportant, strong bonds vital. Ironically, the very qualities that helped these people subsist on the harsh climate of the Pajarito Plateau may ultimately have contributed to the loss of their land, as Hispano communal property mores came into contact with Anglo private property standards that overrode preceding communal norms.⁴¹ As I glance around the ruined corral, I wonder if the kinds of values that allowed humans to live in balance with places like the Pajarito could possibly be restored. The paradigm of the commons, long harried by corporate and government adversaries, is a threatened species. Is there fire to decompose our modern economic constructs, to release its energy?

Up on the plateau, the ponderosas and pinyons suffer mightily – the ips or pinyon engraver beetle at work, literally chewing through the life force of these trees. Given the extended drought, sap flow has become slow and sluggish, insufficient as a natural suppression of the ips. Unimpeded sap flow keeps these beetles from gaining a purchase for the laying of eggs and the spreading of fungal friends. By product of the ips invasion, a blue-stain fungus amplifies the Ips damage by clogging the cambium arteries of each tree, further limiting sap movement that might expel the infidel Ips. They're an unbeatable team; more than 80% of pinyons and ponderosas, once infiltrated, fail to survive the

initial onslaught. Those that do make it become more vulnerable to infestation from still other agents; Western Pine, Roundheaded and Twig beetles, and fire.⁴²

From appearances, these dying tree tops and needle canopies in a drying climate seem like roman candles awaiting ignition. This place looks like a wildfire waiting to happen. But appearances may be deceiving. This stand of trees could be more vulnerable to fire when the thunderstorms move through later this year if the dying needles cling to the twigs, or it could be less so if they fall first, removing the continuous source of fuel that would keep any flames moving. These beetles are in a steep spiral of unchecked population growth. How different from humans are the Ips in this regard? Card-carrying lefty-environmentalists are quick to criticize the destructive role of humanity, but I can't remember the last time Sierra Club or Wilderness Society sent me a mailing petitioning Congress to stop the ips beetle from chewing on ponderosas.

The shift of power from the 1880s onward from Native and Hispano subsistence economies to Anglo market economies profoundly impacted the Pajarito. The delicate ecological balances on the Plateau made it sensitive to even the smallest degradations. Only so many trees could be cut before a Pueblo exhausted itself, only so much water was available for crops in so short a growing season, only so much grass was available to hungry Hispano sheep, goats and cattle. Following the eventual settlement of the nomadic Navajo on reservations and final suppression of the marauding Apache, unprecedented extraction of resources and overgrazing changed the very character of the plant

communities. Native grasses slowly disappeared. With cover decimated, soil was opened to erosion. As timber cutters hauled out economically valuable trees, low quality scrub woods grew in their stead.

Just as later fire suppression practices of federal agencies contributed to a buildup of fuel, the abuse of these lands from the 1880s through the early 1900's also played a part in increasing fuel load. With much of the under-story stripped of the grasses and shrubs that carried periodic fire swiftly through the woodlands, saplings that might've normally fallen prey to flames survived to grow up among their tall elders. While the land barons lined their pockets with money, the 'economy of fire' on the Pajarito grew impoverished.⁴³ No one thought to limit their rapaciousness for Pajarito plentitude.

What are the limits to Ips beetles? To fire? Sap limits ips – oxygen limits fire. What are the limiting factor for humans in places like the Pajarito? Drought? Climate change via global warming? Empty aquifers? Disaster here may be inevitable. Bandelier's Ancestral Pueblan ruins a mile or so back show evidence that this land, abandoned some 500 years ago, quite capably imposes population limits. Did drought, lack of firewood, enemies, insect infestation, drive these people from their homelands? What might yet drive us from ours?

But the Pueblans were not driven far, and they lived here in precarious balance for several centuries before they departed. I envy the intimacy these people had in sustaining themselves in this harsh area for such an extended time, approximately five hundred years by archeological rendering. Physical

effort or intellectual knowledge alone can not provide such intimacy. Surely I can immerse myself in this place and learn all the facts at my disposal, but I don't yet have a clue about the spirit of this lonely plateau. Do ips beetles dwell on such things? Do most humans? Perhaps all we can do is pay closer attention, adjust to each nuance, weather the disturbances, restore the connections that sustain us in such places, and hope for the best.

I keep an eye peeled for signs of fire. Some time ago, a Bandelier National Monument employee who'd worked at Bandelier since before La Mesa had told me that a lightning fire had been allowed to burn a portion of the mesa near Lummis Canyon. This, she said, was part of the Park Service's effort to allow fire to take its rightful place on the Plateau ecosystems. She added that recent research indicated that fires historically burned the plateau on an average of 5-12 years. "That means that even La Mesa may be due four times over."⁴⁴

Sure enough, as I crest a small plateau rise, I notice blackened boles of ponderosa, and a number of dead tangles of juniper and pinyon. I stop and hold bits of charcoal to my nose, draw faint black petroglyphs on my hands. Just when these particular trees burned is hard to say. In this desiccated climate, decomposition as well as restoration slows to a crawl. Landscapes tend to bear their scars a long time. Here the scars of La Mesa remain prominent still.⁴⁵

Perhaps a casually tossed cigarette or a random ignition spark from some engine triggered La Mesa Fire's rapacious journey through more than 15,000

acres. The presence of thousands of archaeological sites necessitated a hastily assembled plan for protection of those irreplaceable cultural resources from both the ravages of fire, but also from the roughshod strategies habitually applied to forest fire suppression.⁴⁶ Though the attendance of the archaeologists did mitigate much of the damage of the bulldozers initial passage through the affected sites, some of the worst harm came during later efforts, when crews returned to widen the fire line. The experience was an unprecedented cooperative effort involving not only archaeologists and other NPS personnel, but also National Forest Service and Las Alamos Lab units. La Mesa was a wake-up call to the importance of extreme sensitivity where ecological fire and archaeological relics coincided.⁴⁷

A hump in the earth a little to the south of the trail draws my attention. I'd read that this mesa was dotted with small ruins. I walk closer to investigate and discover the unmistakable tumbles of rectangular blocks of stone that signify an ancestral Pueblo home. After exploring the perimeter of the site, I sit nearby. I take out my lunch, breathe in the clear cool air, feel the warm afternoon sun on my face, and give myself over to reverie.

Sleepy from sustenance and sun, I lay on the mesa grass with my pack for a pillow and imagined myself on this plateau 500 or 1,000 years ago; pictured the gathering of foods, the excitement over a successful hunt, the fear of starvation, the tiredness in my body after lifting heavy stones to a growing foundation of home. With my eyes closed I vaguely hear the soft murmur of

voices, with them open I attempt to see an ancient landscape. For awhile, my 20th century self disappears, all time fades and I exist only as a raw, feral organism on a living, breathing planet. For a moment, I am restored to a Pleistocene essence, vicious modernity burned away. I open my eyes, turn to the north and rise, my reverie ended.

I pause at Lummis Canyon, having traversed another part of the '77 La Mesa burn. Might a burn of that vintage have contributed to ips devastation? With the fire having thinned out the stand, might the remaining trees be any better positioned to survive the drought and insect infestation? Apparently they would not, or at least not so that I notice. Whole stands of ponderosa had been blighted. Other stands escaped, mysteriously untouched. In pairs of adjacent trees, one might be fully hit, the other entirely whole.

Here at the base of Lummis Canyon, the ponderosas are fairly healthy. Given the flowing presence of water in the creek, perhaps available water does make a difference? Perhaps microhabitat effects enhance viability. Some root systems may sink more deeply in somewhat more porous soil, or the water table may swell higher there. Other less lucky trees may be cut off from life-preserving/ips-preventing water inoculation. This is a capricious realm.

These newly disturbed pinyons, along with the fallen boles from the La Mesa burn, are becoming ruins themselves, and within centuries will work fully back into the soil and taken up by whatever plants may live here in the future.

After another mile or so, strolling through scatterings of light burn alternating with completely untouched stands of trees, I suddenly come to the brink of history itself, the deep chasm of Alamo canyon.

I pause for long minutes at this end of the Canyon, prior to the most challenging leg of the hike with 500-700 feet elevation loss and regain in the descent and ascent of the trail. Extreme physical exertion at 7,000 plus feet, coupled with the emotional effort, make this a taxing traverse. Some thrill to the traverse of high, precipitous places. I'm not one of them. I've always been subject to vertigo. This, complicated by a pronounced lack of sensation in my feet in the aftermath of Guillan-Barre makes security over the traverse a daunting operation. Though I've done this hike two other times, I still get a knot in my stomach at each approach to the canyon rim.

But this time I murmur a makeshift prayer before descending and focus on each footstep ahead, not on the sheer walls across from me. As the trail makes its first precipitous turn down the steep wall of Alamo's north flank, I lean against the rock face on the cliff side of the path, sweaty and fearful. I'm torn between the wish to gaze out at the raw beauty stretching down towards the Rio Grande and back towards the head of the canyon, and the desire to close my eyes to the dizzying gap, my own personal paradox – a contradiction I may never resolve. I briefly think of turning back. I take a slug of water from my canteen, swallow hard and renew my descent.

Gradually I relax a bit, and the painterly hand of ancient creases of water through Alamo on the rock canvas opposite me draws my attention. Shingling of color and tone layered on sheer rock surface, sheathings of intricate markings lined in stone, mysterious caves carved by unseen force hundreds of feet from any apparent approach; despite my fear I become mesmerized. My legs shake, as much from apprehension as from effort, when I reach the dry canyon floor. Though the upper mesa surfaces cook in the mid-day sun, in the deep Alamo shade among tall trees, cold still clings to tumbled boulders, frosty dew like fine granulated sugar. I shiver in the gusts of wind moving around bends in the barely wet sandy river bottom turns. I imagine the seething water, alive and vital enough to have laid its path so deep down into the mesas lava flank.

As I climb the other side of the canyon, I must rest every few hundred yards. I grow concerned about my shortness of breath and lack of stamina until I remember that I stand over a vertical mile above sea level. I begin to enjoy the opportunity my rests give to view the natural art work carved into the other side of Alamo Canyon. Though I can't say the traverse is great fun, I'm more relaxed and confident than during previous hikes here. It occurs to me that fear creates its own disturbance regime in the psyche. That there is so little I can physically do to prepare myself makes heights particularly frightening to me. No physical props help me work my way through the fear; the effort involves primarily the mind's construct. I wonder why I continue to subject myself to

these primal encounters with fear, and how long I will be able to restore my courage. Then I remember what lured me to this wilderness in the first place.

From the mesa top on the other side of Alamo, the trail turns west, picks its way over juniper and pinyon plateau and across smaller canyons till gradually leveling out as it turns slightly towards the north. After a mile or so I notice regular patterns to the mounded earth to my left. Rectangular stones peek from the tangled plant over-growth. Stepping closer, I see the formations are far from random scatterings. I stand in the midst of a nearly unrecognizable Yapashi, vastly overgrown from when I'd first happened upon this place many years ago. Does this render the place ready to burn? In the long span of time, in a place made of fire, everything eventually becomes fuel for reconstructive disturbance.

Yapashi was one of the largest pueblos on the Pajarito Plateau. It too was a contemporary of the communities at Frijolito on the rim as well as those in Frijoles canyon. Estimates for its occupancy start in the mid-1300s and run till it was abandoned sometime in the early 1500s. To the Cochiti Indians, its name 'Yapashi' means 'sacred enclosure'. The Keres name for the place is *'Mokatakpwetka'matsesoma; 'pueblo ruin where the mountain lions lie'*.⁴⁸ A football field sized expanse on the flat of a mesa, Yapashi is rimmed by a set of rectangular buildings. Some walls stand intact but time, weather, and antiquities admirers have leveled most. An array of pot-shards lay scattered; beautiful blacks, creams, oranges, patterned with stripes and spots.

I hold a heavy black obsidian tool in my hand, picked up from the ground where I sit eating my lunch. I imagine myself into the hands of the maker of this tool, the patient chipping away by an accomplished artisan. I picture this stone rending sinew or rendering flesh of black-tail deer, or scraping the bark from a ponderosa. I become a resident of this place, if only in my imagination.

Yapashi Ruins compels me more than other Bandelier Ruins, perhaps because time has reincorporated so much of it into the body earth. I must reconstruct it with my mind, filling in the lives with my imagination. When I was a kid, I believed that thoughts took up physical space; that the best and most original ones could be done in places and at times when no one else was around. Crowded by others, the imagination is strained. In Yapashi, my imagination works at its optimum.

Glancing up, I note another reason why Yapashi so compels me. It commands a nearly 360 degree panoramic view of the Sangre de Cristos to the east running to Sandia Peak in the southeast. Like Gran Quivara, another Ancestral Puebloan site in the Salinas Valley a hundred miles or more south as the raven flies⁴⁹, Yapashi was built on a mesa promontory with a commanding view of the high desert surround. Is this for defense, as archeologists suggest, or is something sought in the spaciousness and beauty that people wanted to live with on an everyday basis?

Seasonal hunting patterns may have drawn them here. The constancy of wind and vagaries of weather would seem to have made this an undesirable

home. What drew people to this remote plateau far from the seeming abundance of the banks of the Rio Grande and its Pajarito tributaries? Some archaeologists postulate that extended drought in the San Juan basin and other lower elevation settlements may have made the relatively constant though by no means abundant rainfall an appealing alternative to their now collapsed habitat.

I think their attraction may have had something to do with the over 700 species of wild plants recorded in Bandelier. Of these, Ancestral Pueblo used an estimated 300 as food, tool, or medicine. What couldn't be cultivated through a series of ingenious agricultural practices was gathered in season and stored against a time of need. Though the climate may have been harsh on the Pajarito, more varieties of plants exist here than almost anywhere else in what some call the "Pueblo Province."⁵⁰

Given this relative cornucopia of plenty and the obvious effort put into their settlement sites, many ponder just why the Ancestral Pueblo abandoned these uplands by the late 1500s. Perhaps the weather worm turned once more and upland droughts made this place untenable. Maybe, as was the case with their previous lowland basin homes, they'd used up too many slowly renewable resources – especially wood. Or perhaps the populous villages in the valley of the Rio Grande were an irresistible allure to the people of mesas and canyons, a call still heard today by those of the country towards city dwellers. Whatever the reason – or reasons – the secret was not divulged to me by the wind whistling through the junipers and singing over the ruined walls.

Interestingly enough, some of those plants so important to residents here 500 years ago, now often provide important clues to where and how people lived on the Pajarito. Plants like wolfberry, fourwing saltbush, doveweed and beeplant can be 'indicator species' for ancient inhabitation and cultivation. Dendrochronology, first pioneered as a research tool in the 1920's Southwest by an astronomer, A.E. Douglass, examines and correlates the size of rings of trees; more moisture – more growth.⁵¹ By examining enough specimens and working backwards from trees of a known chronology overlapping with older specimens, researchers have extrapolated conditions in some areas of the Southwest back through the 1600's. Perhaps I just need to listen more carefully to the growth at my feet to find out what happened at places like Yapashi. Perhaps the plants will tell me stories about fire too.

I sit at the larger of two kivas in the courtyard bounded by the surround of crumbling building walls. An ant hill – industrious reds – lies at my feet, this *Formicidae* city having replaced the human one. I've acquaintances who've rummaged through large-grained mounds such as this in search of treasures inadvertently hoarded by diligent ants. A red and black striped shard sits at its edge, mute reminder to the passage of humans and ascendance of ants to the area, the shifting mosaic of species over time. I rise and head northeast, following a small sloping wash as it drains off the main courtyard, turning over interesting shards as I move slowly down the dry rubble. I kneel to examine a particularly exquisite piece and notice a small rounded mound arcing 30-40 feet

to my right, perhaps a terrace for farming or a check dam built for water containment.

I walk over and investigate. The mound traces a low semi-circular curve around a very old gnarled juniper. Few stones stand, but I can not gauge this fact to the tree's age, which for all its girth would not have existed at the time this rockery was laid. Just on the other side of the juniper is a fully disarticulated skeleton of a mule deer, bleached white like mother-of-pearl inlay on the desert soil. Upon closer examination, I note a couple of dozen larger pot-shards, arranged amid the bones.

I'd been told that the descendents of the Ancient Pueblan people still practice their medicine up here, some traveling on foot for hundreds of miles for the ceremonial power engendered in and around these remote ruins. Perhaps this is one of their makeshift shrines, ode to a deer whose life has provided to others in its passing. Post-gustatory pellets dropped by other black-tails conspicuously mark this place, a different kind of honoring. I take the obsidian tool, still in my hand as I kneel at the bones, and place it gently next to the pot-shards, say a silent prayer of thanks, then depart.

From the crest of a small rise, several hundred yards from where I expect to find the Stone Lions, I notice the blackened boles of ponderosas, courtesy I presume of 1996's Dome Fire. Out of respect to the cultures which continue to visit the shrine as part of their spiritual practice, the Park Service, following the Dome Fire, eliminated all indication of Stone Lions from its maps and trail

signage, hoping to alleviate potential negative impact. Traveling from as far away as Zuni Pueblo, nearly 200 miles to the southwest, present day Native peoples, their maps etched in place-based consciousness and ancestral memory, still make the journey to this sacred site.⁵²

I grow anxious as I approach the shrine, unsure whether it survived the conflagration. But as I round a corner past a cluster of pinyon and juniper, twin mountain lions crouch in stillness, now as ever ready to spring. I slump to the ground exhausted as I slide my pack off and lean back against a sandstone slab at the perimeter of the two prone lions. The bones that rimmed the rockery when Tiana and I first saw this place have been removed (or consumed by mice), but fresh prayer ties spin slowly in the afternoon breeze.

I become aware of a serenity I've not felt all day, or for many days. Immersed in thoughts of disturbance this last while, I forget that life also includes ceremony and celebration. A ground squirrel chatters to my left. I cast a handful of my granola-peanut-current mixture its way; the two of us munch quietly, each lost in our own thoughts. Fire may come here some day, just as devastation may come to me at any moment, but for now I am untroubled by what may or may not come, restored to this moment outside of time.

Who knows how long I remain at the shrine; I hear two ravens gurgling overhead, a small chickadee lands in a nearby juniper. I might have been dreaming. I might have been wondering about how some things my mind knows to be dead, still feel more alive than ever to my heart, and that today my body

and senses seem to be listening more to my heart than to my head. I depart only with great difficulty, acknowledging many more miles to cover with few enough hours of daylight remaining.

Just a few hundred feet beyond the shrine, the character of the plant life changes significantly. Left behind are the dense thickets of pinyon and juniper, replaced by tall, stately ponderosa with open under-story. In a clearing where the land dips slightly from the plateau, fire has blackened and destroyed most of the trees that I can see. As I climb the ridge up the dry cindery path I see the still fresh claw of flame on dead ponderosa bark; the mark of the Dome.

As the trail traverses the side of the ridge, I gaze back once more towards the Stone Lions, wondering if it was a change in fuel type, a turn of the wind, pure chance, or perhaps something mysterious beyond the ken of human reason that accounted for this vast fire stopping just short of that sacred place. I want to run back down the trail to reassure myself that the lions remain but instead dip over the top of the ridge and down into a small canyon.

I angle into a shallow basin and leave the fire behind. A frozen stream cascades alongside the trail. The old ponderosas seem barely touched by flame. But as I round a corner, mute blackened snags evidence the fire's passage. For the next couple of miles, I walk through a dramatically altered forest, now quiet but for the occasional rapping of opportunistic woodpeckers, imagining the fury of flames that must have rampaged through here like a runaway locomotive, picturing my skin as bark exploding from my frame like a string of firecrackers.

Many experts on fire management had already begun to turn the philosophical corner regarding the residence of fire in natural ecosystems by the mid-1970s. In fact, a few public and private land managers the Southeast, the Southwest and Southern California never fully acquiesced to the suppression monarchy. But it was one thing to profess the necessity of fire and yet another to implement strategies that welcomed it back into the ecological family. Decades of suppression, along with heavy grazing practices, altered many landscapes beyond pre-suppression regimes. The absence of fire resulted in a veritable cornucopia of potential fuels.

Ironically, it took a massive 1970 fire complexes in Washington and California to catalyze a shift away from absolute suppression to recognition of the necessity of certain fires in certain ecosystems at certain times.⁵³ Though new research has validated the role of wildlands fire in native ecosystems, agencies throughout the federal bureaucracy struggle with how to implement fire-friendly policies. Particularly in the aftermath of Dome and Cerro Grande conflagrations, fire is not a particularly welcome guest in this region.

New Mexico, after all, was the homeland of the original live "Smokey Bear" (orphaned after a fire on the Lincoln National Forest). That cuddly image was used to help support a wholesale (and largely successful) effort to suppress fires across North America. Mass suppression of fires grew to be the answer to the catastrophic destruction stemming from the fires of the summer 1910.⁵⁴

Policy, science, and public relations machines were marshaled to the cause. To most Americans, it became unthinkable to let ANY fire burn ANYWHERE.

But controlled use of fire had never really fully disappeared. Interestingly enough, when Southwest foresters and wilderness managers once more looked far and wide for models for reintroduction of fire to their region, they discovered one in their own backyard. Nearly one hundred years after complete suppression of the nomadic, warrior Apache and their banishment to reservation life, the interagency Arizona Watershed Program made a pilgrimage to Fort Apache Reservation. In managing reservation lands, the Apache quietly remained true to their fiery ways. After years of carefully applied broadcast fires, reservation records indicated remarkable reductions in wildfires and badly burned areas. Anglo visitors hungered to apply what they'd just observed to ponderosa forest and desert grasslands.⁵⁵ For not the first time, we hungrily grabbed for native knowledge, having earlier stolen both land and pride.

Armed with new knowledge and ennobled by examples of the constructive use of prescribed fire, many federal agencies, including the National Park Service which administrates Bandelier, crafted controlled burning plans for their lands.⁵⁶ Simple economics can tip the balance towards fire prescription. At a cost of \$20 to \$50 per acre, prescribed fires is significantly less expensive than the estimated \$1,000 to \$2,000 an acre it costs to suppress wildfire.⁵⁷ But letting (or setting) fire can be a public relations nightmare. It can be a potential economic debacle as well, given the park's dependency on tourist dollars. In this conundrum, I

ruefully wonder whether economy or ecology will win out. Air quality is also of primary concern throughout the Southwest. Anything that contributes to air particulate matter raises hackles. Even when conditions seem perfect for a prescribed burn, one only has to glance over at the gleaming white technical silos and towers of Los Alamos National Lab to question what might happen if THIS fire got away. There are more questions than answers.

How for example, does one determine the efficacy of fire when managing a coniferous forest at the scale of nutrient cycling and microorganisms? University of New Mexico research associate professor Carleton S. White and others have inadvertently fueled the considerable controversy about the efficacy of fire in forests with their research. Some point to the immediate net loss of nitrogen from smoke particulates and volatilization from each burn and argue that the forest can not afford frequent burns. Others look at the same ecosystems, point to the decline of net nitrogen mineralization and nitrification and contend such places can't afford losing periodic fire episodes.⁵⁸

A component of needle litter called 'monoterpenes' (an element of turpentine), may be one of the keys that makes conifers so volatile around fire. White's research shows a tendency for levels of monoterpenes to be low right after a fire, with a steadily expanding level as time between fires increases.⁵⁹ This makes sense. If needles contain monoterpenes, then an accumulation of fallen litter over years would increase the presence of this compound.

But why should this matter? Monoterpenes tend to inhibit mineralization and nitrification by immobilizing the available nitrogen. Long intervals between fires in coniferous forests can effectively starve trees of nitrogen, but no one can say what the optimal times between fires might be. Urine and feces of wintering elk can tip the balance of the nitrogen equation, as can larger amounts of scorched needle fall in the months after a particularly hot fire. While elk pee can add nitrogen even in the presence of raised levels of monoterpenes, scorched needles pump up the monoterpenes earlier in the cycle, and may require secondary burning to return the system to nitrogen equilibrium.⁶⁰

As if the ebbs and flows of nitrogen cycling and monoterpenes weren't quixotic enough, minute cryptogams – ancient plants without stamens, pistils, flowers or seeds – also play a key role in the nitrogen balancing act. Such organisms serve as nitrogen fixers. Their presence in post-disturbance soils may be an indicator of soil and forest recovery. As with monoterpenes, any number of other inputs or impediments of nitrogen could skew the results.⁶¹

Both studies surmise that localized conditions need to be factored in when calculating the presence or absence of fire, while suggesting that lower intensity fires of higher frequency may be more appropriate. But just where and how does one draw the burn line across variables as tiny as cryptogams and towering as ponderosas, all over differing temporal scales? Scientists debate the efficacy of controlled burns on the minutiae of Pajarito soil. Certainty becomes another casualty of out-of-control burns. But how much did we ever control fire? As

writer Michael Pollan muses whether certain plants cultivated our desire for their qualities⁶², I wonder if perhaps fire chose us to broadcast it, as if it knew it could depend on our quixotic and enduring desire for flame.

Only when the trail reaches the upper end of Alamo canyon, and begins to curve down its still formidable flank does evidence of the Dome fire recede into the background, left at the rim where it could not descend. I go ahead, past the memory of flames, down into the chilled embrace of the canyon. Here the water flows where it can be seen. Snow has barely melted. The sun itself seems a stranger. Cold, tired, I rest on a boulder and breathe coolness into my bones.

Rejuvenated after a few minutes pause, I gradually make my way up and out the other side of the canyon. At the brink of the mesa, another landscape change startles me. For miles around me, I see naught but an occasional blackened trunk and the endless stretching of grass covered curve of ground. "Dome?" I ask aloud, and the wind shushes back through the whisky-colored grasses "yessss..." Whether silenced from sheer exhaustion or lulled by the spare and quiet beauty of the winter grasses and shrubs that have covered this fire-ravaged plateau, my mind ceases its chattering. I hear only the rhythmic pumping of my blood, primed by my loping footsteps, and the mesa wind.

ATOMIC FIRE

Finally past the burned out ruins of the Dome, as I traverse the last segment of my fire walk along the rim of Frijoles Canyon I feel strangely discomfited. With sufficient daylight and drinking water left, practicalities do not concern me. Bodily fatigue at this point in a long hike would usually erode any anxious mind chatter. The ominous presence of freakish, sterile white structures of outlying Los Alamos Nuclear Lab facilities no longer troubles me. Since I began my research I have been dismantling my antipathy towards that place and their work, and view with more nuance and empathy LANL's continued existence on this plateau. Then it hits me: I walk in silence. Not the silence of a still mind, but of an environmental quietude. No birds call out. No circling ravens or hunting hawks. Nothing moves within my field of view but the tugging of up-canyon wind on spindly juniper and pinyon.

I expected such a hush in the epicenter of the Dome Fire's burn, but even there I was aware of chattering chickadees and flitting juncos. However this section of the rim has apparently not burned over for many decades. Just as the presence of fire does not testify to an ill landscape, its absence does not connote health. If latent ponderosa cones pledge high-mesa growth, then what force beside fire could tease that promise into fruition? And what self-respecting ponderosa could gain purchase in the dense stands of juniper crowding the rim?

I wonder what has been lost with flame kept from this place. Fire indeed destroys, but it also creates conditions for new growth. Fire inured organisms require the periodic presence of flames to fulfill their potential. Might fire-inured cultures also require periodic disturbance? When something in us is kept from burning periodically, something else may not have necessary means to seed.

Larger systems maintain integrity by shredding the whole cloth into smaller strands that can then be rewoven into a new pattern. In such ways the dynamic equilibrium of ecosystems and species – including humans – maintain an adaptable flexibility in the face of constantly changing conditions. But what if that rapidly changing condition happens to take the form of a crowning firestorm rampaging cross-mesa towards your home? Pajarito's paradox arises from this continually shifting dynamic of delight and destruction, paucity and plenitude, hell and healing. Sometimes for new things to come together, the old must first be torn apart.

Glancing over at the spare white buildings across the plateau, I wonder now whether certain things should never be torn apart, atoms for instance. I've come to this plateau with my conflicting perspectives and contradictory ideology. Others have experienced the enchanting powers of the northern New Mexico landscape while wrestling with the destructive potential inherent in every crevice of life. In the summer of 1922, an excruciatingly thin young man arrived at a dude ranch run by the aristocratic Katherine Page in Cowles, in the majestic

Sangre de Cristos, hoping to strengthen his notoriously weak constitution. He spent golden weeks fearlessly riding through the rigorous landscape. The experience marked him for life. He first rented, then purchased, a 160 acre property near Mrs. Page's Los Piños Ranch, and returned there for twenty years. His name was Robert Oppenheimer.⁶³

At dawn on July 16, 1945, an explosion rocked the landscape, and shook the foundation of how we humans ever saw and ever will see ourselves in relation to this planet. The fireball that was the Trinity test blast made rubble of our naiveté, and created a maelstrom of unanswerable questions. The fire inside an atom torn asunder spread to Hiroshima and Nagasaki, made its way to Hanford and Three Mile Island, and will live its half-lives long beyond a span of time any of us can imagine.

Robert Oppenheimer, grown into his stature as a brilliant physicist, was on the team that selected the site for the Manhattan Project that sought to unlock the secret of the atom and harness it as a means to end World War II (before the Germans could end it for us through their own vigorous research). Security and secretiveness were paramount, yet the project also required the cultivation of a strong collaborative community among the scientists working on the project. Perhaps remembering the magic and inspiration of his summer up in the high country, Oppenheimer suggested the nearby Pajarito.

North of Bandelier, the Los Alamos School occupied a site that seemed to meet the stringent requirements of the team. Officials at the school were told

to clear out early in 1943. Ironically the institution was designed for just the kind of youth Oppenheimer had been, but urgency was paramount with much work at hand. The secret effort going on up at "the hill" was subject to much speculation. Meanwhile, there was little respite for those immersed in the intense research.⁶⁴

In some ways life on the plateau changed not a whit with the advent of the scientists; rhythms in the pueblo of San Ildefonso or in the backcountry of Bandelier seemed undisturbed. After Trinity, Hiroshima and Nagasaki, however, even the backwaters of Northern New Mexico felt the force of the blast (psychically if not physically). Oppenheimer opined "We scientists have known sin."⁶⁵ Some of those involved in the Manhattan Project harbored deep uncertainties about their role in unleashing the fire and fury within the atom. Some turned away. Others dedicated themselves even more deeply to their research.⁶⁶ Afterwards, some measure of peace and stillness returned to the Pajarito, but a lingering tension remained.

As I drove to Bandelier during my initial visit, I was amused by how many white cars I saw along the morning commute to Los Alamos. Either the government has a large investment in colorless vehicles, or perhaps white had so much become the color of science (represented by lab coats and sterile white-washed walls), that it even mediated their choice of personal transportation. But what science was being practiced there, I could not say, and they would not tell. I smugly congratulated myself on my obviously superior sophistication and

panache. My friends elsewhere in New Mexico by and large felt similarly about Los Alamos the corporation, and Los Alamos the culture.

Years later, I know both more and less about this place. Secrets whisper out on Los Alamos National Lab (LANL) land that none of us may know. My own revealed secret is one of conceit and contrition: in viewing Los Alamos with a good deal more humility and empathy, I must admit the imperfections of my perceptions. I've digested much information about the background and history of the lab and surrounding city, of a few of the remarkable scientists at the heart of it all, and of their concern for life and peace implicit even in a time of war and a work of death. I've learned that this unique city on the Pajarito that some call the nations largest "white collar company town," contains a cordial, albeit circumspect citizenry with the same needs we all have.

Hastily assembled from whatever available materials the Army could haul up onto the plateau, the site of the Manhattan Project became a permanent installation after the war. Possessing the population of a small city, it built the infrastructure of a true city only after the fact. Los Alamos, along with its bedroom community of White Rock, requires food, water, and shelter on a plateau that has always limited such necessities. Perhaps not even science can find its way around such limitations. In the aftermath of the Cold War, growth at the lab has declined. As revenues shrink, Los Alamos struggles with real world problems it had never known during its years of relative isolation. In a place

that has seen many peoples come and go through times of abundance and scarcity, Los Alamos seeks long term balance.⁶⁷

Reflecting on my former air of superiority towards Los Alamos, I discover myself less and less sure of the ability to know anything with absolute assurance. Perhaps knowledge and wisdom represent a kind of dry-land forest, subject to its own regimes of disturbance and restoration. To gain new insights, to form new beliefs, to gather new perspectives, perhaps something of what we know, or think we know, must be obliterated. Such absolutism – fundamentalism – repressing or denying all other beliefs but one's own, makes no more sense in the mind than absolute suppression of fire does in Southwestern landscapes. When everything that exists can be subject to change then what I *know* can be a trap, and what I *don't know* a kind of freedom.

One of the things that I can never know is how such a community as Los Alamos lives with the constant potential for physical obliteration. The presence of Los Alamos, in terms of its population density as well as the magnitude of technical buildings and the potentially volatile contents therein, complicates an already murky picture. No wonder LANL officials shudder each time Monument staff announce a prescribed burn on their land.

Cerro Grande, 2000; May 4th's prescribed burn was officially declared escaped the following day, as NPS personnel requested assistance from USFS crews. Accounts differ about whether the original fire or an escaped backfire set to

control it led to a blow up that Sunday the 6th, but regardless of the cause the Cerro Grande blaze was officially upgraded to a wildfire as a result of the erratic behavior of the burn. A cold front came through on the 9th but the fire still doubled in size from 2,000 to almost 4,300 acres. That figure was dwarfed the following day as strong winds blew the fire up into the tinder-dry ponderosa crowns and raced towards Los Alamos. The city was evacuated and crucial LANL facilities threatened, as flames roared into Western and Northern Los Alamos. Acreage lost by the end of the day was 20,000 and counting. That figure swelled to 33,000 the next day as LANL became the primary front in the firefight.

Ultimately, the fire engulfed 47,650 acres and torched portions of an alphabet soupcon of Federal holdings (NPS, USFS, DOE, and BIA).⁶⁸ While plenty of accolades passed around afterwards (especially towards Los Alamos Fire Department personnel), there was also ample of blame for all, much of it heaped upon the staff and leadership at Bandelier and the NPS. So severe was the fallout from this debacle that then Interior Secretary Babbitt placed a temporary moratorium on all Western prescribed burns.⁶⁹

Pyne suggests that just as the 1910 Great Fires, with its epicenter the Big Blowup in Idaho's Bitterroot range over August 10 -11, signaled a sea change towards absolute fire suppression that held sway over most of the continent for 50-60 years, so too might the devastating fires of the summer of 2000 with Cerro Grande as its poster child, trigger a backlash over controlled burns.⁷⁰

While honing in on misdirection in 'praxis' at Bandelier, Pyne levies cogent and damning criticism of the Cerro Grande event. In highlighting "mission creep" from protection of ancient relics to comprehensive fire management, Pyne indicates that the site of the fire itself, Upper Frijoles Canyon, well forested and relatively well-watered, was not a strong candidate for burning (in fact, the targeted site burned only patchily).⁷¹

If, as Pyne suggests, the locus of control and focus on fire might be better grounded in biology and ecology than in the practicality of forestry or the praxis of controlled burn managers,⁷² then where do we turn for models of how to make that shift and better integrate fire science in the realm of life? I surmise that we wrestle with the paradox of wildlands fire to a similar extent that we struggle to accept disturbance regimes as rejuvenating forces on the inside of us. Humans, in the ecology of soul, meet disturbance regimes of death, loss and grief as natural as any force which tears through our forests. Fuel load in both realms can be problematic, but so also can controlled burns. In landscapes of uncertainty, crafting fire policy that flexibly attends to everything from cryptogrammic formation to atomic fire is a supreme challenge.

BURNING QUESTIONS

Moving west past Bandelier and Los Alamos, Rte. 4 switchbacks up the flanks of the Jemez, curves round the rim, then meanders down the other side. In the distance the immense grandeur of the Valle Grande spreads out for miles.⁷³ Not far past the Valle Grande and 11,254 foot Redondo Peak, Rte. 4 collides with Rte. 126 and decides to head south. A few miles down the road, I look for a somewhat obscure parking area to my left, tucked between two tall ridges as it skirts along the path of the Jemez River. On one of my first trips down to New Mexico, my Albuquerque-based friend David had enlightened me to the relaxing and rejuvenating powers of Spence Hot Springs. Bone tired from all my Pajarito rambling, I can't wait to sink my weary muscles into the 105+ degree waters of one of Spence's deep pools, and to think about all that I've seen and experienced over the last hours.

The path is as I remembered it; steep, meandering, eroded. I hear laughter and swearing as I approach the pools. At the upper pool, silent now, three Native men take long pulls on cans of beer and stare sullenly at me as I approach. As I undress and ease into one of the lower pools, I chat with another Anglo man just leaving my pool. I note the bag of trash by his pack and thank him for his conscientiousness. "Nothing to it", he replies, "I'm Monday," and extends his hand. "We take turns, pick up trash, plug leaks in the pool basins if we find 'em. Last year we even put out a small fire down the hillside,"

he says proudly. He puts his clothes on, struggles into his pack, and slings the trash bag over his shoulder. We chat for a moment about our birth homes, of what drew us to this New Mexican outback. As we speak, I glance at the densely packed ponderosas surrounding the springs and wonder how much longer this paradise will go without knowing the touch of flames.

As I bid goodbye to Monday, one of the Beer Men calls out "Wherdja say 'ya from?" "Pennsylvania, originally", I reply. "Transylvania, didja say?" he asks quizzically and we all laugh (me a bit more uneasily than the others). Another of the trio digs a Coors tallboy out of a grungy cooler, comes over and sinks into the water with a deep sigh followed by a long, thundering belch. He asks me where I've traveled from. He hails from Acoma Pueblo, over near Grants.

The Pueblo in New Mexico have weathered many changes over their centuries in this region. I admire their ability to keep to themselves; the knack of maintaining internal cultural and spiritual integrity and quietude. Their ability to embrace what they can use of the other cultures while making it their own, serves them well in this place. Christianity and casinos are but two poignant examples of Pueblan selective incorporation. I decide to accept the Coors proffered me, and try to adjust to the moment as his culture and mine simmer in Spence waters, and together we shoot the breeze.

Survival in today's complex society and economy can require considerable adaptation. Nearly every Pueblo in this state has a unique contingent of seasonal laborers: firefighters.⁷⁴ Some credit the revitalization of the use of fire

in management practices to the knowledge gained from its continued use on a number of reservation lands in the Southwest. Interestingly, in another of the strange twists that history often takes, native individuals whose ancestral use of fire helped shape many of these forest and grassland communities long ago have spent the better part of this past century being paid to suppress it. Perhaps the continued shift toward prescribed and natural burns on state and federal lands will see yet another transformation in their relationship with fire.⁷⁵

I nod goodbye to my Pueblan companion, stuff the empty beer can into my pack, climb around into one of the deeper pools and immerse myself so that only my nose and mouth rest above water. In that small muffled universe, I imagine I hear the churning of deep molten stones whose heat scalds these waters. In the sway of that molten pulse, I imagine the kind of power that could blow the lid off a 30,000 foot mountain and send thousand of feet of lava slurry and ash out over the surrounding countryside.

However, as I now recall how an intense group of men on a lonely mesa during WW II found a way to make a fire of their own that would in many ways dwarf even the volcanic blow of at Valle Grande caldera 1.2 million years ago, I can't imagine what would happen if the keepers of LANL's atomic frontier, and those in charge of managing the vigor and safety of forests alive with fire, had not been able to keep the two flames apart. The thought disturbs me.

It can also be disturbing to reflect on the firestorms that can erupt from the collisions of divergent cultures, or religious belief systems, or political

strategies. Within flows of contrary air, the potential for lightning and conflagration are imminent, particularly when prevailing fronts are held rigidly distinct from each other. Contrast can inform, or it can spark. Fire, both physical and metaphorical, may be a natural and necessary component to living systems, but how many fires do we need? How many is too many? Or might we need more to break down the old systems to make way for unexplored renewal.

Fire destroys. It can also restore. The presence, or absence, of fire has informed these landscapes. Temporal, as well as spatial considerations merit close attention. We look to the past to understand how a complex array of forces has shaped a landscape over time. We try to learn from that past in juggling today's priorities and assessing tomorrow's objectives. To do so requires deep understanding of the landscapes we inhabit as well as a comprehensive examination of the culture of fire made up of beliefs, attitudes, practices and policies that influence our inhabitation. But as much as we look to the past for guidance and models of integrity, my fire walk on the Pajarito has revealed that once the fabric of a time and place has been rent asunder, there may be no putting it back together in replica to the way it was.

FIRE WORK ON THE PAJARITO ENDNOTES

¹ "Fire: Mesa Verde National Park," United States National Park Service, 4 Dec. 2006 <<http://www.nps.gov/archive/meve/fire/>>.

² It appears that I am not the only one with such an obsession. Literature on wildlands fire and firefighting has become a cottage industry in recent years, starting with the extraordinary tale told by Norman Maclean, *Young Men and Fire* (Chicago: University of Chicago Press, 1992). Also, Sebastian Junger, *Fire* (New York City: W.W. Norton & Company, 2001).; Peter Leschak, *Ghosts of the Fireground: Echoes of the Great Peshtigo Fire and the Calling of a Wildland Firefighter* (San Francisco: HarperCollins, 2002).; and two works by Norman Maclean's son John N. Maclean, *Fire on the Mountain: The True Story of the South Canyon Fire* (New York City: William Morrow and Company, 1999)., as well as: John N. Maclean, *Fire and Ashes: On the Front Lines of American Wildfire* (New York City: Henry Holt and Company, 2003). The fires of 2000 and 2001, which may have been "tinder" to this bounty of fire literature, also spurred publication of the anthology (Including a piece by Leopold) edited by Alianor True, ed., *Wildfire: A Reader* (Washington, D.C.: Island Press, 2001). The Western conflagrations also spawned a short but descriptive work by the Southwest writer Scott Thybony, *Wildfire* (Tucson, AZ: Western National Parks Association, 2002).

³ Johnny Cash, Ring of Fire, Song, SONY, 1963.

⁴ Ultimately at its peak, the Dome Fire commanded over 1,000 firefighters and support personnel, 28 engines, 11 aircraft and 7 water tenders. The cost of tending to the fire escalated beyond \$8 million (billed to the two youths who were thought to have started the fire, though the sum is not expected to be collected any time soon). Cited from a Bandelier National Monument handout entitled 'Wildfire: The Dome Fire', and Stephen J. Pyne, *Fire in America: A Cultural History of Wildland and Rural Fire* (Seattle WA: University of Washington Press, 1997) and Patricia L. Andrews Stephen J. Pyne, and Richard D. Laven, ed., *Introduction to Wildland Fire* (New York: John Wiley and Sons, Inc., 1996).

⁵ La Mesa Fire burned across 15,444 acres of ponderosa pine adjoining Bandelier, the Santa Fe National Forest, and the Los Alamos National Laboratory. That fire officially began in June on a narrow ridge between Frijoles and Alamo Canyons on Bandelier but spread onto LANL lands.

⁶ For the purpose of narrative coherence, three separate complete hikes were coalesced into one exposition.

⁷ Stephen J. Pyne, Patricia L. Andrews, and Richard D. Laven, ed., *Introduction to Wildland Fire* (New York: John Wiley and Sons, Inc., 1996) 3-7.

⁸ During the most recent eruption episode, a force estimated at 100 times in excess of 1980's Mt. St. Helens explosion. Kenneth A. Brown, *Four Corners: History, Land and People of the Desert Southwest* (New York City: HarperCollins, 1995) 166.

⁹ Similar in scale to the rift which separated North and South America from Europe and Asia some 150-180 million years ago, the deep faults that mark the course of the Rio Grande Rift not only served as a conduit for the volcanic activity that gave the Pajarito its birth, but also eventually served as a convenient path for its namesake river, also known in these parts as Rio del Norte. Ibid. 170-78.

¹⁰ Stephen J. Pyne, ed., *Introduction to Wildland Fire* 300-02.

¹¹ Jim Woodmency, Weather in the Southwest (Tucson, AZ: Southwest Parks and Monuments Association, 2001) 23.

¹² Stephen J. Pyne, Fire in America: A Cultural History of Wildland and Rural Fire (Seattle, WA: University of Washington Press, 1997) 35.

¹³ Chemical decomposition produced by exposure to a high temperature.

¹⁴ Pyne, Fire in America: A Cultural History of Wildland and Rural Fire 35.

¹⁵ *Ibid.* 6.

¹⁶ Nancy Warren Hunter, Villages of Hispanic New Mexico (Santa Fe, NM: School of American Research Press, 1987). Also, Alice Bullock, Mountain Villages (Santa Fe, NM: Sunstone Press, 1973).

¹⁷ As a new twist on anthropogenic fire, Pyne refers to our peculiarly modern uses of coal, oil and nuclear power as 'industrial fire' (Pyne, Fire in America: A Cultural History of Wildland and Rural Fire 616-18.; and referenced throughout Stephen J. Pyne, Smokechasing (Tucson, AZ: University of Arizona Press, 2003).

¹⁸ Brown, Four Corners: History, Land and People of the Desert Southwest, Carroll L. Riley, Rio Del Norte: People of the Upper Rio Grande from Earliest Times to the Pueblo Revolt (Salt Lake City: University of Utah Press, 1995), Marc Simmons, New Mexico: An Interpretive History (Albuquerque, NM: University of New Mexico Press, 1988), David Roberts, In Search of the Old Ones: Exploring the Anasazi World of the Southwest (New York City: Simon and Schuster, 1997). Brown's marvelous Four Corners and Riley's comprehensive Rio del Norte were my primary reference for materials used in illuminating the history of the Ancestral Puebloans in this chapter. Robert's and Simmons' works provided additional historical information.

¹⁹ Hal K. Rothman, On Rims and Ridges: The Los Alamos Area since 1880 (Lincoln, NE: University of Nebraska Press, 1997) 58-83, 95-123. The archaeologist Edgar Lee Hewitt first advocated for the establishment of Pajarito National Park at the turn of the century. Hewitt, a complicated and controversial personality, also arrived at archaeology and the Southwest along an unlikely path. Trained as a teacher, Hewitt devoured the works of Adolph Bandelier and in the company of his first wife, Cora, and several Indian guides, began to earnestly explore the ruins of the Pajarito throughout the summer of 1886. A vivid dream, of conveying the knowledge he was interpreting, wrestled with a fierce desire to protect the culture of his discovery from devastation.

As his work in the area intensified through the latter 1890s and the early 1900s, Hewitt began to lobby for protection of the ancient sites on the Pajarito Plateau that were already beginning to gain him increased recognition in the field of archaeology. Over the next 25-30 years he played a heavy hand in the struggle to make the area a National Park, sometimes weighing in favor of establishment efforts, other times undermining them, depending on how well he felt his interests were being served vis-a-vis his archaeological empire.

Some archaeologists argued that Hewitt, a dominant figure in the profession, was little different than the "pothunters" he hoped to save his sites from. However, Hewitt's drafting of the "Act for the Preservation of American Antiquities" in 1905 did ultimately bring a measure of protection to the area. Signed into law in 1906, the act gave the president the power to proclaim national monuments of any area that was deemed to have significant historical, scientific or cultural interest. Though many of the significant archaeological sites of the area had been somewhat secured since the General Land Office withdrawal of more than 238,000 acres in July

of 1900, it wasn't until 1916 that a 22,400 acre Bandelier National Monument was declared by President Woodrow Wilson. Besides, Rothman, material for this section was gathered from Dorothy Hoard, A Guide to Bandelier National Monument (Los Alamos, NM: Los Alamos Historical Society, 1983) 3-7.

²⁰ Hoard, A Guide to Bandelier National Monument 3-7. Further information can be found in Bandelier National Monument, (Tucson, AZ: Southwest Parks and Monuments Association, 1990).

²¹ Pyne, Fire in America: A Cultural History of Wildland and Rural Fire 263-65. A pragmatic, hands-on perspective on prescribed fire is contained in Harold H. Biswell, Prescribed Burning in California Wildlands Vegetation Management (Berkeley, CA: University of California Press, 1989). A quite nuanced view is represented in Stephen F. Arno, and Steven Allison-Bunnell, Flames in Our Forest: Disaster or Renewal? (Washington, D.C.: Island Press, 2002).

²² Alison B. Grieggs, Octavio Ramos, and Chris Percy, ed., Cerro Grande: Canyons of Fire, Spirit of Community (Los Alamos, NM: Los Alamos National Bank, 2001) 3-9.

²³ It should be pointed out that the Southwest climate is plenty capable of making its own opportunities, given the preponderance of thunder storms, especially during the particularly volatile months between June and August. In fact researchers found in a summary of forest fire statistics that 80% of New Mexico's fires between in the latter part of the 20th Century were due to lightning, about 20% from human causes. Pyne, Fire in America: A Cultural History of Wildland and Rural Fire 8-19.

²⁴ "Wildfire: The Dome Fire", Bandelier National Monument, National Park Service, 2000.

²⁵ Tish Hinojosa, Aquella Noche, Album, Texas Music Group, 1991.

²⁶ Riley, Rio Del Norte: People of the Upper Rio Grande from Earliest Times to the Pueblo Revolt.; Roberts, In Search of the Old Ones: Exploring the Anasazi World of the Southwest.; David E. Stuart, The Magic of Bandelier (Santa Fe, NM: Ancient City Press, 1989).; and Hoard, A Guide to Bandelier National Monument. In addition, Scott A. Elias, The Ice-Age History of Southwestern National Parks (Washington D.C.: Smithsonian Institution Press, 1997). Also utilized was Patricia Barey's National Park Service tract "Bandelier National Monument."

²⁷ Bandelier was 40 at the time. Of Swiss blood (he had only become a naturalized U.S. citizen three years before), Adolph turned his back on his father's banking business for the lure of anthropological research. A Cochiti Pueblo guide, Juan José, led him to his grand discovery that day. Bandelier, through the example of his multi-dimensional work in anthropology, ethnology, archeology and geology would lead others to explore the vast history of the canyon and mesa area that would ultimately bear his name. Hoard, A Guide to Bandelier National Monument 1.

In 1890, Adolph Bandelier published a novel based on the lives of the prehistoric Pueblo peoples whose ruins he had discovered in Frijoles Canyon. The Delight Makers was in part an effort to publicize his findings to an unenlightened general public, as well as a desperate attempt to generate funds to support further archaeological explorations. Some have taken offense at his effort to imagine the lives and weave a story involving an ancient people he had no way of knowing. Others criticize the book's wooden and heavy handled prose and plot. Though I agree that the book is a struggle to read and that in hindsight it certainly has its wants and foibles as an accurate portrait of a complicated people, I can understand Bandelier's desire to imagine it. Adolf F. Bandelier, The Delight Makers: A Novel of Prehistoric Pueblo Indians (New York City: Harcourt Brace Jovanovich, 1971).

²⁸ First settled some time in the late 1200s or early 1300s, at the onset of a period referred to by archaeologists as the Rio Grande Classic Phase, Frijolito Ruins is thought to be contemporaneous with those of Tyuonyi and Ceremonial Cave down in Frijoles canyon. Hoard, A Guide to Bandelier National Monument 53. Pueblos of this time, characterized by a grander scale than those of the preceding Rio Grande Coalition Period, often contained several hundred rooms as opposed to Coalition settlements that seldom exceeded 20-25 rooms. These larger sites reflected advances in agricultural and building practices as well as greater complexity in aesthetic, political, economic and spiritual realms. However, increased populations may have also exacerbated the pressures placed on an already fragile environment. By the time the Spanish arrived in the late 1500s and early 1600s, many of these mesa and canyon pueblos had been abandoned in favor of settlements nearer the Rio Grande. Riley, Rio Del Norte: People of the Upper Rio Grande from Earliest Times to the Pueblo Revolt 93-118.

²⁹ Others posit that the lure of the "Kachina Phenomenon", a new set of religious practices that swept through the area (and is still practiced by modern Pueblans), drew many different communities together and changed residence patterns in unprecedented ways. Riley, Rio Del Norte: People of the Upper Rio Grande from Earliest Times to the Pueblo Revolt 94. Also, Brown, Four Corners: History, Land and People of the Desert Southwest 160-62. For still another perspective on the rise, life and demise of the ancestral Four Corners people see Roberts, In Search of the Old Ones: Exploring the Anasazi World of the Southwest.

³⁰ Brown, Four Corners: History, Land and People of the Desert Southwest 149-57. Also, Stuart, The Magic of Bandelier 88-91.

³¹ Pyne, Fire in America: A Cultural History of Wildland and Rural Fire 66-70.

³² Ibid. 71-83.

³³ William W. Dunmire and Gail D. Tierney, Wild Plants and Native Peoples of the Pueblo Provinces (Santa Fe, NM: Museum of New Mexico Press, 1997) 62-66.

³⁴ Craig D. Allen, ed., Fire Effects in Southwestern Forests: Proceedings of the Second La Mesa Fire Symposium (Fort Collins, CO: USDA Forest Service, 1994) 11-32. Thomas W. Swetnam and Christopher H. Baisan. "Historical Fire Regime Patterns in Southwestern United States Since AD 1700."

³⁵ Pyne, Fire in America: A Cultural History of Wildland and Rural Fire 517-18.

³⁶ Ibid. 519.

³⁷ Allen, ed., Fire Effects in Southwestern Forests: Proceedings of the Second La Mesa Fire Symposium 41-43. (Ramzi Touchan, Craig D. Allen, and Thomas W. Swetman. 'Fire History and Climatic Patterns in Ponderosa Pine and Mixed-Conifer Forests of the Jemez Mountains, Northern New Mexico.')

³⁸ Riley, Rio Del Norte: People of the Upper Rio Grande from Earliest Times to the Pueblo Revolt 10-13, 136-81.

³⁹ Ibid. 183-239.; also Robert Silverberg, The Pueblo Revolt (Lincoln, NE: University of Nebraska Press, 1994).

⁴⁰ In 1742, a land grant extending from the north rim of Frijoles Canyon to Guajes Canyon (near present day Los Alamos), was given to a former soldier of the Spanish Crown named Pedro Sanchez, who had made a somewhat questionable claim on the territory. Known as the Vigil Grant by the time Bandelier happened upon this area, this section of land took its name from José Ramón Vigil after one of Sanchez's heirs sold him the rights of eight of the eleven heirs for a yoke of oxen, thirty-six ewes, one ram and twenty dollars in cash in 1851.

The area between Ancho and Alamo canyons (including the Rito de los Frijoles), was purportedly petitioned for a land grant by certain Captain Andres Montoya in 1740. This was transferred to his son-in-law Juan Antonio Luján in 1780 whereupon various heirs farmed the land till it was sold to American investors in 1883. Thomas W. Swetnam and Christopher H. Baisan. 'Historical Fire Regime Patterns in Southwestern United States Since AD 1700.' Riley, Rio Del Norte: People of the Upper Rio Grande from Earliest Times to the Pueblo Revolt 183-239.

⁴¹ The eventual disposition of both the Rito de los Frijoles and Vigil land grants mirror patterns which were happening to traditional Hispano lands throughout the Southwest (ignoring, for now, the fact that such 'traditional' land grants had been usurped from the native peoples who'd originally inhabited many of the areas that Spain and Mexico deeded throughout the 17th and 18th centuries). Father Thomas Aquinas Hayes, resident priest at Santa Clara Pueblo, purchased the Vigil Grant for \$4,000 during the early 1870s, and thus added 'land speculation' to his duties. As land in the area became increasingly valuable after the arrival of the railroad in the early 1880s, Hayes's investment paid off when he sold the land to a couple of wealthy Midwesterners in 1884, the first in a number of transactions involving the Vigil Grant till it finally came under federal jurisdiction.

In 1893, the U.S. Court of Private Land Claims overturned the sale of the Rito de los Frijoles Grant, when no evidence could be produced that either the Spanish or Mexican governments had actually awarded the land in the first place. It reverted to federal control (perhaps to the delight of Edgar Lee Hewitt).

Land grants throughout the Southwest were subject to much capricious speculation. Sanchez's claim is thought to be a forgery, but his presence on that tract of land served the state's need to have a sacrificial buffer to settlements in the valley against the marauding attacks of Utes and Apaches. The three heirs to Sanchez's claim (who had NOT agreed to usurp their right to their land during the sale to Vigil) filed suit against the current Vigil owners, Winfield Smith and George Fletcher in 1900.

Lumberman Harry S. Buckman, leasing the grant from the partners, had been wreaking havoc on the land in a desperate effort to milk profit from his investment. Since the lease to Buckman was to the entire grant, not the eight-elevenths actually under ownership, they sought redress to the expropriation of their part of the land. Following the protracted trial of several years, the plaintiffs claim was abrogated, their case lost despite the weight of circumstantial evidence in their favor. As was oft true at that time, decisions skewed towards the more powerful, influential, and primarily Anglo interests. Logger Harry Buckman, cattleman W.C. Bishop and 'sheep baron' Frank Bond were only a few of the figures whose use became an abuse of the land that had largely sustained others for centuries. Rothman, On Rims and Ridges: The Los Alamos Area since 1880 20-28, 106-50.

⁴² "Pinyon Engraver Beetle (Pinyon Ips Beetle)," Utah Division of Forestry, Fire and State Lands, 2 Dec. 2006, <<http://www.ffsl.utah.gov/ID/pinyonengraverbeetle.pdf>>. "Forest Insect and Disease Conditions in the Southwestern Region," USFS and USDA Dept of Agriculture, 2 Dec. 2006, <<http://www.fs.fed.us/r3/publications/documents/fidc2003.pdf>>.

⁴³ Rothman, On Rims and Ridges: The Los Alamos Area since 1880.; Simmons, New Mexico: An Interpretive History.

⁴⁴ This statement had been made some time before the Cerro Grande Fire of 2000.

⁴⁵ In 1977, a new fire program was afoot for the Pajarito Plateau. It was a bold step away from the long-standing "10am Policy" originally decreed in 1935 by Forest Service Division of Fire Control, whereby no fire would be allowed to flourish past mid-morning the day following its engagement by fire-fighting personnel. That spring, National Park Service Regional Director John Cook had delivered news of a spanking new controlled burn program that encompassed the La Mesa area. Henceforth, use of controlled burns would be one of the means at disposal in limiting the potential of uncontrolled blazes. However, on the afternoon of June 16, fire jumped the gun on whatever policy implementation management may have had planned.

By the end of the next day, the fire had spread onto Bandelier territory, by the 18th it was on a roll across Highway 4 and on its way towards Los Alamos. Though progress was reported along the western, southern and eastern fronts of the fire on the 19th, it wasn't until higher humidities and intermittent thunderstorms began to come to the rescue on the 20th and 21st that management began to allow themselves hope. The fire was officially declared 'contained' on the afternoon of June 22nd. In all, 1370 people, 9 bulldozers, 23 ground water tankers, 5 air tankers, and 5 helicopters were deployed in the battle with La Mesa. The taxpayer tally of about \$3 million to fight the blaze has not been adjusted to 1999 inflation levels. Rothman, On Rims and Ridges: The Los Alamos Area since 1880 278-80.

⁴⁶ Head scientist for the NPS in the Southwest at that time, Milford Fletcher fortuitously saw the smoke on the way to a meeting with an old friend in Santa Fe. He told Cal Cummings, another NPS official, that archaeologists needed to go ahead of the construction of fire lines. Other NPS and USFS supervisors agreed. Cummings assembled several dozen volunteers and Fletcher supervised them. Ibid. 279.

⁴⁷ I am indebted to the following for diverse and discerning perspectives on 1977's La Mesa Fire: Allen, ed., Fire Effects in Southwestern Forests: Proceedings of the Second La Mesa Fire Symposium 7-10, 206-14. (John D. Lissoway, "Remembering the La Mesa Fire;" Thomas R. Cartledge. "Heritage Resources and Fire Management: A Resource Management Crossroad"), Stephen J. Pyne, ed., Introduction to Wildland Fire 448-51.; and Rothman, On Rims and Ridges: The Los Alamos Area since 1880 278-80.

⁴⁸ Hoard, A Guide to Bandelier National Monument 70.

⁴⁹ Though there were some differences between the geographically distinct cultures, there is much in common between the peoples of Pajarito and those from east of the Sangre de Cristos. For more information on the Salinas Pueblos, including Gran Quivara, see Eugene P. Link, and Beulah M. Link, The Tale of Three Cities: Gran Quivara in the Southwest New Mexico, 1100 B.C. To A.D. 1963 (New York City: Vantage Press, 1999). Also, Dan Murphy, Salinas Pueblo Missions: Abo, Quari, and Gran Quivara (Tucson, AZ: Southwest Parks and Monuments Association, 1993).

⁵⁰ Listings of plants contained in Tierney, Wild Plants and Native Peoples of the Pueblo Provinces.; William W. Dunmire, and Gail D. Tierney, Wild Plants of the Pueblo Province: Exploring Ancient and Enduring Uses (Santa Fe NM: Museum of New Mexico Press, 1995).; Stuart, The Magic of Bandelier.; Hoard, A Guide to Bandelier National Monument.

⁵¹ Riley, Rio Del Norte: People of the Upper Rio Grande from Earliest Times to the Pueblo Revolt 66-68.

⁵² Stuart, The Magic of Bandelier 104.

⁵³ Pyne, Fire in America: A Cultural History of Wildland and Rural Fire 319-21.

⁵⁴ Stephen J. Pyne, Year of the Fires: The Story of the Great Fires of 1910 (New York City: Viking, 2002).

⁵⁵ Pyne, Fire in America: A Cultural History of Wildland and Rural Fire 524-27.

⁵⁶ The National Park Service was on the vanguard when it came to new thinking about fire. In terms of fire management, the U. S. Forest Service had historically shown the way to other federal agencies, and had been conducting many experimental burns of their own, but the NPS had less at stake than the USFS in terms of established economic uses of its forests. The NPS charge of "preservation" of natural beauty was more in alignment with the use of prescribed burning towards ecological balance than the National Forest's "wise use" policies. A number of officially sanctioned experiments with natural and prescribed burning occurred on Park landscapes. In fact, the parks jumped on the fire-wagon in 1968 as soon as NPS policy allowed it. Pyne, ed., Introduction to Wildland Fire 440.

⁵⁷ Pyne, Fire in America: A Cultural History of Wildland and Rural Fire 361-86.

⁵⁸ Allen, ed., Fire Effects in Southwestern Forests: Proceedings of the Second La Mesa Fire Symposium 123. Careton S. White. 'The Effects of Fire on Nitrogen Cycling Processes Within Bandelier National Monument, NM.' Careton S. White. 'The Effects of Fire on Nitrogen Cycling Processes Within Bandelier National Monument, NM'

⁵⁹ Ibid. 124-34.

⁶⁰ Ibid. 135-38.

⁶¹ Ibid. 129-35. White again, joined in another Bandelier study by Samuel R. Loftin, concluded that while soils with discernable cryptogammic crusts tended to have a higher nitrogen-fixing potential than those without, that this was not always the case.

⁶² Michael Pollan, The Botany of Desire: A Plant's Eye View of the World (New York City: Random House, 2001) xii-xvi.

⁶³ Rothman, On Rims and Ridges: The Los Alamos Area since 1880 214-16.

⁶⁴ As one form of respite, Oppenheimer did clear permission to bring discrete groups of scientists down to a small tea/guest house at the Otowi Bridge, several miles from San Ildefonso. There, several nights a week, Edith and Tilano Montoya (her companion – an elder from the pueblo), served a simple dinner and dense chocolate cake, soothed the angled nerves, and kept the secrets of the conversations that happened around their table. Warner - who had come to the plateau seeking her own healing in 1922 and kept inventing ways to stay - made a quiet and lasting impression on people like Enrico Fermi and Niels Bohr. Through her, at least briefly, the oldest and newest peoples on the plateau were able to come together in a temporary harmony.

To accommodate the increased traffic, a new bridge was built at Otowi in 1947. Many friends, including PhD's from "the Hill" and Pueblan fiends from the valley, pitched in to build Edith and Tilano a new home away from the unendurable traffic. In early 1951, however even the magic of cancer-fighting radioactive isotopes were of no help to Edith, who was now riddled by the disease. In her last letter to friends, she wrote "Whatever you may have felt here of peace and stillness came from the great Source of life and will be here always. I was but a channel, for which I am most grateful." Edith Warner died quietly at home on May 4, 1951. Peggy Pond

Church, The House at Otowi Bridge: The Story of Edith Warner and Los Alamos (Albuquerque, NM: University of New Mexico Press, 1960). The noted New Mexico author Frank Waters wrote an engrossing fictionalized account of the same period and personalities: Frank Waters, The Woman of Otowi Crossing (Athens, OH: Ohio University Press, 1987). Some of Warner's own reflections are recorded in Patrick Burns, ed., In the Shadows of Los Alamos: Selected Writings of Edith Warner (Albuquerque, NM: University of New Mexico Press, 2002).

⁶⁵ Robert Oppenheimer, ""Interview,"" Bulletin of the Atomic Scientists, March 3, 1948. A brief and dispassionate history of the atomic development on the plateau can be found in Robert W. Seideal, Los Alamos and the Development of the Atomic Bomb (Los Alamos, NM: Otowi Crossing Press, 1995). A somewhat more skeptical picture is portrayed in an account by Jo Ann Shroyer, Secret Mesa: Inside Los Alamos National Laboratory (New York City: John Wiley & Sons, Inc., 1998).

⁶⁶ Reg Saner, The Four-Cornered Falcon: Essays on the Interior West and the Natural Scene (New York City: Kodasha International, 1994) 73-103.

⁶⁷ Rothman, On Rims and Ridges: The Los Alamos Area since 1880 233-57.

⁶⁸ Grieggs, ed., Cerro Grande: Canyons of Fire, Spirit of Community 1-9.

⁶⁹ Ray Weaver, Bandelier National Monuments superintendent became the official fall guy, and was put on administrative leave in May, 2000 for having approved his fire staff's burn plan. However there was plenty of blame left over for that staff, whose planning and implementation was criticized on many fronts. *Ibid*, pp. 132-134.

⁷⁰ Pyne, Smokechasing 131-38.

⁷¹ Nor does Pyne let the planners off the hook on implementation or the escaped backfire: every other federal agency in the region, cognizant of the extreme weather conditions that day, had declined to burn. He also wonders, if protection of Los Alamos (by eliminating possible fuel load in the path of prevailing winds) was such a strong part of the intention of the master fire plan, then why wasn't the dense forests between the town and Bandelier the focus of fuel load reduction.

Beneath these, he cites a more systemic issue. Given that recent available prescriptive fire funding is focused on fuel reduction to the exclusion of other utilizations of fire, it is possible that in the continued quest for appropriations for other means for fuel reduction (such as thinning) may get lost by the wayside, and that the reintroduction of fire as an ecological presence (a continuing theme of Pyne's in recent years) as opposed to a singular focus on fuel reduction, may court additional disasters a la Cerro Grande. (*Ibid*. 160-64.)

⁷² *Ibid*. 5-9.

⁷³ The Jemez's vast caldera, known as Baca Location No. 1, had been subject to yet another land use dilemma in the northern New Mexico. The Dunigan family - the area's most recent owners - had given the federal government till the end of 1999 to purchase the ranch. Following appraisal, Congress anted up somewhere \$101 million for the purchase.

The sale further consolidated federal holdings in the region. U.S. Senator Pete Domenici sought to manage Valle Grande under government protection as a self-sustaining working ranch with a unique hodgepodge of recreation, wildlife and grazing. Plans for management and development are still emerging. Heavily logged in the middle part of this century, the Baca location is perhaps the latest in a long chain of lands in these parts that have looked to the U. S.

Government for its economic future. Dennis Domrzalski, "94,000 Acres of Paradise: Touring the Baca," Albuquerque Weekly Alibi 12/10/98.

⁷⁴ Crews such as those of the Southwest Forest Firefighters (SWFF), have earned their money, and in some cases given their lives, on fire-lines throughout the west. Pyne, Fire in America: A Cultural History of Wildland and Rural Fire 378-80.

⁷⁵ Stephen J. Pyne, Fire on the Rim: A Firefighter's Season at the Grand Canyon (Seattle WA: University of Washington Press, 1989) 163-70.

CHAPTER III: THE MISTS OF TIME

TIME TRANSING

Shape-shifters in Shamanic traditions morph from one physical form to another. Think of a totem pole. Human rises through raven. Raven dives into orca. Orca swims into the air again as human. What I call 'time transing' is the temporal equivalent of shape-shifting. I'm cast adrift in a time trance since arriving in the Pacific Northwest to explore the paradox of restoration of wild habitat in a heavily urban locale. Driving from the airport to my hotel at mid-night earlier in the week, I'd felt like I'd never left Washington, as if New Hampshire and all my years of living there had somehow been erased. Temperature was in the 50's. A misty rain obscured perspective. Spectral lights on far hillsides dimmed in and out of view. Moment by moment portals seem to open through time; where sensory memory allows us to step outside the past-present-future continuum; where the distinctions between the three become vague. I am musing about temporal ecology; wondering if perhaps the healing of place might somehow require a restoration of time.

There's a little French bakery at Seattle's Pike Place Market that I frequent when I'm in town. Pike Place, full of Northwest-oriented crafts stalls, local fresh farm produce, raucous fish sellers and simmering ethnic restaurants, represents some of the best that a modern city offers, both aesthetically and culturally. I

relish early mornings there, before legions of tourists arrive, while market locals unload their trucks and banter over coffee. At the north end of the Market at 7am yesterday, I passed a group of Native American men on the sidewalk near Victor Steinbrueck Park as morning sun broke through tattered mist. No words passed between us, just simple nods. Then one of them looked at me more intently, in silence his eyes met mine and my entire perception suddenly shifted.

It was 1985. New to the city, I was walking downtown Seattle in the earliest hours of morning. The flow of air on skin, of scents curling around corners, of vistas of water glimpsed through avenues of buildings; all felt fresh and vivid but underneath sensation coursed intimations both ancient and achingly familiar. I became keenly aware that countless peoples had wandered these same hills by the sea for thousands of years. Their footsteps and mine reverberated through the shadowy alleyways. Fog shrouded the upper reaches of the skyscrapers. Anything could have been in that air, soaring through that white shroud. No engine sound split the quiet. Gulls keened – a sound of longing and questioning.

I could not know at that moment that the Pacific Northwest would become my home for a dozen years, only that something far older than the macadam and concrete had made this feel like the only residence I'd ever known, though at the time I could only sense this hazily at the edges of my consciousness. Nor did I know that for all the times I would return after I'd moved, it would seem as if I had never left. It was like that again yesterday as I

got lost in the eyes of the man at Steinbrueck Park. Everything became raw, feral, new – yet ancient beyond telling. I walked among the Kwakiutl and Tlinglet, waited for deer at the street corners, watched for bear behind the dumpsters, stumbled over a middens heap of spear points and broken clamshells at the corner of 2nd and Bell.

It was another of those passages when the membrane between past, present and future had become very thin. At such moments, all that has passed on a land, all that still remains, and all that yet will be mingle liberally. No one time is any more relevant than another. How could one choose? John Hanscom Mitchell explored something like this phenomena in *Ceremonial Time*, his 10,000 year natural history of one square mile of land he owns in central Massachusetts. In the process of his research, Mitchell meets an indigenous elder who shows, through ceremony, how to cast off the veil of time to encounter all the humans and other-than-humans intermingled in a realm where past, present and future merge. Afterwards, Mitchell can't walk his land without feeling the presence of ancestors and descendants emerging. In the morning mist, Seattle's present-day sidewalks lay like a thin skin over other times beyond my own.¹

It is good, I believe, to stroll across a place slowly at times, leaving aside vigorous aerobic workouts for other walks, other days. It is good as well to sit at rest sometimes and wait there till boredom disappears. Only then, perhaps, can we suspend our normal framework of present-day tasks, hurries and worries to learn what the land remembers, to hear what it anticipates. When we begin to

see life and time from land's point of view, it inevitably transforms the way we see our own place in time as well. And as we gain more sophisticated eyes in seeing through the veils of time, we might be better able to glimpse the flowing ecological processes that integrate and transform a place over time.

How does a landscape see its place in time? Etymologically, 'restoration' assumes *a priori* that a subject or object is brought back to some former state. In ecological terms, this assumes that prior conditions can be relatively fixed and accurately referenced as a target for restoration efforts. A faithfully rendered, historically accurate landscape would be seen as having all or most of its native species. But what exactly does native mean, extant at the era of the reference target? How long must a species be present in a place before it can be considered an ecological citizen rather than an invasive immigrant? The status of restoration is often circumscribed purely by indigenous stature of a place's species. Not many species exist only in the place where they originally evolved. In Mitchell's ceremonial Scratch Flat, distinctions between ancestors and descendents became erased. In Seattle's early morning mist, there was only an enduring interpenetrating present. What does native mean when the mists of time obscure all references?

For these and other reasons, I now reflect on the role time plays in restoration processes. By this, I don't only mean how long re-establishment efforts take, but especially what choice we make about the point in time deemed

the reference model. What makes any one era preferable to another? How can we presume an optimal distinction between a span of interpenetrating eras? Such questions are the province of temporal ecology, where concerns of time bear consideration along with concerns of space and speciation.

The term “re-story-ation” has begun to surface here and there in discussions with environmental friends and in the literature, though I can not ascertain who first coined the word.² Consider a landscape as having a story arc. If species represent characters in that account, then plot unfolds in the temporal dimension. Existing organisms may be struck from the tale for a time or forever – migration or extinction represent sophisticated plot devices – and new ones might be introduced, depending on the framing narrative. Perhaps evolutionary succession in a particular place should be seen as a long unbroken narrative, somewhat vague in its beginnings, ultimately unclear in its culmination. Amid these mists of time, I enter another time trance.

Jet-lagged and ragged from my cross-country flight, I’d fallen into a long, uneasy nap. Just before sunset, I awoke confused and disoriented. My girlfriend was not yet home. I ventured out to explore her North Seattle neighborhood. A belt of trees drew me south. Descending a ravine, I entered a miracle of green and scarlet; a footpath wound down a precipitous slope through a tangle of blackberry vines and rhododendron to a shallow stream at the bottom. Overarching gigantic burgundy-barked trees with needles like lace curtains held

back the grey light. I idly dipped my hand into the flow and dabbed the cool water to my face. It was my first meeting of Ravenna Creek. The touch of wetness felt like a caress and a baptism. I sat by the flow, my back against a red cedar, for over an hour. "I'll be OK here," I remember thinking. Refreshed and relaxed, I walked home through the soft dark.

I'd moved lock, stock and bookshelf to Seattle on the Ides of March, 1986. The 13th day of that month bore both ill and good omens. Ann Bryn lived in this Ravenna neighborhood just north of the University of Washington's sprawling campus and adjacent shopping district. Within a month, our relationship exploded in a maelstrom of betrayals and recriminations. I took my confusion and sorrow almost daily to the trees and creek in the ravine. It was the only place I could find whose version of reality transcended my own. Maybe I was projecting compassion onto the western red cedars and the cascading stream. Maybe they could give a rat's ass about my presence. What mattered to me at the time was that in that one place I felt like I belonged, where I felt safe, real. I'd entered into an abiding relationship with that place that would endure through time. Perhaps only in well established reciprocal relationships can we recognize patterns that underlay a richly textured though ineffable place history.

From first appearances, Ravenna has much the look of any other city park. Picnic tables, ball fields and manicured lawns grace the east and west entrances. But a short walk into the ravine reveals a much different character. Inside Ravenna, the sound of traffic fades, the houses disappear, and the true

voice of the park begins to be heard. It is quiet; Ravenna does not overwhelm. It soothes, speaks in subtle tones, in whispered details of shafts of light through the overhead canopy and shooting growth of horse-tail and salal.

Ravenna does not constitute a true wilderness, but preserves the spirit of wildness; a sense of being alone with primal land, and the hint that if humankind were no longer present the park might still look and sound much the same. To my untrained eyes, it seemed perfectly capable of maintaining its own character without significant intervention. Few places within the city can claim that. Of all the lands within Seattle's sprawling city limits, Ravenna is one of only two extant parcels that still contain never cut old growth Western red cedars, trees whose roots may still reach back through unbroken generations to a time before humans crafted the stories of this place.³

We need lessons, especially in urban locales, to remind us of the power of the earth's shape-shifting energy. For us to alter Ravenna, to even try to mimic its unique charm and indigenous beauty, would be to risk losing that lesson. The heart is its stream; life blood of the park. Fed by seeping rivulets trickling from the steep ravines, Ravenna Creek meanders casually through the length of the park, feeding the roots of tall red cedars which still find this place a hospitable environment. Slow water also creates the still eddies at stream bends that harbor specialized aquatic plants and animals. These too would be susceptible to untoward alteration of the park.

Nonetheless, the ravine has seen its share of development. Seattle's Parks Department struck down towering redwoods in the early part of the century for use as firewood.⁴ A footbridge built towards the soccer fields disrupted the flow of a natural sulfur spring. Still, Ravenna feels stronger and older than its disturbances. In the solitude of its quiet paths, one might still find a hint of the landscape that first greeted humanity to the Seattle area. We need sites like Ravenna to remind us what lived here prior to the modern city, lest we forget or neglect that which first brought life to this corner of the northwest.

Knowing Ravenna, knowing any place, requires patience. Its lessons do not transmit in one quick visit; its teachings gradually accumulate, understood best when gathered over time. It takes time to see the variety of effects of light throughout the day across the breadth of the park. It takes time to see all the stages of growth and discover all the hidden treasures; across the reach of the ravines, down the length of the streams, throughout the stretch of the seasons. It takes time to hear the quiet voices and appreciate the full gift of solitude found within the park. For the most part, Ravenna has had time on its side. Its links with antiquity remain largely unbroken. That is part of its enchantment.

But perhaps this element of ancestral time is what is most fragile here, even more than the clear flowing water, steep slipping slopes, and the varied plants and animals which call it home. Time has made Ravenna resilient. Development would steal time from the ravine and upset the delicate balance of energies that hold it resilient through all its changes. For those who find their

own balance in the park, losing the quiet voice of such a place, with all its accumulated lessons would not be worth the assumed gains of a fully developed, more civilized park. We need more exemplary places like Ravenna, not less.

The importance of places like Ravenna extends beyond their own spatial and temporal bounds. *The Historical Ecology Handbook: A Restorationist's Guide to Reference Ecosystems* posits that species should not be the sole focal point in restoration efforts. Approaches of researchers represented in this book emphasize evolving ecosystem roles and functions contextualized within historical references rather a fixed picture of native species. Historical ecologists emphasize detailed, careful and long-term study of reference ecosystems in conjunction with ongoing restoration efforts. Cognizant of pervasive human influences in present day ecosystems, they examine cultural as well as environmental data in analyzing reference ecosystems. In recognizing human influence, including our detrimental effect on landscapes, they affirm the positive roles humans might play in restoration efforts. And in examining and interpreting environmental change at different spatial and temporal scales, historical ecologists emphasize a place's past explicitly as a means to ensuring its future.⁵ Ravenna, as one of Seattle's most pristine reference ecosystem, becomes a source of inherent wisdom as we begin to understand its inherent wisdom as it evolved, and continues to evolve.

The phenomenologist Edward Casey asserts that “places gather.” In the Keith Basso/Steven Feld anthology *Senses of Place*, he states “Minimally, places gather things in their midst – where “things” connotes various animate and inanimate entities. Places also gather experiences and histories, even languages and thoughts.”⁶ I might add that places can gather stories, memories, imaginings and ecological wisdom as well. Particular places become palimpsests of time. Moreover, there may be reciprocity in the gathering; our bodily senses and minds constantly collect information from place – and they from us.

Ethical relations with place, as proposed by Leopold in his much cited ‘Land Ethic’ essay⁷ and affirmed by Jim Corbett (*Goatwalking: A Guide to Wildlands Living*)⁸ as well as other environmental philosophers, predicates respectful reciprocity. Ethics implies a moral authority that intertwines with attitude and action. When fully present with the land and within ourselves, we enter mature relationships that attend respectfully to all. To me, this state of absolute presence is as real as it gets. To be reciprocally real is the state one might call “real-ationship.”

If all that places gather becomes part of the ongoing story, then our ability to respond, to listen and engage in partnership rather than dominion help humans remain a viable character in the land’s tale of itself. Perhaps the measure of ecological restoration projects should be their success as agents of re-story-ation. Humans often act as if we were sole author of a land’s narrative. Recognizing a place’s own *authority* may not only be wise but prudent.

Remarking on places' capacity for triggering self-reflective musing and memory, *Senses* co-editor Basso comments "Place-based thoughts about the self lead commonly to thoughts of other things – other places, other people, other times, whole networks of associations that ramify unaccountably within the expanding spheres of awareness that they themselves engender."⁹ If places, or physical objects within those places, can carry us into our own stories, into deeply personal reveries of place-self, I wonder if such places and objects also carry and convey stories of others who have lived and moved there; stories that extend beyond our current understanding of the nature of place, or of time.

If we cultivate a deep, sensual regard for place, perhaps we can gather to us some of the wisdom collected there. Ravenna's gift may not only rest in its organismic diversity and spatial complexity, but in the many stories it has gathered to itself, uninterrupted across the span of time only it alone recalls. But even such places as Ravenna may not withstand the pressures of urban planning and economic necessity.

"Hey, did you hear what the city's planning?" Angrily, my friend Pete explained the City of Seattle Parks and Recreation proposal to "improve" Ravenna Park. Green Lake is a popular recreation area to the northwest of Ravenna. Located in a bowl of land lacking a natural outlet, cradling the runoff from surrounding streets and parking lot, the lake had been in a gradual state of eutrophication. The master use plan proposed by the city indicated that heavily utilized Green

Lake could be preserved by creating an outflow through the lightly used and poorly regarded Ravenna creek, continuing all the way to Portage Bay near marshes built upon junkyard landfill.

In typical bureaucratic doublespeak, the projected "straightening" of the creek, the laying of concrete culverts and cutting of inconvenient old-growth cedars were considered an improvement over the raw tangle of unimproved Ravenna. Modern benches and picnic areas, wide paved paths, florid landscaping, and surface lights would provide more "recreational opportunities" to citizens denied access by the uninviting character of the old-growth park.

At a neighborhood gathering inside a graciously appointed older home at the lip of the ravine, I found out that Pete and I weren't the only ones outraged by the city's plan. Dozens of us crowded on couches, perched on folding chairs, and squeezed into gaps on the floor as we listened to our neighbors; erudite professors from UW, struggling students in thrift store clothes, old hippies and new yuppies, testify both their love of the park and their anger over the proposed improvements.

That meeting led to others. Our numbers swelling, we broke into task groups, each with a part of the overall mission to elevate local awareness, focus attention, harness energy, challenge plans, and win respite for the cedars and the stream. I joined the publicity sub-committee and worked with a new-found photographer friend to develop a slide-show and narration that was presented at neighborhood meetings throughout Ravenna, nearby Wedgwood, and the

University District. Our charge was to raise consciousness and muster support. We printed up t-shirts and wore them proudly. We wrote impassioned letters to the editors. We sat in on interminable city council meetings and presented our petitions. We railed. We rhapsodized. We hoped. We waited.

This was a different kind of educational process than I'd ever experienced. When I'd left my eight year teaching career in the Northeast for an uncertain future as a free-lance writer in the Northwest, I'd summarized my educational philosophy as follows: all learning begins with attention; what gets noticed can be responded to, such response sits at the root of responsibility. During the fight for Ravenna Park, I realized that my philosophy had evolved beyond traditional education to encompass the personal and the political as well. Notice-respond-responsibility describes an arc of reciprocal relationship. I'd met Ravenna at my most raw state and the cedars and stream had held and beheld me. As I healed, I carefully looked back: the ancient majesty of towering red cedar, the ancient evanescence of horsetail, the sumptuous periodicity of Himalayan blackberry, the intricate weaving of creek waters threading the ravine and replicated in the mychorreazal watershed of roots and soil.

The environs of Ravenna and its outlet Portage Bay wildly intoxicated me; my blood, spirit and thought became now an inextricable part of the watershed. How could I not take responsibility for that relationship? If someone held a gun to the head of my lover or friend, would I not be compelled to intervene?

Several months into our guerilla campaign on behalf of Ravenna, the city backed off its master plan and sought alternatives for the Green Lake problem. They'd failed to "improve" the park, but had unwittingly triggered compelling improvements in the heart and spirit of a community. The grassroots 'Save Ravenna Park' coalition evolved in to several long-term community groups, including the Ravenna Creek Association, which these days works towards the 'daylighting' of the entire creek from its headwaters in Cowen Park (upper Ravenna), through the shopping malls of University Village, to the estuary at Portage Bay. There is serious talk of returning salmon to this place which has long missed their passage.¹⁰ Their story has been missed.

SALMON RETURN

Shadow, ripple, glint of sun-splashed scale

grace, perpetuation.

I imagine the return of salmon to this stream

which only half-remembers itself without them.

My fingers trace arabesque patterns on the surface of this still eddy

drawing runes as if through some ancient conjuring

I could bring coho or sockeye to this place.

Willow breaks and rip-rap, log weirs and re-vegetation

slope stabilization, habitat enhancement – no talisman or prayer alone

can restore this watershed to its memory.

Could it be, without salmon here, that I have lost

some vital memory of myself as well?

In the shade of red cedar, amid the bending of vine maple

and the incessant whine of mosquitoes, at the curve of this stream

this confluence of earth, body and water,

I wonder what it means to restore a full run of salmon to one another's souls.

Restoration of any kind is never so straightforward as we would wish.

This stream, pained by its longing, is comforted by its forgetfulness –

now used to the silt sheathing its gravel beds, adjusted to the uncluttered,
straight-line channels free of log snags and boulders,

currents which no longer invite salmon to their dance,

grown fond even of the introduced moments of brook trout and catfish.

To remember salmon is to welcome a certain pain.

It is not easy knowing that, in the endless cycle of riparian time,

in order for something to live and spawn something of you must die.

That is the way of salmon.

That is the way of souls.

I can not divert your heart from this.

It is not easy to know the law of salmon rivers – heron and eagle,

otter and bear will come to pluck the richness from you.

The river does not allow its abundance

to flow unshared (while desire chafes at such limits...)

Nor is it easy to recognize that in order for balance and integrity

to return to the course of a river or a life

everything must continually restore itself each moment of its existence.

But still I want these things for you, for me,

because there is no other way to know ecstasy and wisdom

but through the movement of salmon

in these places which have long forgotten them.

Heavy salmon fly through the air to the exhortations of admiring on-lookers. This could be a view of leaping Coho or King at Ballard Locks' fish ladder, one of Seattle's better known tourist destinations, where spawning salmon begin their migration from Puget Sound, through the ship canal to Lake Washington, and up various feeder tributaries. But this particular image of wild salmon in flight captures hyper-active fishmongers tossing their expensive wares from ice bins to wrapping stations before eager customers at another popular sightseeing arena, one of the fish markets at downtown's Pike Place Market.

In a city marketing its wild surround, salmon represents big business. But modern demand has long exceeded supply. Leveraging desire, entrepreneurs began raising force-fed farmed salmon in the 80's. Savvy diners though, scoff at the domesticated variety and seek the wild. Ecological as well as aesthetic concerns may abide: farmed salmon are more susceptible to disease and die-off. Operations often contribute to nasty algal blooms via nutrient pollution.¹¹

Marketing competes with misinformation, pressuring further a species close to its breaking point. People may live in the midst of salmon without understanding much about them. A friend ordering his meal at a trendy eatery overlooking the Lake Washington ship canal queries the waitress. "Is your salmon wild or farm-raised?" She breezily replies "Neither, it's smoked."

Pacific Northwest human cultures and salmon species intertwine, each a pioneer in re-colonization as the Wisconsin glaciation receded more than 10,000 years

ago. For all our ingenuity, would we have readily survived here without the richly fattened flesh of the regions' six tribes of *Oncorhynchus*; coho, sockeye, chum, pink, king and steelhead. Hardy salmon pushed up the treacherous meltwater rivers. Harsh glacial outwash would push back, wiping out whole generations of intrepid fish, but still they persisted, till in the wake of the last glacier nearly every watershed held its own native population.¹²

Humans followed salmon on their river rounds, gathering the time and place for propitious hunting from the species and its natal rivers. 'Up-running' is the etymological origin of the word 'anadromous' which connotes Pacific salmon's migrations from birth in fresh water, out to the sea, and back again. Of the six species, only the steelhead is not semelparous, meaning the rest return to spawn and then die.¹³ How could a species so prolific, yet also so mysteriously resilient, not capture the imagination and respect of indigenous peoples who counted on salmon's abundance, and eventually celebrated its spiritual significance?

If places gather, then so do salmon. Salmon inadvertently gathered native peoples to them in watersheds they colonized, but as they evolved they also gathered something of their home waters to themselves that defines them so strongly that wild hatchlings from one river released in another will quickly lose their way and almost always die. Scientists speculate that salmon navigate their way back to their exact birth water with a form of magnetic guidance, but they also utilize an inordinately sophisticated sense of smell and taste to exactly recollect their place. Author and Pacific editor of National Fisherman magazine

Brad Matsen compares the acuity of their scent sense to our detecting the equivalent of one drop of vermouth in five hundred thousand barrels of gin.¹⁴

For all the odds stacked against them, the reality that any salmon survive at all staggers the imagination. Only one in five eggs laid by a spawning female may survive to become fry. Of these, but one in ten survive to find suitable freshwater habitat to grow large and strong enough for their eventual ocean journey (a matter of months or years depending on the species).¹⁵ Say that fry survives freshwater predation and makes it to the river's estuary to rest and adapt for its years of saltwater life. Each journey, way-station and destination is fraught with peril – many hunters abound who savor the flesh growing salmon. Thousands of eggs might yield one sea-based salmon capable of returning to spawn, assuming it makes it back through the obstacles not only of predation, but of engineered locks and electrical dams, of source point heat and toxic pollution, and its own sheer weariness.

Some rivers have lost their salmon. Some salmon, the farmed variety, will never know a river. A few rivers remain which still know their wild salmon. Some bereft streams, like Seattle's Piper's Creek and maybe someday Ravenna, may welcome again this species that can gather a river to itself, turn that river into an ocean, and bring that sea home to spawn. These salmon may not start out so wild – urban watershed restoration depends heavily on hatchery spawn – but managers hope that subsequent generations of these fry will recall their wildness, and perhaps help its river become wild again as well. But if a salmon is

made of its river, it might be said that a river is made of time, measured in the cycling of flow from headwater to estuary, and from oceanic weathers to misty rain back along their drainage. As threatened as salmon might be, their rivers may be even more at risk. In restoring salmon to their rightful place, perhaps we must first re-establish the rivers that welcome them.

It is one thing to learn what a salmon might need to sustainably exist, but what of a river? Entering a time trance once more, I sift through memories and experiences of Northwest rivers to see if I might discern something there native to my own nature, and if in this I might recognize useful patterns that might help me understand what it might be to restore salmon to a river, and to re-story a river to its own place in time.

Rill, riffle, trickle, seep. Rivulet, freshet, brook, creek. Just as something in a salmon compels it to return upstream and spawn, something in the nature of water compels it to move and branch downstream. Two atoms of hydrogen ecstatically embrace a single atom of oxygen and something in their union echoes within a river and draw the salmon to its source. River water – like time – is not restless but at peace with its motion. When I refer to a river, I do not mean only the water that moves along its course from head to mouth or the countervailing forces which influences its flow along the way. The river I am talking about includes the stones and sand that massage its round belly, the insects that spin and dart through its bloodstream, the waterlogged driftwood

raking a craggy hand along its bending torso, as well as the salmon seeking perpetual life with the sacrifice of death.

A river is more than its surface; down where salmon struggle through the current, there's another flow. A friend and I camped along the White River at a slow bend, politely excused from the company of highway 169 on its way to Mt. Rainier. Snuggled warm in my sleeping bag, I watched the stars transit the cold sky for nearly an hour. Finally, I closed my eyes and gave myself over to pure listening. In that calm just before sleep, I heard a new sound, a subtle vibrato. I was no longer hearing the incessant chatter of surface water but the low, dense moan of the deeper river where it rubbed against the smooth stones lining its bed. It was a sound heard more with my bones than my ears. Only in the stillness of that wilderness night, with my frantic pace of life slowed to a crawl, was I able to detect the edges of that deep river song.

We know that salmon can navigate a river by their internal compass, aligned to a magnetic direction each and every one of them knows. We know that their sense of smell and taste and temperature sensitivity can detect subtle nuances in each portion of their natal stream, unerringly finding their way back to their spawning redd. Might a salmon also recognize the music unique to its own river, a signature writ in tumbling stone? How would I, with my limited senses, ever come to know a river so well?

A summer waterway in Idaho taught me about river acclimatization. A friend and I had struck out on a trail beside a tributary of the Lochsa River. Put

several miles of hiking in ninety plus temperatures under a full sun together with a wide bend in an inviting reach of water and skinny-dipping is the only logical outcome. I boulder jumped to the middle and eased myself into the cool eddy behind a huge promontory of stone. For twenty minutes or more I lay submerged with only my nose and lips raised to the air. Anchored with my right hand to the rock, I let my body ease out into the broad wash of the current.

When I stood to dry in the sun, my blood felt like it was no longer pumping longitudinally but instead was yearning for lateral release. My whole body, so used to vertical existence, adapted to the horizontal axis of the river – the alignment that salmon know from the moment they hatch. For the next hour, I felt like I was walking through an alien world – as if my blood remembered more clearly my ancestral journey through the primordial waters of life than my scrambles across the variegated landscapes of North America. If indeed, mammals evolved from creatures of the sea, then perhaps for awhile I had traveled back through time to my piscatorial origins.

From surface down to bedrock, rivers flow to gravity's undeniable call. A river explains its insistence with the startling cut of the Snake River Canyon, with the deep desire of the Columbia Gorge, even the persistent trickle of Ravenna Creek, architect of its steep shadowy ravine. This isn't to say that rivers lack diversions, nor its denizens need of respite. There may well be Type A personality salmon, but few make it to their sacrosanct gravel redds without the restful pauses provided by a river's eddies. This is also not to say that rivers lack

responsiveness. A river knows the lay of its land and responds accordingly. It must be able to adjust its flow to the mass of its water, the bend of its banks, and the inclination of its slope at any given point. Rivers define themselves with a shape-shifting responsiveness. Whether examining rivers or personal motivations, cultivating such adaptive sensitivity helps. A backwater eddy may be a near ideal response to the intensity of rapids.

Even with its quiet places of recycle and reflection, a river knows where it's going and uses its momentum to get there. Anything that impedes that destiny can be damned (including, in the realistic, silt-laden frame of geologic time – our monstrous, man-made dams). Efforts of the Army Corps of Engineers and Bureau of Land Management's over recent decades to 'channelize' rivers to reduce flooding has, with no small irony, at times resulted in more frequent and severe flooding. Re-engineering steals time and space from the river, slicing through their meandering oxbows to hasten the flow of water through their watersheds. A calculus of ranging volume and optimal flow creates the windings of a river. Too much water moving through too little space in too short a time creates a recipe for flooding. A river left to its own natural devices will inevitably determine its most efficient course to the ocean. Particular salmon evolved to dwell in particular rivers. As rivers alter, salmon adapt. But when humans change the character of a river beyond recognition, it may be too much for even a salmon to adapt to. Thus when we try to restore a stretch of water to again welcome salmon, we need to see through time to the association cultivated

between place and salmon over millennia. Restoring salmon, or a river, resurrects an ecological story told across the vastness of time.

Aldo Leopold used the river as a metaphor for ecology in the centerpiece essay of his book entitled *The Round River*.¹⁶ The physical river (ably joined by oceans, lakes and the natural processes of evaporation and transpiration) is simply one portion of the vast, complete water cycle. Leopold's Round River expresses a metaphor for the complex web of relationships which constitute the cycles of life in our ecosystems. In such a river, the concept of head and mouth seem arbitrary. Each stage of the river is essential to the whole and the Round River flows in a full spiral. I suggest that time, like ecology, meanders in intertwining cycles and flows much like a round river. Things may die along this river, but only to feed another life. Ultimately, our continued meddling with the Round River may result in our species' death. It might take a huge meander around our disappearance, but it will keep flowing.

Perhaps our experiences and reflections along a body of water color our perceptions and memories as much as the water itself; blood and thought interweave with the flow. In this way, we become part of the river. In this way, both river and soul become part of the Round River. It may not be enough to return the salmon to a river, that they might come to know each other again. Perhaps we need to cultivate our own kind of ongoing, reciprocal, and cyclical intimacy with our rivers.

There is a slight bend on a small stream in Ravenna Park that I like to linger at. Returning to that place is a kind of ritual. My fingertips graze the rippled current in greeting. I sit upon the bank and watch the water pass. Sometimes as I gaze at the water, whatever tangles my thoughts and knots my muscles seems to dislodge from my banks, swings hesitantly out to mid-current and, picking up speed, disappears from consciousness. I believe urban areas in particular, need rivers to help sweep away the spiritual detritus from our lives (and thus may be in need of another kind of sewage treatment for the "toxic soul waste" many of us spill without treatment).

As I sat at my Ravenna bend one afternoon, I became mesmerized by the motion of a small vine maple leaf spinning ceaselessly in an eddy at my feet. Each time it looked as if it might unwind into the downstream current, it would inexorably be pulled back into its own private Sisyphus myth. I wanted to reach down to nudge it free. Was this a cycle belonging to a Leopoldian Round River, or an ephemeral mirage, an interruption in time. Gathering wisdom from rivers and streams, I felt the power of wild unmanaged waters. No easy task, restoration – with rivers or souls, but sometimes all we require is the stillness to hear the deep river rocks jumbling in our psyche, the sensitivity to detect the current of emotions and desires, and the willingness to follow our true flow no matter how the channel braids and meanders. Trust told me that ahead would be the fecund richness of estuary, and beyond that the sacred path of the Round River to return me to the headwaters of life, even in death. I began reading

about salmon habitat restoration, wondering what it might take for a city river to remember itself, to rehabilitate its Round River channel of free-flowing time.

Why bother with urban ecological restoration? With wilderness quality landscapes, both designated and undesignated, under continual economic and political pressures, shouldn't we focus our efforts on landscapes not already ravaged by human enterprise? Wendell Berry addresses this very question in the essay "getting Along With Nature" in his *Home Economics*. While supporting continued efforts to preserve wilderness, he cautions that we can't stop there. Citing his friend and colleague Wes Jackson's observation that if we can't preserve farmland then we can't preserve wilderness, he extends the preservation paradigm to urban areas; observing that "...the same attitudes that destroy wildness in the topsoil will finally destroy it everywhere... ...if everyone has to go to a designated public wilderness for the necessary contact with wildness, then our parks will be no more natural than our cities."¹⁷

Human culture and non-human nature, domesticity and wildness, to Berry's thinking, are not oppositional but interdependent. Our economy must align with our ecology, creating necessary reference points and places of refuge. We need places where we can learn from and renew ourselves in wildness, not just the large public tracts we think of as wilderness but "millions of small private or semiprivate ones" as well.¹⁸ We restore wild salmon to Seattle's urban watersheds not just for the sake of salmon, but for us as well. Lacking wild

species in our city landscapes, might our species' long-term run on these watersheds be endangered as well?

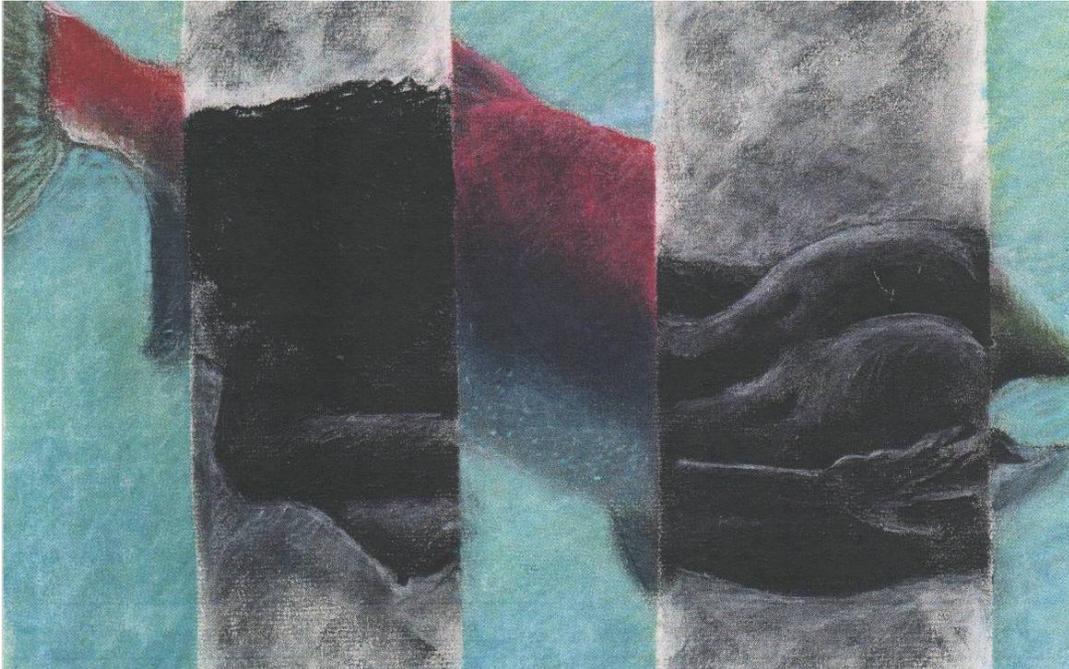


Figure 1: 'Salmon Woman' – R.S. Russell, pastel and charcoal

TANGLED VINES

A mixed crew comprised of Latin American, African, Pan-Asian, European and North Americans, colleagues in urban restoration work, once taught me a great lesson about ecological reciprocity. A year or so after my Ravenna Creek musing and personal dedication to restoring my own Round River, I'd co-founded an organization with a group of friends, Cascadia Quest, bringing young adults from around the world to work with Seattle-King County peers to help restore the land's vitality from wildland forests of the Cascades foothills to urban watersheds like Ravenna and Thornton Creek.¹⁹ We worked explicitly with notions of noticing the land, responding to its character and organisms, and recognizing the inherent story of each place. Though at times we certainly acted in ignorance, more often I saw young adults open their hearts and minds to places and let the wisdom they'd witnessed inform their actions.

Out in the field with a group of Cascadia Quest participants one morning, the Pipers Creek restoration project manager instructed us to remove Himalayan blackberries from alongside a stream being restored for reintroduction of salmon.

"Why are we cutting them down?" asked a feisty young woman from Costa Rica.

"Because they don't belong here!" was his somewhat exasperated response, as he railed on in brutal detail about the horrors of "invasives" like the blackberry.

She shot back, archly. "The way you talk of this plant is the way some people in your country talk about my people from my country when they come here." The project manager blanched.

"The blackberries are growing here now," a Kenyan participant chimed in, "And they have much fruit. Surely something must eat them?" The manager sighed, and tried to better explain the potential consequences to salmon and the need for clearing the banks at that particular bend to allow more sun to penetrate to the water. He offered that native salmonberry seedlings would be planted, which would fill the blackberry niche in a few years. The question "But what will the birds eat until then?" caught him further off guard.

A vigorous discussion ensued about the role blackberries may play in what had until recently been a heavily disturbed area, as well as the ethical responsibility humans should hold in addressing both the introduction and eradication of non-natives. "If we were called the invasives," a woman from Mexico pointedly offered, "how would it feel to be told we must be removed?" One local restoration ecologist had told me that invasives like blackberries and scotch broom were akin to "Band-Aid on an open wound." Spontaneously, the group decided to create a little ritual of gratitude to the blackberries before picking up their clippers and wading in. The project manager thanked us afterwards for teaching him a new way to think about his work.

Contemporary discourse on eradication of invasive species strikes me with interest and dismay. I don't wish to blindly defend invasives. Indeed, through

ignorance and arrogance humans have introduced non-native species to great detriment in bioregions across the globe. Concerted efforts must certainly be undertaken to restore ecological integrity to such areas. Success in these endeavors often involves the replacement of exogenous species with indigenous ones. Our mindset in this dwells more in the domain of ethics than biology.

Author and educator John Tallmadge has been involved in urban ecological exploration in Cincinnati for a number of years. He cautions an attitude of what he terms "environmental fascism" towards invasives.²⁰ A 'Native good/invasive bad' point of view can be overly simplistic, even dangerous, when applied to the complexities of deeply textured landscapes. To the extent that human ignorance and arrogance contribute to introduction of problematic invasives, we must take care not to project a parallel ignorance and arrogance in eliminating them. I recall that blackberry afternoon, as well as John's admonition, whenever I hear impassioned diatribe about the removal of non-native species. As my Cascadia Quest crew showed, in whatever way we choose to address the presence and possible removal of invasives, we ought to offer the same respect and reflection to the plants in question that we'd wish towards us. After all, plenty of organisms may well consider humans the invasive species most dangerous to the integrity of the ecosystem.

Like many larger urban areas across North America, Seattle struggles with youth violence. Teens and young adults who do not fit the system become stigmatized as problems despite the part poverty, bigotry, apathy or antipathy

might play in creating the conditions they habitually respond to.²¹ I see blackberries and scotch-broom like they're gangs of invasive species; unwanted, misunderstood, pushed aside. Plants like these are a natural response and outgrowth within heavily disturbed areas. We may fail to understand that the original disturbance in the area could be the root problem not the specific species response (whether native or invasive). To restore both human and non-human domains, we may need to honor the contributions of various respondents to the disturbance rather than just angrily eradicate them.

In restoration efforts, we must make the environment more hospitable for native species before they can take hold. Often this requires the removal of the undesirables but I wonder if (with both blackberries and teen gangs) whether we fail to interact with the community context in a truly restorative fashion. Restoration of ecosystems may also require ongoing respectful relations with species we wish to quell. Ironically, by the extended measures of ecological time in the Pacific Northwest, humans may be the most dangerous invasives in riparian habitats. Though I believe that for the most part people mean well with our actions, good intentions don't guarantee ecological integrity. I find no easy answers in these dilemmas, just an increasing need to understand and navigate paradox in ecological thought and resource management.

How do we get away from our scientific hubris? One restoration ecologist I met in the Pacific Northwest who was working on severely disturbed riparian systems in a long-term salmon habitat restoration project expressed a need to

try to think first in 500 year plans rather than the standard government-issue five year variety. From this perspective, he realized that he didn't know enough about the optimal soil conditions for the desired native Western red cedar to advocate total removal of the resident alders (regarded as a junk species by his supervisors). He felt that the alders might play some role in restoring qualities to the soil that would help prepare the way for the eventual return of the cedar.

Another restoration ecologist on the Olympic Peninsula told us at a Cascadia Quest board meeting that when assigned a new project she goes out to the site a few weeks early and tries to learn what that place is already doing to restore itself. She sees her job then, to support and enhance already naturally occurring restorative phenomena. I cite these as examples of the restoration science I wish to advocate, one which works humble harmony with the particularities of a place and recognizes that humans need to be particularly cautious in addressing restoration work. In cutting our way out of the tangled vines of urban restoration dilemmas, we need a new way to view not only where we've been but where we're heading.

CINEMATIC ECOLOGY

A trench-coated figure perches on a gold statue overlooking the hazy Berlin skyline, ruminating on sights and insights from his day. Suddenly, he dives towards oblivion, a kaleidoscope of images running through his consciousness as if his life were passing before him. As if, because Cassiel and many other characters in Wim Wenders' 1987 movie 'Wings of Desire' are eternal angels.²² From the beginning of time, they have been observing, listening, and recording the passing of eternity. "Before humans, we didn't know laughter" observes Daniel, Cassiel's best friend and the movie's protagonist. His yearning to taste the human realm he has observed for millennia feeds Daniel's existential angst. One day Daniel sees a trapeze artist in rehearsal, follows her into her dressing room, and witnesses her private sorrow touched with grace. Deeply moved by the moment, Daniel's desire for Marion crystallizes into a decision to give up his immortal status for human mortality.

We hunger for full, long lives; who of us would give up eternity? But the look of bliss blossoming on Daniel's face as he sips his first cup of coffee after passing the chasm between angel and human, cradling the paper cup in his hand like a sacrament, suggests that time alone does not richness make. Being sensorially present, alive in each new moment, creates its own kind of eternity. Angels may watch the world forever, but they can never touch it. What is time without relationship? Which would you choose, Wenders asks us?

Afterwards, I emerged from the theatre into an otherworldly urban nightscape. The streetlights pulsed with a hidden light, further concealing the rooftops in reinforced darkness. I imagined angels there musing over my own existential dilemmas on the paradox of restoring time in a disturbed place. But it was not merely the themes of this film alone that informed my thinking about temporal ecology, but reflections from movies in general. Long denied the experience of seeing a film in a theatre (we did not own a car as I was growing up) cinema for me became suffused with a kind of longing. I'd scan the local TV channels late at night, ostensibly seeking old movies but really searching for a window outside of my own limited time and place. For the duration of a film, I could transport myself to distant landscapes and imagine myself into the past or future. Cinema may have been my original experience of time-traveling.

Restoration ecology can be defined as the re-establishment of a set of native species to a particular place from a historical time. Slavish restoration to a previously extant image of an ecosystem is akin to processing a photograph. A fixed picture of ecological composition burns to the negative. We measure success by the accuracy with which the rendering occurs. Such practice assumes that the contextual background and practical foreground of the photo never changes, so that the original subjects will always be held in the same way.

In returning indigenous species to their historical habitats, an underlying supposition of fixed-picture restoration holds that if an organism thrived there some number of years ago, they should be made to succeed there now. Staff

biologists and project managers compile and assemble their native roster, assiduously excluding non-natives from the team. Charismatic threatened species are the superstars, made welcome at all costs. We vilify invasive competitors. We yearn to eradicate non-natives and perpetuate natives. Theoretically, in a successful restoration project, some equilibrium occurs in which indigenous species naturally rule the roost and biologically expel the invaders. The composition of the picture is rendered complete.

While I don't mean to diminish the overall import and efficacy of such efforts, I do want to call into question the base assumption of "once native – always native/Johnny-come-lately invasive – never welcome at the table" ethic present within modern restoration ecology practice. Recalling the Piper's Creek project where Cascadia Quest team members had cast doubt on absolute blackberry removal, I wondered whether that urban/suburban watershed could even be reasonably compared to the pre-settlement Piper's Creek, let alone restored to its prior conditions and composition.

Local ecosystems, however, are seldom as static as portrayed in fixed picture models. Take Piper's Creek for example. Most likely, salmonberries flourished there during some periods of the past. On soils laden with post-industrial detritus, amid conditions subject to modern human agency, in habitat utilized in a vastly different manner; who's to say current circumstances contribute to salmonberry success? And while Himalayan blackberries indeed

cause their share of problems, who can say they don't at the present time best fill a necessary niche in this particular place?

My bias sees biological succession and evolutionary process as more like moving pictures than fixed ones. Living processes are not static and inviolable; we measure ecological success as much in terms of flexible resilience as in species persistence. The notion that climatic, geologic, hydrologic and biologic conditions across a landscape, let alone pertinent speciation, never change becomes especially ludicrous from an expanded lens of time. What does indigenous mean on time scales of 10,000 years or more? How long does an invasive need to be present before it's seen as native? Move back in time long enough ago wouldn't even salmon be an invasive?

Complicating matters, many reference ecosystems have disappeared or been severely negatively impacted. In casting characters to fulfill complicated and ever-changing roles in urban habitat restoration, perhaps we could examine the scripts of other eco-cinematic settings as a basis for comparison.

Some slopes in Washington's Central Cascades resemble mange-ridden dogs more than picture-postcard mountainsides. Clear-cutting will do that to a place. It must be duly noted that Northwest lumber companies vigorously protest that they do not practice indiscriminate razing of entire tracts of woods; after all they leave buffer strips several trees thick along drainage areas.²³ Perhaps the

mangy dog metaphor should be changed to a classroom of teen boys with thin mo-hawk haircuts.

A friend and I decided to take a walk through a clear-cut one day, to immerse ourselves in that pained landscape and try to put a close-up ecological face on the rage and sorrow we feel when we see such places from a distance. I nearly cried when I saw the twisted remains of a slash pile near where we parked the truck. I gazed up to a long thin line of trees angling up the hill, probably tracing the route of a feeder stream to the river we'd passed in the valley below on the way in. We skirted around the slash and walked up into the middle of the cut, parting there each to be alone with our thoughts. I found the remains of a Doug fir stump and sat down with my journal. A butterfly lifted over a nearby downed log and floated towards me. Small birds rustled in the berry bushes already sprung up in the space created by last year's logging. A raven lazed overhead, gurgled its call.

I was surprised to be feeling tranquil, not enraged. I tried to summon my righteous wrath but was distracted by a columbine rising to the right of my stump. The homily "hate the sin, but love the sinner" came to mind. I can respect the hard work and obligations of area loggers, but can't muster much affection for the CEOs of multi-national logging companies squeezing every board-foot they can out of these lands while just barely following the law. But what of the sin? This land seemed intent, if not on forgiveness, then on going about the business of patching over the wounds and getting on with the business

of ecological vitality. The visit became a reminder that even the most egregious human-caused disturbances can be ameliorated with time, sometimes less time than I would imagine necessary given the severity of the wounds.

But despite the short-term vitality of this clear cut clearing, it's difficult to project the mid-term prognosis for that place. Evenly placed evergreen seedlings throughout the clearing bore witness to the likelihood that this area was intended for future logging, once these young firs reached adolescence (maturity would be deemed too costly to the lumber conglomerates). How many frames could be cut from that forest movie before original plot could no longer be discerned? How many extras would be cut from the cast because they're not productive? Would the stars of the show continue to show up if all they get in the end were an ignominious death scene?

Along with humans and salmon, the thick-trunked Douglas firs and western red cedars colonized the post-glacial Northwest. Shading the adult spawning and fry feeding grounds, these trees ameliorated the temperatures of shallow up-slope waters. Some like it hot, but not coho and Chinook. Without the protective cover of the tall trees, some salmon habitats literally cook their salmon into submission. Similarly, when salmon thirst for fresh-water habitat, they want it clear, and they want their gravel out in the open and easy to move. Silt from denuded forest slopes wreaks havoc on the salmon's preferred setting.²⁴ If *Oncorhynchus* could forgive, I'm not sure they offer it to logging operations. But then again, the prospects of clear-cut creek-beds may make the

Piper's and Ravenna's Creeks of urban Seattle seem a paradise in comparison. Sometimes the new story might be preferred to the old, with history and speciation plans rendered meaningless.

Arrays of conical, evenly-spaced mounds radiate out from where I stand. This otherworldly landscape asks many questions and answers few. Mima Mounds Natural Area Preserve, located an hour south of Seattle in Thurston County, Washington, is called glacial outwash prairie by geographers though its genesis and composition bear little resemblance to Midwest short, mid and tallgrass prairie varieties. Theories abound for the mounds' origin, none proven. Though in my mind it's an absurd proposition, some scientists argue that giant pocket gophers once dug out these mounds. Other theories depict geological origin: frozen chunks of ice-age prairies fractured by repeated freezing and thawing, erosive engagement coupled with floodwater action, the shaking of seismic activity rearranging the course soil materials.²⁵

I'd initially traveled there on a time-trance kind of day; dense fog eddied around the mounds, the air so moist that I was immediately soaked though no rain fell. Mist shrouded the fall-dried remains of camas plants (prized by Native peoples for their nutritious roots), numerous ferns, several mosses, buttercups, St. Johnswort, and reindeer lichen, each growing in its own specialized niche at particular heights and orientations along the mounds. Examining the mounds

floating in the mist, they seemed more like islands than prairie. Even without the fog, this would have been an otherworldly place.

Origins of Mima Mounds may be obscured from scientific certainty, but in those uncertain mists loom the glistening bulk of glaciers that traveled through these parts several millennia before recorded history. Historical glaciation has forcefully and absolutely altered the character of many North American landscapes. Physical and climatic changes associated with the ice ages seemed a bit like wiping the hard drive clean on our computer, only in slow motion. Species software that ran on the pre-glacier platform didn't necessarily reboot afterwards.²⁶ Examining long range overhead photos of Mima Mounds, I note the gradual reclamation of "prairie" by alders and pines. Should encroaching trees be eradicated, preserving this ecological relic?

Restoration is a complicated term. I've watched restoration ecologists pull blackberries from stream banks, cursing them angrily as they did so, without ever questioning our destruction of one habitat to cultivate another. I've spoken to homeless teens, including former gang members, whose notion of community and loyalty was of shared protection from the violence surrounding them, and whose experience of that community was continually disrupted by social workers, police and other public officials who failed to understand the naturalness of their communal desire. Human desire may be less the problem than the particular pathways towards and objects of our desires; there remains for us the need to

acquire a mature, cohesive and indomitable wisdom to provide alternative means fulfilling desire without destroying the habitat of desire itself.

If reference ecosystems are shrouded in mystery or lost in oblivion, it is equally confusing to find our models of restoration in city settings. Historical ecology may offer some but certainly not all the answers, especially in obliterated urban areas. Long-term study may indeed be necessary, not just of extant ecological remnants of coastal forested, riparian habitats, but also of healthfully functioning human community and cultures. We not only need to learn from what has functioned but also may need to find new models of working with each other and the land. Matters of scale, both spatial and temporal, must be as considered in urban settings as in wild ones in ensuring the future of native species as well as selective invasives, including humans. As explored in the next section, what seems tame at one scale and view may reveal elsewhere a side of wildness we might otherwise miss. Reference points we use today build on the detritus of earlier ones, a palimpsest of misty markers.

NURSE LOGS

A murmur of cascading water soothes jangled urban nerves. A soft breeze off Puget Sound stirs the burgeoning foliage, releasing tantalizing herbaceous scents and rippling a chiaroscuro of flowery reds, oranges, and violets. Scenes from a remote rainforest glade? Hardly. This paradise is located just a few blocks away from downtown Seattle's epicenter. Water courses from a home-made solar fountain. Herbs and flowers overflow from carefully tended garden plots. I kneel on thick rectangular stones liberated from an abandoned pile of trans-continental ship's ballast, now repurposed as paving around the fountain.

In a city well known for its network of community gardens, Belltown P-Patch is the first created on downtown real estate. In past incarnations a parking lot, homeless campground, and heroin shooting gallery, this garden sanctuary was envisioned by a tenacious collection of artists, activists and urban environmentalists.²⁷ Made real by a combination of public and private funding and community sweat equity (one of the grants matched each volunteer hour with fiscal remuneration) Belltown represents one of the crown jewels of the P-Patch system.²⁸ Located two blocks away from my then workplace at Antioch Seattle, I jumped at the opportunity to become involved. Volunteers layered rockery terraces along the sloped hillside, dug trenches for gravity fed water lines, crafted wrought-iron sculptural fences and gateways around the perimeter, and created broken tile mosaics along the stairways and retaining walls.

This renewed greening of Belltown flies in the face of recent years of local real-estate speculation and condominium development. When I'd first come to the area, Belltown was in transition from light industrial use to a crucible for creativity. As lower rents on the outskirts of the city drew businesses away, opportunistic artists, musicians and filmmakers moved into the barren warehouses and clunky industrial habitat to establish working studios, cooperative galleries and funky cafes and neighborhood restaurants.

Gradually, urban and suburban seekers of the next cool place began to descend on Belltown each weekend. Before long, buildings that once housed artist squatters were bought, torn down, and rebuilt as urban chic condominiums. Within ten years, nary an artist loft remained; toney restaurants and trendy bars now line the streets, expensive shops sell retro designer clothing, and gated garages protect condo owners' Lexus's and SUV's from the homeless remnants who still dare to wander the Belltown streets in search of Social Services now largely pushed out of the neighborhood.²⁹

Are condo owners now the native species in this habitat? Should the old artists be restored to their niche? Might the displaced homeless be an endangered species? Perhaps the elder Kwakiutl and Tlingit should be allowed to hunt upon and gather from this habitat. Maybe native grizzly bears will be lured back as baristas at the coffee bars. Whose place is this, really, and who can say where the arrow of time should ultimately land?

Continuity may be an endangered concept in urban areas. Humans impose successive disjointed uses, paradigms and intentions on city places rather than organically evolving them from remnant place patterns. It resembles not so much an integrated cinematic narrative as a slap-dash experimental collage. We tear down and pave over reference points in city-scapes; no vestige remains to trace back to an original purpose. How do we restore an urban landscape when we no longer can trace processes to original ecological reference points? Surely there are patterns to renew such places, but how do we determine them?

Such questions leave me bewildered. I made a temporal pilgrimage out to the Quinault rain forest on the Olympic Peninsula to catch a glimpse of what Seattle might have been like before people arrived, before the arrow of time was splintered and diverted. In a time trans to my first sojourn years ago, I recalled the drive out South Fork Road towards Graves Creek shrouded in a rolling fog spawned by late afternoon showers. Several miles from the campground, in the near dark, a darker bulk, then another, and still others, appeared to the left of the car. A small herd of Roosevelt elk lifted heads from their evening meal, and stayed as I watched in awe till my eyes could no longer make out their shapes.

The next morning, hiking the trail out towards the Enchanted Valley, I'd craned my neck at monstrous specimens of Douglas-fir, western hemlock, Sitka spruce and western red cedar, draped in their omnipresent scarves of old-man's-beard lichen. That day I hiked over seven miles before reluctantly turning back to return to my tent at Graves Creek.

The overriding mystery of that sojourn was not how such large trees had attained their bulk – the abundance of rain and temperate climate made this a place of mystical abundance – but how new seedlings ever found purchase among the giants. As with salmon, the forming of a new generation stretched credulity. I recalled the many downed, slowly decaying trunks with their covey of saplings sprouting along their length like spines on a razorback hog. I learned that by such means, many young trees get their start.

These coniferous parent trees are called nurse logs. Whether by virtue of the water retained by the well-rotted wood through the dry months of summer, the piggyback ride up above the forest undergrowth towards the much-needed light, the safety such a perch may provide from browsing elk, or the nutrients released by gradual decay of the parent material, their seedlings delight and depend on the advantages given them by the platform of their elders. In many locales throughout the rain forest, we might readily trace parent and child generations of trees from the straight lines and intermingled roots of siblings rising from a single long trunk; from columnar buttresses left where forest debris has filled in spaces between the growing prop roots where once the old nurse log lay.³⁰ In an environment where the clamor and fervor for life and light and height roars at a frenetic pace, I marveled at the ingenuity of each generation of those grave and serious conifers to give a leg-up to the new generation. If not for nurse logs, certain rain-forest species would not persist. My study of ancient forests lent me insights about the palimpsest of my own ancestry.

“She took a turn for the worse last night. The doctor’s say she probably won’t last the day.” I felt like a bystander in my own body, eavesdropping on this early morning conversation with my sister Ginger, who was updating me on the perilous condition of our mother. Mom, in and out of the hospital for months, fought for breath and life from the effects of congestive heart failure. Seattle was a long ways from our family homestead in rural northeast Pennsylvania. I tried to bridge the distance with daily phone calls.

Her extended hospital stay severely crimped Mom’s daily outdoor rhythms. As the illness had worn on, it became a habit for me to take long walks each day to both clear my mind and to gather natural experiences that I might pass along. I intuited that separation from her gardens, flower beds and bird feeders was on some level contributing to her demise. For a few minutes each day, Mom could close her eyes and pretend she was out walking with me.

Some folks lay claim to green thumbs – I think my mother was green to the shoulder blades. Our hard-scrabble land was her haven where she’d learned to tease splendid vegetables and flowers from the uneven terrain and stony soil. A good half of our food was garden raised or wild found, eaten fresh off the vine in summer or jarred and frozen against the cold, snowbound winter. Paradise was a wild strawberry excursion to the spring fields and pastures. Nirvana was a dinner of sun warmed summer tomatoes, and corn direct from the stalk to boiling water. In such ways, Mom became my nurse log.

In her late sixties, Mom had become an avid birder. I was impressed with her thirst for new learning at an age where others often begin to shut their lives down. She pored over field guides, listened to tapes of identifying calls. She hung seed feeders and suet bags and fought constant battles with recalcitrant robber-squirrels. An occasional black bear would leave paw prints high up on the living room picture window where it would reach to snag the sweet bundle of rendered fat. She scolded our bevy of semi-wild hunter cats into submission; a single glance from her and they would slink off into the shrubs. She planted berry bushes and fruit trees, as much for the birds as for us, and cultivated special flower varieties because hummingbirds were fond of them. I returned home from college one winter and arose early one morning to an empty house. Mom was in the back yard; two chickadees feeding out of her hand, a third was perched on her shoulder awaiting its turn.

Stunned and dismayed after I'd shakily hung up the phone with Ginger, I was all too aware that these could well be my mother's last hours. With no way to get to her bedside in time to offer comfort, all I could think to do was to take one last long walk with her, to smell each new flower, watch each flitting bird, and take the fresh air deep into my lungs. I anticipated an ominous flashing red light on my answering machine when I returned home, but for the moment I'd drink the world into me, as if my senses had somehow merged with hers.

Against drizzly weather, I donned raincoat and backpack and struck out towards Shilshole beach, a grainy, pebbly strip of shoreline on the north side of Seattle looking out across Puget Sound to the cloud-shrouded Olympic peninsula. I walked to the beach that day not only to soak in sights and sounds for Mom, but to let wind and waves wear away my emotional and spiritual malaise.

I scooped out a hollow in the stony upper beach to fit my body and shield me somewhat from the stiff northeast wind. Gulls danced and swooped along the tops of white-topped breakers looking for wave-tossed breakfast. Two crows incessantly cawed from a small plot of woods behind me, like cranky commuters awaiting their morning coffee. A fine mist began to play out from the low, scudding clouds.

I may have lain there for hours; alternately napping, writing in my journal, and staring out at gray-black mountains, gray-white bank of clouds, roiling green-gray water, and the sandy, stony gray stretch of beach. My dark, monotone mood of dismay gradually gave way, shading into occasional nuanced tones of easy calm and bright flashes of curious wonder. A sandpiper unerringly tight-roped the ragged edge of the advancing and receding tide line; racing forward to peck at a bit of edible flotsam, sprinting back on thin legs just ahead of the frothy swell. In the middle distance, a single log bobbed and swayed, perhaps an escapee from one of the floating logging rafts made up of trees stripped from the Olympics. Two herring gulls rode opposite ends of the log, fidgety and distant as two strangers on a bus stop bench. Pebbles ground and

water seeped in low voices down below. They reminisced with me and told stories from far shores that temporarily took me away from my troubles.

As I walked away along waterfront boardwalks past quiet marinas, I heard a loud shriek. I looked around – no other humans in sight. I looked out on the water – only waves and the distant ferry chugging towards Bainbridge Island. I glanced up and saw two crows dive-bombing an osprey, which cried out again as it tried to elude its antagonists. Crows in spring, smarting from any number of perceived slights with nesting time just ahead, can drive off far larger foes. Maybe it was the same two cranky crows that had berated me earlier that morning. Perhaps they were just in the mood to be annoying. The hawk could not shake them; they poked and pestered the larger bird which could not out-manuever their looping feints and stabs.

An image of my mother came to me of her in hospital bed, amid a tangle of tubes, breathing laboriously, fighting off the pain dive-bombing her body. Suddenly, the osprey shot straight up, its wings stock still and spread wide to ride the updraft. The crows tried to follow but could not gain the altitude and quickly gave up the chase. The hawk remained however, circling slowly straight overhead as I walked along the shore. For a good twenty minutes I was mesmerized, craning my neck upwards as I walked. For the first time, the death-grip I'd held on a life-wish for my mom began to loosen. Sometimes in the face of pain and torment, all a body can do is rise and leave it all behind. At

the thought, the osprey wheeled and sped out across the water, soon lost to my sight in a shroud of mist.

I believe it was during those trans-generational-spatial walks with my mother that I truly experienced her as a metaphorical nurse log. We are often encouraged to consider our descendants in each and every action, as if what we do this moment might ripple out across succeeding generations. It occurred to me that our responsibilities in the present might also extend to past generations as well. Perhaps we the living become the sensate link back through time to our people who no longer possess living human sight, scent, hearing, taste or touch. Suppose during each and every moment, at this present and transient place, our roots extended back into the soul-soil of our ancestors, as our branches stretched out towards the soul-sky of our descendants, as our leaves turned the energy of the sun into sustenance for both. What if death were seen not a period in a sentence, but a pause in an exceptionally long story?

We modern Westerners live in a culture which attempts to deny death at every step. We go to extraordinary lengths to prolong life. Perhaps we feel we can hold death at arms length if we do not speak its proper name. But death reveals itself as an integral part of life.³¹ When a fallen Sitka spruce lends support, nutrition, and vital moisture to a new generation of conifers, who's to say that that tree has actually died? Aldo Leopold, in a brief essay entitled 'Odyssey' from his classic *A Sand County Almanac*, wrote of the journey of one

"atom X" as it passed from rock to flower to oak to deer to Indian and onward.³² To me, his essay suggests that all matter ultimately journeys like atom X. Time transforms and matter gets around.

Each of us provides not water or nutrients or mycorrhizal tissue to those who survive us. In our physical realm, genetic material circulates from one generation to the next. In cultural, emotional and spiritual ways, all who've come before influence and augment the paths our lives take. It can be argued that we each contain physical aspects and cultural relicts of the very first prototypical humans to walk the earth. Tracing the long journeys of evolution and ecology, we find common material with all living things. From this perspective, who can say exactly what has ever died? When life continually renews itself from the detritus of death, the distinction between living and non-living blurs and boundaries fade in the mists of time.

With thoughts of descendants and ancestors and my dying mother mingling in my senses and mind, I returned from my long walk. As expected, there was a little blinking red light, but quite unexpectedly the message was that Mom had suddenly rallied over the course of the day, and was now sitting up, alert, and joking with the staff and her visitors. She'd soared high above her travails, even above death perhaps, to live another day.

Who are the nurse logs in our culture? On whose flanks might our troubled youth and communities gain purchase to better affirm life? A colleague at

Antioch University Seattle left a flyer in my mailbox about a new organization she was trying to build. Seattle Youth Garden Works gave homeless teens a chance to gain literal and figurative grounding in their lives; participants worked daily in one of a number of area P-Patch plots, learning to till the soil and nurture new growth for sale to upscale restaurants and farmer's markets. Our staff offered workshops on resume writing, interview skills, and coping with the disturbing circumstances of their transplanted lives, interspersed with hands-on work.³³

Some made it off the streets. Others chose to stay, squatting in abandoned buildings in small tribes of their peers. To many, the active nurturing – of gardens, of their own fragile circumstance – was a new and inspiring concept. Working in the gardens gave a routine to their days, a Zen-like mirroring of the notions that staff tried to instill. I joined the board and tried to build alliances with organizations I'd met while helping to co-found Cascadia Quest. We attempted to raise money as well as consciousness; a local grunge-rock band organized an all-ages concert and dance as a benefit. Off-peak garden times, participants made crafts and sold them at local fairs. By these and other ways our organization became a nurse log for an otherwise neglected youth. In another sense, we adults were also preparing the gravel redds that might nurture and protect the next generation to hatch into society.

Odd that these garden varietal plants, utterly domesticated, now offer a wild context suggesting old-growth forests succession. The co-mingling of generations; older adult staff and volunteers taking the time to serve youth

makes a kind of nurse log. Standing back a step to look at Seattle Youth Garden Works participants, I no longer saw damaged goods but living organisms delighting in the opportunity for growth. They did not deny their difficult circumstances, nor did they revel in their outsider status. They simply lived to the best of their ability, and thrived when given a chance. In the process of becoming an elder in my familial clan, I wondered what parts of me were becoming nurse logs for other aspects of me. Was something in me an intergenerational folding of old-growth into new opportunity as well?

Every tree in an old growth forest was once new; any given spruce or hemlock may be only the latest of a long run of coniferous ancestors. Biological organisms adapt and change constantly, but possess a general stability within a state of dynamic equilibrium. Like all living organisms, humans are creatures of change; our emotional, physical and spiritual states a dynamic whirl of transition. Perhaps in our tendency to think of our lives as an uphill progression we fail to take full advantage of the fecund potential in each prior moment or experience. If we let each moment, each loss, each 'little death' be a kind of nurse log, we might not find enlightenment – but we might find some essential nutrition and stability in order to stand healthy and full in our own forests of the soul.

One morning a month or so after my long ancestral walk, in a mid-May phone conversation, my mother seemed particularly weak. She barely acknowledged my stories. A long silence stretched between us, punctuated only by labored

breathing. Finally, faintly, she spoke. "I'm giving up. I'm ready to let go." The words came out like a whimper. There was nothing more to say but "It's OK. I love you. You'll always be with me." I hung up the phone, knowing I would not hear her voice again. Despite the many times she'd returned from the brink of death, this time I knew she was ready to cross the threshold.

I walked to my garden plot in the Belltown P-Patch, and sat on the ground amid the growing vegetables and herbs, clutching the soil in my fingers. I wanted to be in a place like one that had so nurtured my mother, a habitat that nourished all of us in the family in turn. I yearned for comfort but felt only raw pain, and an indecipherable edginess. It felt all the grief in the world gather itself and sit in a lump in my chest, yet I could not cry, I could barely breathe. The piercing calls of gulls gave voice to sorrow.

I glanced up to the sound and the hair rose on the back of my head. Two herring gulls badgered a large gliding figure. The hawk careened and swooped but could not elude its attackers. They dove and swerved over my head for several tense minutes then suddenly, as the murderous calls and dives of the gulls reached frenzy, the osprey caught an up-draft and rose precipitously above the battle and calmly glided away. My mother died later that day.

Do landscapes die? Certainly species do. Cultures? Neighborhoods? Urbanist writer and activist Jane Jacobs authored her seminal work *Death and Life of Great American Cities* in 1961, a stirring critique of contemporary urban renewal

efforts sweeping North American cities.³⁴ She took on the sacred cows of urban development: high-rise projects for the poor amid manicured expanses of grass, iconic monumental civic centers isolated from commerce or industry, expressways speeding traffic through or around a downtown core on the way to gated suburban villages and easy-access shopping malls. Efforts to carefully craft model living cities were instead killing them, Jacobs contends, because they ignored simple and discernable principles that gave great cities their vitality.

Real cities are messy she claims, and should be studied closely for what does and doesn't work. Tongue in cheek, her entire contents under 'Illustrations' states "The scenes that illustrate this book are all about us. For illustrations, please look closely at real cities. While you are looking, you might as well also listen, linger and think about what you see."³⁵ She cites four general principles underlying the liveliness of an urban area; concurrent mixed primary functions (e.g. housing, industry and commerce) to insure the presence of people at different times for diverse purposes; short blocks encouraging foot traffic and neighborhood intimacy and integration as opposed to isolation; close-grained mix of age and condition of buildings to promote a varied range of economic enterprise; sufficiently dense concentrations of people, especially those in residence, to cultivate convenience, and multiple aspects of human diversity.³⁶

Her final point about density deserves a bit of explication. Jacobs differentiates quality density – that which stimulates liveliness by bringing diverse mixes of people into meaningful interaction with each other – from

overcrowdedness. Overcrowded housing means high numbers of residents per unit, which can lead to any number of well documented social ills, while density refers to the number of housing units on a tract of land. High density housing does not necessarily mean overcrowded. In particular, she cites New York City's Greenwich Village and Boston's North End as early 60's exemplars of quality density offering lively community.³⁷

Two factors stand out in my contemplations of Jacobs' work. Operating beneath her four principles, I find a single unifying theme of commingled variety and diversity. Vital neighborhoods exhibit sufficient people out and about on intimately situated streets at all times of day and eve for a variety of reasons. They live and work in heterogeneous buildings whose different ages and conditions lead to a cascading range of economic opportunity. These other factors in turn can welcome population density rich in different age, class and other diversities.

I'm struck by the parallels between vital city neighborhoods and healthy woodlands. Here I think of mixed ages and conditions of buildings and varied neighborhood patches as representing a successional overlay mirroring that of old-growth forests. Older buildings and deep rooted businesses and institutions make a kind of nurse log, passing on values and collective wisdom to new generations in their life, offering new space for successive opportunity even in their death. Take these away from a city, and you've stolen time; the time it takes for long-terms cultivation of successive and persistent renewal at deep and

diverse levels. Time is robbed from a place when the means and conditions for adaptive change are removed.

A gray monotony of culture, economy and community characterizes dying cities and neighborhoods. Slums may fail because of a monotone of economic opportunity, but wholesale urban renewal razing those slums to raise monolithic residential boxes may fail as well for many of the same reasons. Gated communities for the upper classes with posted guards and terraced walls may fail in a different way, by the measure of overall vitality with rich and diverse blends of peoples in close daily interaction with each other. Even Belltown P-Patch may fail in time, not because the carefully tended plots won't produce a diverse texture of flowers and vegetables, but because the condos that sprout like weeds in the wake of shifting economic forces may fail to produce a vibrant enough texture of community to value the communing of gardeners as anything more than an ornamental feature of a thinly rooted culture.

Jacobs encourages city planners and urban residents to study closely what works well in cities, and what doesn't. I take her exhortation to heart in thinking about urban restoration ecology, inclusive of both human and non-human realms. I recall now the Olympics National Forest restoration ecologist, who'd head out to her assigned site weeks ahead of the crew to study what the landscape was already doing to heal itself. What do the streams tell us, the urban gardens, the thriving little cafes, the garage bands, the old men and women chatting on benches in waterfront parks?

If shoddy planning and lifeless neighborhoods steal time from our city landscapes then urban planners and community leaders, like restoration ecologists, must become temporal architects and chronological magicians. They must serve as stewards and nurse logs and somehow reintroduce the means and conditions for ongoing change to naturally occur, not over the life of a five or ten year mixed-use plan or mayoral commission on economic opportunity, but by the measures of time old growth cedars and ever-cycling salmon know.

Perhaps the divides we make between urban, rural and wilderness places endangers us, as Berry suggested,³⁸ dangers mirrored in the kinds of divides we make within ourselves and between each other. Perhaps also, in the imaginative space that I'd created in myself amid the time-transing character of the greater Pacific Northwest, there was an attitudinal and epistemological unity where transpositions of urban and wild, native and invasive, and death and life could be glimpsed integrally as one complex and wholly functioning system. In crafting that larger epistemological space, I wondered how one went about the task of restoring time?

WILD TIME: A STITCH IN THE SOCIAL FABRIC

I'd begun to feel a kind of temporal claustrophobia. It was not just the physical surround of vigorous growth and tall trees, but also the dense network of criss-crossing time frames. Boulevards of ancient cedars dead-ended in fast-forward skyscraper caverns. Ceaseless iterations of salmon climbed newly installed fish ladders in urban watersheds. Crows seeking ancestral winter roosts vied with crack junkies searching for out-of-the way fixes and increasing numbers of homeless pursuing their own precarious perches for the night.

When determined as much by legislation passed in the courts as by practices of land use managers; when those practices involve widespread eradication of introduced species and strategic feats of engineering; when that engineering orchestrates acceptable and eliminates unacceptable processes from the land; and with that land subject to the impact of ever-increasing numbers of visitors, then the notion of Northwest wilderness as landscape "untrammeled by man" with "primeval character and influence... ..which is protected and managed so as to preserve its natural conditions" as defined by 1964's Wilderness Act seems a bit absurd.³⁹

There's a stretch of old railroad tracks paralleling the Lake Washington ship canal from the University District, through Fremont, past the Ballard Locks, to Shilshole where it joins the mainline Amtrak commuter and industrial lines heading northward. Long-abandoned when I first discovered them, they became

a place of respite for me from the wear of crowded urban existence. Others might consider these rails snaking through old warehouses and vacant lots an urban blight, but for me it was a kind of paradise. On any given walk, it was rare that I'd encounter another person. Non-human pursuits now replaced human commerce. Both sides of the tracks burst with wildflowers and berry bushes; some plants persistently pushed through the cinders and wrapped around the ties. Songbirds preened amid the tangle of shrubbery. Muddy footprints on the rails bespoke the passage of skunks, opossums and raccoons.

On any given stroll in the central Cascades, it's not unusual to pass several dozen other hikers, even mid-week. We traverse carefully maintained trails past areas cordoned off for restoration work. There's no denying the grandeur of older growth forests and mountain pass vistas, nor of the grittiness of an urban industrial railroad corridor. However, I wonder whether my abandoned rails weren't less trammled by human kind than the designated Cascades wilderness, with its un-manicured byway a place of primeval natural expression, a paragon of non-human influence.

When Thoreau wrote "in wildness is the preservation of the world"⁴⁰ he was probably not imagining the gradual reclamation of railroad tracks by the likes of scotch broom, Himalayan blackberry, chicory and teasel as a means of natural preservation, but I find comfort in the wildness of these plants – introduced species all – of their unmanaged rejuvenation of this human-marred place. If an old-growth Sitka spruce falls in the forest, does it make a sound? If

a no one notices a forgotten landscape restoring itself in its own time to its own expression, does it not constitute a wilderness?

Not just abandoned tracks, but live rail lines possess their appealing qualities. At Ballard Locks my urban wild tracks curve north and string along the shoreline to active rails running from Everett and points north to Seattle and points south. Those tracks cross the Lake Washington ship canal above the locks on their Puget Sound side. Just where migrating trains overtake canal waters on their way to downtown rail-yard resting places, an active rookery of twenty or more Great Blue Heron nests has claimed a copse of trees adjacent to the tracks.

Talking to older residents who live in that neighborhood, I learned that the herons had dwelt there at least a human generation if not longer. When they first laid claim to their abode, this part of Seattle was still considered semi-rural. As population rippled out from the downtown core, real estate speculation being what it was, suburban homesteaders chose more attractive plots further away from the train line. With real estate speculation running high today in this part of town, the presence of trains does not discourage potential development. For more than a decade, grassroots activists and a loose association of neighborhood residents have advocated for the preservation of the rookery from the ravages of bulldozers and condos.⁴¹

In my time in the city, developers have sold and cut more than half of those trackside woods. Heron chicks now peek over the rims of nests far older than the living room ensembles of recently built condos. But through it all, the

birds still glide over the approaching trains, dart down into the turbulent waters where the locks spill Lake Washington fresh water into the salty Sound, and emerge lumbering back to their fledgling with spawning salmon, as they've done for so many eons. People have migrated across these lands for many eons as well. What of our habitat – spanning multiple spatial and temporal scales – might be in need of preservation or restoration, and how might our own movements through these realms contribute to such efforts?

While strolling home from work one day I remembered a story about walking, an obscure sect of a pre-Christian Celtic people called the 'Walkers' whose sole work was to traverse the woods, hills and fields on foot. They did not make offerings. They did not say prayers. They simply paid attention to the land as they moved through it. They believed that this simple act of noticing was the greatest devotion possible to the land that sustained their people.⁴²

Perhaps townspeople simply thirsted for news of other regions and villages, but in return for this service, each walker was fed and housed for the night. The walkers lived simply, but clothing and other material needs were also generously provided by the various villages, who also believed that this ongoing noticing was integral to everyone's survival. There remains a timeless lesson in this story, one that reappears through a number of spiritual beliefs. The focusing of attention, whether through prayer, meditation, or walking, creates a space of grace and devotion.

Walking has become both prayer and an effective practice of meditation. If our movements through place and time, both social and ecological, create a metaphysical fabric, then what do I weave as I walk? I imagine each step of mine as a sensate needle and thread. Perhaps the quality of attention we bring to noticing as we move keeps us connected with integrity with one another and with the rest of nature.

Might the term social fabric be more than a metaphor? Just as sustained and careful attention to my natural surroundings as I walk my urban, rural and wilderness paths may weave a kind of thread of integrity through the fabric of the landscape, perhaps the greeting and avoidance of others I encounter on my daily rounds fixes or frays the fabric of human sociability. Might we also have need of neo-Celtic Walkers to move like prayers of salutation through the worn cloth of our modern culture, as well as across the variegated fabric of soil, water and air, blood fiber and stone?

Authors of the book *Habits of the Heart*, which revisited and updated de Toqueville's analysis of US society, pointed out that Americans more likely experienced what they called "lifestyle enclaves" than true community.⁴³ Healthy communities weave the marginalized into the larger fabric; they tolerate and find a way to work with even uncomfortable differences. Lifestyle enclaves, however, are segregated patches based on affinity or convenience; with others of shared economic, ethnic or social bracket. Some find their affinity in the

workplace, others on the internet. Others create gated 'communities' to lock out differences and lock in their approved companions.

Perhaps the rending of fabric earth, with countless species ripped from the cloth of life, is matched only by a tearing of human community. Who's to say that these two fabrics don't interpenetrate one another, and aren't in need of the same mending? Perhaps pace gained from the wilds of time-transing and presence gleaned from close attention to gathered places, serve as the warp and weft of real-ationship, response-ability, and re-story-ation through deep time and rich imagination, and bring a thoughtful weave to the fraying cloth of human and non-human life in this city and on this planet? What work, beyond that of organizations like Cascadia Quest, Belltown P-Patch and Seattle Youth Garden Works, must citizens offer to our places? How might a conscious and conscientious individual become a nurturing nurse log? What does it mean to actively walk a landscape in a healing fashion?

In restoring the connections between people and place, invariably the notion of particularity draws me; the development over time of abiding relations with particular places, gathered by and gathering from the land. Late in the day on my last visit to Seattle, I arrive at a place that has gathered me to it through almost two decades of close association. A light mist in a mottled sky, a shy sunset over the Olympics, a pinioning of black wings bearing south-by-southwest: the density of commuter crow to sky so high that it all but casts a

premature darkness. I perch on a beaver-felled log at the edge of Portage Bay, where Ravenna Creek flows into the vast waters of Lake Washington, near where spawning salmon emerging from the ship canal miles beyond Ballard Locks join the flow and embark on their journeys to various natal streams. Today, this is my place. It's all that I know – and for the moment all I want to know.

“Wisdom sits in places.” I’ve taken a long journey through wisdom today; in a time-trans of memory and in a walking weave from downtown’s Pike Place Market and my Belltown P-Patch, to the Fremont railroad tracks and Ballard heron rookery, from Woodland Park at whose edge I loved for nine years and around Green Lake, from Ravenna Park to the rejuvenated landfill now known as Portage Bay Natural Area. Perhaps comfort sits in places too, given my path – internal and external – taken to arrive here.

Earlier today, I’d walked the Ravenna watershed from Cowen Park to Portage Bay amid thought of the braiding channels of relationship, reciprocity, responsibility and restoration. Ghosts of salmon past and specters of salmon future swam alongside. As I reflected on the lands and waters I’d known and cared about in urban Seattle, it occurred to me that the work of restoring time – a deliberation of the ongoing history and story of place – is in part a restoration of personal connection to place. Our socio-cultural fabric also includes an ecological warp and a temporal weft, inclusive of human and non-human, native and invasive, spanning time and gathered in place.

Having traveled to wilderness New Mexico in the high desert Southwest and explored the urban wilds of Seattle in the forested Pacific Northwest, I now wished to turn my focus to a differently inhabited land – something more rural – within a different biome in another part of the continent. Where Pajarito taught me nuanced lessons of rejuvenating disturbance, and Seattle the temporal paradox of restoration, I now sought lessons in connection and conciliation between the two from the prairie Midwest.

THE MISTS OF TIME ENDNOTES

¹ John Hanscom Mitchell, Ceremonial Time: Fifteen Thousand Years on One Square Mile (New York City: Warner Books, 1984) 47-61.

² I first heard the term used in a casual conversation with a colleague at Antioch University New England. The earliest web reference I could find was from a 24 Sept. 2005 online newsletter. Rendell Tan, "Power of Storytelling," Singapore Toastmasters, 7 Dec. 2006 <<http://tr-toastmasters.org/modules.php?name=News&file=article&sid=329>>.

³ "Seattle Neighborhoods: Ravenna - Roosevelt -- Thumbnail History," Seattle Department of Neighborhoods, 12 Dec. 2006, <http://historylink.org/essays/printer_friendly/index.cfm?file_id=3502>.

⁴ Terry L. Anderson and Donald R. Leal, "Inside Our Outdoor Policy," Cato Institute, 12 Dec. 2006, <http://www.cato.org/pub_display.php?pub_id=979&full=1>.

⁵ Dave Egan and Evelyn A. Howell, ed., The Historical Ecology Handbook: A Restorationist's Guide to Reference Ecosystems (Washington D.C.: Island Press, 2001) 1-17.

⁶ Basso, ed., Senses of Place 24.

⁷ Aldo Leopold, A Sand County Almanac (London: Oxford University Press, 1968) 201-26.

⁸ Jim Corbett, Goatwalking: A Guide to Wildlands Living, a Quest for a Peaceable Kingdom (New York City: Viking, 1991) 211-19.

⁹ Basso, ed., Senses of Place 55.

¹⁰ "Salmon-Friendly Ravenna Creek Streamflow," Ravenna Creek Alliance, 12 Dec. 2006, <<http://home.earthlink.net/~ravennacreek/Publications/Newsletters/Fall1996.htm>>. A pragmatic primer for such restoration was published in Seattle: Steve Yates, Adopting a Stream: A Northwest Handbook (Seattle, WA: The Adopt a Stream Foundation with the University of Washington Press, 1991).

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¹² Tom Jay, Brad Matsen, and Natalie Fobes photos, Reaching Home: Pacific Salmon, Pacific People (Anchorage, AK: Alaska Northwest Books, 1994) 17-21. Also, Joseph Cone, A Common Fate: Endangered Salmon and the People of the Pacific Northwest (New York City: Henry Holt and Co., 1995). Further information on salmon was found in the work of Adam Lewis, Salmon of the Pacific (Seattle, WA: Sasquatch Books, 1994). An extraordinary tale of restoring salmon to a native river was told by Freeman House, Totem Salmon: Life Lessons from Another Species (Boston: Beacon Press, 1999).

¹³ Jay, Reaching Home: Pacific Salmon, Pacific People 47.

¹⁴ Ibid. 53.

¹⁵ Ibid. 48-52.

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- ¹⁶ Aldo Leopold, Round River: From the Journals of Aldo Leopold (London: Oxford University Press, 1972) 145-65.
- ¹⁷ Wendell Berry, Home Economics (San Francisco: North Point Press, 1987) 11.
- ¹⁸ *Ibid.* 17.
- ¹⁹ Cascadia Quest Board of Directors Documents (Seattle, WA: Cascadia Quest, 1995).
- ²⁰ John Tallmadge, Personal Conversation, Keene, NH, Oct. 2004.
- ²¹ While living in Seattle, I served on the board of an organization with a novel approach for dealing with the problems of troubled urban youth. Seattle Youth Garden Works tended urban gardens with homeless youth, selling produce at farmers markets and to upscale restaurants, while helping them develop job and life skills. In a sense, S.Y.G.W provided both literal and figurative grounding to the Individuals who were part of the program. Seattle Youth Garden Works Board of Directors Documents (Seattle, WA: Seattle Youth Garden Works, 1996). The organization now maintains a web site: "Seattle Youth Garden Works: Education, Employment, Empowerment," Seattle Youth Garden Works, 17 April 2007, <<http://www.sygw.org/>>.
- ²² Wings of Desire. Dir. Wim Wenders, DVD, Orion Classics, 1988.
- ²³ For a thorough and nuanced exploration of how science, economy, policy and practice have contributed to problems - as well as solutions - in forest management, see Nancy Langston, Forest Dreams, Forest Nightmares: The Paradox of Old Growth in the Inland West (Seattle, WA: University of Washington Press, 1995). For a perspective representing those who have made their living felling old growth, see Robert Leo Heilman, Overstory Zero: Real Life in Timber Country (Seattle, WA: Sasquatch Press, 1995).
- ²⁴ Jay, Reaching Home: Pacific Salmon, Pacific People 66.
- ²⁵ As with other parts of the ecologically rich and complex Puget Sound area, a great deal of well researched information on this unique landscape can be found in Arthur R. Kruckeberg, The Natural History of Puget Sound Country (Seattle, WA: University of Washington Press, 1991) 290-304. Also, Donn Walter and Amy Bryant, "Mima Mounds of Thurston County: A Study of Evapotranspiration, Geologic History & Myths " The Evergreen State College, 18 Dec. 2006, <<http://192.211.16.13/curricular/ENVANA/Mima%20Mounds/HOME.HTM>>.
- ²⁶ The ebb and flow of ice ages leaves traces of many strange land forms (and associated flora and fauna). *Refugia* that places like Mima represent offer compelling tales of the changing nature of our continent before we were there to record it all. William H. Macleish, The Day before America: Changing the Nature of a Continent (Boston: Houghton Mifflin Company, 1994) 33-55.
- ²⁷ Belltown P-Patch Planning Meeting Notes (Seattle, WA: Friends of Belltown P-Patch, 1995).
- ²⁸ "Belltown P-Patch," Friends of Belltown P-Patch, 14 Dec. 2006, <<http://www.speakeasy.org/~mykejw/ppatch//whatis.html>>. "P-Patch Community Gardens," 14 Dec. 2006, <<http://www.seattle.gov/neighborhoods/ppatch/>>.
- ²⁹ Rowland S. Russell, The Life Cycle of Arts Community, paper for sociology class, Seattle, WA, 1985.

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- ³⁰ Daniel Mathews, Cascade-Olympic Natural History (Portland, OR: Raven Editions, 1990) 34-37.
- ³¹ With many lessons to offer the living: Stephen Levine, A Year to Live: How to Live This Year as If It Were Your Last (New York City: Bell Tower, 1997).
- ³² Leopold, A Sand County Almanac 104-08.
- ³³ Seattle Youth Garden Works Board of Directors Documents.
- ³⁴ Jane Jacobs, The Death and Life of Great American Cities (New York: Vintage Books, 1961).
- ³⁵ Ibid. ix.
- ³⁶ Ibid. 143-221.
- ³⁷ Ibid. 8-13, 200-21.
- ³⁸ Berry, Home Economics 6-20.
- ³⁹ "Wilderness Legislation: The Wilderness Act of 1964," Wilderness.net, 17 Dec. 2006, <<http://www.wilderness.net/index.cfm?fuse=NWPS&sec=legisAct&error=404>>.
- ⁴⁰ Drawn from a frequently delivered lecture, this first appeared in print published just after Thoreau's death: Henry David Thoreau, "Walking," The Atlantic Monthly, August, 1862: 657-74.
- ⁴¹ Colin McDonald, "Peace and Quiet for the Herons," Seattle Post-Intelligencer On-line, 20 April 2007, <http://seattlepi.nwsourc.com/local/307477_herons15.html>.html>
- ⁴² "The Human Urge to Green Colloquium," (Seattle, WA: Center for Urban Horticulture, 1993).
- ⁴³ Robert N. Bellah, et. al., ed., Habits of the Heart: Individualism and Commitment in American Life (New York City: Harper and Row, 1985) 71-75.

CHAPTER IV: THINKING LIKE A PRAIRIE

ROOTS AND ROUTES

October fog shrouds low hills as I cross the Mississippi River from Wisconsin into Iowa. Brightly colored metal signposts advertising seed and chemical companies flag mile upon mile of monotonous cropland. Amid even stands of sorghum, sporadic shaggy stalks shoot high, battling the uniformity. Could these outliers reflect the persistence of native prairie? The sightings lend me hope that monotony has not fully overthrown diversity in these parts.

In the heart of the agricultural Midwest, I am probing the contradictions posed by a fundamentally monolithic agri-business imposed upon the firmament of diverse prairie plentitude. I wind along two-lane blacktop towards Hayden Prairie State Reserve in Northeast Iowa, a vestige of wild grassland amid heavily tilled and domesticated terrain. Reports indicate that less than one tenth of one percent of Iowa's original prairie remains.¹ Encompassing only 240 acres, Hayden – named for Ada Hayden, the first woman granted a PhD from Iowa State who later became a fierce advocate for Iowa prairie preservation² – remains yet one of the largest unplowed tracts of grassland in the state.

I wonder what's been taken from this rich loamy soil over decades of intensive cropping, or destroyed by complicated chemical cocktails mixed with generous shots of various petroleum distillates. Prairie soil, millennia in the

making, recalls the Great Plain's heritage and heralds an endangered legacy. This time of year, just before even the stalks of corn will be buzz cut from the fields and used for pig fodder, I can barely glimpse the soil to take its pulse, to grasp what might remain of its integrity.

The weather turns as I arrive at Hayden. A serene sun amid blissful clouds gives way to surging winds and a boiling grey tempest. Wind, sky and cloud are elemental features of this landscape. Looking up, an intoxicating, dizzying freedom of air and wind and light liberates me. Looking around, I feel hemmed in again by the close proximity of corn and soybeans. To shut out the surround of farm, I lie back on the ground to let the strong winds toss the tall grasses in swirling arcs over my prone body. A Carter Family depression era ballad keens for "fifty miles of elbow room."³ For a few moments I imagine the vastness of original grassland spreading around me, while roots stretch thirsty and deep down from my back, arms and hands into the dark, fertile earth.

Big and little bluestem, wild rye, grama, and half a dozen other grasses dominate the biomass of intact tallgrass prairies. But the above-ground tale shows only part of the story. For all their stunning display – bluestems can reach ten or more feet above the surface – they do so from a deeply rooted base that descends fifteen or more feet below. Before reaching skyward, a self-respecting bluestem reaches deep first; two to three years of its initial growth establishes the network of rhizomes and rootlets that allow these grasses to be resilient in dynamic and severe climatic conditions. Given such root systems,

whatever variations flux through a prairie season, drought or fire, blight or locust, nothing seems to deter a colony of bluestem.

Where dense mats of rootlets and fibrous root hairs tunnel and turn, I can't discern where grass roots stop and soil begins. I turn my face to the ground, trying to imagine the workings of teeming micro-fauna and infinitesimal bacteria which are the soul of prairie soil. I rest here a good twenty minutes, setting down roots into the notion that I might learn something about myself or our communities from this teeming labyrinth of deeply rooted grasses. Tall-grass persistence requires a deep reach and an extensive grasp; so too with my own learning about places like Hayden. To understand the relevance of prairie habitat in modern agricultural context, I will need to look deep below the surface of all the plans and statistics and move extensively through diverse lands and perspectives to trace my way along the tangled roots connecting ecological, economic, political and social systems.

To do so, I will traverse thousands of miles of Midwest prairie landscapes, and travel a good bit more in inner terrain.⁴ I would first visit a smattering of Iowa's remnant patches in an attempt to stitch together an understanding of how those preserved tatters could be integrated into the working texture of corporate agriculture. With prototypes of ecological diversity and agricultural commodity at odds with each other, the grasslands of the central plains have become a veritable philosophical and political wrestling mat.

From Iowa's patchwork quilt of prairie relics, I would travel west into Nebraska to crisscross the Sandhills country seeking the larger integrity that vast grasslands can exhibit. The porous Sandhills soil has made intensive planting a dubious experiment at best, and in those primal reaches of prairie, I hoped to discover an integrity that might not be manifest in Iowa. But there too I would encounter different paradoxes stretching between the poles of economic development and habitat preservation/restoration.

Seeking models of how to transcend such polarities and create new ecological and epistemological spaces that better hold the tensions without canceling anything from the equation, I would then journey to Kansas to witness Wes Jackson's operation at the Land Institute,⁵ and to navigate the relatively unbridled tallgrass prairie terrains of the nation's first Tallgrass Prairie National Preserve⁶ near Strong City, and the Konza Prairie, jointly managed by the Nature Conservancy and Kansas State just outside of the town of Manhattan.⁷

Many prairies processes remain unknown, and perhaps unknowable, to soil conservation managers, biologists, and restoration ecologists. With North American original grasslands largely lost, it remains to be seen whether a full understanding of prairies will ever be entirely gained.⁸ To round our knowledge, we may need to utilize tools beyond scientific inquiry. In addition to scientific exploration, I feel it's important to find other means of entrée into the landscape. I want to think like a prairie. I seek immersion, holding what I can understand

and perceive of prairies up like a mirror, projecting myself into the interstices of soil, networks of roots, and burgeoning articulations of plant and animal matter.

Rising wind calls me back to consciousness at Hayden Preserve. Renewed by my imaginative insights and ready to explore other places, other prairie remnants, I rise and brush the desiccated chaff from my clothes. Ambling back towards the car, I realize that I've dropped my sunglasses. Retracing my steps I find the spot where I'd just lain down. Already the tough grasses have begun to spring back but I can still discern the shape cast by my prone body. Kneeling down at the root level and scanning outward in concentric arcs, I begin to see plants I'd not noticed before. It takes new eyes to discern this realm of diversity, retraining vision inured to miles of corn and soybeans. Immediately to my left within a slight depression in the soil surface, I discover a constellation of plants that significantly differ from those in a slightly elevated swell just a few feet away. As I continue to scan, I note many plants I had not seen when I was imagining the grasses earlier; bottle gentian and asters, bergamot, remains of evening primrose, partridge pea, and many others I can't identify.⁹

I forget my sunglass search and instead examine differing clusters of tiny succulents, tender forbs and crackly dried flowers. Every few feet I discover a slightly different universe beneath the dominating arc of the tall grasses. Each slight and subtle variation in topography, moisture, or salinity seems to signal shifts in diversity. I realize that acquiring the mind-set of a prairie requires

passing through different stages of seeing and freshly engaged perceptions, each new-found way revealing a dimension unavailable through the others.

If grasses dominate biomass statistics; non-grasses hold sway in diversity counts. Mature prairies such as these once held several hundred plant species.¹⁰ Think of your neighborhood containing four hundred nationalities and languages. Describing a prairie as a 'plant and animal community' vastly simplifies matters – like describing New York City or Tokyo as simply a 'human community'. With Iowa's wild grassland fragments little more than postage-stamps against a vast cultivated expanse¹¹, the degree of biodiversity contained in these remnants stands in dynamic contrast to the monocultural fields of corn, sorghum and soybeans that blanket the rest of the state.

While dominant grasses provide persistent ballast to native prairie, the ceaseless variety of non-grasses offers adaptive flexibility. In a landscape of constant flux and dramatic breaks, the non-grasses represent a diverse seed bank responsive to the extreme variations in ecological conditions. If each plant in a prairie represents a different way of seeing the landscape, a unique perception of place, what does it mean to our collective ecological intellect to perpetuate landscapes with only one or two points of view? Amid this small patch of variegated plant perspectives, I wonder what we would suffer if we were to lose their highly specialized knowledge of this local landscape.

Later that first day traveling through Iowa remnants, at Calhoun County's 120 acre Johnson Prairie, I undulated in the supple, sinuous, haphazard patterns of the wind whistled grasses. Several days later, in the Loess Hills of Western Iowa at the brim of a knife edge rim, with wide-wing hawk as model, I imagine my body in flight, air spun upward along the flank of hill stretching through my fingers, tilting and wheeling in response to the wind's shape-shifting. Along with rooting psyche and intellect and the ever-shifting subtlety of my prairie thought, I must also let my senses be a potential source of wisdom.

To think like a prairie I cultivate a diversity of perceptions, a multi-dimensional mind capable of holding its own paradoxical conundrums. Grassland landscapes mirror the system's theory truism "the whole is always greater than the sum of the parts." Einstein reputedly said "A scientific theory should be as simple as possible, but no simpler."¹² In attempting to wrestle cogent meaning from the vast, intricate tangles of prairie complexity, I distill my observations and reading down to a few simply stated principles, recognizing that I can not help but oversimplify the inherent meaning that roots more deeply and ranges more broadly than any mind can discern.

If I am to think like a prairie, I must begin to discern the prairie within me. 'Soil' and 'soul', but one letter apart, may be more than an etymological coincidence. Perhaps our psyches and spirits, minds and memories, constitute an ephemeral kind of humus. Just as soil is an accumulation of organic and inorganic matter made over by various biotic and abiotic processes, perhaps

what I call soul in myself is itself an accumulation of what *matters* to me and in me, altered by an array of internal and external processes.

What I refer to as soul is a complex substrata formed and informed by the detritus of my perceptions, emotions and experiences, transformed in turn by my reflections, ruminations and relationships. But if but one tenth of one percent of the soulscape who knows itself as 'Rowland' were all that remained in its native state, who would I have then become? How would I then proceed to restore a cohesive fabric to the widely scattered fragments of my being?

Noting dominant prairie grasses' initial investment in establishment of underground stores before venturing sunward, I examine my own rootedness – in place, in relationships, in ideology, in belief, wondering if I have invested sufficiently in my inherent infrastructure before I try to bear fruit or seed a project. Viewing myself from the multiple perspectives of the many opportunistic forbs and flowers, I assess my flexibility to adjust and adapt to the ceaseless changes that blow through my life with the constancy of prairie winds. Perhaps my inner prairie is not just a towering, tunneling array of tall grasses, but also a diverse assemblage of locally adapted plants. If I existed only as a rooted being I might lack sufficient resources to adjust to the flux and flow of changes that bombard every moment. If I were only made of ephemeral, transitory growth, I might lack the deep ballast that would sustain me through extreme or long term disturbance. Should my beliefs and attitudes be more like the big grasses, or the roaming forbs? It is almost more than the intellect can grasp

When European-descended explorers of the North America continent first encountered the Midwest prairie, they struggled for words to convey the immensity and seeming monotony of this new landscape. Resorting to familiar imagery, they described the undulating plains in oceanic terms; a surging sea of grass, tossing prairie waves in the crashing surf of wind. Willa Cather of Red Cloud, one of the finest writers ever produced from Nebraska's grasslands, continues with the oceanic theme in this passage spoken by a new settler to the Sandhills, taken from her novel *My Antonia*, first published in 1918:

*As I looked about me I felt that the grass was the country, as the water is to the sea. The red of the grass made all the great prairie the color of wine stains, or of certain seaweeds when they are first washed up. And there was so much motion in it; the whole country seemed, somehow, to be running.*¹³

Other visitors were quite taken by the subtle beauty and mystery of the prairie.

In 1879, Walt Whitman wrote:

As to scenery, while I know the standard claim is that Yosemite, Niagara Falls, the Upper Yellowstone, and the like afford the greatest natural shows, I am not so sure that the prairies and plains, while less stunning at first sight, last longer, fill the esthetic sense fuller, precede all the rest,

and make North America's characteristic landscape. Even [the prairie's] simplest statistics are sublime.¹⁴

A sojourner to the remnants of formerly vast realms several hundred years later, I too grasp at the familiar in making sense of my initial prairie encounters. These prairie relicts inhabit intoxicatingly unfamiliar landscapes, but there are undercurrents of familiarity here too. There's a place inside perhaps, where familiar and unfamiliar come together in a seamless, inseparable vision. As a kid, I often rambled across the open meadows scattered across our hardscrabble Pennsylvania hills. From my high perch at the stone quarry on the mountain across the valley from my house, I would gaze out on the rolling expanse. Far above the claustrophobic pines adjoining our neighbor's cow pastures, I might spy a red-tail hawk on its hunting rounds and imagine myself within its soaring wings with nothing to bind me to the earth but my own fears. Space was intoxication, spaciousness an exhilarating comfort.

If expansiveness provides perspective, then I wonder if perhaps I might see still more of my familiar life through the unfamiliar eyes of the prairie, and thus unite the prairie in me with the Eastern woodlands, Western mountains, and bi-coastal shorelines of my youth and adulthood. As I navigate this mesic sea, I let my imagination be my compass. To think like a prairie, I need to experience it across its range of diverse moods and varied reaches, and discern what might restore both resilient depth and flexible reach.

SOIL BUILDING / SOUL BUILDING

"She's going to die you know," the hobo says matter-of-factly, motioning his cup towards the east, where she lives now. We hunker around a fire, jungled up in a rough clearing by the Burlington Northern main line. "That's the way it is!" he says for emphasis, steam from his coffee wrapping tendrils around rough beard and hard-lined features. It's a face I might have known from another more callously held life. The familiarity unsettles, and then awakens me.

The dream has stayed with me for days. The man at the fire somehow knew my sister Ginger struggled for life at the edges of death on the other side of my dreaming. "Got to go on living anyway," he'd urged me, "Ain't nothing you can do to change matters." Is the boundary really so thin between dream and waking? The span between what we normally consider disassociated grows infinitesimally small. I think about this intermingling of opposites, a boy who'd wandered thickly wooded hill country now a man ranging this even plain.

I'm poised at the edge of what used to be spacious grassland as if readying for a flight to freedom. Walt Whitman used grass as his metaphor for radical democracy. But Whitman had not traveled the Great Plains when he'd penned *Leaves of Grass*. Writer Richard Manning points out that Whitman called for large scale forestry efforts to resolve "the tree problem" on the prairies he considered barren. But Manning contends that Whitman's earliest assertions remain closest to the truth. "I believe the grassland was where we destroyed

democracy because of our inability to accept and understand freedom” he writes in *Grasslands*, Manning’s stunning evocation of prairie landscape.¹⁵

My journey then conjures not just the pursuit of freedom but a stitching together of soil and soul with integrity. Species persisted on the vast grasslands of middle North America by virtue of their skill at movement as a means for surviving rapidly changing surface conditions. Shifting mosaics of wind, weather, climate and moisture selected plants that dug down deep in persistence or adapted rapidly in resilience to constant wind and periodic drought, fire, and ice. Those whose seed rode the wind, clung to the hides of migratory grazers, or stuck to the beaks or passed through the bellies of flitting songbirds became the most successful at colonizing the constantly changing plains.

With rainfall, temperature and other climatic gradients sometimes shifting hundreds of miles in a matter of years, animal species that could quickly shift territory and exploit new habitat were also selected for success.¹⁶ Humankind was born of the vast African savannahs. We are a species of the grassland, selected by our ability to adapt to rapidly changing and varied conditions, free because we are flexible. Yet we have always yearned for more.

Alchemists in the middle ages believed they could transform the primal substance of albumen into gold. By turning prairie soil into agricultural riches, one could argue that grasslands have fulfilled the alchemists dream. An alchemical fire ranges through every prairie stand, lent by the sun, rent by humankind in our attempt to borrow that fire as our own. To persist as a

species in such places, we might need a reverse alchemical rendering, a comingling of soul with soil so that we inextricably belong to the prairie rather than only borrow against it. How do we begin to build more resilient bonds with a landscape we've so severely fragmented?

There's a kind of fullness that presents itself as emptiness. The mind, the heart, the skin can grow so satiated that they can't take anything else in. In that overwhelm, we're suspended in time and space, numbed to everything new that comes along – fullness turned inside out into emptiness. In such ways, at their remote edges, things might sometimes turn themselves into their opposites. In places of paradox, polarities may find coherence and coexistence. Humanity splintered the prairie's integrity, but in the process of naming the rifts we also may become more capable of knitting it together – and ourselves along with it.

Somehow, my hobo dream, my sister's struggle through cancer, and my hopscotch journey through prairie remnants intertwine like some braided river sloping down to the massive Mississippi drainage. Indeed I must go on living, even if my sister fails to. In my search for meaning and belonging, these savannah-like landscapes draw from a primal evolutionary knowledge. What I discover from prairie paradox crisscrosses the borders between opposites, where death renews itself in life, solitude restores a sense of belonging, and my questions become perhaps their own answers.

As I stood earlier today at the edge of a central Iowa corn field, gazing west over miles of rattling stalks, while a river of grackles undulated from one stand of black locusts to another of sycamores, with the ululations of crickets and cicadas serenading soul and sounding the soil, I felt suffused with an unaccountable substance. Born of the grasslands a hundred thousand generations ago, gradients of fullness and emptiness, open and closed, deep and shallow, aloneness and belonging shifted constantly with the wind clattering through the corn. In such a way, I transcend polarity.

Manning observes that the wilderness preservation movement has been mostly a "mountain-and-forest" movement.¹⁷ Settlers clear-cut the "grass forest" of the prairie Midwest, primarily for agricultural use. In many locales, the sublime soil, the grassland's sustenance in the cyclic reciprocity of flood-drought-fire-ice, has eroded to a shadow of its deeper self. Have prairie souls eroded as well? In soil making in intact ecosystems, all that lives and grows ultimately dies and disintegrates, another transcending of opposites. Perhaps the same is true for soul making. Must something in my existence fall apart so that it can reincorporate anew? I ponder the ways I may clear-cut my own diversity, plant myself in mind-numbing monoculture, or bombard myself with metaphysical pesticides-herbicides-fungicides.

Skin of soil – skin of soul. The industrial plow tore through the skin of these soils, but also shredded the soul of this place.¹⁸ Commodity replaced diversity as the underlying ethos. There were freedoms lost when the sea of

grass was stilled and drained, what Gretel Erlich called “the solace of open spaces”¹⁹ scatters from land purely transformed into a capitalist venture. Perhaps the clear-cutting and commoditization of prairie land has also clear-cut and sold out our ideology, religious tolerance, grass-roots politics, and economic sustainability. Perhaps in restoring our relationship to prairie places, we need a soil worthy of the soul we desire.

If landscape processes form a kind of ecological consciousness, then can a place that loses more than 99 percent of its original integrity still claim to possess a mind of its own? And if the soil fundament of this region has been irrevocably changed, have the souls of the people who draw sustenance from it been inexorably altered as well? Here in this bread-basket of the nation, any of us that eat from the Midwest’s provender are implicated.

The scale of thought needed to address such questions transcends the acreage of the lands I’ve thus far visited. Neal Smith National Wildlife Refuge, Southeast of Des Moines in the center of the state, offers the largest area given over to prairie thinking in Iowa.²⁰ As an experiment of prairie restoration and relationship building on a grand magnitude, I hoped to find an extant integrity missing from the tiny fragments of remnant prairies adrift in a sea of corn.

A PATCHWORK PRAIRIE: REMNANTS, RESILIENCE AND RESTORATION

Thousands of redwing blackbirds flex and flow like a tumbled wind suddenly made visible. I pull to the roadside to take in the seemingly ceaseless stalks of big bluestem and Indian grass taller than my vehicle. Tangling from the grass at my feet, small purple spirals of petals announce the presence of aster's late blooming. This exhibits the perfect picture of eternal prairie health and vitality, and none of it was here twenty years ago.

Neal Smith National Wildlife Refuge, named for Prairie City's congressional representative, encompasses 8,654 acres in central Iowa east of Des Moines. Originally targeted for a nuclear power plant, this former agricultural land was purchased by the US Fish and Wildlife Service in 1991. Dedicated research biologists, refuge staff, and hundreds of volunteers are transforming some 5,000 acres of this parcel from corn and soybeans to wild rye and prairie dropseed.²¹ Where cattle once foraged, now bison graze.

It's an extremely ambitious restoration effort with its foundation in education – of kids about the necessity of prairie ecosystems, and of landowners about how to take existing land and put it into restoration. Extensive gathering campaigns from wild stretches of land provide native seed needed for the restoration efforts. Certainly the staff and volunteers at Neal Smith should be complimented for their extraordinary work in teasing prairie plenitude from hard-used agricultural soil. But for the impressiveness of vigorous native growth, an

air of artificiality also shows here. Curvaceous well-groomed trails punctuated by comfortable seating lend this a feel of a city park. Unbridled winds tousle the tall grasses, no doubt native plants, but the place itself seems somehow tame. The presence of plants does not mean that a prairie has been restored when that place is made as much of processes as provender. I suspect that the re-creation of prairie and oak savannah habitat may yet lack something present in its original creation. Perhaps that's incidental to a more important restoration taking place here; the reconnection of kids, scientists, conservation officers, and prairie enthusiasts with a tangible caring for prairie life; the incubation of understanding of ecological processes underpinning these landscapes even when their results only approximate native prairie.

I continue on the loop trail from refuge headquarters, skirting two milling groups of school children out for a day's learning. Down the path, finally out of sight of buildings and kids, I sit on a bench and soak in the sounds and sights nearby. Waves and eddies of wind ripple the grass tips, steal away any voices I might hear, lending me the illusion if not the reality of solitude. A movement in one of the cottonwoods in the valley's crease catches my eye. Bursting from the leaves, redwings flit in and out of sun and shadow, turning light and dark, a chiaroscuro of wings. Their feathered choreography catches me up in their dance. I rise and follow them from tree to tree all down the valley. Finally they circle back over my head and flow almost silently back into the original cottonwood from which they'd first flown.

If I'd wondered whether a place like Neal Smith could eventually match the original prairie's integrity, then *Agelaius phoeniceus* reminds me that the ultimate proof may be in the wing beat. But does the making of new soil mean that it has been made whole? The metaphor of Iowa prairie as a patchwork quilt may only go so far. Thinking of original remnants such as Hayden and Johnson Prairies, and restored farmland such as Neal Smith Wildlife Refuge, any stitching between even the largest of these plots reveals more gap than substance. Ecological integrity must be measured not just within the squares but at the interstices between them. Thus far I'd traveled at ground level between widely scattered prairie vestiges. I wondered if it might be time to seek a different model, one which exhibited coherence that encompassed not only the remnants of native growth, but the works of human agricultural enterprise.

Where the Little Sioux River braids into the big Missouri in western Iowa's Monona County, eons of wind and weather have lifted silt and sediments from the Missouri River drainage, and sculpted the deposits into steeply scalloped hills.²² I puff and sweat from exertion by the time I reach the summit of one. Slicing chunks of cheese and apples to layer over rough cut slabs of hard grained bread, I gaze out over the flatter lands sliding from my hills toward the river. Tractor combines taller than the single story house with attic I grew up in work opposite ends of a corn field towards each other. Just shy of connecting, they shut down their engines. Perhaps lunch calls their operators as well.

As I chomp through my thick sandwich, I notice first one, then three specks circling high above my perch over the valley. No doubt drawn to something more alluring than cheese and apple sandwiches their spirals tighten and they descend closer. I make out the distinctive wing fold of turkey vultures, chuckling to myself – but quietly – in guessing that it may be my sweaty booty not my lunch bounty that they investigate. Subsisting as they do on the most despicable fare imaginable (from human perspective) vultures ingest dead, decaying, putrefying flesh and transform it into soaring transcendent flight. On a silt-blown hill at the edge of Iowa grasslands, on the verge of the Missouri flood plain, three circling vultures remind me that life feeds upon death. For the last century or so Midwest agriculture has lived on the dead and dying remains of ancestral prairie plants. Where are the roots of future prairie soils? What remains for life when all that dies is carted off for commodity, when what's given back to soil is not native substance but the flash of chemical additives?

Another passing speck now draws my attention. Something in its bearing and intent differentiates its flight from that of the vultures. By the tilt of the wings inferred from this distance, and some quality in its suspenseful maneuvers of the wind, I peg this bird as a hawk though it never draws close enough for me to make a positive identification. I project myself into its body and spiral high above Iowa plains and look backward, from on high, across the land and over the perspective of my last few days

In my hopscotch through Iowa prairie remnants, I recite place names like a graveyard elegy, or perhaps more hopefully, a grassland genealogy: Hayden, Johnson, Marietta, Cayler, Clay, Kaslow, Stinson, Steele, Neal Smith, Tourin.²³ What threads – ecological, economic, societal, spiritual – stitch together these disjointed remnants into an integrated quilt? From my hawk's eye, the patchwork quilt of the land may look complete. But it's one thing to examine a stand of original or restored prairie to determine whether a particular plant association remains viable; quite another to examine the landscape from the perspective of an organism – such as a red-tailed hawk or turkey vulture – whose viability rests on a different measure of resilience.

Ecological resilience measures the capacity of a landscape community to undergo disturbances while retaining its original character and function, including the shift to alternative stable states. Its measure depends on the adaptive capacity of that ecosystem to deal with damage, cope with change and open to new opportunities, assessed across cascading scales of space and time. Prairie disturbances abound, with causal roots in both human and non-human realms; snarled and shifting dynamics of fire, flood, climate change, urbanization, oil exploration, and agricultural force. A scan of the current literature reveals a plethora of papers describing 'social-ecological resilience,' exploring humanity adaptations to rapid flux in sustaining lands.²⁴ Amid vast seas of sorghum, corn and soybean; to weave resilient integrity across scattered patches of remnant

prairie means we must bridge scales and develop capacities beyond those previously imagined.

But resilience to a prairie means something different than it does to an alpine meadow, a sagebrush plain, or a hardwoods forest. If resilience reflects a flexible persistence in the face of ongoing difficulty, then native grassland endures its diverse expressions of organismic response to every conceivable variation of weather, topography, hydrology and disturbance; along with the ability to root deep into the subterranean mystery, channeling growth downward as well as up, patiently waiting out whatever rubs the surface raw. Ensuring the presence of a handful of keystone species or the setting aside of particular tracts of lands alone does not alone perpetuate resilience in native grasslands. More withdrawals than deposits to the native soil 'bank' severely diminish the prairie's capacity to rebound. When the flexibility and complexity represented by species abundance is replaced with monocultural simplicity, then the integrity of prairie landscape is further compromised. Millennia of soil development and diversity lend the Midwest's its agricultural bounty. When that becomes lost, how many centuries might it take to restore that original measure of ecological buoyancy?

I ruminate on resilience for my own reasons. I close my eyes and see prairie hills, fly them like a sharp-shinned hawk in my imagination, feel the deep-rooted grasses reaching down into my own loamy fertility. Encountering those places, I discover some hidden continent in my soul, as if wild native grassland flourished in me all along, unexplored but deeply sensed, ripe with resilience.

Thinking like a prairie, I find a definition of internal and external resilience that incorporates long-term depth with flexible diversity. But these dynamics contradict the current measures of cultural and agricultural achievement. Higher yields, enhanced performance, more efficiency: mantras of modern of success in both land and society, drawn without replenishment from both soil and soul. Remembering my initial drive through Iowa farmland to Hayden preserve, I recall what I took to be a sentinel of prairie resilience in the outlier towering above the sorghum. Even the one sight that initially gave me hope later dashed my optimism, as the tall oddball proved not to be a native species but mutant sorghum, a genetic freak even to its genetically manipulated brethren.

Much of Iowa native prairie has been uprooted, uprooting also something of our understanding of it, and perhaps of ourselves, in the process. Stitching together the remnant fabric of extant prairie and restoring once-farmed land to fertile diversity are admirable and inspiring activities.²⁵ But in order to extend my prairie mind, I wonder if I might need to encounter a place with more of its primal essence intact? In nurturing my fragile new consciousness of grassland epistemology, I seek fifty miles of thinking room, a place rooted in its diversity, and flexible in its persistence. Seeking a larger frame of prairie integrity, I point my car north and west of Iowa, to Nebraska Sandhills 19,000 square miles of relatively intact grassland.

OGALLALA TO OGLALA

Barren stretches of Nebraska make you you'd swear you're the last human being alive. Past McCook, heading North on route 61, driving late across the curving Nebraska highlands, bereft of sun and of moon, my headlights slice ribbons of light through velvet cloth revealing surreal images and dancing tall grass shadows along the side of the road. I pass a ramshackle homestead; dark shuttered, empty tonight, perchance forever. Emptiness catches in my chest as I breathe deep bluestem air swirling through the open window. I yearn for sign of another living human being. Over another ridge, tucked in a treeless draw, I glimpse soft light from an isolated farm house. Such a light, I think, might put the coffee up for me. Such a light, if I became lost, would direct me homeward. Such a light, waiting warm, offers welcome against the weariness of night.

From the highlands south of the Platte river, I glimpse another welcoming light; the glow of Ogallala, population less than 5,000, my destination for tonight, my resting place against the solitude, darkness, and weary miles as I head into the Nebraska Sandhills for the next stage of my research journey. Certain towns, like some homes, seem to bid us welcome. Ogallala has been that kind of place for me. I first happened upon the city some 15 years ago, dog-tired on my mid-west leg of a cross country trip. I'd pulled into downtown Ogallala's Plaza Inn, rented a room for the night, and asked if there was a good place nearby for a bite to eat. The proprietor angled his bony hand across the

street to a near-empty Mexican restaurant. I ambled across the street. The hostess wiping down a table greeted me like a lost friend. I ate enchiladas as worthy as any this side of Chihuahua, washed down with *autentico* Tecate beer.

Afterwards I strolled around town, the main streets simply appointed, the stores practical and not a chain store among them. Though it was almost 9pm, the local bookshop was still open. I moseyed towards the natural history section and found a bonanza of offerings from one of my favorite prairie writers, John Janovy Jr, author of *Keith County Journal*, *Yellowlegs* and others, and a renowned invertebrate biologist over at the University in Lincoln.²⁶ With a Janovy book and one by Mari Sandoz, another Nebraska writer of note,²⁷ I approached the counter to make my payment. The clerk grinned as I complimented him on his choice of stock. "John comes by all the time." he informed me, "He takes his students into the Sandhills up past Arthur." "Of course!" I thought to myself, recalling the bullet-hole pocked country sign as I curved down towards the river the other side of town. 'Keith County' it announced humbly. I was at the threshold of a land I'd traveled through in my imagination for many years.

Keith County Journal not only reveals the wonder of a natural place, but can make me laugh out loud. With scientific accuracy and lucid prose, Janovy reveals a multiplicity of perspectives on prairie diversity and integrity.²⁸ The boy curiously turning over cow patties becomes the biologist explaining the mysteries

of how termites and intestinal protozoan hitchhikers convert undigested cellulose left over from a cow's grassland ruminations into soil worth its weight in gold.²⁹

The teacher leads his students out across the unlikely wildlife sanctuaries of a well-managed remote back-country ranch, into the dank shadow of a highway overpass, or through the mud and muck of cattail marshes, and he's not just showing them how the long billed curlews fearlessly scream and gracefully pivot overhead, but how those birds point out the ways that humans might hold the paradox of domestication and wildness. Not just how to track the path a species of parasitic worm takes from the intestine of a cliff swallow, through the liver of a land snail, but how in the process all three species unite in a lasting dance between specific place and evolutionary time. He's showing them that the killifish wriggling in their seine net is not just a member of a community, but represents a host of concentric communities, a spiral rippling inward and outward that encompasses all of humankind.³⁰

Reading Janovy for the first time, I began to question the biases that led early settlers to call the prairie the great, blank desert in the middle of the continent, or causes modern travelers to put the Cadillac on cruise control and speed out to the mountains west or back to the cities east. Habitually drawn to lands of scenic wonder and exotic magnitude myself, I wondered if maybe mysteries in grasslands deserved my careful attention and consecrated time. As I made my purchases at the register, chatting amiably with the proprietor, I felt like a larval worm gestating in a cocoon of compelling ecological tales told of the

Sandhills. I was now catching a glimmer of mysteries long concealed in a realm beyond the cover of the book, and perhaps beyond even my imagining.

Janovy's works had taught me a great deal about this stretch of native Nebraska prairie, but to think like the Sandhills, I would need to travel there myself. Several Octobers later, ready finally to emerge into the chrysalis of first-hand Sandhills knowledge, I seek traveler's refuge once more in Ogallala. I hole up in my room with Mari Sandoz's *Capital City* and peanut butter sandwiches and read myself to sleep.³¹ In the morning, I fuel up on both caffeine and gasoline for my long day's journey through the Sandhills. I skirt the vast artificial reservoir of Lake McConaughy, an aquamarine monstrosity against the shallow meandering reach of the Platte through a semi-arid region. "Is this what's become of the Oglallah aquifer?" I muse as I turn left at highway 26.

Blink and you might miss Oshkosh, Nebraska, population 986. In that blink, you and I both might overlook the casually marked turnoff heading north towards Crescent Lake National Wildlife Refuge. Some twenty miles on, a narrow gravel road yields to one lane blacktop (composed of mixed slurry of sand and tar). Traversing sensually sloping hills some 200 to 300 feet in elevation with each crest a breathtaking glimpse of limitless expanses, I am both calmed and exhilarated. This is elemental spaciousness. These hills swallow me whole. Gently swelling curves enfold me like a body's curves – hills like a languorous Sunday morning in bed with your lover. As my rental car glides from one Sandhills dune crest to another, I recall my childhood soaring with red-tails.

Driving that one lane macadam for the first time, creasing the luxurious slopes cascading into seeming infinity, I realize that I might never be closer to the sensation of a hawk in flight than in this moment.

At 46,000 acres, Crescent Lake is the largest stretch of protected prairie landscape I've encountered thus far, that is if one considers hunting and fishing forms of environmental protection. One of the refuge's lakes is open to fishing year round while others open only from November through mid-February. Grouse, pheasant, rabbit, deer and coyote may be hunted in appropriate seasons on all refuge lands from September through January. Ducks, geese and coot may be sought on portions of Crescent Lake. While such activities may seem contrary to the concept of a wildlife refuge, heavy regulation helps maintain native populations of both game and non-game species. Fishing with minnows, either alive or dead, is strictly prohibited. Possession of any fish not explicitly taken from the refuge is subject to prosecution. Non-toxic shot is *de rigueur* for any hunting, and all blinds and decoys must be removed at the end of the day.³²

Sandhills integrity balances on compromise. It took political and economic compromise to carve such lands from the vast free-hold domain of the region's cattle barons. Whether allowance of these activities on refuge land was a bone thrown to the settlers and ranchers is a matter of speculation. Certainly, humans have disrupted the tender equilibrium of natural predation and native prey. Provision to cull certain overpopulated species has become a necessity. Quite likely, the revenue brought from game licenses in such places far from the

Federal feed-trough can be all that stands between success and failure of staff efforts to manage and protect Crescent Lake.

I reflect on this balancing act of compromises as I pull into the parking lot at Island Lake. In places like the Sandhills, it's important not to take anything at face value. Varied perspectives yield varied insights. The water shows blue/slate grey from one angle, but a pastiche of yellow, ochre, and sienna when seen with the sunshine directly above as I walk onto the fishing dock/observation platform. A redwing blackbird perches at the railing, which flies off to the marsh and alights on a cattail as I approach. It sounds subdued – circumspect almost – perhaps because it is not looking for a mate this time of year. I hear its nervous chirrups, but its bold, distinctive “booker-tee” is missing from its vocal repertoire.

I note a lone swan and several white egrets far out on the lake. A milling cluster of six or seven Canada geese cackles like gregarious friends at a crowded café. Some species, at least, are not daunted by the prospect of hunters. But humans are not the only hunters here. Walking back to the car, I pass by an Army surplus oil trailer. Writ like a short story on the mud around and beneath it, I trace small clawed tracks moving warily – drag marks of skidding feet or tail perhaps – a couple of swirling marks of wing tips – the drama of hunting hawk sweeping for rodent food. The happenstance presence of a handful of birds or an individual prey's flight from particular predator, narrate the presence of associations across dimensions of both time and space.

From the side of the road just shy of refuge headquarters at Gimlet Lake, I angle up on a trail that promises a hill top overlook. Trailside, spikes of yucca and bristles of cacti strike through scruffy thatches of dried grasses. This does not look like the tallgrass remnants I was exploring further east. Shy on rain, coping with porous spendthrift soils, plants this far west are more representative of mid-grass prairie communities. It mingles elements found amid the tallgrass with elements of high desert flora.

Some animal has scooped out a burrow just off to the left. If I were an earth digger I might live here too. The sandy soil is easily displaced by earnest effort. Enduring winds from the west and south also make the soil vulnerable. Near the crest of the hill I come upon my first blowout, hollowed out over time by the persistent wind, and home to blowout penstemon, the poster child of Sandhills paradox. From the perspective of many environmentalists and land use managers, the Nebraska Sandhills are an ecological success story. Increased environmental sensitivity, creative partnerships between economic and environmental interests, more careful grazing practices, as well as a relative exodus of human population, have stabilized the rolling dunes of the Sandhills and made them less subject to destructive erosion.

However, from the perspective of the blowout penstemon current conditions on the Sandhills loom as a potential disaster. This deeply rooted perennial herb with slender lavender flowers was placed on the endangered species list in 1987. Ironically, the very processes and practices that provide a

stabilizing factor for the erosion-prone sand dunes erase the habitat conditions much favored by this endangered plant.

Penstemon haydenii is a pioneering species, requiring the *tabula rasa* of a freshly disturbed environment. Scientists monitoring the blowout penstemon protection plan are extremely secretive about the few locations where it currently thrives. Besides those few places scattered throughout the Sandhills where naturally erosive forces still carve out a niche for the plant, it may also occasionally favor sites of human caused disturbance created by overzealous snow plowing, routine highway maintenance or back-country construction. This begs the question: if *Penstemon haydenii* is to survive and thrive in a naturally rejuvenating place and in a sustainable fashion, should disturbances be intentionally created to provide its necessary habitat?

Blowout penstemon was originally called Hayden's – after Ferdinand V. who first collected the plant in 1857 (not related to Ada, the heroine of Iowa prairie preservation efforts). It blooms in late May for 3-6 weeks; each lavender flower head persists for 5-9 days.³³ As it prefers a freshly disturbed sandy soil, the ancestral Nebraska Sandhills were a penstemon paradise. Before settlement, lightning or native-set fire burned over habitat regularly and bison trafficked here in their migratory feeding, exposing sand to persistent winter and spring winds. Elimination of Native American's fiery practices on the prairie slowed but did not stop fire's impact on these landscapes. Though later cattle came to replace the beleaguered bison as primary grazer over much of this terrain, the new bovines

continued to disturb the Sandhills fragile soils, while natural occurring and accidentally set fires still periodically raced across the landscape, thus stimulating the conditions which satisfied the penstemon's desire.

But following on the heels of cattle business and agricultural excesses culminating in the Dust Bowl years, attention throughout the region turned to preserving the fragile soil. As in the rest of the country, we suppressed naturally occurring wildland fires from the early 1900's onward. In addition, soil conservation science significantly affected the ranging practices of ranchers, leading to greatly enhanced habitat protection. Less fire and diminished impact of *Bovidae* foraging meant more vegetation in general, but less prime real estate for the penstemon. By the mid part of the 20th century, there was speculation among Sandhills botanists that the blowout penstemon had perhaps gone the way of the great auk and the dodo bird.³⁴ Though some are optimistic about its recovery, I wonder how such a species inured to impairment can sustain itself when its preferred habitat continues to be threatened not by naturally occurring disturbance but by sensibly planned restoration.

Seeking a place to camp for the night, I pore over my Nebraska State map searching for little red triangles that signal public camping sites. There isn't much to choose from. I could bite the bullet and check into some grungy roadside motel and fritter away my night watching bad TV. Or I could take my chances on an intriguingly named site called Toadstool Park about 15 miles from

where I sit. After a day spent traversing the subtle grandeur of Crescent Lake, I crave solitude and natural splendor more than motel amenities. With Toadstool located in the midst of Oglala National Grassland, the thought of laying my head to rest in Oglala after morning in Ogallala city appeals to my poetic sensibilities.

The gravel road to Toadstool shadows a busy railway bed. Snaking lines of coal cars rattle past every few minutes, full towards the east, empty back to the west. Eventually, I cross the official boundary for Oglala National Grassland. Despite the impact of frequently visited National Parks and publicly contentious National Forests, few Americans know much if anything of the 20 federally designated National Grasslands totaling almost four million acres of mixed grasslands. Many represent quintessential short grass prairie habitat, colonized by an association of plants and animals that can survive on an average of fifteen inches of rain that falls annually on these landscapes (as opposed to wetter tallgrass habitat). At 94,480 acres, Oglala – named for Crazy Horse’s people – dwarfs Iowa’s Neal Smith National Wildlife Refuge by more than a factor of ten, but is itself smaller than many sister grasslands in the system. North Dakota’s Little Missouri National Grassland, for example, totals more than a million acres.³⁵

The scope of these lands reveals the scale of earlier human failure. 1862’s Homestead Act opened a great deal of the mid portion of the continent to land hungry easterners searching for “fifty miles of elbow room” and a decent life if they could prove their claim on the land through judicious effort. Offering 160 acres for the modest price of \$18, a flood of disenfranchised Eastern farmers,

newly arrived European immigrants, single women, and former Southern slaves loaded their wagons and headed west for a new start. Many failed right from the get-go, and even those who succeeded for a spell could be wiped clean from bouts of improvident weather or wildfire.³⁶

Within twenty years, the combined intervention of railroads and intentions of cattle barons overtook all but the most steadfast of the original settlers. However, subsequent tweaks of the Homestead Act (most notably the Kincaid Act of 1904 which upped the claim acreage to 640 acres), along with the discovery of gold nearby and further west brought new waves of prospective homesteaders to the region.³⁷ Droughts, flash floods, dust storms, and plagues of locusts (and other insects) constantly challenged these new dirt farmers, along with their gruff and sometimes violent cattle ranching neighbors, and took the heart out of their efforts.

By the 1930's, in the aftermath of the Dust Bowl that hit these Nebraska grasslands as hard as any Okie hardscrabble farm sung of by Woody Guthrie, much of the populous – and the soil – had migrated elsewhere. A series of commissions and acts of legislation attempted to stem the soil tide. These landscapes were further brokered between the Forest Service, Fish and Wildlife Service, the BLM and the National Park Service (1954), before falling under sole proprietorship of the USDA Forest Service (1960).³⁸ As with the Forest Service's industry-friendly master plans elsewhere in the continent, it's little surprise that coal and oil leases now abound on National Grassland holdings. Dirt cheap

leases to ever larger cattle ranching operations also predominate. Despite these constant pressures, many of these grasslands are veritable gardens of Eden compared to their corn and soybean compatriots further east.

Toadstool Geologic Park sits at the boundary between grassland and badland. It looks like something out of a Flintstones cartoon. At the base of a curving cliff of hoodoos and fractured cliffs, a semicircle of six covered picnic tables and parking/campsites curves away from a restored sod house based on an original homesteader's design for the first homes cheaply made in Sandhills settlement. A chalky white trail slivers up and over sandstone shelves and around the capstone slabs on clay pillars from which the park gathers its name.

In the last half hour before sunset, I delay dinner and camp setup for the pleasure of a brief back-country ramble. Prehistoric volcanic activity in the area periodically draped this landscape in layers of ash. Weathered into cracks in the clay the ash eventually crystallized. The softer surface material erodes, revealing glasslike gravel and the bones of primeval organisms. The path curves and traverses an old stream bed. Patches of this coarse mix of bone and silica appear where waters have worn them visible. I pick up a fragment of ashen glass, picture in my mind's eye the original fiery rain, the pressing concerns of centuries of sandstone deposits, followed by eons of watery cascades and caravans of wind, revealing this moment of *Homo sapiens* grasping a handful of the past within his present.

Around the corner, a self-guided signpost alerts me to the presence of prehistoric tracks. Again I enter the crossroads of my imagination as I rest my palms into the shallow depressions that describe the path of some antediluvian organism. On a balanced sandstone boulder off to my right, I note the tracks of a two toed animal across the ancient mud. My imagination can neither confirm nor deny the evidence of an entelodont's traverse. I must trust the paleontologist's call on the passage of this prehistoric giant pig.

Further along the loop trail, I come across more entelodont traces, this time trailing two sets of other tracks. My imagination fails me altogether as I read the guide's story of two separate species of rhinoceros that had once followed this streambed. Some Dick Tracy paleontologist had speculated that the smaller of the two had crossed the stream after the larger had just passed. Perhaps spooked by the near encounter, it apparently sped off through the mud, leaving splash marks that stained time immemorial.³⁹

At the crest of the sandstone ridge I sit on an outcrop and survey the plain stretching south from the campground. In the distance several telltale conical slopes suggest that volcanoes indeed marked time here. From that far vista, sienna and tan grasslands stretch back towards me like a scratchy wool blanket ruffled by windstorm creases and flash flood gullies. Nearer still, and off behind me lie the crushed and crucified badlands that tie all the way back north towards Badlands National Park in lower South Dakota.

At sunset, crisscross ripples of different and diametrically opposite layers of flows of cloud and color perfectly portray a landscape that has learned to hold contradictory forces in dynamic tension. I let Sandhills earth and sky, spaciousness and timelessness, seep into my skin and blood. There's no one else nearby to verify what year this is, or to declare what organism will next round the rocky bend, or to debate with me what it would take to keep and restore this grassland cum moon crater. Reflecting on the tracks of a now extinct archaic giant pig and a lumbering rhinoceros, our crafting of management plans detailing the denouement of native and nonnative species strikes me as somewhat absurd and hubristic. By whose calendar are such things measured? From the calcified perspective of the entelodont, we are all invaders here.

That night as the cold flows over the rock faces into my valley, an intense wind and a sneaky rain wreaks havoc with my efforts to fire up my cook stove to craft dinner and warming tea. I give up; put on every layer I can, and wriggle into my sleeping bag. In the absolute dark I hear rumbling and howling. Loaded coal train? Yahoos out for a bit of tourist torment? Coyotes on a hunter's prowl? Blundering entelodonts rushing downstream to crush my tent? In such a time and place anything seems possible – except perhaps the possibility that humans will choose the wisest course in matters of managing these primeval lands.

Arising early the next morning, I hike a stream-bed trail and up onto the plateau behind Toadstool heading towards Hudson-Meng Bison Bonebed. In the early 1950's ranchers Albert Meng and Bill Hudson uncovered large bones poking from an eroding bank and summoned scientific expertise. Excavations revealed an extinct species of bison with stone tool artifacts dating some 8,000-10,000 years. Archeologists surmised first an ancient bison jump, then a natural death event of unknown origins. The mystery is yet being explored by archaeologists and visitors to the dig site.⁴⁰

Wind tosses the dry grass. I stand on a high ridge with a 360 degree prospect. I'm at a crossroads of dim past and uncertain future, equally inscrutable, recorded in stone but not fixed in time. Who's to say that tomorrow's paleontologists won't be excavating cattle ranches plumbing the secrets of bovine decline, or that either grasshopper or redwing will yet be here to watch over burgeoning blowout penstemon? For all the apparent mystery, across the span of time, no land remains trackless. Roaming the wind-sculpted hills of Lake Crescent, the eroded ash hoodoos of Toadstool, the airy sweep of this plateau, I glimpse traces of creatures past and present within these ancient lands. On the trail of episodic migratory species, ephemeral plants, prehistoric tracks, and eternal wind, I feel more a shaman summoning fleeting spirits than a researcher pursuing scientific certitude.

GHOST ROADS

To my right, broken pieces of macadam slide down into a weed choked culvert. Sentinel mullein stalks and phalanxes of goldenrod push through cracks in the weathered surface. Along several of these pre-interstate highways of central Nebraska, mute evidence of the first roads through here is writ upon the curving Sandhills rise and fall. For reasons known only to highway engineers, and perhaps pork-barrel politicians, long stretches parallel older adjacent pioneer roads rather than overriding them, even those that follow the same grade.

“Ghost roads” I jot in my journal, one hand on the wheel as I slide up one slope and down the next. In my mind’s eye I see model-T Fords chugging up the hill beside me, furniture laden Dust Bowl trucks stalled, steaming, attempting to escape the wrath of the persistent wind, broken down wagons from even older ghostly trails across the harsh Nebraska landscape. Occasionally I pass rundown stucco gas station-motels replete with rusty pumps, windowless diners, and devastated farmsteads, home to hosts of phantom memories. Profligate Sandhills prairie does its best to erase the traces of memorial remnants, but I imagine that other generations of drivers on these less-traveled by-ways will still be able to sense the tracks of ghosts long after their passage fades from sight.

Speeding down rte. 27 from Gordon, I glimpse a worn wooden sign on a side road indicating ‘Sandoz Books’ a few miles in. I’d heard that Caroline Sandoz Pifer, executor of her sister Mari’s literary estate, operated a little

bookshop/museum after the renowned Nebraska author's death in 1966. I hook an abrupt left turn, wheels spitting dust, hoping the sign will lead me to first-hand information about Mari Sandoz. Several miles down the unpaved avenue, I begin to regret my impetuosity. Deep ruts in the sandy path threaten to swallow my vehicle: I balance one wheel off the side, the other in the center, steering with sweaty palms.

At a steep grade, my tires start to spin in loose sand. As the car slips left, I steer right and gun the engine, maneuvering the rest of the way up the dune. At the crest, I stop and shakily walk to the passenger side and pry tumbleweed from the wheel well. Blossoming red, freshly nudged from its tentative roots, the plant looks nothing like I would imagine from my stockpile of old Western movie footage memories. The wind buffets me, shakes even the car. But for my modern conveyance, I could be a late 1800's homesteader on my way to a claim, like Mari's father – subject of her most renowned book *Old Jules* – and the dozens of others who Jules subsequently persuaded to settle nearby. In a lull in the blowing, a meadowlark calls from over the crest of a dune. A slant of motion overhead catches my eye, plummets to the ground; red-tail hawk in primal hunting mode. Closing my eyes, I picture this place a hundred years or so ago. Opening them, I'm convinced that little has changed but the lay of the dunes.

As I drive forward, the road seems more solid, less rutted. About where the bookstore should be, fruit trees appear, old fencing, birdhouses affixed to both, grey-sided outbuildings tumbled and worn, and then a more modern

looking home. No sign 'Sandoz Books' greets me as I park and stride towards the door. Before I can reach the buzzer, the door opens and a middle aged man appears. "Looking for Caroline?" he asks, then proceeds before I can answer "She's up at the nursing home in Gordon you know... Hasn't lived here in some time... This is a private residence now..." Noticing perhaps the sink of my shoulders, he adds "Books and such are up in Gordon too... Have some water?"

We chat a few minutes, the new owner expresses gratitude for the work Caroline and family did to bring trees to this place, and for the work the trees have done to bring the birds. Caroline, with a degree in botany from the University of Minnesota, created a haven for both wild and domesticated life. I learn that a tribute to Mari's work, including a number of the artifacts saved by Caroline, operates at a local print shop run by a friend of the family. I bid farewell and head for the next leg of my ghostly journey. With a taste of the Sandoz way of life through Caroline's legacy, an informed sense of Mari's existence still eludes me like a will-o-the-wisp trailing away with the wind.

Bathed in lucid afternoon light, I sit on a simple wooden bench, gazing across at the tan and sienna hills. In the valley to my right a mass of greenery, trees – fruit trees in fact – rises in a place where miles can pass without sign of anything taller than the ever-present bluestem. Behind me a single headstone also stands out, the significant granite slab out of place in this otherwise austere landscape. In a day out traveling ghost roads, I've arrived at an appropriate place.

Earlier, another simply appointed sign beckoned me off the beaten track of rte. 27: 'Mari Sandoz grave site.' On the drive in, a passing pickup truck slipped by in a cloud of loose sand. The driver lifted a hand in greeting, her determined face like something out of a Walker Evans photograph from the Dust Bowl years. Eerily, I recalled a picture of Mari from the dust jacket of one of her books. I shook off the image and drove the rest of the way to my destination.

Thus I arrive at my resting place with Mari Sandoz, author of an array of non-fiction narratives including her well known familial memoir centering on her father *Old Jules*, a cycle of historical works including *The Beaver Men* and *The Buffalo Hunters*, and a set of novels, among them *Slogum House* and *Capital City*.⁴¹ Niece Celia Sandoz Ostrander Barth (it was her in the truck, I speculate) and family now tend the homestead and the fruit trees in the valley planted by Mari's father. Located on this barely passable dirt track, this is less a tourist's destination than a devotee's pilgrimage.

Mari's last wish was to be buried where her spirit could gaze out across the hills she rambled and loved up close and from afar (during the many years she lived and wrote in New York City). I come here to place myself in the land where she so often placed herself in reality and imagination. Reading through guest entries in the wind-tattered pages of a spiral notebook, I discover I'm not the only one who was moved by Mari's writing. The testimonies of young women who've found in relevance in words written five or six decades ago particularly strike me. A number of works of gripping social commentary

encompass the Sandoz canon. In this remote peaceful valley that was this writer's refuge, I become lost in thought about a novel that outlines what was once her scourge and outrage.

Sandoz's most ambitious and audacious political work, *Capital City*, is set in an imagined capital in a made-up state. The city of Franklin and the state of Kanewa are a compendium of Midwest states and their capitals meticulously researched by Sandoz. Taking place in the turbulent times in the Great Depression just before World War II, the novel opens with the ostentatious ceremonial coronation of Franklin's Emperor and Empress; an annual excuse for the *Hoi Poloi* to lord their riches and the rabble to make a buck on the festivities. From Herb's Addition, a shanty-town for the poor squatters and disenfranchised, Hamm Rufe; 40-something Socialist-leaning publisher of a Farmer's Insurance newsletter and protagonist of the novel – gazes out over the action with 'the Coot,' a former banker who'd lost all in the 1890's depression. Thus the story's defining tension is laid out, provocatively characterizing the class and land struggles that fueled the Depression. In the novel, the incoming Emperor turns up mysteriously dead in a men's room stall just before his coronation, police brutally assault the Labor Day parade of workers, a picketing striker is shot, an immigrant boy run over by a speeding car; signal events in a chain-reaction that flashes and burns through the rest of the book.⁴²

"That Hitler, he knows how to handle labor." a character grouses at a later gathering of Franklin's social elite. The comment is indicative of a late 1930's socio-political climate that bordered on Fascism; that admired the tight-fisted control of the means of production and of those who advocated for a fair deal for the workers.⁴³ Sandoz's mythic setting and story differ little in degree and tone from present tensions between the moneyed elite and the hardscrabble Sandhills farmers. Neither story resolves such tensions – ranchers still struggle to make ends meet on land left in the hands of ever fewer owners. But with no small irony, the economic forces which threaten the Sandhills may be part of what ultimately helps keep it safe: modern cattle ranching can support just a few hardy souls, while mimicking closely the actions of the original bison.

From the old Sandoz homestead, I embark on a roundabout journey towards Valentine National Wildlife Refuge. It's several hundred miles of extra driving but I want to soak in every vista I can of the Sandhills. Like a spaciousness junkie, I careen on a binge and I don't want the high to stop. Valentine, my ultimate destination, is – alongside Crescent Lake – the only other large segment of the Sandhills under Federal wilderness protection (unless one counts multi-use forests and grasslands under the National Forest Service aegis).⁴⁴ I zig south onto rte. 27, zag east for a spell, loop north, then spur east again before turning south at the town of Valentine, doggedly driving the 25 miles towards a camp site at the state park at Merritt Dam straddling the Niobrara River.

By the time I hit the first campground well past sunset, I discover that permits can be bought only at the service center I'd already passed. I drive back to the combo-gas station/permit service operator: closed. Cursing the Nebraska State Department of Recreation, I return to the campground, determined to camp sans permit. As I pull off at the first grassy area, headlights flash up from the reservoir and a monstrous pickup truck towing an over-sized motorboat coasts to a slow crawl alongside me. I see only the glow of a cigarette and the dash lights illuminating the undersides of two Stetsons. Suddenly I feel quite vulnerable. When after an ominous moment, engine idling, the two finally cruise away I resolve to spend the night in a motel room.

As I backtrack to Valentine, halfway there I pull off the side of the road on a long straightaway to calm my nerves. Shutting off the engine and lights I'm stunned not by the blanket darkness but by the bright clarity of stars more bedazzling than any I've seen in years. In the cool evening, moisture wrung from the desiccated air releases a lingering hint of sage mingled with the scents of a hundred other late-fall prairie plants. A nearby coyote yips and yodels, his wavering crescendo winds to a whimpering murmur. If I breathed deep enough, I think I might suck down a star or two like errant gnats, so near do they seem to loom overhead. It's tranquil and awesome enough to make me wonder whether to u-turn back to risk the campground once more, good ol' boys be damned. Almost enough, as another pickup barrels around the bend down the

highway bearing down on me to remind me that, after all is said and done, I'm a stranger to this land and guest to no one. I am rootless in this prairie wind.

I don't wholly shake off the unsettling mood of my aborted Merritt Dam camping search the evening before till my morning coffee has cooled in the cup holder, sun halfway up the windshield. Turning at a casually marked entrance for Valentine NWR, I travel once again on one lane pavement, lolling over the curvaceous hills with windows rolled down even with a chill wind hurtling through. Raggedy skeins of geese crisscross, hopping from lake to lake like K-mart shoppers seeking a blue light special. Dozens of lakes, marshes, fens and mud-holes, each serving up its own fine cuisine of killifish, minnow and snail dot the area encompassed by Valentine. Traversing hundreds of miles of spare, dry Sandhills terrain over the last while, I am tempted to think of the region as a sub-Saharan clone; treeless expanses and ceaseless sandy slopes connote a desert feel. But both Sandhills NWRs testify to the presence of the underground sea we call the Ogallala Aquifer.

This presence is especially apparent when I climb to the top of a hill surmounted by a CCC era fire tower opposite refuge headquarters at Hackberry Lake. From what may be the highest point for miles, I scan each direction for minutes at a time, drinking in the vast undulating folds of tan and sienna hills, punctuated by the tourmaline flash of the lakes, teal reaches of myriad marshes,

emerald calm of ancient fens. With every vista I become more intoxicated. An hour here passes like a minute elsewhere.

A range of fens, road-less and closed to all public entry draws my eyes again and again. Passages of murderous thoughts and deeds of dark characters skulking around foggy marshy terrain in Shakespearean epics conjure my working knowledge of fens. Biologically though, the fens of North American landscapes bear life and produce peat domains rich in nutritious runoff percolating from heavily mineralized soils. Less acidic than its wetland cousin the bog, fens support a much more diverse array of plants and animals.⁴⁵

Sustained by an Ogallala aquifer severely threatened by agricultural, municipal and industrial depletion, this area seems stable and vibrant for now. However, I can't help wondering what else would be drained from this stunning vista if these nurturing waters were drawn down for center-pivot irrigation in semi-arid lands, golf-course watering in high desert communities, and coal plant cooling in sun-soaked regions hundreds of miles from here. Should ever the Oglala be pumped dry, it would not be Sandhills roads alone which would take on a ghostly visage.⁴⁶ In such a dire event, I imagine a symbolic blood being drained from these living lands, as if these hills rang with the resonance of resilience and ecological integrity.

RUMINATION

Gliding from crest to crest on another remote one lane road in the central Sandhills, I feel anxious. This remote by-way, representative of others which symbolize a particular Sandhills kind of liberation, presents itself this morning as a looming threat. For days massive cattle trucks have hurtled past me down the highway, heading to and from the back-county ranches and their resident beef. A few miles back, I saw the tail end of one truck plummeting down one slope as I descended another. As narrow as the road is, there would be nowhere to go should I encounter one heading in my direction. As fast as they move, there would be precious little time to react.

I slam on my brakes, an obstacle suddenly in my path. Bovine eyes frantic, a flustered black and white steer scrambles off the road and into the ditch-side scrub brush. It turns and looks back at me, its anxiousness matches mine. Other cattle look up from their feeding at our apprehensive tableau. My cow finds a clump of grass to its liking, forgets all about our brief encounter, and relaxes into its eating. Each of us left to our own particular ruminations, I slowly accelerate and move on, reflective, pensive, troubled.

Grassland organisms evolve various strategies for gathering nutritional value from the bluestems and grammas, preeminent plant species on this prairie. Grasshoppers hinged jaws slide back and forth, grinding the silicon-reinforced monocots. Their brown-juicy secretions, like an old tobacco-stained pioneer,

further break down the tough fibrous grasses. Even with the aid of specialized teeth, much of the nutritional content of a prairie's provender is locked up in relatively indigestible fibers. Biologists classify bison, historically the dominant grazing animal on these plains, as ruminants. Cattle ruminate too, whether bred for beef bringing or dairy drudgery. Raw forage passes from the ruminant's chewing through successive stomachs, each equipped with its own enzymes, gradually rendering the tough grasses into meaningful nutrients.

The Latin verb *ruminari* – to chew over again, in the lexicon of modern use it has come to refer to thoughtful reflection, a turning over of thoughts in the mind.⁴⁷ As a metaphorical experiment, I consider the organs and functions of the brains as akin to separate stomachs on a mammalian ruminant. If cognitive function symbolized a series of successive ruminations, then I surmise that our sensory apparatus and nervous system would be the first.

Michael Cohen, founder of Audubon Expedition Institute and The Institute of Global Education and author of *Reconnecting with Nature*⁴⁸ and *The Web of Life Imperative*⁴⁹ lays claim to 53 separate senses, not five alone. "Each attraction, sensation, feeling or emotion is a rational sensory way of knowing and relating that we biologically inherit from, and hold in common with, nature."⁵⁰ While I find myself a bit dubious of his claims, it is instructive to consider trust, place, pain, and community as sensory input. Wherever we draw the line in defining sensation, conventionally or unconventionally, node and nerve of sensorial data deeply inform our knowledge and belief of the world.

What if our concepts were nourished by the movement of sense, idea and emotion from skin, eye, ear or nose through the upper part of the spinal cord, into the brain stem, digested by the cerebellum, cortex, and neo-cortex, further ground amid the parietal, occipital and temporal lobes, and made palatable by the corpus callosum that unites the brain's divide? For all we know of the brain and its functions, there's ever more we have yet to learn. Hypothalamus and thalamus, dendrites, neurotransmitters and synapses help us explore and consume the mysteries of the universe, even as their full functioning remain something of a mystery to us.⁵¹

In such ways might a prairie's meaning be rendered into availability, as if to digest both the tough siliceous grasses and the rough-hewn intentions of this place required complementary processing; a passing through different realms of comprehension and knowing. How else might one wrest meaning from the tough and contradictory information encountered in these prairie remnants and flowing hills: a landscape finds stability together from the tenacious rooting of a few persistent grasses but remains flexible through the resilient meandering of hundreds of forbs and flowers; a prairie may be impossible to fully restore, but it's possible that a people's desire for a prairie may be enough to manage miracles; agriculture often disrupts ecological flow – ranching sometimes heals, though not for a single plant that requires a freshly disturbed palette; a region formed and informed by a diverse array of plant and animal species balances its precarious economy on the success or failure of a handful of crops?

As I near the end of that long stretch of one lane road, still gripping the wheel tightly in my fear of encountering a rampaging cattle truck, I notice an abandoned farmstead off to my left. Not so unusual, given the number of derelict homesteads through these hardscrabble lands. A black wind moving through the copse of trees planted between the dilapidated house and the stumbling barn catches my eye. I pull over, shut off the engine. The wind launches, spitting sparks of red color, spins up above the trees and into the adjoining corn stubble, then up again as quick as a blink, swirling back and pouring down into the chattering leaves.

Thousands of redwing blackbirds dance and shuttle from branch to branch. For the third time in a week, I've encountered *Agelaius phoeniceus* out on its migratory rounds. They too have been drawn to these prairie places, but unlike me they seem to hold no inherent moral conflict about dining in a cattail swamp one day and a corn field another. Redwings find merit in lands of both diversity and commodity; cows too, for that matter. I ruminate on this notion as I head south on the highway towards Kansas.

EATING OIL

See-saw pumps pendulum against the low slung horizon line. I stand by the side of the road, gazing at small oil rigs spaced at intervals amid dried stalks of corn, not yet cut for stubble. This is Central Kansas, the heart of the heartland. Billboards along the highway proclaim that each Kansas farmer feeds "129 people plus you." I wonder just how many oil derricks it takes to support one field of corn. I come here to plumb the roots of prairie paradox, to try to discern how the thrust of agricultural commodity can be balanced against the necessity of prairie diversity.

Modern agriculture is testimony to fossil-fuel driven technology. One portion of crude oil pumped from derricks around the world is processed into diesel fuel for the massive tractors and farm implements that plow, seed, fertilize, irrigate and harvest large plots of corn, soybean, sorghum and wheat. Another segment is diverted into factories such as Monsanto and Cargill and transformed into production of various fertilizers, herbicides, fungicides, and insecticides (as well as the apparatus and means for applying these to the fields). Refineries reserve still other portions for the transport of the harvest to processing factories, the fueling of those factories, and the movement of food products through a network of production and transport facilities, all the way to our homes, refrigerators, stoves and microwaves. The volume of fossil fuel utilized to bring say, one package of corn taco shells to our table boggles the

mind. As I watch the rhythmic pumping of cornfield oil derricks from roadside Kansas, I can't help wondering if it might be symbolically accurate to display that volume simply by letting that pumped oil spill out onto the fields.

As an undergraduate at State University of New York at Binghamton, I took a class entitled Ecological Principles and Agricultural Practices.⁵² To bring the economics and energetic complexity of modern food systems home, our professor assigned us a set of dietary analysis assignments. The first was a straightforward investigation of percentages of caloric intake of proteins, fats and carbohydrates incorporated in our diet over the course of one week. In sharing our results with each other, we assessed our place along the continuum of what was considered healthy at that time.

I was a vegetarian at the time and well acquainted with the concept of complementary proteins acquired through the mixing of say, corn and beans. I was rather pleased with myself for having close to an ideal mix, with most of my proteins yielded from grain-veggie complements. Our next assignment however, greatly humbled us. Taking the week's sampling we'd just recorded, we applied sophisticated formulas to calculate the energetic caloric input of each of our calories. Depending on where and how the ingredients were raised, processed, packaged, transported, stored and cooked, we came up with a caloric count for each meal we'd consumed that week. Even for the most conscientious eater, the results proved sobering.⁵³

Even if many of decided to change what we eat, fundamental changes in North American diet would be problematic given how deeply our agricultural practices are entrenched. In 1943 Edward Faulkner wrote *Plowmen's Folly*, a detailed and explicit critique of the use of the moldboard plow, then as now a staple in crop production. Faulkner was so overtly critical of modern agricultural practice that his book was almost universally rejected or ignored by experts of the day. He confronted modern agriculture's constant disruption of soil structure by the cleaving plow, and the cost of not replenishing biotic material removed.⁵⁴

Much of what Faulkner wrote over 40 years ago has borne the test of time, though many corporate farms remain imperious to the necessity of returning – in organic form – what they've leased and leached from the soil. Others listened however. *The One Straw Revolution* by Masunobu Fukuoka emerged in the late 70's proposing an alternative to chemical farming, modeled after patterns in healthy local ecosystems.⁵⁵ Wendell Berry's *Culture and Agriculture: the Unsettling of America* suggests that such practices as Faulkner criticized grew out of a more fundamental schism between people and land. As the relationship between people and their sustaining land was disrupted, suggested Berry, all our relationships became damaged. Throughout his work, he contends that to heal rifts in our culture, we must address destructive practices in agriculture.⁵⁶

Berry's dear friend Wes Jackson, founder of The Land Institute in Salina, Kansas and author of *Becoming Native to This Place*⁵⁷, *New Roots for*

*Agriculture*⁵⁸ and *Altars of Unhewn Stone*⁵⁹ has dedicated his life to pursuing alternatives to destructive agricultural practices, which is why I've traveled halfway across the continent this bright warm September weekend for the Land Institute's annual Prairie Festival.⁶⁰ Jackson's formal education includes a BA in biology, an MA in botany, and a PhD in genetics. He has earned another education hands on with friends and colleagues working the soil. At the Land Institute, he and his staff research methods of crop rotation and inter-planting to mimic more closely the rich, diverse integrity of the prairie ecosystems.⁶¹

This is an extremely intriguing alternative to eating oil. By cross-breeding annual domesticated crops with wild perennial counterparts, they yield offspring not dependent on the annual oil-consuming, soil-breaking extravaganza of seed and plow. Currently, the staff undertakes research on a number of breeding programs; crossing sorghum with johnsongrass, wheat and triticale with wheatgrass, enhancing the agricultural value of leguminous Illinois bundleflower, and cultivating perennial rye, millet and sunflower hybrids. Mixes of these sown in association mimic prairie diversity. Their combine further benefits the farmer in serving as a naturally integrated pest management. No single insect invader holds *carte blanche* over a monotonous monocultural field; the agricultural diversity and indigenous genetic composition invites native foes of problematic pests to the feast.

A ten-year on site demonstration project combined perennial agricultural practice with renewable energy means. They are currently evaluating data on the

project, which used no artificial fertilizers, pesticides or irrigation, with machine energy inputs provided by photovoltaic cells, bio-diesel, and draft horses.⁶² A bold and radical model for a new agriculture, it's not fully free, but largely independent of petrochemical inputs. At the Prairie Festival's mobile bookstore, I stock my larder with other alternative models: Gene Logson's *Living at Nature's Pace: Farming the American Dream*, *Farming in Nature's Image: An Ecological Approach to Agriculture* by Judith Soule and Jon Piper, and *The Farm as Natural Habitat: Reconnecting Food Systems with Ecosystems*, a set of provocative essays edited by Wes's daughters Dana and Laura Jackson.⁶³

During lunch break at the Land Institute's Prairie Festival, I bring the remains of my previous night's dinner to the crest of a hill overlooking the Wauhob Prairie on the Land Institute's property. As I munch chips and salsa, I notice a figure angling down from the highest hill in my vista, directly across from where I sit and ruminate on the morning's proceedings. As the walker reaches the bottom of the slope he stops, looks in every direction, then strikes straight up the hill towards me. He puffs up to a stop, drawls "That sure was more than I bargained for!" and flops down on the ground.

After introductions, Fred – white-haired with a dyed streak of green and a mean sense of humor – launches into the tale behind his ramble; a friend of his and Wes Jackson's – a brilliant creative thinker if my new acquaintance was to be believed – had died some time back and requested his ashes be scattered on

the hilltop across the way. Supposedly a memorial marker noted the spot, but my new companion could not find it. "But I found a thatch of sage growing up there, and that was one of his favorites so I figure that's where he lies. Pretty enough spot anyhow."

As Prairie Festival festivities close on Sunday, I return to the field where I'd first met Fred. Before I undertake my long drive to my next destination I want to scramble up that hill and pay homage to the ashes of that man who so loved its vista. Ambling down the hill, I brush against the late-season residues of late-season prairie richness; black ribbed post-flowered blue wild indigo, fragrant pitcher sage, and gangly blazing star. At the tree line I find Monarch butterflies weaving through the grasses like shuttlecocks on a sewing machine; a cascade of butterflies. Off to the side, I see a white flowered shrub, shimmering in the early-afternoon sun. What I first took to be fluttering leaves, on closer examination turns into a teeming mass of butterflies; yellows, white, and a dimpling of Monarchs. Whatever this plant, it's obviously the butterfly version of a combo disco/diner for all the ecstatic motion and succulent repast.

Driving away from the Institute afterwards, I pass huge fields of fully matured corn in the slanting late sun. An optical illusion mesmerizes me. Light shuttering through phalanxes of evenly spaced stalks creates an effect like one of those flip books we all once made as kids, where each page with a slightly altered drawing looked like a movie when the thumb flicked through the stack. That which is still seems electrified with motion. It's easy to think of native

prairies as somehow alive and agribusiness plots as somewhat inert. This corn, genetically modified and corporately commoditized, is still a living thing, possessing a nature and integrity all its own.

But as the Land institute and other research institutes and alternative farms demonstrate, there may be ways to grow food that draw from the wisdom of prairie ecosystems, without diminishing the ability to sustain soil or soul. Cascade of butterflies, movie reel of corn; to be native to a place is not necessarily to become domesticated, to be domesticated is not to imply being fully tamed. Imagination crosses the boundaries that otherwise might separate the innate from the introduced. In order to find a facile resilience that honors both diversity and commodity, one must sometimes stand with one foot in the wild and the other in domesticity.

FUNDAMENT / FIRMAMENT

*When I landed on the soil, I looked on the ground and I says this is free ground.
Then I looked on the heavens, and I says them is free and beautiful heavens.
Then I looked within my heart, and I says to myself I wonder why I never was
free before?*⁶⁴

– John Solomon Lewis, on his arrival in Kansas

Seeking road-side respite on a long stretch of driving across Kansas west of Salina, I pass a historical marker signpost just ahead for the town of Nicodemus. Pulling aside a shaded park with scattered picnic tables, I decide to take a break from the road and pull out my makings for lunch. Sandwich in hand, I cross the grass to an information board. With the words “In July 1877, negro “exodusters” from Kentucky established a settlement here in the Promised Land of Kansas...” I am riveted. I’ve happened upon the sole remaining African American town in the west from the Reconstruction Period following the Civil War.⁶⁵

Though the North’s victory over the South technically ended slavery, some grim times lay ahead for newly freed blacks seeking equality and prosperity. Shadow organizations like the Klu Klux Klan emerged to ensure white supremacy in all things economic, and separatism in everything else. Seeking opportunity, African American leaders like Henry Adams and Pap Singleton tirelessly promoted relocation from the oppressions of the South to the Freedom of the West. Home

of the famous abolitionist John Brown, Kansas became one of the most popular destinations. A trickle became a flood: within ten years, from 1870 to 1880, the population of blacks in Kansas soared from 16,250 to 43,110, some 6,000 of whom were exodusters from the South. Fleeing blacks like Reverend Simon Roundtree, Zack Fletcher and wife Jenny Smith Fletcher became Nicodemus's first settlers and early town leaders, spurring others to colonize the town.⁶⁶

Surviving the initial harsh winter by selling buffalo bones, taking work far away, or accepting help from the Osage natives, these pioneers planted their first crops the following spring as the town began to prosper. By 1887 there was a full complement of stores and services, several churches, post office, hotel, two newspapers, a band, even a baseball team. But continued growth was doomed by failure to lure the Union Pacific Railroad to pass through their town.⁶⁷

Gradually, some moved away, others died, and the Great Depression and Dust Bowl took their toll here as elsewhere. By 1935 only 76 residents could be accounted for. In 1997, Bill Clinton signed a bill authorizing the designation of Nicodemus as a National Historic Site. The NPS now leases space in the old town hall with plans underway to restore several other historical buildings.⁶⁸ The town of 20 now annually hosts an emancipation celebration every July and a 'Juneeteenth' jazz and blues festival in the month before.⁶⁹ Perhaps further promise yet to come awaits the town of Nicodemus and others like it across the Great Plains, but only if they can re-imagine an economy more diverse than corn or soybeans alone. We must imagine a more diverse way of growing our food,

following principles like those advocated by the Land Institute, lessons they have been earnestly learning from native prairie habitat. But we must also learn from prairie lands to imagine our way into more diverse relations with each other.

Our hosts at the Land Institute's Prairie Festival in Salina, KS alternated between cracking wise and waxing apologetic for the ongoing debate at the Kansas Board of Education over the teaching of evolution and intelligent design in the classroom. These two philosophical poles of argument mirror a similar continuum to that of commodity and diversity. Might emergent political and religious practices be a reflection of workings on the land? While one segment of the Midwest population symbolically model their beliefs after the diversity of a mature tall-grass prairie, another seems to take their cue from large scale, mono-cultural farming.

Noting extensive changes in land-use and economic patterns here over the last 150 years, I ponder that a region that once gave rise to some of this nation's most progressive political and spiritual movements has now become the seat to fundamentalist religious zealots.⁷⁰ In *Capital City*, we see a depiction of a city and region perched on a commercial and political powder keg, but the radical roots depicted in the novel's fictionalized agrarian politics run quite deep. Radical, from the Latin *radix*, translates to 'root':⁷¹ is it any wonder that a landscape that gives rise to bluestem and its unfathomable reach into the soil would also inspire political sensibilities rooted in soulful values respecting individual farmer's rights and progressive community-based values. Rising land

prices, high mortgages, plummeting prices, and rampant railway land speculation, all conspired to concentrate wealth to a privileged elite. In response, 'The National Grange for the Patrons of Husbandry – 'the Grange' for short – was founded in 1867 in Minnesota and spread rapidly through the agrarian Midwest.⁷² Regional organizations such as the Farmers and Laborers Union and the Colored Farmers National Alliance also arose. Their genesis summons a familiar story to those who worked the land; the hand that sells, not the hand that grows, is the one that has the full grip on the wallet. Through the 1880's, continuing ongoing tensions between poor growers and privileged sellers gave birth to a pro-farmer Populist Party that managed to elect 5 U.S. senators, 6 governors, and 46 congressmen in the 1890 elections.⁷³

One of the primary planks in the Populist platform spoke out against the exclusive emphasis on property rights and the ownership of land by those who did not work it, a politic indicative of a region settled by homesteaders scratching out an existence on relatively small plots of land. Ideals of self-reliance and cooperative labor and mutual support abounded in the Midwest.⁷⁴ Fast forward a hundred years and the polarities reverse; strident voices on AM talk show radio blast those who would weaken property rights in any way, shape or form. Absentee owners amass larger farms and ranches, and greater federal subsidies for oil-intensive production. And the Kansas that once welcomed John Solomon Lewis and others like him to free ground and freedom of heart and soul now has become a breeding ground of political divisiveness and religious intolerance.

The early Midwest described by writers such as Mari Sandoz and Willa Cather was characterized by significant religious tolerance: Hutterites, Mennonites, Amish, Plain Quakers, Shakers, Bruderhofs, Swedenborgs, Moravians, Rappites, Amanas; all these and others were welcomed as homesteading settlers to the new promised land,⁷⁵ though it must be noted that there was a pronounced lack of religious tolerance for those Native Americans still in the area. A great deal of this diverse influx was a result of the European immigration encouraged as a result of the 1862 Homestead Act, but religious seekers from other parts of North America, including Baptist blacks from the Reconstruction south, made their way to Kansas, Nebraska, Iowa and other prairie states.⁷⁶ One must wonder where that nuanced climate of tolerance has gone. Popular media leads us to believe that all Christians are rabid fundamentalists and all scientists intolerant of spiritual discourse. The truth is likely as nuanced and varied as a wild prairie, but few on the Left or Right take the time to delve beneath their knee-jerk prejudices.

Prairie plentitude rests on a fundament of soil; and our human plentitude surely subsists from the fundament of integrative soulfulness we experience. Having razed the diverse forest of grass and raised a monocultural factory of corn, can we pretend that a poisoned and perishing soil has not also diminished our individual and collective character? Wes Jackson and his colleague's lifelong experiment at the Land Institute attempts to balance economic and ecological interests. Their effort suggests that land and soil might be rejuvenated even

while providing ample food. Restoration of land may also require a restoration of our abiding relationship to that land, and a reformation of attitudes and habits, as well as a re-imagination of hope.

From Jackson's "agri-prairie" experiment, I traveled east about 50 miles to the nation's first federal native prairie reserve. Leaving my car behind, it's as if any moment I could fly. I face into a persistent east-bound wind at the crest of a hill at the National Tallgrass Prairie Preserve near Strong City in the Flint Hills.⁷⁷ As I hold out my arms and lean into the column of air, I must check to make sure I haven't actually grown wings. The nearest trees stand at least a quarter mile away. Even these few cluster like outcasts in a tuck of the valley. From every vista flow strong currents of open space, bursting stretches of sharpened light, and the ceaseless murmuring of tall grasses.

Nearly 11,000 acres in reach, this site is the nation's sole publicly maintained facility dedicated to the preservation of the legacy of tallgrass prairie.⁷⁸ As I spin on my heels for a 360 degree view, another surge of primal spaciousness flows through me, something I can only imagine ancestral natives and first explorers of this realm feeling as they stood in such locales. It's a defining moment: the East feels extremely claustrophobic to me, not only from the thickly reforested landscape and densely populated locales, but from the thicket of ongoing duties, never-ending projects, and monotonous meetings of my increasingly complicated personal and professional existence.

I remember back to my first experiences of tallgrass prairie at Hayden Reserve in northeast Iowa. There I'd diligently screened out my immediate surround in order to imagine the vastness of America's historical prairies. Here I can open my eyes, my senses, my mind, and my heart, with every vista as wide open as the others. It's the external antithesis to my internal intellectual and emotional terrain, which more closely mirrors the intensely cultivated farms blanketing the rest of the state than this spacious expanse that radiates out from where I stand.

While most acreage in the region is plowed fencerow to fencerow, why have settlers left this slice of the Flint Hills relatively intact? It's all in the name. As the porous soils of the Sandhills discouraged intensive agriculture over some 19,000 square miles of Nebraska into South Dakota, so too were the Flint Hills given inadvertent protection by geology. Underlying ridges composed of flint, chert and limestone outcrops cracked the firmest resolve of settler's plows. As with the Sandhills, so also was much of this spacious acreage put into employ for the fattening of cattle.⁷⁹ The Tallgrass Prairie Preserve owes its existence to ranching. Following years of concerted and sometimes contentious political negotiations, the Z Bar/Spring Hill Ranch was finally purchased by the federal government and placed under the joint management of the National Park Service and the National Park Trust in 1996.⁸⁰ Though intensively grazed for nearly a century, the land still recalls much of its underlying integrity, especially in windswept ridges such as this.

Here, where the wild persistent wind sweeps everything clear, I give myself over to this land. Let those outer winds scour clean the sculpted curving surface of these hills. Let my inner winds tempest and roar as well, sweeping clear the chaff and cull of dead thoughts, desiccated stalks of belief, broken branches of misplaced action. Dark rain-swollen clouds boil upwards and blow in from the west. I take in the patterns swirling through the bluestem and switch grass. If this were dance, I would be stunned by the masterful choreography. Shafts of sun snaking through torn rents in the cumulonimbus add to the kaleidoscopic effect. Outcrops of limestone and chert thrust from the thin soil. Some, weathered and hollowed by time, hold ephemeral pools lined with a community of mosses and tiny ferns.

For a moment, I can visualize myself in this area after the Permian-age limestone laid down under eons of inland sea was thrust upward by the toss and tilt of geologic muscle. Having grown up in a heavily wooded area of the Northeast, this treeless slope seems the epitome of a blank slate. Humbled by millennia of persistent weathering, this place becomes exalted by enterprising flora and fauna. I picture enterprising grass seeds blowing in along with clay and silt from the engineering rivers further west and south, lodging in the cherty gravel, and rooting down through cracks in the limestone bedrock. In such a landscape anything seems possible.

Two weeks into my prairie sojourn, I'm liberated of artifice and normality. No one I meet knows me or a damn thing about me. I can shed the coat of the

overworked colleague, the grieving son, the concerned brother. I can pretend to be a Jehovah's Witness, a dangerous criminal, an encyclopedia salesman, an out-of-work Chippendale's dancer. Prairie landscapes constantly reinvent themselves. In a place like this preserve, populated by some 400 plant and over 200 bird and mammal species, then every footstep could create a new niche, every rainfall a potential rise of one organism and the demise of another, every grain of blowing sand a possible tip in balance from one species over another.

Gazing out into the limitless horizons under the expansive sky, my mind truly empties and my spirit stretches out into fifty miles of elbow room. But prairie reality at is not really an emptiness waiting to be filled, but a dynamic fullness reflecting maximum potential for creative change. Root paradox to the prairie may be that a place so open can also be so packed to bursting.

Lessons from prairie spaciousness and its teeming complexity show that soil's fundament reflects creation predicated on vast diversity, not abnegation of singular difference. Tall grasses sink deep into the earth's firmament, but never stand alone in native grasslands ecology. When humans invest deeply in fundamentalist principles, they often espouse just one way of being, one true belief. Thinking like a prairie shows me that hundreds of ways of knowing knit the fabric whole, reinventing, resilient not because it is steadfast and fixed but imminently and variably adaptable.

A DIVERSITY OF DISTURBANCE

Near gale force winds threaten to topple me from a limestone ridge I traverse on the Konza Prairie, an 8,700 acre Flint Hills tallgrass prairie preserve east of Manhattan KS, cooperatively managed by Kansas State University and the Nature Conservancy.⁸¹ Not-so-distant rumbles of thunder advise me to descend, but I push forward, buffeted by twin forces of weather and curiosity.

The trail bends towards the north, descends for a bit, then joins the winds again at another crest. I discern a small numbered sign to my right. Digging out the keyed guide from my day pack, I read of an ancestral bison wallow further to the right. I kneel down, out of the brunt of the wind, and let my eyes wander over the surface of the ridge, tracing fold and curve of the wallow which has not felt the roll and sway of any native beast for at least two hundred years. Yet the imprint of this wallow still readily shows, writ by bison's elemental disturbance.

Later, I read a passage from O.J. Reichmann's *Konza Prairie* about the fierce competitiveness of plant life on the prairie. A single glancing footprint might subtly compress the soil or crush some existing plant, and alter the profile of those few square inches in such a way that a new plant (or set of plants), latent in that place or nearby, might spring into being.⁸² Where a bison's wallow persists beyond its bones, and a ranging cow's footfalls might change the course of natural history, is it any wonder why Konza Prairie contains upwards of 600 unique plant species?

Consider each landscape as having a language; a lexicon and syntax unique to that place. Say that species are the nouns. Do these alone tell the story of a place? I could recite a litany of prairie species yet it would be as meaningless to you as my weekly grocery list. I choose not to read my dictionary when I'm in the mood for a good story. Meaning is made through complete sentences awash in verbs, adverbs, prepositions and adjectives as well as nouns, joined in ways that evoke or provoke, compel or repel, expire or inspire thought, emotion and reflection.

If species are nouns, then perhaps disturbances and other biotic and abiotic processes constitute the lexicon of verbs with which a place tells its story. Wind, lightning, bison, beef cow, human; each wields a force that acts upon the curved prairie earth, and yields a subtly altered organic syntax. If certain landscapes hold more biodiversity than others, then perhaps a diversity of disturbance verbiage contributes as much as an extent glossary of species.

Contrast Konza with other regions due west of here where one could count the different species on the fingers of both hands held firmly to the wheel of the John Deere tractor plowing under the remnant stubble of corn, sorghum, wheat or soybean. The compacting wheels of a tractor as well as the actions of various towed implements, represents one kind of disturbance. The application of petrochemical based pesticides, herbicides and fungicides provide others. The tungsten steel blade of a farmer's plow is every bit the disturbance of a bison's hoof or a meadow vole's chew, and then some. This factor of active disturbance

doesn't account for the differences in species diversity between areas such as Konza with those where modern agriculture is practiced.

While the actions and dynamics of climate, geology, and an evolving cast of organisms evoke various stories of place, humans seem to yield a disproportionate effect. One of many possible nouns in such places, we also act as divisive prepositions as well as hyperactive verbs in each place narrative, capable of silencing a landscape's other voices. For a meaningful dialectics of place-based paradox, there may need to be a much more nuanced lexicon of processes as well as of species. In examining various landscapes across the North American continent, I infer that each disturbance creates a particular and unique kind of opportunity. But not all prospects reflect equal quality to opportunistic species, nor does each interruption in the ecological status-quo welcome the same quality of guests.

Each variety of disturbance acts as a verb, but these may also be taken to be temporal and spatial adverbs. As such, characteristics of the plant and animal community might well be seen as adjectives. A richly textured language possesses an extravagance of words with uniquely distinctive qualities. Imagine if we only had four or five nouns, a dozen or so adjectives and adverbs, a handful of verbs, and one dominant pronoun. What meaning is a landscape able to utter, what tales does it birth, when it's reduced to a small set of genetically manipulated nouns of increasingly homogenized character, an intrusive ordering

of low quality verbs, often diverted by a single fundamentally arrogant and largely ignorant preposition?

While some of our human stories may be rendered flat on the page or screen, those told by the land carry dimensions far beyond any syntactical metaphor. In profligate prairie and productive farm field alike, there's always more than one storyteller, even though the number of available tales may vary considerably. Humans are not the only agent of disturbance, though we seem to corner the market on a number of those that create lower quality opportunity. Find me an organism which can survive massive applications of 2,4-D and diuron and I will bargain that that species that might one day rule the planet in our stead, and I will guess also that it may currently be but a bit player in the cast of a native grassland. For now, I propose that quality of disturbance be measured by the yield of desirable species that arise from its capacious opportunity.

However we define quality, it is a matter of course that all organisms disturb their habitats, even at infinitesimally small scales. What's the acceptable level of disturbance? That which reduces the likelihood for one species may indeed be an opportunity for another, but some disturbances open the floodgate to wholesale changes that rend the integrity of a landscape, while others pave the way for incremental opportunities promoting variety and resilience. If diversity of disturbances conjures bio-diverse ecological integrity and place persistence, then measures of quality and scale must be taken into account too.

Out of the wind for now, I watch an exodus of crows my presence has disturbed sluice out of the cottonwoods and sycamores lining the valley streambed and fight the tempest of air making their way to their next station. Across from me, on the other descending ridge, half a dozen wild turkeys disappear into dense shrubs that follow the course of an old stone wall. Konza was not always home to wild species alone. For the better part of a century the land was homesteaded and improved for agriculture. Remains of the farm, its springs, fencerows, and outbuildings, are now managed as part of the Konza cooperative preservation and research venture. From the numbers of skittish birds and scuffling mammals that spirit away as I approach, I would guess that the original settler Andrew Hokanson and those that followed till the land was ultimately procured for preservation offered high enough quality of disturbance on small enough scale to leave this place more enriched than impoverished.⁸³

As storm approaches, this valley looks like a cathedral sanctuary with a congregation of crows and choirboy turkeys. I'm the acolyte here, seeking the inherent wisdom from a well-versed prairie sermon. As with all good churchly homilies, the challenge is not just to hear the message, but to embody it as well.

THINKING LIKE A PRAIRIE ENDNOTES

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CHAPTER V: PRACTICES OF PARADOX

MINDING MATTER

On my flight back to New Hampshire from Kansas, massive thunder-storms diverted us to Harrisburg, PA. By the time I got back to Pittsburg and onto my plane to Manchester, it was well after 2am. Reaching cruising altitude at 37,000 feet, the pilot said "You might want to take a look out the left side of the plane." Horizon-wide Aurora Borealis startled me - stunning shoots, undulations and waves of cascading light in brilliant color display for intoxicating hours till we tucked back down into the clouds in our approach to final landing in Manchester.

Back home in the Northeast, it's as if I had not yet quite returned. Something of the prairie mind and matter clung to me and so I sought manifestations of spaciousness wherever I could find them; gazing at the open sky mornings and evenings, staying up late at night when others lie fast asleep, or walking to clear hilltops away from all distractions. Of course, spaciousness learned prairie style is not only the seeming sensation of openness, but the teeming milieu of dynamic possibility. It's not enough merely to create space, but to offer a diverse lexicon of expressive opportunity available to fill and fulfill newly disturbed openings. I take a week-long trip to New York City to immerse myself in as much cultural, culinary, artistic and musical diversity as I can. The object is not to fill myself to the point where I feel empty again, but to recognize

that a biodiversity of experience and perspective is as important to my own integrity as to that of a fully functioning prairie ecosystem.

Having found my bearings in the prairie over time, in part through the lens of familiar sensation and memory, I challenge myself now to reverse the focus. When we frame the unfamiliar only through the frame of the familiar, we find comfort but we may also trade in our ability to see the native vivacity within the new. Since returning from the Sandhills of Nebraska and Flint Hills of Kansas I've tried to see the world around and within me through prairie eyes.

Struggling to write about this dynamic, I took a break to walk through the cemetery near my house, overlain with a new fallen snow. Crossing the expanse of white patched around dried grasses and dormant shrubs, I thought of the potential for life buried just beneath the snow cover, hiding in the marrow of the maples and oaks, shyly tipping the branches of marsh willows and sawgrass. With the memory of tallgrass buoyancy, I began to see my wintry marsh, woods and fields as a kind a prairie; the potential for teeming life, resilience and reserve, held beneath the still and seemingly inert surface of the earth. If I am a prairie, I wonder, where do I sunk my roots so that I might hold life in the face of harsh weathers? If I live as prairie, from the tangle of such roots could I gather my resolve and grow to the roof of the sky?

There's not a day when some image or memory of Iowa prairie remnants, Neal Smith, Sandhills' Crescent Lake, Toadstool, and Fort Valentine, the Land Institute, Tallgrass Prairie Preserve, or Konza fails to enter my vision or enhance

my perspective. It's as if a vast prairie had grown within me all along; awaiting discovery, rife with diverse high quality disturbances, and ripe for restoration. Such ruminations become the stuff of the ecology of our inner terrain, which for me also now includes the high desert reaches of New Mexico and the rambling ravines and slow-moving sloughs of the Pacific Northwest. Pay close attention to any wild landscape for sufficient time and you'll discover that every day is a biological resurrection.

On the Pajarito, I learned from fire that periodic disturbances were sometimes necessary to reduce fuel load and to break down the fibers of organic structures that had become rigid or whose nutrients were not readily available to new growth. Severing connection on one level ironically can make the whole more adaptable by breaking down relatively inflexible components into energy and nutrients that can better flow to rising need. Suppression of naturally occurring disturbances over time can set the stage for debilitating conflagration at unexpected-flash points.

My fire walk revealed that even destruction has its place in individual, species or habitat resilience. Fire and other periodic disturbances redistribute matter, breaking down old or inert form and structure, liberating energy and nutrients for new growth. Land use practices have shifted from absolute suppression of fire to periodic use of controlled and proscribed burns. However, sustainable application of fire and other implements in the disturbance tool kit may require more localized thinking than we are ready to acknowledge. We tend

to apply our efforts, especially in Western lands, with broad brush strokes. Pajarito taught me that one tree's rejuvenation may be another's devastation.

Time-traveling in Seattle, I began to understand that most organized systems, whether inner or outer landscape, operated along complex temporal scales as well as spatial. Shifting dynamics or restoring connections required recognition of the longer time frame involved. Rather than restoring a place to a former state, we must restore the characters in an ongoing, ever-changing tale. Re-storyation involves not so much the recreation of a fixed picture of idealized constituents to a habitat, but of a revitalization of patterns, roles and flows of energy whose trajectory can be inherently unpredictable. Questions of native and non-native citizenship become subsumed to the larger integrating dynamics of a healthfully functioning place. Rigid adherence to ecological dogma can undermine ecological integrity.

But even this moving picture view of restoration requires stable reference points like Ravenna with its old growth vestiges of cedar and spruce. In heavily urban settings, neighborhoods, buildings, even individual people play vital roles in the historical ecology. Whether actual or symbolic, nurse logs serve as stable reference points through chaotic change. Salmon, though constantly migrating, have been reference point for Northwest cultures going back to first human inhabitation there. At some level, their story is our story and something of us unravels if they disappear from their native places.

Prairie flora and fauna taught me to balance adaptability with persistence. Root deep into sustaining energies, but incorporate a vast seed bank against the inevitability of constant change. Diversity manifests not just in species composition, but in large scale systemic dynamics; a diversity of disturbances indicates a place where creative, chaotic, highly adaptive activity is taking place. Monocultures of field or mind require inefficient supplies of energetic input, expose surrounding terrain to incapacitating consequence, and may be subject themselves to radical collapse. Prairie also taught me that that a sufficient diversity of disturbances, spatially and temporally scaled, fostered a more diverse set of organisms. Proper periodic disruption of an ecological status quo creates conditions for the rebirth of species adapted to each particular disturbance, though redemption of one organism may be rooted in the destruction of another.

I acknowledge values and desires rooted as deep in me as a mature bluestem's reach, but I challenge my own fundamentalism and resistance to change as well. I recognize ruminator in me as I range over open terrain both cultivated and wild with a manifold reflective mind. My excursion to the big open taught me to interpose wildness within my domestic character, a hybridization that may drain less of my resources. Just as native prairie maintains resilience within dispersed diversity across vast community and deep roots in particularity, so I too find resilience in both spread and depth of my friendships and interests. Perhaps 'wildness' manifests itself in a multiplicity of forms.

Previous chapters explored place-based paradox from the context of three different landscapes. Each outer place also offered lessons for the inner landscape. This final chapter explores the ecology of that inner terrain. If ecology becomes more than a metaphor, then I suspect that domains of body, soul, community and society each exhibit their own patterns of disturbance and restoration. It has become increasingly difficult for me to separate my own processes from ecological dynamics, and that is precisely the purpose of my work; to foster connection where separation has been the norm. My journeys and essays through New Mexico, Seattle, and Midwest habitats have been crafting practices of paradox, cultivating ways to bring more resilience and dynamic flexibility to the connective tissues linking humans and non-human, people and place, between and within.

Practices of paradox cultivate perceptive flexibility and allow us to hold complexity with a measure of grace. Learning from landscapes of paradox encourages us to better respect our own contradictory natures. Ligaments of thought, belief, and action can not be artificially restored, but reconciled only through organic reflection and multiply-adaptive action. In places of paradox, exterior or interior, disturbance and restoration are not polarized currency but two sides to the same coin. This has become my spiritual practice, my religion in the deepest sense of the word.

RELIGIO

"You got to beat the devil out of you! You got to beat that devil down!" 5:30 am. Startled from sleep by the booming voice of next door's evangelical preacher through the plaster walls of my little motel room in Central Ohio, I flashed to another rude religious awakening from a lifetime ago it seems, a memory burned into skin and psyche. In the King James Bible, book of Matthew, I recall the phrase "seek, and ye shall find."¹ I'd been on a quest for personal restoration, but it had not appeared in a guise I recognized. "Judge not, that ye be not judged" says a preceding passage in Matthew, though remembering the time the devil was cast out of me, it is difficult for me to reserve judgment.

But before that tale of spiritual disturbance is told, I will sketch some background on the evolution of my spiritual and environmental attitudes. Raised up in a rural and conservative corner of Pennsylvania, I could not say for certain that my mother was a Christian. I knew that she would read for an hour or more each night before drifting to sleep, and that one of the books on her nightstand was a Bible. I knew that she felt the need for all of us to attend church at times. My memories of those Sundays arise less from sermons or sonorous voices in the choir, than from afterwards heading across the road to the country store for cinnamon rolls and comic books. Back home, I'd pick raisons out of the goopy confections and pore over my new Tarzan, Turok son of

Stone (a Paleolithic eco-avenger protecting his people), or Tomahawk (tales of a Revolutionary war ensemble of courageous patriot misfits). If I thought of Jesus at all, it was in terms of a comic book superhero. I imagined a long-haired, rippling-muscled giant, smiting the heathens or throwing the moneychangers out of the market.

What little I learned about Jesus came from the Bible study sessions that were all but forced upon us at the Laurel Lake Elementary School one Friday each month. Though these were not technically compulsory, those who did not attend one of the denominational sessions had to sit in the principal's office and do homework. There was not much of a choice, so I gravitated to the Methodist corner, where the religious fervor seemed somewhat more subdued.

We were required to memorize Bible verses. Those that did so would receive stars which could be turned in for illustrated comics depicting various Biblical stories. I didn't care to find out what demerits would earn me. Not only did we have to recite our verses to perfection, we also were forced to discuss these cryptic passages *ad nauseum*. Growing up, not an only child but a lonesome one, roaming the wild woods by myself with my imagination for company, Tarzan and Turok made a great deal more sense to me than Jesus.

I recall being especially confused about the concept of a 'Second Coming.' I'd gathered that Christ had been put to death for some reason, and that he had somehow overcome this to be up in heaven looking at everything we did. I knew that crows always scrutinized me on my Snake Creek rambles, and that

red-tail hawks often circled me with seemingly riveted attention. I speculated that Jesus must possess wings and eyes like that, scattered among all the beasts of all the valleys like mine, in order to take it all in. But if Jesus was already here in the white-tail deer, porcupines and chickadees, then what was this Second Coming all about?

During those Friday church indoctrinations, our leader told me that God was in each of us (though I'd gathered that some individuals demonstrated His presence in odd ways). I naturally extended this presence to the plants and animals I'd encountered on my rambles through my hills, woods and fields. Lingering on a favorite large sedimentary outcrop behind our house, in the peace and comfort I felt there, it was not a stretch for me to imagine that God was even in the rocks and that I was a part of the land and that it was a part of me.

As ecological consciousness began to take root, TV news of toxic rivers and skies, and reports on rare and disappearing species from shows like Mutual of Omaha's Wild Kingdom, which aired on NBC Sunday Nights, and PBS's Nature taught me that humans yielded an extraordinarily negative influence on the planet. My mother tuned us into other shows that described the horror of the Vietnam War, the burden of overpopulation, and the massive resource imbalance between our country and others.

These were not easy thoughts for a child to wrap his mind around: war, famine, desolation of cultures, despoiling of environments. I climbed my favorite trees. I sat on my favorite flagstone outcrop back behind our house. I tried to

figure all this stuff out. My notions of God being part of everything still made sense. Every walk I took outside seemed to glow with a vital luminosity. But I struggled to meld this model of experience with the world shown on TV. Maybe, I wondered, Jesus had left the world in disgust because we'd turned our back on the little pieces of God in each other. Maybe, I postulated, he'll only arrive in the triumphant return of the Second Coming when all the little pieces learned to come together again.

Graveyard shift, IBM, Endwell NY; on a stultifying work-study job held while studying undergrad math, I was longing for redemptive connection in the land of machines. Our 'lunch' was at 2am each evening. I sat apart from the others on my work team. Between my repugnance for the weapons systems we all labored on and my colleague's disinclination to delve into the spiritual, ethical, and ecological questions I was grappling with there wasn't much for us to say. Though cordial, we were ciphers to each other.

One night, I noticed another loner at the lunchroom. In a room of pasty white men garbed in geek casual he stood out, a young black man in a crisply pressed white shirt, red-striped tie and a conservative blue blazer. "Who's that?" I asked one of the fellows. "Oh, that's Dwight. He's an odd one – don't mind him." Considering the source, my curiosity was piqued. Over the next weeks Dwight and I progressed from wary nods in the hallways, to brief chats by the copier, to spirited conversations with each other across the lunch room table.

Talking to Dwight was a refreshing break from the IBM drone world. He was intensely curious about the world around him, interested in my school work, and participated eagerly in rambling philosophical discourse. Talk turned to spirituality. One day I told him I was looking for a church where I could feel connected. He invited me to join him that next evening (before our work shift started) for a special guest presentation at his Pentecostal Church.

Reverend Stoner, a visiting pastor from southern Ohio, possessed a commanding presence. His voice boomed the wonders of coming into Christ, of the miracles that would course through our saved souls. His talk was punctuated by lively hymns. Dwight strummed electric guitar as one of the accompanists. I sat in the front row near where he played. Stoner worked the pulpit like a man on fire. From time to time in his ministrations, he'd touch the top of my head or lay his hand on my shoulder, driving home his point about how the Lord would reach out to us once we sought Him. I shuddered with each gesture, confused but intrigued.

At the end of his sermon the reverend made an altar call, asking if anyone was in need of the special touch of Jesus. A middle-aged woman strode up as Dwight's guitar chords echoed through the pews. Stoner placed both his hands alongside her face. She immediately fell to the floor as if struck by a bullet and writhed in the aisle as the parishioners shouted "Hallelujah!" and "Praise Jesus!" I'd never seen anyone 'laying in the spirit' before. She looked possessed. I was fascinated and frightened, wondering at the fine line between deliverance and

damnation. Reverend Stoner beamed down on her momentarily before asking if there was anyone else who wished to approach the pulpit. When no one else volunteered he turned his gaze towards me. "Young man, you look like you're searching for something. Won't you come on up here?" I shivered, hesitated, frozen to my pew. Dwight gestured to me a thumbs-up, smiled, and tilted his head toward Stoner.

Haltingly, I approached the rock-solid preacher. Resting two surprisingly cool palms on either side of my face, he looked me intently in the eye. "I want you to speak in tongues," he commanded. "I don't know how," I whispered. "Let the spirit take you over, let it move through your tongue." "It doesn't make sense," I stuttered. "The ways of the Holy Spirit aren't supposed to make sense," he replied. Under his urgent tutelage, I began to babble. "La la la la, blal lal lah." To me it sounded like a baby's meaningless prattling. To Reverend Stoner and the rest of the congregation it was the sound of salvation. "Hallelujah!", "Praise Jesus!" Folks rose and moved towards me, clapping me on the shoulder, tousling my hair. Dwight came up behind me. "This is a big step," he enthused, "I think you're ready to be baptized into the Lord." "But I've already been baptized," I demurred. "Not in our church you haven't!"

Dwight led me out of the milling pack to a kind-eyed older man with a shock of fleece white hair, the church's regular pastor. "Rowland's here to be baptized in Jesus!" Dwight gushed. "Excellent!" He motioned me to the far side of the altar where the baptismal basin awaited. In a whirlwind of emotions, I

barely registered Dwight and the preacher draping me in white cloth, bending me towards the basin, and immersing me in cool water. "Hallelujah!", "Praise Jesus!" Another round of back slapping ensued as beaming strangers pumped my hand and praised me. I stood in a daze and tried to count my blessings.

That morning at our IBM lunch, Dwight glowed. "I'm so glad for you! You'll have to come back to the church tonight for part two of Reverend Stoner's talk." I nodded, busied myself with my food. "I once was lost, but now I'm found. Was blind but now I see..." Lyrics from Amazing Grace came to me as I reflected on the spiritual and emotional whirlwind earlier that evening. "What have I found," I wondered to myself, "what do I see now that I'm saved?"

When I got to the church that evening I looked for Dwight. When I could not spy him I asked one of his choir mates. "Dwight can't make it tonight." "Oh," I murmured and looked for a seat in one of the pews further back. Without Dwight there I felt unaccountably vulnerable. I didn't want to stand out.

Reverend Stoner strode purposefully to the pulpit and launched into a holy-roller, fire and brimstone evocation of the dangers of Satan. "There's evil spirits fighting for your souls," he boomed, "right here in this church! I see them up there in the rafters, stalking you right now!" I shivered and slumped lower in my pew. This wasn't the ecstatic inspiration of the previous evening. The mood was dark and foreboding. This did not feel like my spiritual home. As Stoner's

diatribe wore on, he enumerated the multifarious ways the Prince of Darkness might grab our souls. I decided to search for another church more to my liking.

After the end of Stoner's ravings, I'd noticed the regular pastor slip into his chambers. I skirted the milling crowd moving towards the back of the room. I wanted to thank him for his hospitality. "How can I help you?" he asked warmly. "I'm very grateful for all the friendliness and support you've given," I said, "but I think I need to check out some other churches before I make my decision." His kindly eyes grew frantic. The old preacher looped around me and swiftly closed the door. "Young man, I think an evil spirit has possessed you and is lying to you about our church! If you leave now Satan will have your soul! You've been baptized into the one true church," he roared, "If you walk out now then you've lost Jesus, and salvation!" Taken aback, I turned, opened the door, and abruptly exited. The frantic minister burst out of the office behind me. "Reverend Stoner! Reverend Stoner! Come quick!" he bellowed. "This young man is possessed by Satan! We can't let him leave here!"

The parishioners clustered around Stoner moved swiftly into action. Like a rabble of amphetamine-pumped linebackers corralling an errant runner, they leaped pews and converged on me as I made my way down the right aisle. As Reverend Stoner puffed up, his beet-red face came close to mine "I rebuke thee Satan! Get thee away from this boy! He's ours and you can't have him!" In a panic, I turned to look for another exit. My way was blocked by righteously determined parishioners. I spun back into Stoner, who grabbed me by the

shoulders, moved his cold, clammy hands up to the sides of my face and continued his diatribe against Satan. My mind reeled.

Suddenly, some tumbler clicked in place in my whirring brain. "La la la la, blal lal lah..." I babbled ecstatically. "Bibly lah blo lah!" I concluded with a flourish. "Hallelujah!" "Praise Jesus!" "You've saved him Reverend Stoner!" Hands reached in to touch me, to claim a bit of the miracle they'd just witnessed. Beatifically, I beamed back at them, calculating how long I would need to accept their congratulations before I'd be able to make my break.

"Reverend Stoner?" a meek voice broke in, tugging at the sweating preacher's sleeve. "Could you help me?" As he turned to take the woman's face into his healing hands and the rest eagerly gathered around for the next miracle, I made my way unnoticed towards the front door. Crosby, Stills, Nash had recently released a new album. Unbidden, the lyrics from the title track 'Cathedral' flashed into my mind. "Open up the gates of the church and let me out of here! Too many people have died in the name of Christ for anyone to heed the call. Too many people have died in the name of Christ and I can't believe it all!"² I sang under my breath as I reached towards the door.

Seeking connection, I'd found division. What I thought I wanted was to be at one with God. Could this spiritual community that sought to divide true believers in Christ from Satanic non-believers be truly redemptive? To belong there, I would have had to cut off parts of myself that did not fit their picture of religious

conviction. It was not till I found environmental literature that I found language and imagery to comprehend that time in my life. John Muir once said "When we try to pick out anything by itself, we find it hitched to everything else in the Universe."³ That sense of pervasive ecological connection, hearkening back to my childhood beliefs about the pieces of God in all matter spoke deeply to me, and more sensibly than the rhetoric of sin and salvation.

But still I yearned for a kind of union that I could not find in my Peterson guides and wilderness trail books. I'd glimpsed it in backcountry cathedrals and mountain sanctuaries. But most of these sacred times I'd experienced in solitude. For all the blessings encountered in the non-human realm, I hungered for a sense of connection with other people. I still craved a spiritual community. Even after my exorcism, I sought religion, but had no idea what it looked like.

My etymological dictionary notes, perhaps fittingly, that the Latin root of the word religion – *religio* – is of uncertain origin.⁴ However, I detect an intriguing relation with *religare* – rooted beneath the word 'ligament', meaning to bind or connect.⁵ Religion reflected as a re-ligamenting force thus has a dual, subtly contradictory meaning. My experience in the Pentecostal Church with Reverend Stoner was one of being bound and tied to the church; God's will a substitute for my own. However, when I reflect on the work of the ligaments in my body, I find a compelling metaphor of functionality that's at once connective and flexible. Without the ligaments in my ankles, knees, hips, I could not walk,

jump, or even rise from this chair. The tendons in my hand provide the means to type these words.

Having experienced my share of disturbing religious encounters with those who would bind me to their faith, I find intimations of religion as a connecting thread running deeply through us, between us, linking us with every other organism on the planet. Perhaps my lifelong search for that close tie permits me flexibility that has often compelled me to seek the presence of *religio* beyond the narrow confines of *religion*.

In a few days, communities of Christian faith will gather to commemorate the last days of Christ. 'Stations of the Cross' re-enact fourteen episodes from his condemnation to die to being lain in the tomb.⁶ Looking back on my journeys to research sites throughout New Mexico, Washington State, and the Prairie Midwest, I feel as if I were following the stations of an ecological cross. My journey through these places and concepts has felt sacred though quite sobering. One can not view places of disturbance, no matter the recognition of its intertwined dance with rejuvenation and resilience, without bearing witness to death, decay and destruction (oft by human agency). But at the same time, these somber acknowledgements are cast in the light of persistent and pervasive natural forces of resurrection.

Peregrination invokes a seeking, a quest, an adventure, or an exile. In Biblical terms, it refers to a journey to find the place of resurrection. Across my

paradox sojourns, I found not one but many. Resurrection was the pinyons and ponderosas in the Pajarito, reincorporating the charred remains of burnt trunks, the worship of cryptogrammic crusts making holy the soil. Resurrection was the coho spawning, gashes in exhausted bodies, making sacrificial offerings in the gravelly redds of King County streambeds. Resurrection was the Blowout Penstemon, sacrament to the Nebraska Sandhills, bringing new life to a slate wiped clean by prairie winds.

Connection may be the *lingua franca* of both disturbance and restoration, distinguishing terms which themselves blur with my experiences in landscapes of paradox. Disturbance may sever connection at one level while simultaneously creating the conditions for renewed association. Restoration efforts, depending on their spirit and intent, may sever what they seek to connect within an ecosystem. The following sections explore an emergent epistemology of connection with land, with others, with soul, informed by my experiences in places of paradox.

SHATTERING

Life regularly tests my ability to envision resurrection within devastation. About ten years ago my faith in the resilient nature of primal connection was shaken. It was a time of more than ordinary loss; my sister Barbara's death, a romantic relationship ended. In my desolation, my friend Ren offered to take me to one of her favorite place in the Cascades. A half-Cherokee medicine woman with indomitable will and gracious spirit, Ren was one of the few people I trusted to bear witness to my pain without trying to shape it towards her own ends.

Months earlier, as we chatted on the sidewalk, I'd told her of Barbara's diagnosis of inoperable brain cancer. "Sometimes I wonder whether I'm being given more than my fair share of pain," I mused. Ren told me of her meeting with a Buddhist nun and of asking about her own propensity for more-than-the-usual servings of pain. "We believe that suffering provides an opportunity for compassion," the woman told Ren, "but not everyone is capable of carrying their share of the world's suffering." She suggested that Ren might be one whom the Buddhist's say has been placed in this life to carry the pain of others who could not handle their own. "It's a blessing, not a curse," the nun concluded.

On the day we set to travel to the Cascades, Ren picked me up in her beat-up late-model Chevy. The radio did not work, but she serenaded me with childhood songs. On an obscure bend of road, high in the Cascades, she pulled over and parked. A misty rain swirled around us. We put on packs and parkas

and crossed the road to our trailhead. Hundred-plus foot Douglas Firs clung to the near-precipitous slope. I could discern no trail and wondered whether Ren was up for the hike down. At the time she weighed more than 200 pounds and was still noticeably limping from a severe injury years before (she'd crashed a motorcycle and broken her leg in several places).

But Ren was made of more determined stuff than most. Casting excuses and injury aside, she would not be deterred bushwhacking down the Doug-Fir hillside to the streamside. We butt-slid down the rain-slicked slope, arriving at a broad granite slab thrust out into the turbulent, rain swollen creek. Ren laid out a small tarp she had brought for us to take a seat on, settled herself down, and motioned for me to sit beside her.

I rested for a long time in silence, no words to offer, no emotions to express. Ren quietly hummed a tune I did not recognize, a chant perhaps, the sound a murmur merging with the passing water. It might have been a tune older than the trees, the stream, or even the mountains, and it soothed me. With a hand to my shoulder, Ren indicated for me to recline my head against her ample lap. As I did so, a wracking sob escaped and tears began to flow like the run-off from the granite slopes we rested against.

Ren, who'd previously earned a degree in Geology, began to tell me the story of how the Cascades formed; the primeval up-thrust of titanic tectonic collisions had sent basalt and granite peaks hurtling skyward, and was still pushing them outward at least as fast as they could wear down. She told me

how for eons these mountains had stood severe and bare against the elements, older than knowing but still forming. Ren said she loved this place because it reminded her how to be strong and constant, like the rock beneath us. Glancing at the tall firs around me, the hurtling waters rushing past our feet, rain blowing against my face mingling with the tears, I thought “but these trees would never have grown unless the mountain had shattered.”

Perhaps, like that mountain, there’s something in us formed from tectonic collisions of immeasurable forces. Could it be that our seeming imperviousness, our granite-like facades, might be subject to similar forces that wear even the firmest of mountains? Perhaps the ceaseless weathering of daily sorrows and shattering tragedies make of us a richly mineralized soul-soil. Would we not otherwise be sufficiently porous to admit the seed of new growth? In the inevitable cascade of shattering that wears at each of our lives, from the time scale of mountains, glaciers and Douglas Firs, I’d found a sense of resurrection within the rubble of dying and despair.

Pema Chodron, an American Buddhist nun, is a well-known meditation master and author. In *When Things Fall Apart*, Chodron encourages us, like my Guillan-Barre neurologist, to move into our pain and suffering, to draw wisdom from the ache and chaos. Pain, suffering, sorrow, despair are not invasives in our ecosystems but native organisms that serve important functions as interior disturbance regimes. “Things falling apart is a kind of testing and also a kind of healing.” Chodron writes, “We think that the point is to pass the test and to

overcome the problem, but the point is that things don't really get solved. They come together and they fall apart." The first noble truth of Buddhism says that suffering becomes inevitable when we cling to any given moment. *Samsara* is the illusion that we can make pleasure or happiness last and avoid pain or sadness. "Healing comes from letting there be room for all of this to happen: room for grief, for relief, for misery, for joy." she suggests.⁷ Holding paradox, I believe, creates that room. Transpose these observations to ecosystems and it suggests an epistemology of disturbance.

From the perspective of dry-land forests such as those at Bandelier National Monument on the Pajarito Plateau, periodic mid-level disturbances can contribute to overall health and flexibility of high desert landscapes. Too little wildfire and fuel load builds, creating conditions for devastating conflagration. Too high a frequency and ecological resilience of resident species may be negatively impacted. Fires in the mind and psyche might follow a similar pattern.

Unprocessed emotional baggage and unexamined actions can create a kind of fuel load, dry tinder for the inevitable disturbing sparks that life periodically offers. But even highly reflective individuals can suffer from a surfeit of loss or stress. As with fire-inured ecosystems, there may be optimal levels and frequencies of disturbance in our personal and interpersonal ecologies. If so, when my other sister Ginger was diagnosed for the 5th time in 9 years with a reoccurrence of colon cancer, I felt as if I perilously balanced in limbo. No

matter the optimum; the capacity for fiery rejuvenation in any fire-injured ecosystem can be exceeded at times by the impact of inflammatory destruction.

Such was the case, perhaps, over the last several years for me. As Guillan-Barre was a kind of fire that swept through my nervous systems, cumulative circumstances in family, work and relationships – not unnatural in any way – triggered a crown fire of psyche that ravaged the soul-making capacity of my own microbial habitats. The exhaustion of nine years of familial illness and three deaths left me emotionally numb. But soul, like soil, has its own capacity for regeneration. Words, thoughts, actions, feelings and experiences make a kind of forest duff, that ultimately make the stuff of soul as surely as leaf and needle eventually can culminate in redemptive and regenerating soil.

SEEKING REFUGE: CARRYING CAPACITY OF THE SOUL

ref•uge 1. *The state of being protected, as from danger.* 2. *A place providing protection: haven, sanctuary.*⁸

A relationship, a family, a community, all form metaphysical pieces of land. As with any environment, they are subject to the slow wear and transformation of time. Such connections may be a wilderness, untrammled by outside control or design, unsettled and uncultivated and raw. They might be a farm, and as such could lie fallow with disuse, broken with misuse, or rich and fertile with loving use. They could even be a parking lot, paved with good intentions, empty at night and buried with runoff in bad weather.

In the aftermath of my personal disturbances, I attempted to find refuge in time with comrades and colleagues. There's danger in viewing such connections as sanctuary however. A zoo is indeed a kind of refuge, but the type of protection offered there does not necessarily offer much in the way of freedom. The word 'refugee' is a short leap from 'refuge'; refugees fleeing disaster or despair can't help but bring something of what they flee into the places in which they seek restoration. I began to feel a hunger and longing for refuge, not from the friends who stood near by, but for a landscape that lay a continent's length away. Refuge also hearkens to *refugia*, a repository of species endangered by change but safe in spatial, if not temporal, sanctuary.

Harney County in Southeast Oregon is home to Malheur National Wildlife Refuge; which in turn is domicile, boudoir, restaurant and full service avian station to some 300 species of birds and 58 mammals.⁹ In the French lexicon, the word 'malheur' indicates misfortune or unhappiness. For several hundred thousand migrant birds which descend upon Malheur National Wildlife Refuge in SE Oregon each spring, the connotation is one of sublime fortune and an intoxicating happiness. Abundant food and water, the relative safety of sanctuary, define an avian paradise amid the hooting, honking, chirping, screeching throngs.

Far from being a place of misfortune and unhappiness, the land, water and sky of Malheur country has become a place where I can find healing for ill fortune and come to terms with melancholy. It's one of the seminal places on this planet which, for me, repudiate all that stands in the way of redemptive life force. Something in my soul flocks to feed on the abundance, and finds reason to forget for a spell the madness of human concern.

Any trip I take to Malheur is a sojourn to temporal and emotional refuge. For almost fifteen years I've undertaken periodic migrations there. I am not a birder but the wild sweep of wings inexorably compels me, the raucous feeding frenzies calls, and the impassioned mating displays of approximately three hundred species of birds thrill. But it's not the wildlife alone which draws me, nor the beauty of swelling vistas and surreal landscapes, but a complex web of emotional responses and intangible desire.

Seventeen miles north of Burns on route 395 in southeastern Oregon's Harney County, there's a quiet campground nestled amid statuesque ponderosa pines. Idlewild Campground in the Malheur National Forest was bereft the first weekend in May during my first journey to the Refuge, other campers scared away perhaps by the chill lingering at 5300 feet elevation. I pitched my tent at the edge of a small sage studded meadow. Across the way framing the basin was a rocky bluff which I explored as soon as I'd set up camp. At a prominent outcrop with a wide view of the south facing campsites, I found several dried calling cards of coyote, who take their constitutionals in the open where they can look around to ensure danger free relief. Whether the scat was a form of social commentary on campers is a matter of conjecture.

As a respite from my work with Cascadia Quest attempting to restore urban watersheds for wild Seattle salmon, I sought another migratory endangered species, one that had itself come back from the brink of death. I'd come to see the elusive trumpeter swan which nests and raises young at Malheur during the spring and summer. Following a single audible but invisible encounter in backcountry Yellowstone a decade before, I'd often sought trumpeters but hadn't found any in considerable backcountry travel throughout Montana, Wyoming, Idaho and Oregon. But that first wild call – brilliantly new yet ancient – still reverberated in me, as if my own bones were hollow wings moving in a distant time, and my blood a memory of marshes past.

Trumpeters, one of the largest species of birds in North America (weighing up to 38 pounds), are also one of the least common. In 1931, only a handful remained documented within the United States. Drainage of habitat, hunting, and predation had pushed the species to the edge of extinction. Conservation measures over ensuing decades slowly brought the nesting populations back, but only a few thousand remain in all of North America.¹⁰ Insufficient suitable habitat exists to propel the population any higher. All that day on Malheur's marshes I kept my eyes peeled for a serene and graceful floating bulk, for the lumbering motion of huge white wings. I encountered many species, but no Trumpeter.

I slept fitfully that night, tossing and turning in vivid dreams. Early that following morning, as I explored the bluff once more I discovered fresh evidence that a coyote had been up there watching the previous night. I sipped my coffee, imagining Coyote and Trumpeter Swan watching me poking around the fire pit. In my mind's eye, I saw predator and prey together in communion; drinking tequila, playing cards, and laughing at human pretensions.

As I drove to the reserve the next morning, I passed several fence-lines festooned with the shaggy carcasses of coyote. Impassioned efforts brought to the heroic preservation of one species and to the indiscriminate extermination of another presented quite an irony. Along with gray wolf, cougar, and black bear, coyotes occupy the upper trophic levels of the Great Basin food chain. Prevailing 20th Century game management practices in southeast Oregon and much of the

rest of the west still have not taken kindly to the presence of such predators. In a region of ranch-based economy, any perceived threat to income-on-the-hoof is dealt with quite harshly. The knowledge that coyotes feed much more on prairie dogs or jack-rabbits than stock scarcely diminishes the ardor of a rancher's pursuit. Any drive throughout the region reveals dozens of tell-tale tawny hides skinned and hung from the barbed wire fencing as a coyote deterrent. How ironic that the coyote is every bit as much a native here as trumpeter swan, or humans for that matter.

Carrying capacity is defined as the maximum number of organisms that a particular habitat can support over the long term. As Leopold noted in *A Sand County Almanac* the first years of predator extermination often did result in greatly elevated numbers of desired game species. However, increased habitat destruction of over-populated game often ironically diminished the carrying capacity of regional herbivores. In the days of Leopold's southwest, in the longer run of ecological time the wolf proved less of a limiting factor to deer population than the deer's overgrazing of wolf-bereft habitat. Predation culls the weak and infirm, which helps keep the populations of grazers from overwhelming the delicate high desert rangeland.¹¹

That predator and prey represent a complex mutually dependent synergy is no longer debated in wildlife management and ecology classrooms. Whether we've taken Leopold's message to heart in social and economic practices remains questionable. But then, *Homo Sapiens* often misses the complexity with which

various species within an ecosystem may be apparently contradictory in the microcosm, but ultimately enhance one another in the macrocosm.

Like many individuals born into the predominantly Christian culture of rural North America, I'd learned to pray almost as soon as I learned to talk. I was raised to believe that there was a white-bearded God out there who would listen to and grant my heart-felt wishes if I followed proper prayerful protocol. Sadness could be dispelled if only I entreated reverently enough for happiness. Conflicts would disappear through pleas for peace. That unhappiness and struggle continued post-prayer only indicated that I was lacking faith.

In my early twenties, even after my brush with Reverend Stoner, I was still seeking a religion I could call home. Struggling to accept an evangelical Christian faith, I was plagued with doubts. I still took comfort in the promise of the Second Coming as a metaphor, trusting that if Jesus was immanent in each living organism, that He would return to us here on earth when we all; people, trees, bugs and crawdads, somehow could connect again. But the Pentecostal Church of Dwight and Reverend Stoner had taught me that evil spirits dwelt in the non-believers, and that redemption was available only to a few. Devotees twisted centuries of biblical dogma into justification for human dominion over all living things, including non-believing humans. I could not jibe this with my lingering sense of the equal importance of all beings in the web of life.

My church friends urged me to work through my doubts. "Where are you with the Lord today?" my best friend Michael would ask me each time he saw me. My doubts were seen as a tear in the fabric of my faith; the sooner the rent repaired the better. But I never stopped doubting beliefs which urged me to cut myself off from the fundamental forces of ecological life. Eventually, even my dearest friend turned his back on me. He and his wife feared that I was forever lost to Satan and would prove a bad influence on them. I tried to turn my own back on that difficult period of my life. "Don't dwell in sadness or pain", another friend from that time told me, "because that is where the devil will find you."

But I continued to pray, shyly, quietly, not quite willing to let go the vestiges of a belief system I could not entirely dispel or disprove. I prayed for a return of my friendship, for the right woman to enter my existence, for a simple answer to the mysteries of life. Nothing much ever came of my prayers as far as I could tell. If I prayed for happiness one night, I still seemed to wake up sad the next day. My incantations invoked no discernable interventions.

Then I was introduced to a Great Plains Native-American tribe's concept of prayer. Rather than solely seeking personal gain or individual redemption, each prayer was contextualized in the phrase "not for myself, but for my people".¹² Not unlike the complex interactions among plant and animal communities, our personal wishes knit a more intricate web of relationship, both interpersonally and intra-personally. Praying for easy-going happiness might not always be the best thing for land and community if anger, for instance, was needed to further

"my people." It occurred to me that there was a great deal of mutually supportive complexity to the relationships between our various emotional states.

Conventional 'soul-range' management practices might indicate that sadness, for example, would be a limiting factor to happiness. My Christian friends saw doubt as a blood-thirsty scavenger lusting after my faith. Eliminate doubt, or sadness or bitterness, or despair from our lives, and we intuit a higher carrying capacity for faith (or happiness, or forgiveness, or hope). I learned the hard way that denial of one feeling did not automatically lead to an increase in another, just as Aldo Leopold learned that fewer wolves did not ultimately translate to more deer.

Far from being a limiting factor, my ability to feel my sadness contributed significantly to my ability to embrace happiness. During the times I was least able to deal with what I considered destructive predatory emotions (anger, fear, pain), it seemed my emotional range were stripped bare. The happiness I tried to muster was a weakened species within an exhausted ecosystem. On the larger scale though, the health of jack-rabbit depends on the health of coyote, just as perhaps, happiness requires equilibrium with sadness. I'm not sure I'd want a life devoid of fear, doubt, or anguish any more than I would want a mountain without its wolf or a desert its coyote.

Could it be that, just as the vitality of a particular biological community rests on the health of each of its plants and animals, so too does our soul's health depend on a balanced integration of all of our emotions? Eradicating any

particular element within the whole upsets system equilibrium. Perhaps each individual depends for its health on the dynamic network of relationships within its ecological or emotional context.

Balance, in Eastern Oregon as well as with my own psyche, is a dynamic give and take between arrays of diverse organisms. Several days into this Malheur sojourn, I felt far from balanced. As I drove to the marsh, I was not thinking about the symbiosis between predator and prey. I was not thinking about the balance between internal or external ecosystems. I was only thinking about whether I could make it another mile without cracking wide open. My throat was tight with sadness. Arms throbbed painfully from gripping the steering wheel so firmly. I could not think. I dared not feel. I drove instead.

Suddenly, a grayish-tan body streaked across the road, barely clearing my left bumper. I skidded to a stop. Twenty yards into the grass on the other side of the road, a coyote looked back over its shoulder at me, seemingly unconcerned with its close scrape. "Do coyotes feel grief?" I wondered, "What would a coyote do if it were me?" Right there on the side of the highway, I took my hands off the wheel, tilted my head back and let out a long, mournful howl. I yipped and yowled and wailed till my breath ran out, then took another gulp of air and continued to serenade the sadness. In one more breath I was reduced to tears. In five minutes the tears ran dry, replaced by laughter. I rolled down the windows and listened to the grass whispering in the late afternoon breeze. As I started the car and pulled back onto the highway, I recognized that my

effort to hold myself together was ironically splitting me apart. Only if I gave myself over to this land with the same native trust as the coyote to high desert Oregon could healing begin to knit me back together.

My stations of my Malheur cross include lava beds just to the east of the marshes, the monolithic Steens Mountain, the desiccated playas of Alvord Desert, the quixotic hot spring arsenic pools at Borax Lake, and the remote majesty of Hart Mountain Antelope Refuge. I visited them all, reveling in my coyote senses. For me, it was a kind of resurrection, as I connected with beloved places and observed the sacred movements of SE Oregon wildlife. It was several days before I made it to the marshes.

Malheur heading towards day's end was a calming frenzy. The fading light and muted colors painted the cliffs and grasses in placid pastel shades. The temperature cooled and a mild breeze languidly played over my skin. Everything inside me slowed to a still point, yet all around me was in wild motion. Elongated cranes returned from a day of field feeding. A great blue heron stabbed at the water, hunting fish moving towards insects moving towards the skin of water moving in the evening wind. Songbirds bellied up to the bar and belted out their last sun-drunk songs. Minx and muskrat moved across the road, slipped into the water, and looked for their meals of meat and vegetables. And at Benson Pond, as the cliffs to the west swallowed the first bite of sun, a pair of brilliant white forms moved smoothly across the water, craning their long necks at the sun, dipping them down into the water, lifting them again towards one

another. One, the larger, wore a green band around its neck. The smaller slipped into a cove in the cattails. Green Band, looks first left, then right, then directly at me, before turning and following his mate.

I could pretend that this sighting of Trumpeter Swan was an accident. I could assume that I just happened to pass by as the two lazed about on an evening swim. I could convince myself that the occasion bore no relation to the events of the last few days. My entering the landscape as trusting partner could not possibly influence the way another organism might behave towards me. Coyotes, for instance, skittish around humans and as fond of bold mid-day light as humans are of dentist drills, do not run across the road in the middle of the day then turn to glance back at a pie-eyed driver. They wouldn't dream of suggesting a human being howl from the very core of his being. Coyotes, after all, only cross the paths of humans in order to eat their livestock.

Modern science teaches us to ignore what can not be proven. I could set aside my experience and intuition and yet not be able to ignore the mounting scientific evidence that reciprocal communication can and does occur between different species. If we see ourselves as natural as coyotes, ravens, mosquitoes or swans, we must then acknowledge our own creaturely wisdom

Upon returning from Benson Pond I drove the loops and twists of Rte. 205 some twenty miles to Buena Vista Overlook, hoping to make sunset there. Arriving, the cacophony of geese, songbirds, swifts and ducks was no less joyful at the

sun's setting than rising. 'This is how life should be,' I mused, "as happy at any ends as the beginnings."

As the last sliver of sun was swallowed by the ridges to the west, I took out a loaf of bread, peanut butter and jelly. I made two sandwiches then took one over to a nearby outcrop which looks remarkably like a coyote squatting on its haunches. I did not stay to see whether Coyote came to claim my offering – I don't know that I would care to see him laboring with the gummy peanut butter. I wouldn't want to know that pack rats or field mice had instead absconded with the sacrament. It was enough just to make the offer and then depart.

Driving back through Malheur, I curved down-ridge to a place where the road shoots straight across a nearly ten mile wide expanse of lake and marsh, the road sometimes the narrowest sliver through the watery plain. A thin cirrostratus gauze across the entire sky reflected extravagant washes of pink and purple from the retreating sun. I rounded the last bend before the straight-away and stopped the car dead in the middle of the road, completely disoriented by what I encountered there. The still waters of Malheur Lake and its intermediary marshes absolutely mirrored the colorful expanse of sky. I could still make out the road ahead of me but twilight completely erased any delineation between water and sky. It was as if I floated in a nebulous between-place, a liminal ecotone. I was afraid to breathe, lest water fill my lungs. If I drove another foot, I feared I too might disappear.

Much of our lives pass in such between places, though we seldom appreciate the ambiguity. So used to the razor sharp delineations between our beliefs, roles, duties and schedules – and one another, we fail to see the reciprocal intermingling of that which we would normally hold apart. Each of us is predator and prey. Our happiness, at some level, is inextricable from our sadness. There's a seamless flow even between each of us, as well as with all the other species which inhabit the planet with us.

We wage wars over divides of racial and religious territory and in pursuit of distant material power. We put our money in tax shelters and SUVs, while shaking our heads over the wretchedness of poverty. The mirror of Malheur and sky counseled me to see beyond these apparent distinctions to places of singularity. There's a Trumpeter in each of us, abiding in our clean still waters. There's a Coyote which hungrily ranges the perimeters of our psyches. If we wage war against others, we destroy ourselves. If we hoard possessions and ignore relationships, we diminish not just us, but all other living thing around us.

In a moment of terrible grace these thoughts and emotions flooded me. I could turn away from the infinite void where all things merge or I could embrace it despite my fear, and enter. I climbed back into the car, and drove slowly into the vastness of light, the grace of darkness, and the healing chaos I first sensed in that liminal space, a refugee from religion finding refuge in *religio*.

CONTROLLED BURNS

Life's problems are too limited. That is a pity; the function of the artist is to increase these problems, to cause upheavals in the brain, to make people wild and free so there will be more drama in their lives.¹³

- Henry Miller

I act as every other artist will act, I make use of another new instant to create more and more complications. Psychoanalysis, when grasped by the artist, becomes another device by which to create chaos.¹⁴

- Anais Nin

Henry Miller and Anais Nin, writers, artists, lovers, provocateurs, shared a paradoxical truth with one another and with society: problems, complications, drama, chaos, personal disturbances, serve a necessary function to humanity, through which the artist liberates imagination and desire in the lands of our souls. Perhaps only by destroying old truths, conventions and social mores, might new more resilient ones emerge.

Fire represents the quintessential trickster disturbance. When allowed to work freely in fire-inured ecosystems, it devastates what it touches but also restores vigor to local plant and animal communities by creating space for new growth and releasing nutrients back into the soil. Perhaps soul, the soil of our

lives, also requires periodic disturbance to clear space for new thoughts, emotions and relationships, and to break down the dense lignin within our fixed attitudes and habitual patterns, releasing numinous atoms to be incorporated into new ways of thinking, being and relating.

Modern ecosystem management practices in fire-prone lands suggest that well planned and carefully executed prescribed burns can help maintain the overall health of the land. We might take a page from the book of wilderness management experts by thoughtfully conceiving of and executing periodic prescribed disturbances in psyche and soma. Like Miller and Nin, we might see ourselves as trickster artists, setting controlled burns and liberating chaos and confusion to clear densely packed lives and transform impoverished souls.

Rising high for a rebound, I'd come down hard on the firmly planted pivot foot of an opponent. The torque and tumble irreparably tore two of the three connecting ligaments in my right ankle. I spent six months hobbling around the icy streets of Binghamton New York on crutches. Over the next half dozen years or so – playing soccer, hiking a mountain, just crossing the street – I re-injured my ankle at least ten times seriously enough to merit cane or crutches. An orthopedic specialist advised that the only way I could address my issue was through a complex surgery crafting and implanting artificial ligaments to hold my ankle in place, gaining a permanent stability. New loss though, would be a complete lack of mobility. At the time, I did not have language to articulate that

I was being asked to trade resilience for reliability, but I resisted the suggestion. Though the severity of these disturbances was problematic, I was not willing to risk losing my full range of normal flexibility.

In Seattle, I began to work with a specialist in mind-body connections. Though the stated purpose was to address dynamics of familial suffering and illness, Nan's approach was not unlike the Olympic restoration ecologist who sought knowledge of a place's own healing process before undertaking her work. Nan used an ancient Chinese acupressure massage technique called *Jin Shin Do*, which focused attention on the energetic pathways running like meridians through the body. Through light touch, pressure and expertly trained sensory input, she could read the flow of energy moving or stagnating in my body.

Scanning me one afternoon early on in our treatment, she paused and looked up quizzically when moving her hands over my right ankle. "How strange," she mused, "I can trace the flow all the way down your right leg, then nothing comes out from the bottom of your foot." She explained that normally, energy flows in a counterclockwise cycle, moving like a river carrying and cleansing along the way. Normal flow would leave the right foot and reenter the left, continuing up those meridians on its way back to the vital heart. I explained to her my basketball fall, my propensity for continued ankle injuries. Brows knit, she asked "Can you tell me any stories about that ankle?" The question threw me. I wanted hands-on healing, not touchy-feely story.

"I can feel your resistance" she offered, smiling. In a flash, an insight came to me. As long as I could remember I'd been an inveterate foot-tapper. My habit was a source of familial banter; "Oh the jigglers at it again. Stop shaking the table!" I shared my recollection with Nan. "Can you tell me what you were feeling when you jiggled?" I was stumped.

All week I pondered this mind-body question. Nothing came to me. In a meeting a day or so before my next session with Nan, I listened distractedly as my supervisor laid out a ridiculous project for us to undertake. Unconsciously, legs crossed, tremors started vibrating my right foot. As she droned on, full-tilt jiggling set in. I saw the leaves on the table plant moving before I noticed my own shaking. "Aha!" I flashed, as memories of psychic frustration, anger and anxiety flooded through me, linked now to my somatic action. The next day in Nan's office, I blurted out my insight. "Can you find a different way to express those emotions?" She continued, explaining her theory that the intense energetic flow of my anger and anxiety was like a rough river wearing at the fragile connections in my ankle. Predisposed to physical injury, I might be further weakening that area with the bombardment of unexpressed emotions. Her explanation frustrated me, less because of her acuity than my realization of the potential for conflict that sharing such things out loud might generate. She listened, reflecting. "Don't assume that the direct path is the only path." she advised, "Think about how else you might move and express that energy."

Over subsequent weeks, my homework assignment was to note the onset of foot tremors, stop and name the cause, then craft strategies for alternative responses. As a kid, I'd often worked out my aggressions through various games of rock baseball. My favorite involved pitching balls or strikes against a telephone pole at the base of our driveway. Several times a week, I'd go out to a relatively uninhabited Seattle park with a ready supply of small stones, pitching out my frustration and anxiety. Before long, I found that I could pick up on my emotional tremors well before they manifested in my ankle. Sometimes I could avert the display – leaving the room, steering the conversation in another direction – sometimes I could not. Those times, I'd swallow hard and express my feelings out loud. Surprisingly, the world didn't fall apart. As I grew more facile with navigating the dynamics of internal-external conflict, I noticed that months, then years had passed without an ankle injury. Fifteen years later, I've not had a single occasion to drag crutches or cane from the closet.

If *religio* is a re-ligamenting of connection between people, place and each other, then my work with Nan became a literal healing of my ankle ligaments. Noting and sharing anger, frustration and anxiety outwardly were akin to controlled burns; I did not allow the fuel load of unexpressed emotions to build to blowout stage. It's not that I didn't feel awkward. But these were reasonable low-level disturbances, allowed to burn naturally. Undertaking this work with Nan, I'd happened on a practice for managing my own wild lands.

To transform habitat, I probed, interpreted and altered habit. Wild ecosystems like the Pajarito and the Sandhills masterfully provide their services with rich efficiency. Intact landscapes contain all the elements they need to function. Were my daily choices and actions detracting from or adding to the health and vitality of my wild life? Did I possess a biodiversity of interior species sufficient to inhabit the roles required of a self-sustaining ecology? As provocative and illuminating my exploration of mindful restoration of my soul's sanctuary was proving to be, I began to wonder whether mind alone was enough to restore the heart to its state of wild sanctuary.

In their lobbying efforts, wildlife advocates often cite the necessity of extensive spatial requirements. Grizzly bears need significant land to roam in and wildlife corridors between suitable habitats to ensure their survival. Perhaps the 90-95% of our brain that recedes from consciousness at any given moment encompasses a protected area of the imagination that ensures the survival of all our species of thought, emotion and belief. Are we willing to ferociously fight for the wild within us as well as around us? But more tellingly, are we willing to let our inner forests burn, stand by in patience while mountains within shatter and shake?

An underlying axiom to Chaos Theory holds that implicit order underlies the apparent disorder. I don't know that I agree. In the search for Gregory Bateson's "patterns that connect," might we be missing the import of "patterns that disrupt?" In Thomas Moore's *Soul Mates* explorations of the paradox of

relationships, there is the suggestions that strong emotional states like anger or grief can be similar to the processes by which precious metals are refined.¹⁵ As bronze or steel or silver becomes annealed by chemical and physical applications of heat or pressure, perhaps our vivid emotional states bring about alchemical and metaphysical transformations of interior raw materials. Such tempering conjures a different way of looking at the ways thoughts, actions, moods, sensations and emotional states interact within us, not unlike the process of chemical redefinition in fire-inured soils in Southwest and Midwest landscapes.

As steel or iron bend in fierce heat, repeated dousing with cool waters bring about tensile strengthening. Perhaps the blanketing darkness of depression, the cool detachment of apathy, or the flowing wet of sadness might be part of the soul's tempering. Our instinct around personal fire is to put it out immediately. But I now approach fire as a Neanderthal might have, and as an ecologist has learned to. The Neanderthal knew our survival depended on fire and remained in awe of it for that reason. The ecologist remembers the lessons learned from Cascade, California, Los Alamos, and Yellowstone fire.

There's a region in Australia of healthy stands of eucalyptus, teeming with wildlife that has disappeared from other nearby, though ecologically and climatically similar areas. Scientists, studying the vitality of the place, realized that local aboriginal peoples have been torching the grasslands each spring for over 500 years. It's an incongruous story of health; fires keep down the tough, woody (and less digestible) grasses and sedges, making way for a greater

diversity of succulent plants. These provide forage for organisms that have learned to evade or cope with the controlled burns. But shouldn't the fire destroy the eucalyptus? Indeed, flames severely damage the boles of the trees. Over the years, great hollows burn nearly to the heart of each tree. But nature provides compelling compensation; these spaces make perfect dens for organisms whose accumulated excrement and food refuse make nutritious fertilizer upon which the eucalyptus thrives.¹⁶

Whether in the savannas of Australia or Africa, the plateaus of New Mexico, the foothills of the Cascades, or the grasslands of the Midwest – fire destroys but also nurtures in unexpected ways. This seems true of internal landscapes as well; tough woody ideas, indigestible belief patterns, craggy overgrown habits and friendships need a good burning from time to time. One might go overboard with these fires, setting indiscriminant proscribed burns, but no landscape can stay healthy when constantly aflame. However, as we've gradually learned in prairie and forest management, too few fires prove as deleterious to the health of the system as too many. Nature's fires tend to happen spontaneously; human ones may need to be planned. Both ways may ultimately be necessary. Fire is one of nature's primary means of releasing the potential of landscape by shifting and redirecting form, matter, and nutrients.

If I burn, it's with this in mind; that the blaze is energy which needs to be moved, matter which needs to evolve new form. The equilibrium of both inner and outer ecosystems requires a continual dynamism. What seems to be new

within me grows out of a natural transformation of that which I perceive as old. In this I am prairie; my thirsty roots plow the rich, raw humus of my consciousness and experience – there's not a thing which does not feed me. Like a prairie swept by fire, conflagrations of loss, grief, and death devastate me. But that fire also regenerates me.

Moore's sees human existence as a series of encounters filled with contradictory emotions, responses and actions. Rather than fixing the paradox by eradicating what doesn't fit, Moore encourages us to embrace the contradictions and allow that tension to come into awareness. Inevitably, Moore says, a new way through the tangle emerges.¹⁷ When I allow contradictions to rest in suspension within me, a different way of being does emerge, though the path may not be altogether clear. Sometimes in the process of re-ligamenting connection, literally also re-membering, we must learn the art of forgetting and work at not knowing. At times, to find the light of truth perhaps we must be willing to enter the darkness of confusion.

ENDARKENMENT

As I walked home from a movie on a sunny day a couple of years ago February, I thought about the renowned groundhog Punxsatawney Phil and the quirky ritual of winter prognostication that has risen around him. They say sight of his shadow will scare him into hiding and compel six more weeks of winter. It's more likely that a self-respecting woodchuck would catch sight of the sun and begin fantasizing over early peas or broccoli starts. One would think that a creature that lives underground much of its life should be pretty used to shadow.

Perhaps we believe Phil will be afraid of his shadow because we live in fear of that darkness ourselves. "Beware the shadow side", we are cautioned. But what is a shadow, really, but evidence of substance shown by the cast of light. Our substantive lives are often shadowed by circumstance. A sibling might die, a parent fall gravely ill, spent love and lost wishes pass through your life like eternal darkness. But there is always significant substance contained within the shadow rich like good humus, readily available for our growth.

I crafted a ritual to intentionally immerse myself in the realm of not knowing. If enlightenment embodies the pursuit of the knowledge of absolute truth, then endarkenment epitomizes the liberation gained from knowing that many things remain ultimately unknowable. I hiked to the crest of one of the highest local hills to watch the sunset. My intention was to see that fading sun as the setting of this most recent stage of my life. The sunset was a brushstroke

of orange and magenta, spectacular enough to almost make me forget the symbolism of my act. Jagged rays of light pirouetted against thin veils of clouds. Robust wind conspired to keep any annoying mosquitoes at bay. I was free to revel in the wonder of it all.

As twilight settled into murky gloom, I started back down the trail towards town a couple miles away. I walked back home through the pitch-black woods, symbolically an entry into my own darkness. But this was not the darkness of shadow selves and all its attendant allusions, but of a place where there was no truth, no past, no future, nothing that can be known for sure, a liberating darkness that frees anything to happen, or nothing. Clodhopping back down the trail in near-night, 20 feet from a strange silhouette, I heard a jagged "hruffff" as a white-tail deer high-tailed it to the edge of the woods. It paused, looking back bemusedly as if to say "you could have caught me if you were paying attention." At a place where the white pines thicken, light failed. I hesitated at an ink-black tunnel, fearful. But there was no other way home, and so I entered the dark.

I'd once encountered a passage in Jim Corbett's *Goatwalking* where he'd suggested that time alone in the desert night was a surefire way to invite our demons to the campfire.¹⁸ For part two of the ritual, I decided to travel to the desert of my imagination, light a fire, and greet my demons. Once home, I propped a large mirror against a kitchen chair and plunged the room into darkness, lit candles in the four compass directions, placed some sacred found

objects around me, and sat before the mirror. Next to me was a bottle of tequila from the high desert southwest, a place and substance for me of great truth-telling. I poured the first shot, looked myself in the mirrored eye and said "Here's to you and all your demons!" Alternating journal writing with dead-honest assessment of myself, my choices, my habits, I toasted my underlying dark truths. In such places, anything could happen. As the night stretched near to infinity, I created a space of not knowing in which I felt that anything or nothing could happen. For the darkness, for all we can tell, could be filled or empty – the choice is ours. I chose full, even as I experienced emptiness.

Darkness gets a bad rap. "Forces of darkness" seek to enslave humanity, certain religious fanatics warn us. "The dark lord rules all" blasts a heavy-metal band, or a Satanic cult, I can't remember which. Pasty-skin, puckish psycho-babble artists try to tell us about the importance of getting in touch with our "shadow sides." The cure for all these ills, some would tell us, is enlightenment, the awareness that brings us face-to-face with sacred knowing of great and profound truths. "The truth shall set us free!" cries the prophet.

But what do we make of the sacred un-knowing of the great un-truths? During my ritual, I'd deliberately entered a sanctuary where darkness obscured knowing anything for sure; where the concept of truth proved meaningless against the things that could never be known. Christian mystic St. John of the Cross, author of the medieval text *Dark Night of the Soul*, explored entry into the unknown as a different way of knowing.¹⁹ Our modern take on such exploration

views our own dark nights of the soul as passage through painful and anguished struggles for understanding. What if we conceived of darkness not as an agonizing skirmish with the embittered-mistress madness, but a playful encounter with our demons and mysteries that require no firm understanding, bursting full of wild fun under the cover of the deep, good night?

Some time ago, a friend gave me a thought-provoking quote that he attributed to turn-of-the-century Russian artist Vladimir Malevich, "No man can be truly free until he is willing to disbelieve today what they believed yesterday." This is a challenging and intriguing statement, intoxicating though demanding. Through endarkenment, I experiment with a willing suspension of belief, understanding, knowledge and truth, the better to enter those mysterious realms where such things cannot gather in the conscious mind alone, but must be sensed deeply and reverently in the skin's paradise and the body's deep.

The wisdom of darkness... We spend half our lives in darkness. We fear it for the absence of light and for what we feel might trap us there, grow uncomfortable with not penetrating its secrets, not realizing the liberation that not knowing can provide. When speaking of enlightenment, we may refer to a refined knowledge of our selves and a deeper understanding of the universe around us. But I wonder if we overrate such knowledge. Endarkenment allows for that which can not be known by mind alone. Darkness makes room for the possibility of any truth, or no truth at all. In this practice of paradox, if

enlightenment is the pursuit of the knowledge of truth, then endarkenment signifies relaxation into places of not knowing. Our confusion may also be a gift.

A friend wrote me awhile ago "I am in a state of blissful/painful confusion." What a marvelously complex statement; the bliss and pain of confusion. As with darkness, I believe confusion has also gotten a bad rap. I traced the word back to its roots, the Latin *fundere*; to pour, cast or mold.²⁰ When something becomes fused, disparate elements transubstantiate into a liquid state promoting facile combination. Confusion can be seen as a kind of alchemy, a subliminal shifting and co-mingling of essences with another (where the 'other' may be land, human, non-human, or aspects of self). There are times for distinction and separation, but also episodes of inextricable and absolute merging. Confusion has now come to reflect a state of "fusing with," or merging with otherness so that the boundaries inevitably get a bit fuzzy. Maybe to be *a part of* rather than *apart from* life will always involve some confusion, as we intermingle deeply with the settings, situations and individuals around us.

As I explored an endarkened state of not knowing, I began to view the numbness I felt after my sister's deaths a bit differently. Perhaps my emotional paralysis was less a state of disturbed dysfunction than some sort of alchemical purgatory, another word which has been given a pejorative slant. The primary definition rises straight out of Catholic doctrine: a between place where souls of those who've died must atone for their sins. Even the secondary definition takes

a strong lean toward Christian guilt tripping: a place or state of temporary suffering or punishment. But down in the roots, there is a more nuanced interpretation. Evolving from the Latin *purgare* it refers to any place serving to purge, cleanse, purify or expiate (itself a lovely word of making amends).²¹

Artist/author Nick Bantock's *The Museum at Purgatory* transformed my view of that liminal space. His story follows 'Non' the museum's new curator and his encounters with the souls who pause in Purgatory on their passage to various dystopias and utopias. What Bantock reveals through these characters is the twinning of our usually dualistic natures (good/bad, happy/sad, playful/somber). His purgatory is a restful place of reintegration and, quite often, redemption.²² And so I begin to see my own version of purgatory in a different light, as a way-station to weave together parts of me divided against one another and restore equilibrium and equanimity. Here I rest at a still point, ready to enact my future with these seeming opposites entwined and inseparable in all that I do. But even amid the grace of not knowing, there remains yet a necessity of conscious intention in discerning paradox. I close this chapter with one last practice of paradox, a restoration of consciousness.

RE-STORY-ATION

Benediction means literally “good or beneficial words.” Throughout this chapter, I’ve undertaken a piecemeal etymological restoration of language and meaning. Biblical scripture proposes “By their works ye shall know them.”²³ I’m beginning to wonder if an equally revelatory maxim might be “By our *words* ye shall know us.” If words themselves lose their nuances and threaded meanings, then how do we begin to re-story our lands and ourselves reflecting the kind of biodiversity we wish for both? Stripped of the evolutionary layers that encompass each word’s textured meaning, then our stories and dialog lose something intangible yet vital that crafts the connective tissue of our social fabric

Indeed, the stories we tell ourselves and one another seem to profoundly inform our beliefs, imaginations and responses to our deeper selves and to one another. Re-storying, I think perhaps, emphasizes not just one kind of story over another but a richly textured tapestry of all narratives that honors the complexity of our emotional, philosophical, and spiritual terrain, recognizing the soul-ecology function of each strand of story within us.

A main character in Pam Houston’s novel *Waltzing the Cat* tells a friend that she had four stories she would tell a man when she wanted him to fall for her.²⁴ This passage has led me to reflect on what defining stories I tell when I really want someone to know me. In this, I reflect upon what it meant to hold *authority* in my life, about how I shape my stories to define my own character (a

multiple-meaning word that stands for the moral qualities or habits of a person as well as a role in a play or movie). Deliberate attention to endarkenment and confusion within my personal purgatory brought almost overwhelming ambiguity. Evolved from the Latin *ambigere*, to wander, which in turn was built from the roots *ambi-*, around, + *agere*, drive, literally ambiguous means 'to wander around with drive or purpose.'²⁵ This is an important distinction from common meaning of the word (uncertain, doubtful).

I suspect that what we call our persona operates more along the lines of landscape ecology than the narrow confines of most psychological or religious orientations; meaning it contains a richly textured diversity, where contradictions that abound on one level reveal themselves as complementary on another. My journey through different places of paradox was a simultaneous outer and inner excursion; one which served more to raise provocative questions than to generate reasonable answers. To provide a way of glimpsing discernable patterns amid the inherent chaos, I once again looked outward to see within.

From my sit spot near the Woodland cemetery marsh in Keene one May morning last year, as I listened to the exuberant chorus of songbirds and followed their technicolor flights, I mused about how many baseball teams had chosen small birds as mascots. Unlike their higher-on-the-food chain football brethren (Lions, Eagles, Ravens, Bulldogs), baseball aficionados and owners seem willing to celebrate the less testosterone driven qualities of avian commoners (Blue Jays, Cardinals, Redwings). Oddly, though a big fan of both

birds and baseball, I couldn't remember the last time I'd seen an Oriole, Baltimore or otherwise. I strained my memory to recall plumage, size, gait or song. As I gathered my journal and empty coffee cup to head to work, I made a mental note to check my Peterson's bird guide that evening.

Late that afternoon as I strolled home from work, I heard a commotion in the branches to my right and saw an aggressive jay chase a smaller bird from its territory. The chastened interloper landed on a branch nearby where I could get a good look at it. Indeed – oriole. Sighting it that late in May, I recognize that bird had been in the area all spring. I believe I hadn't seen it because my brain had lost its mental map to the interior habitat of oriole. Having made an oriole-shaped space in my consciousness that morning, it was only natural that I would see a creature that had existed there all along. How many other things had I failed to see in the world around me because my conscious mind had not made room for them to enter? Might making space in my thoughts and perspectives also liberate and renew my vision and experience?

The New-Age statement "I create my own reality" has always seemed to me a paragon of arrogance. I could no more make that oriole appear than I could change the results of the last election by thinking on it. But I do believe we possess some control over crafting the various lenses through which we view reality. In *The Botany of Desire*, Michael Pollen tells of his effort to understand the effect on short-term memory loss of marijuana, a plant he claims has

cultivated human desire for intoxication. He meets with a renowned brain scientist. Asking how pot limits the brain's ability to recall, Pollen's taken aback when the researcher tells him that the work of the brain is forgetting not remembering. Without our mind's ability to selectively sift through the flood of sensory data to winnow out what's worth paying attention to we would be in a constant state of overwhelmedness bordering on insanity.²⁶

What should we pay attention to? Certainly we come well equipped both physiologically and psychologically to cull data pertinent to satisfaction of our hierarchy of needs including shelter, food, and safety. If a person habitually focuses on death, despair or destruction, there's no lack of external manifestations of these to fill the mind many times over. Most of us know such horror mongers; thumbing through the newspaper for police reports and obituaries, flicking through the cable channels for Cops shows and Fox news bites. But then again, we can tune into other sensory channels broadcasting very different stories of hopefulness, resilience and rejuvenation, however poorly such topics may fare in our culture's Nielson ratings.

But it's not just what we notice that makes a difference in shaping the spaces in our consciousness, but also the frame we place around what we do notice. Some of my friends saw in my Guillan-Barre episode a debilitating illness and viewed me with pity and sadness. I found in that experience my body's capabilities for adaptive resilience. For much of the 20th Century, land use managers, politicians, and much of the general public witnessed a plume of

smoke on the horizon of a nearby forest and saw wildlands fire as an abomination to be eradicated. Nowadays, increasing numbers of individuals in public space management positions and political office see fire as a rejuvenating force, one that can serve a revitalizing role if properly contextualized.

Restoration ecologists in urban areas like Seattle struggle to see through time for the proper reference ecosystem that would become the target for their efforts, but there's no ringing consensus on the species that constitute a restored watershed. Lumber companies and wilderness advocates see very different things when they look at a Doug Fir or a Spotted Owl, just as in the prairie Midwest there's more than one orientation on an unplowed plot of land. There may be something in the human brain that seeks the simplest view and explanation for any phenomenon it takes in.

Polarization and dichotomy yield a simple lens of binary representation of experience. A practice of paradox creates a multi-faceted lens on reality, like a grasshopper's compound eye. It cultivates wisdom to navigate increasingly complex ecological issues. If the root of religion can be a re-ligamenting of our culture and connection to nature, I now believe that practices of place-based paradox can create space in our consciousness to hold contradictions in creative tension and foster multi-threaded connections in our most polarizing domains.

Red state, blue state; it was all I saws in the news after the 2004 Presidential elections. Waking the morning after, I sought a "third" state. At a workplace

where liberalism is the accepted political norm and where folks are not shy about proclaiming their beliefs and assuming you feel the same, I figured it would be an uncomfortable place for our resident Republicans. Sensitive to patterns that don't quite fit, I'd identified those few whom I knew would have voted for George W. Bush. Arriving at work, I made my way around to each one. Each conversation opened with my congratulations, my acknowledgment that our environment was probably not all that supportive of their choice today, and my assertion that I saw their integrity and thoughtfulness even though I had made a different choice, one which I was not particularly excited about.

To my surprise, each conversation took an unexpected turn from there. In acknowledging their authority as well as my ambivalence about Kerry, my colleagues shared their own ambivalence about Bush. As we began sharing what it was we wished for in a president and in our country, we found that we had virtually the same set of concerns and dreams. If I'd stayed in the polarity of my own blue state (pun intended) I'd never have connected to the fundamental commonality between us.

This object lesson in facing personal and political contradictions highlights a number of the practices of paradox I'd learned from my place-based explorations. With perceptions tuned to noticing patterns that don't fit the norm and an epistemological basis for holding the potential contradictions in suspension, I identified individuals with whom I might create a third space of understanding and found a more flexible way of connecting with differences.

Operating out of that place of bio-diverse understanding, we formed more flexible bonds with each other, which endure to this day.

Other practices though, shaped my ability to even reach across that political divide. The prairies lessons of softening my own attitudinal fundamentalism combined with the Pajarito's teaching on uncertainty became a practice of endarkenment; acknowledging that I may not have all the answers, nor do I always need to know for certain that any given choice, idea, or belief is the right one. When I opened my email that morning after the election and read the diatribes about Bush and all those who voted for him, I remembered the words of that Cascadia Quest participant. Who was I to call Republicans the invasives on my societal terrain? Perhaps there was something in the pattern of their political thought that could play a vital role in my own thinking.

Shifting our attitudes, beliefs and ideology in these ways is a matter of creating paradox-shaped space in our consciousness. A foundational shape in my own consciousness underlying all the other practices that have emerged in this work holds that our losses, debacles and setbacks operate like ecological fire to create space and breaks down matter into forms more readily available for new growth. Paradox, in place and self, has taught me to enter what I fear, disdain or simply don't know or understand, believing that thriving as an individual and perhaps surviving as a species demands such connective flexibility.

PRACTICES OF PARADOX ENDNOTES

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- ¹ The Holy Bible (King James Version), (Cleveland, OH: The World Publishing Company). Matthew 7:7
- ² Still Crosby, Nash, Cathedral, Song, Atlantic/Wea, 1977.
- ³ John Muir, My First Summer in the Sierra (San Francisco: Sierra Club Books, 1988) 110.
- ⁴ The New Century Dictionary of the English Language 1515.
- ⁵ Ibid. 952.
- ⁶ Creighton University maintains a concise introduction to the fourteen stations: "The Stations of the Cross," Creighton University, 18 Jan. 2007, <<http://www.creighton.edu/CollaborativeMinistry/stations.html>>.
- ⁷ Pema Chodron, When Things Fall Apart: Heart Advice for Difficult Times (Boston: Shambhala, 1997) 8.
- ⁸ The New Century Dictionary of the English Language 1504.
- ⁹ "Malheur National Wildlife Refuge: Birding Opportunities," United States Fish and Wildlife Service, 24 Jan. 2007, <<http://www.fws.gov/malheur/birdopps.htm>>.
- ¹⁰ "Fauna of the National Parks of the United States: Problems of Historical Origin: Treatment of Species Reduced to Danger Point," National Park Service, 2 Feb. 07, <http://www.nps.gov/history/history/online_books/fauna1/fauna3-2.htm>.
- ¹¹ Leopold, A Sand County Almanac 129-33.
- ¹² John G. Neihardt, Black Elk Speaks: Being the Life Story of a Holy Man of the Ogalala Sioux (New York: Pocket Books, 1959) 210.
- ¹³ Anais Nin, A Literate Passion: Letters of Anais Nin and Henry Miller 1932-1953 (New York City: Harvest Books, 1989).
- ¹⁴ Ibid.
- ¹⁵ Thomas Moore, Soul Mates: Honoring the Mysteries of Love and Relationship (New York City: Harper Collins, 1994) xiv-xix, 55-60.
- ¹⁶ Pyne devoted a whole book to the fire ecology of Australia: Stephen J. Pyne, Burning Bush: A Fire History of Australia (Seattle, WA: University of Washington Press, 1998).
- ¹⁷ Thomas Moore, Care of the Soul: A Guide for Cultivating Depth and Sacredness in Everyday Life (New York City: Harper Collins, 1992) particularly 137-76.
- ¹⁸ Corbett, Goatwalking: A Guide to Wildlands Living, a Quest for a Peaceable Kingdom 1-48. The first three chapters in particular lay out the philosophical lessons and implications of wandering the Sonoran desert as a solitary wildlands goatherd.

¹⁹ Kieran Kavanaugh, and Otilio Rodriguez, "The Collected Woks of St. John of the Cross," (Washington D.C.: ICS Publications, 1991).

²⁰ The New Century Dictionary of the English Language 305.

²¹ Ibid. 1421.

²² Nick Bantock, The Museum at Purgatory (New York City: Harper Collins, 1999).

²³ The Holy Bible (King James Version). Romans 3:24

²⁴ Pam Houston, Waltzing the Cat (New York City: Washington Square Press, 1998) 256.

²⁵ The New Century Dictionary of the English Language 37.

²⁶ Pollan, The Botany of Desire: A Plant's Eye View of the World 159-62.

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