AN ABSTRACT OF THE DISSERTATION OF

Suzanne M. Fluharty for the degree of Doctor of Philosophy in Environmental Science presented on August 13, 2007.
Title: An Environmental History of Euphoria Ridge, Oregon: A Case Study for Ethnobotany in Traditional Resource Management

Abstract approved:

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Deanna M. Kingston

This dissertation looks at one landscape component of the Coquille Indian Tribe's ancestral lands in order to understand the place meaning created and assigned to Euphoria Ridge, Oregon. I focus on three cultural overlays across time that together with the unique biophysical components, generate an importance for the locale to the Coquille Indian Tribe. While it is useful to record the story of the Coquille Indians and their land in its own right, their ancestral land also provides the focus for my basic premise that environmental histories viewed at the landscape level, can offer an understanding of "the way people live on this Earth, experience the places they inhabit, and confer meaning to these experiences" (Clavel 2001: 130). I suggest that the connectedness between the Coquille Indians and Euphoria Ridge is a specific example of countless iterations of culture-environment interactions that have transformed natural landforms, creating unique place-meaning. A clear theme emerged that the Coquille hold a very high and dear value to the connection that their local environment gives them to their ancestors and that their environmental values and actions stem from their moral obligation not to protect the environment, but to protect that ancestral

connection. Euphoria Ridge holds a unique place-meaning for them as an area where their ancestors once traveled and where they can travel to become connected to their ancestral traditions.

Using the theoretical framework of Memmott and Long (2002), I offer a depiction of the transformation through 1) the alteration of the environment's physical characteristics, 2) the enactment of special behaviors and emotions to a particular environment, and 3) the group knowledge of past events, legends, or memories. In this way I show the dynamic construction of the Euphoria Ridge landscape as both a specific locale and as a cultural product. Landscape studies that include complementary methodologies from across the sciences can offer a framework to perceive the great breadth and interdependency among the web of people's interactions that bond them with their environment and offer a means to reach an appropriate understanding for viable land use management and ecosystem preservation.

An Environmental History of Euphoria Ridge, Oregon:
A Case Study for Ethnobotany in Traditional Resource Management

by

Suzanne M. Fluharty

A DISSERTATION

submitted to

Oregon State University

in partial fulfillment of

the requirements for the

degree of

Doctor of Philosophy

Presented August 13, 2007

Commencement June 2008

ACKNOWLEDGEMENTS

The author expresses sincere gratitude for the truly bountiful collection of professors, mentors, supervisors, colleagues, family members, and helpmates who have contributed in countless ways to the success of my endeavors. Environmental Sciences at Oregon State is a multidisciplinary degree program and has contributed to the variety that I've had the good luck to draw from in my associations, but regardless I feel very blessed. I've been surrounded by extremely knowledgeable and caring people.

My academic committee members have been steadfast in their support since my undergraduate days. Dr. Greg Walker was the first to offer me a graduate position in the Communication Department and has mentored my conflict resolution studies. Dr. Richard Halse has spent many hours helping me identify plants and has generously sponsored several independent studies and research projects that are so necessary in keeping the academic interest and curiosity alive that nurtures expertise. Likewise, Dr. Deanna Kingston has sponsored my wandering down unusual paths and I am forever indebted to her for stepping up and taking on all the responsibilities as my major professor. Her countless hours reading, editing, and general encouragement cannot be repaid.

Dr. Roberta Hall has been exceptionally helpful, not only with her time and knowledge but also through her personal and professional connections. As one of her students, I've come under the umbrella of the high regard and professional esteem extended to her. I have benefited from her access to documents, references, and professional courtesies, such as Reg Pullen's photocopies of the Harrington Papers that

saved me hours of time scanning microfilm reels. I have also had many opportunities that would have been closed to me without her association. First and foremost was the introduction to members of the Coquille Indian Tribe who hold a fierce loyalty to her and have publicly honored her for nearly 20 years of work with the tribe.

I must thank the Coquille Indian Tribe for supporting my research and opening their offices, land, stories, and memories to me. By allowing me to delve into the knowledge of their ancestral lands, they have broadened my vision, added a depth to my insights, and improved my understanding of the myriad possibilities for interactions with the natural world. Sharon Parrish and Don Ivy were catalysts in my investigations and kind in their friendship. Everyone from the Chief, to the tribal police who opened gates for me, through the entire staff has always been helpful and not only made my work possible but pleasurable.

My parents and family have gotten me through some hard times and my children are always encouraging. They have all taken on extra duties and made sacrifices to allow me time on the mountaintop, both physically and figuratively. Special thanks to Frances, Katrina, Nancy and other friends who have made me dinner, accompanied me on my travels, cared for my dogs, watched the house, and always made time to share my love of the wildflowers.

Thank you, everyone.

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An Environmental History of Euphoria Ridge, Oregon:
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Chapter One

Orientation: Myself, the Tribe, and the Land

INTRODUCTION

In 1999, Oregon State University hosted the conference, *Sacred Landscapes: Native American Perspectives of the Pacific Northwest*. This was held in part to meet the challenges presented by Patricia Jostad, Leo McAvoy, and Daniel McDonald (1996). In their research they discuss a Native American 'land ethic' that was different from, yet important for, federal and state agencies to understand in their resource management. They interviewed 52 individuals from nine different tribal affiliations and found a general clustering of spiritually based themes regarding the environment that are reportedly held in common across all the interviewed tribes and comprise a single, cohesive, land ethic. These include the beliefs that All is sacred, interrelated, that the earth is the physical and spiritual Mother/Creator, and further, that individuals are responsible for performing right action. The authors Jostad et al. (1996:578) suggest that a deeper understanding of this land ethic can strengthen "the role of moral responsibility in modern land management" and proceed to call for research that focuses "on the historical and current tribal natural resource management systems" (Jostad et al. 1996:578). In response to this, I decided to research questions of the

values that the Coquille Indian Tribal members hold concerning the Nature /Environment concept and how their members interact with the environment in Oregon's southern coast. In addition, I wanted to understand how their values might affect their resource management system. The Coquille were not specifically chosen in advance of my research but rather my professional botanical work and a lifetime interest in plants and the natural environment brought me to the Coquille Indian Tribe and research has just developed from there.

My first interaction with one of Oregon's South Coast Indian Tribes was in 2001 at the request of my then major Professor, Dr. Roberta Hall. An archeological site had been dug through with a backhoe removing truckloads of soil. As many hands as possible were needed to manhandle and rock the archeological screens, separating the soil from artifacts and bones that needed collection and protection. Every shovel load placed on the screen provided a relentless lesson on the interconnections of a people and their environment. My body came to know, way too personally, the properties of shell versus rock; sand versus clay. And enmeshed in the stinking, dusty, clinging dirt, we would catch an occasional glint of arrowhead, antler wedge, or bleached bone. On the very same spot where we stood sweating under the same relentless sun, tribal ancestors stood, lived, died, and buried their loved ones. They'd taken rock from this same soil I was handling, to make their arrows and harpoons. They'd savored the meat from around the seal bone that I carefully lifted from my screens. They'd left the reminder of their existence not only in the soil but also in the blood of the tribal members who stood around me that day and still live in southern Oregon today.

Figure 1.1 Map of Coquille River Drainage, Showing Upper River Forks and Some Important Sites Including Coquille Indian Tribe's Land Parcel #7, Enchanted Prairie and Euphoria Ridge Meadow Complex.

TRIBAL BACKGROUND

Members of the Coquille Indian Tribe share common ancestry with those native groups who were living throughout the watershed of the Coquille River and north along

the South Slough of Coos Bay until the mid- 1850's when American expansion caught up with them. Figure 1.1 gives an approximate idea of their traditional lands that corresponded to the Coquille River drainage. During the treaty making process, they were grouped as a single political unit and have since retained that designation (Hall 1992, Wasson 1991). While the Coquille Indian Tribe has experienced much the same general pattern as other Native American groups in their historical dealings with Euro-American individuals, communities, laws, and government interactions, it is also recognized that each tribal group has had as many unique interactions that produced often subtle but critical differences in their histories. For the Coquille Indian Tribe, a relatively late Euro-American contact date resulted in a subsequently, short time between that contact and the resulting tragedies, upheaval, and devastation culminating with the local and Federal policies of Indian Removal. Table 1.1 gives a brief outline of the contact period events along with the associated dates. For some Coquille Tribal members, particularly those living up-river, a mere five years or less passed between Euro-American settlement and the collapse and sudden cessation of any traditional practices that were linked to their specific, local, environment (Tveskov 2002). Their ancestral lands were swept clear of native villages, fields, and resource use except for scattered tribal women that were married to white settlers and allowed to remain under government policy.

Early Euro-American and Coquille Indian Tribe Contact

1826 - October 26- January, McLeod explores the Coquille River to establish trade routes and obtain beaver for the Hudson Bay Company
1828 - July 3, Jedediah Smith Expedition crosses Coquille River
1848 - August 14, U.S. Organic Act creates Oregon Territory
1850 - September 27, U.S. Oregon Donation Land Act
1851 - June, First attempt at permanent Euro-American settlement on South Coast at Port Orford (45 km south of Coquille)
- summer, T'Vault explores Coquille River as a connecting route between the Rouge River to the Umpqua River
- September, T'Vault's troops and tribal members battle
- Oct. 24, Military campaign led by Colonel Casey, travel from Port Orford to Coquille River mouth and proceeds to burn every village and plank house while moving up river to confluence of Middle and South Fork of the Coquille River.

1852 - Feburary, Gold discovered at Jacksonville
1853 - Gold discovered at Whiskey Run Creek, opening of Randolph gold mine, and begining of Euro-American settlement within Coquille River valley
- Coos Bay Commercial Company enters the Coquille River Valley overland from Jacksonville

1854 - January 28, Coquille massacred at their Nasomah village site
1855 - August 11, US treaty negotiated with the Coquilles
- American fortification erected at southern tidewater of Coquille River

1856 - January-July, US Bureau of Indian affairs begins Indian Removal from their homelands, gathering families at Port Orford, or Fort Umpqua, and then on to the Coast Reservation at either Yachats or Siletz.

Table 1.1 A brief Overview of Some Important Dates Establishing Early Euro-American Contact with the Coquille Indian Tribe (Caldera 2006, Coos County Historical Society nd., Coquille Indian Tribe 2004, Hall 1984)

The Tribe was re-settled, with some sent to the Coast Reservation at Yachats, and then Siletz until the General Allotment Act broke up reservations in 1887 and later in 1955, the Termination Act ended the tribe's status as a legal entity. The federal policy of allotment sought to give communally owned land title to individual, enrolled

members. This caused untold damage to many tribes across the United States who still lived on the local lands, but was later used to advantage by the Coquille Indian Tribe as legal proof of their continued existence! Those Coquille who sought claim to federal allotment land in their traditional areas established a recognized ownership of Coquille ancestral land by Coquille Indians within the United States legal system, which was later used in their battle to establish a continued tribal presence. Eventually with determination and continued petitions, the Coquille were restored as a Federally recognized Tribe on June 28, 1989 by act of the US Congress. In 1991 they acquired six acres in the town of Bandon and acquired 1,000 acres from the Bureau of Land Management in lieu of partial-payment for their ancestral lands that were 'sold' but never paid for, in their un-ratified treaty (Wasson 1991; Yonkers 2000). Over the years, the Coquille have increased their tribally managed properties to include over 7,000 acres, the majority encompassing their Reservation and Tribal Forest Lands.

CONCEPTUAL DEVELOPMENT

I had started my relationship with the tribe working in the environment of southern Oregon with what I had thought was short-term anonymous volunteer work. However, I have continued it through my profession as a botanist working on their tribal properties, have come to know many of them personally, and continue to perform small contract jobs for them. In 2002, I worked as a student intern in their Tribal Offices tracking and filing the paperwork for their various Environmental Impact Statements and over the following few years I completed a couple of environmental and

botanical surveys on sites at the Tarheel Natural Area, at a reservoir on their Reservation, and at a parcel of Tribal Land associated with Enchanted Prairie and Euphoria Ridge.

In all these projects, I saw a major concern for not only meeting the minimum contractual obligations required by the various federal agencies, but it seemed that they also were putting a premium value on having a full knowledge of their area's natural resources and processes. Tribal members would always ask questions and seemed as excited as I was to find some little native herb managing to fight the all too common invasive plants. I had kept journals of field notes over the seven years that I worked with the Tribe that included comments and recurring themes that I heard during meetings, in the field, and at the various sessions of their yearly Cultural Preservation Conferences. My goal when taking these was to help me understand anything that I might need in my job to complete the environmental surveys and management recommendations. Notes included the various needs that were mentioned by Tribal members for their land and natural resources such as which specific plants were "culturally important," or more mundane concerns such as planning camping space.

These journals provided a springboard toward formulating my interview questions and helped me puzzle out what things led me to think that the Tribe valued the environment. I was prepared to view their values as matching my own, a child of the 60's who celebrated the first Earth Day and prized the natural world with its interconnections of plants and organisms. All this led me to believe that here was a Tribe that 'honored and valued' the natural environment and set their management

goals accordingly. Yet when I would ask about this, I had received reluctant replies, puzzled comments, and contradictions that left me confused as to their management goals and plans. With this in mind, I thought that I should clarify my beliefs and clarify what values tribal members might describe themselves as holding concerning the Nature/Environment concept.

Initially, I relied on my job connections and the fact that I was a known commodity around the Tribal Offices to receive permission for several interviews as a pilot study. It was my friendship with the Tribal historian, however, that led to a group session of short interviews with six different women that gave me the greatest insights and feeling for the depth of emotional connections between Tribal members and their environment. It was on a clear beautiful afternoon that seemed made for a road trip that I headed south to the Coast to meet with Sharon Parrish, the Tribal historian. She is a woman slightly older than myself who is a central figure in just about everything the Tribe undertook that involved their history or cultural preservation. I was usually relaxed and comfortable with her, maybe because she reminded me of one of my favorite aunts, or maybe because she was interested in local history that often took the form of genealogies: who did what, where, and at which house. In my own family, I had always loved these small windows into past lives and listened for hours to my mother's telling of her grandmother's stories of her grandmother. Perhaps listening to the tribal histories took me back to my own childhood where I had listen spellbound imagining the exploits, trials, and accomplishments of people long dead. For whatever reason, I now hoped Sharon could help.

I had already held two interviews but had only gotten general comments that were either too vague or too specific for what I was searching. On one hand I had learned that during the collection of the Tribe's oral histories, the elders would always "grow nostalgic" when they'd be on location, and talk about missing "the old ways and all the old foods and resources" (Hall 2005, interview). In these oral histories, there was an emotional connection to the environment but I was frustrated, don't we all grow misty eyed when talking about our childhoods? I wondered if the elders' nostalgia was simply a universal human trait of idealizing youth, or perhaps a common Native American connection to their lands? Many scholars have written on Native American connections to place (Basso 1983; Berkes 1999; Fienup-Riordan 2001; Nadasdy 1999; Turner 2005). Other Native American writers including Chief Oren Lyons (1997), Jerry Pardilla (2007), and Winona LaDuke (2005) believe their Tribes' reverent values toward the Earth are shared in common with all other Native Americans. Further, LaDuke (2005) records one tribal representative for the Taos Pueblo, who eloquently explained, "The story of my people and the story of this place are one single story. No man can think of us without also thinking of this place. We are always joined together."

Yet, I was unsure that this general attitude held for the Coquille and I was searching for something more specific. The details seemed to support a more practical and specific connection: (1) the Tribe's management plan called for the maintenance of diverse habitats and (2) their Tribal priorities included a vision statement that called for their decisions and actions to be "based on the long term sustainable health and well being of the Tribe and the region" (Coquille Indian Tribe, 2004). Always I had

information about specific interactions, the 'what' that the Tribe was doing that connected them and their environment, but I was dismayed that I would never piece together the underlying why.

VALUES EXPOSED

Once I arrived, Sharon suggested that we move out of her office cubicle and talk at a table set in a central commons area of their Tribal Offices. She began by locating some documents for me and talking about the days when they were working and fighting to regain their Federal Tribal Recognition. As we talked she began calling any others that happened to walk by to come and tell me what they valued in the environment. One woman, Judith Rocha, (Judy) who was serving on the Tribal Council, had the time to stay and be interviewed, but most would merge with our little group for a comment or two and move on. It was clear that they were all there to help me but it came up repeatedly that they also thought it was important for themselves to have a clearer, written idea of their values regarding the environment. It was a friendly, sometimes joking, but always serious session, with all of us seeking answers to my questions.

As we talked, more and more often the term environment became replaced with 'the land' until I was afraid we should better define what they meant by this. The Cultural Resource Curator, Denise Hockema (Deni) spoke first to the fact that the terms were the same, that they didn't mean just the dirt/land, but all the natural environment, plants, animals, fish, etc. Then Judy spoke up,

> Our land, not that we own it, but this (waves hand backward towards bay and hills beyond). It can be... awesome, ...I don't want to say spiritual… (interjections from others of, "why not?")… We have a connection to this land, and being here creates a connection with our ancestors. [Judith Rocha interview, April 12, 2005]

When I suggested that they might feel this way about any coastal bay, (What about Tillamook?) they scoffed, shook their heads, but did not comment. The land was their local area, they knew it, felt it, and to be without it or separated from it created an emotion too deep to find words for. I had asked that since they were having difficulty naming the things they valued, maybe they could tell me what would be lost if they weren't connected to their ancestral lands. Sharon tried to enunciate something, struggling to find words, but ended with a small shake of her head and tears in her eyes, "It's really unimaginable, but I suppose it might be possible... We were removed once before."

She reminded us of the well-known story that is often recalled from the time of Removal involving Gisgiu, great-grandmother to the Wassons, one of the Tribal families. Gisgiu went with the soldiers to the concentration camp at Reedsport and then on to the Coastal Reservation on the Yachats River, some hundred plus miles north of Tribal lands. She found it unbearable to be separated from her homeland and with an almost unbelievable feat of determination and physical strength returned to her homeland to live in a hollow log until discovered.

> Diving into the ocean, she swam around the major headlands such as Cape Perpetua and the Sea Lion Caves to avoid the soldiers on the trail above. After hiding in the brush during the daytime, she walked the long beaches at night, arriving at Coos Bay through the sand dunes.

> At the turn of high tide, Gisgiu entered the water and swam with the ebb-flow until it carried her across and down to South Slough. (Younkers 2000: 100-101)

I had the distinct feeling that these women understood Gisgiu's emotional separation from their ancestral lands and every one of them could imagine her journey back to her homeland. Deni spoke of how at different times she sits quietly in the forest and can feel her ancestors around her. Two or three others nodded and Judy related how,

> Someone in my family has always been here; if not my grandmother then an uncle or aunt, and if one would have to leave they'd tell, and someone else would be here. Its part of us. I can still go and sit quiet and feel my ancestors all around me. I'm sitting where my family was making baskets and fishing thousands of years ago… and *still,* … I feel them… [Judith Rocha interview, April 12, 2005]

This then was my answer; the tribe values the environment, not in some vague, general way, but as their ancestral homeland. The physical environment of Coos Bay and the Coquille River's watershed is important as the place where their ancestors, their Tribe, has lived down through time to today. And as we continued to chat, a secondary theme emerged that those decisions that were 'good' were those that they equated as right and necessary for the continuation of the relationship between tribal members and their land. The Coquille Tribal Constitution (1999) encapsulates it, "Our ancestors since the beginning of time have lived and died on the Coquille aboriginal lands and waters...Our ancestors have passed on to us a sacred trust and obligation to maintain and safeguard these."

REVELATIONS AND UN-ANSWERED QUESTIONS

I now believe that I was wrong to assign the Tribe a high esoteric value on the environment. Instead, a clear theme that emerged was that this particular Tribe holds a very high and dear value to the connection that the environment gives them to their ancestors. Now that I look back, perhaps this connection was too pervasive, too obvious in everything that the Tribe does to be singled out for notice. Yet by simply asking Tribal members to find their own words to tell what they valued in the environment, a unanimous theme emerged; it was the connection the land gave them to their past that was important. This descriptive approach and careful listening to the emic, insiders' perspective allowed the “predictable patterns of human thought and behavior” (Fetterman 1998: 1) to become visible. Their actions to preserve their environmental resources may have appreciation for the environment mixed into their decision process but the primary goal as stated in our interview and written in their constitution is to protect their ancestral connection. Theirs is not a cultural drive to "save the environment" or the land for itself, but rather the cultural value encapsulated into the term “our ancestral homeland.” The connection to their ancestors as a defining force of who they are as Coquille Indians is the driving force and the environment merely the vehicle. Nonetheless this revelation still leaves questions about their interactions with this place, their homeland. It is a specific place where records of the physical attributes of geography, geology, and biological environments have intersected across time and culture. It offers its own window on human beliefs, their impacts, and values that can be studied and interpreted so that at least for our current context, we might begin to

understand how this one particular group of Indians have interacted with their environment.

While I write this paper for my own academic interests, I trust that recording the story of the Coquille Indians and the Euro-Americans who came to their land has more general uses. We will come to know how this one particular group of people experience one site within their environment. I hope it can help future generations by recording a written link from early twenty-first century viewpoints, increase intercultural understanding, and advance the general knowledge base of how humans and place interact on the Earth.

The next chapter gives the background for landscape terminologies and the beginning of environmental history theory along with a breakdown of my research methodologies. This provides the basic premises I have used to guide my research and provides the structure for chapters three, four, and five. Each one is formatted with a review and interpretation of the cultural uses of the research site for respective time periods of the ancestral epoch, the historical era, and the early twenty-first century management. In the final chapter I consider the place meaning created and assigned to Euphoria Ridge through iterations across time and cultures.

Chapter Two:

Landscapes and Environmental History: Theory and Methods

INTRODUCTION

While the Coquille Indian Tribe's ancestral lands covered one of Oregon's largest coastal watersheds, this dissertation will look at one small landscape component to demonstrate how people and environment interact through the creation and maintenance of place. The mechanism for our viewing will be an interpretation of the environmental history of the Coquille Indian Tribe's Tribal Land Parcel # 7, Euphoria Ridge and Meadow Complex. I have chosen this specific place because of documentation linking it with the Tribe, from early archeological sites left by their ancestors to today's designation as a cultural landscape. I begin this chapter by giving the reader a spatial reference of the study site through standard geographic description, in order to demonstrate the shortcomings of this classic methodology, and move into discussions of the development and meanings of landscape, and environmental history. I finish the chapter considering Memmott and Long's (2002) hypotheses of how cultures interact with their environments to give meaning to place. Their three modes of interaction will be used as the framework for expanding our descriptions of Euphoria Ridge and Meadow Complex into an environmental history.

LANDSCAPE TERMINOLOGIES

Classic geographic researchers, their insights, and data are still connecting people to place in much the same ways of the early 17th century explorers and mapmakers. Their use of place names and quantified descriptive analysis are necessary to orient readers who are unfamiliar with local settings; however they are extremely superficial. For example, a classic geographic description of our study site would include that Euphoria Ridge is an area lying within Oregon's Coastal Mountain Range, within the Coquille River watershed. The star on the map insert (Figure 2.1) shows the approximate location, near the town of Myrtle Point.

Figure 2.1 Geographic Map of Euphoria Ridge and Meadow Complex (Mapquest 2004)

Other geophysical descriptions include that the dominant landform is characterized by a series of ridges and steep gullies, running generally north/south, ranging between 700 ft

to 2000 feet altitude. The ridges are topped with naturally occurring meadows. The soil is a shallow, fragmented, and generally sheared matrix characterized by inclusion of fragments of the accreted Klamath Mountains transitioning into Coastal Range basalt. Serpentine outcrops are often associated with springs and seeps. Its vegetation zone exists at a boundary interface of Pacific Northwest Coastal and Klamath Mixed Evergreen Forest (Barbour and Billings 2000). The climate is also best described as another boundary interface, blending Mediterranean and West Coast Maritime zones that results in a mosaic of small exposure dependent ecotones (Hall 1995).

These descriptions are merely a series of informative data sets that expose the tip of the knowledge base necessary to any informed understanding of the land. They may help us visualize the physical location and the biophysical interactions but they give little input into the processes that have given rise to the local site conditions. Today, there is an increased importance and requirements for comprehensive land management, multi-use, and ecosystem preservation. As such it only makes sense to focus, not limit, our analyses to include culture/environment interactions that include considerations of the what, where, when, and why. For that we need to turn to thicker descriptions of the cultural aspects that have impacted the landscape. A brief history of what constitutes a landscape, then, is an appropriate beginning.

The simple, generic term landscape is most often used within the scientific field of "geography" and Holl et al. (2003) document an almost exponential increase in its use over the last 20 years. However, despite their systematic review of research articles that incorporated the term landscape, they found no common contextual definition and

proceed in their article (whose main concern was landscape restoration methodologies) to define landscape level patterns as those of ecosystem and landscape processes that occur across "large areas" (p. 500). The two most common ways landscape was interpreted was that in 17% of the reviewed articles, landscape was linked to ecology or 'the effects of human impacts on ecosystems' (p. 491). Twelve percent of the articles documented 'historical landscapes' and equated this as changes in 'land cover' over time. Their final finding of a definition for 'landscape' was left as a vague consensus of the term involving scale issues, including a perception of grandness.

Several authors (Anschuetz, et al. 2001, Clavel 2001, Memmott and Long 2002) attribute the first historical definition of landscape to Carl Sauer (1925); however, he attributes landscape to an older, anglicized, German translation of the Greek for the study of landforms or geography (Sauer 1925). He further defines the term as it was used in his era "to denote the unit concept of geography... equivalent to area and region" (Sauer 1925:25). Problems exist here, however, because area is too general a term and region, he says, implies an order of magnitude above the landscape. He offers a literal translation of landscape as a land's shape that has come to take on the geo-morphological concepts of landforms such as terrace, ridge, etc. Sauer found this too limiting in his search for a descriptive term upon which to base the functional processes of geography. He proceeds to provide us two factors that should be included in the description of a natural landscape, (1) nature, and (2) its constituent part, the cultural landscape. He states that the final meaning of a unit of geographic area must be the

cultural landscape; that which is characterized in its form by the works of man. This insight of Sauer's has become incorporated into the modern usage of landscape, ultimately a cultural landscape, fashioned with culture as the agent, across time, with the natural area as the medium.

This concept was further developed by the early twentieth century school of cultural geographers who sought to apply a descriptive analysis to the spatial representations of the man/milieu relationships. Later, in the 1950's, a socio-economic component was overlaid on their foundations; an ecological imperative that assessed the chains of energy was incorporated in the 1970's. In the 1980's, a postmodern perspective emerged that stated that nature and landscape cannot be analyzed as things owing to their social constructions and cannot be analyzed as physical entities, merely constructs (Short 1991); phenomenologists' task in the 1990's was to understand the way people experienced space; and in the early twenty-first we have what Paul Clavel (2001:134) calls human geography or the 'New Cultural Approach.'

The New Cultural Geography is a synthesis of what is considered as the best of the past's theories and debates, grounded in the study of landscapes defined as the dynamic interaction of nature and culture. The "refounded aim is to understand the way people live on this Earth, experience the places they inhabit, confer meaning to these experiences, and anchor their identities within their environments" (Clavel 2001: 130). The landscape research of both Ingold (1986) and Jackson et al. (1998) not only support the impact of cultures on the physical characteristics of land, but also define landscapes as the result of dynamic interaction between the physical land and human actions and

events across time. Landscapes result when aspects of mythic, past, and current histories concurrently are incorporated into the structures and processes of the land. Despite various revisions and overlays, after 75 years of debate, we find the echo of Sauer's 1925 landscape components (natural areas altered by cultures across time) accepted as valid. It is only his formalistic, quantitative studies that have been replaced and a nonlinear systems analysis has become common. Memmott and Long (2002) most clearly point out that "nature's alterations" are cultural perceptions and that various cultures experience time and place differently. They state that Sauer was trapped in his cultural, ethnocentric milieu and could not see that the functions he describes were *his* cultural overlay and not empirical.

This brief review explains the historical beginnings of the term landscape, some twenty-first century opinions, the commonly applied use of 'cultural landscape,' and helps to validate its use as a descriptive term linked with time and culture, such as, 'the late 10th century, Anasazi cultural landscape.' I suggest, however, that the term cultural landscape is redundant within these parameters and we should drop the adjective 'cultural'. The normative, mutually understandable definition of landscape includes cultural components. In an attempt to gain some clarity, I follow the definitions of Anschuetz, Wilshusen, and Scheick (2001:160-161), who consider that landscapes offer a unifying paradigm across the various social sciences and geography. As such they offer four premises that define landscape.

1. Landscapes are not synonymous with natural environments.
2. Landscapes are cultural products.

3. Landscapes are the arena for a population's activities needed to survive and sustain themselves economically; organizing perception and action.
4. Landscapes are dynamic constructions, communicating information as an historical text across space and over time, necessarily ever-changing.

These premises can be used as a check or as a sounding board to help build a consensus for the term landscape. Premise one suggests the use of terms such as biome, ecosystem or landforms for natural environments. We would have a tundra ecosystem unless we wished to incorporate the northern Inuit and their interactions with the caribou and the environment; then it would become a cultural setting: the tundra landscape. If we accept premise two and consider the phrase 'wilderness landscape,' for example, we see that it is counter to the second premise (except in the debate of whether or not we culturally create wilderness with our naming). In normative use it becomes an oxymoron; no evidence of humans, no culture, no wilderness landscape, only wilderness. Premise three and four seem to incorporate redundant axioms but three reinforces the geographical concept of space or area with physical boundaries and considerations of resource components. Finally, premise four reminds us that landscapes are interactive with the cultures that are responsible for their transformation from landforms to landscapes and as such, are being reinvented over time as both the cultures and the biophysical components change.

Premise three's concern with resources is perhaps the most common and frequently quoted use of landscape level studies, for land use planning and resource management. Landscapes offer a scale that allows a reduction in analytical components and an increased focus on local resource problems, thereby providing a ready, simplified methodology for reaching viable management decisions. It is quite

customary, however, that landscape analysis is dominated by physical considerations concerning resource limits, availability, and the economics of extraction. This is reflected in early resource geography, where Zimmerman (1933) sets the classic definition of resources as a three-way interaction between natural (geophysical and biophysical), human (cultural), and economic processes. While economic considerations are extremely important, they are intimately linked with specific human cultures and should be considered subordinate, a part of the culture, and they should not have an equal hierarchical level. Every culture's economic drivers are uniquely variable within the particular culture's values, needs, and technologies and cannot be uncoupled from the culture (Clavel 2001). Economic considerations may limit a resource's availability for a culture, but they do not establish the possible landscape uses or solutions to resource and environmental problems. These are usually quite numerous, varied, and culturally dependent (Memmott and Long 2002).

This then, is where I depart from Anschuetz et al's premises; while they state that it is landscape level economics that organize a culture's perceptions and actions, I believe it is not a controlling or unilateral movement but rather an interaction between the physical conditions and cultural perceptions across time that defines and organizes resource use. We infer that there exists a biophysical reality separate from humanity's awareness but the concept of resources is humanity's overlay on that neutral existence. People give the physical components a functional definition of 'resource' or not; certain tree species become timber, others not. Natural or environmental components can be found on maps of geomorphologic features, geologic foundations, and vegetation or

species maps, but these specific components can't become resources without cultural meaning being generated.

The cultural component is critical and illustrated by the changing concept of resource definition over time. Depending on humanity's cultural perceptions we shift natural entities, species, and phenomena into and out of the resource category. These cultural elements include the needs, objectives, technological abilities, legal definitions, economic considerations, social institutions and customs at any dynamic cross-section of time, culture, and physical reality (Mitchell 1979). Again, these are predominately symbolic labels conditioned by our cultural training at any point.

Several historic case studies demonstrate this. (1) Several Viking communities in Greenland died of starvation (Brooke 2001, Clark 1948, McGovern 1980, Richardson 2000, Schirber 2006, Wilson 1992) because they did not consider marine mammals as a food resource while the Inuit population of the same time and place thrived and imported family members from North America to help with the food processing. (2) Early Spanish (Hinkley 2005) and Jamestown settlers labeled sassafras trees in their resource inventories and sent boatloads of what today would amount to brush and prunings to Europe for use in the treatment of the syphilis epidemics. Today sassafras is routinely suppressed in the timber-pine plantations as a weed (Shepard et al. 2004, Miller et al. 2004). (3) Timber executives in the late 1800's wrote of the over-exploitation and 'logged-out' areas in the Pacific Northwest forests (Ahern 1934; Eyle 1994; Pinchot 2001; Penick 1968). They were talking about red cedar harvesting. The utility of the Douglas firs as an economic timber source, that is taken for granted today,

wasn't realized until post World War II. Each of these examples contains stable environmental components but also, shifting definitions of whether they are a resource depending on their cultural perceptions, utility, and definition.

If resource definition is considered an interaction, then it is important for researchers and scientists to use both quantitative and qualitative research across the landscape with the realization that they are making cultural meaning and that it might include the unique qualities of place. Landscapes are arenas for a population's activities, and landscape level analysis can enable us to perceive and comprehend the great breadth and interdependency among the many parts that form the web of people's interactions with their resources.

Anschuetz et al's (2001) landscape definitions and their premise four that states that landscapes are dynamic constructions, allows landscape studies to move away from static, overly focused quantified data, and the localized investigations of early geographic researchers. By introducing an interactive aspect, they move landscape geography into the broader social setting of environmental history. This is defined by Anker (2002:224) as the "dialectic interrelationship through time between nature and culture." It includes nature as more than scenery or a passive resource for humans. Human activity changes nature but nature causes changes in human history; wind, droughts, rain, and earthquakes impact cultural activity.

ENVIRONMENTAL HISTORY

At least two important interactions have left their imprint at Euphoria Ridge and Meadow Complex and serve as examples of how the environment and humans impact each other in ways that continue across time. First, tribal ancestors of the Coquille Indians are described as having a mixed subsistence economy characterized by seasonal rounds (Lindsay 1995). Their culture utilized a broad base of marine, estuarine, and upland resources, which they sought from the various habitats within their territory. The area now known as Euphoria Ridge afforded wonderful habitat for elk and deer, offering a natural corridor for their migrations. The forest provided cover; meadows were rich with perennial grasses for fodder; and frequent springs gushed with cool water.

Figure 2.2 Resource Utility as Wildlife Habitat for Elk and Blacktail Deer (Photos compiled from Wikipedia 2007)

These conditions also provided the Coquille ancestors with the perfect conditions for hunting camps that are represented by stone arrowheads and other physical remains preserved in scattered archeological sites across the landscape. Without the match of Coquille hunting technologies and corresponding elk habitat there would have been different, or no interactions. However, the specific interface created

unique archeological sites that have continued to impact the resource use of Euphoria Ridge. Twentieth century cultural norms and mandated laws protect archeological sites and have given the legal designation of a cultural resource to an area that would otherwise have been common timberland for the U.S. Bureau of Land Management (BLM). Thus, these physical sites and the record of an ancient interface have in turn created new interfaces with legal restrictions and boundaries. These set into motion conditions that began the transfer of ownership from the BLM to the Coquille Indian Tribe (CIT) after it was federally recognized in 1989. Not only has the ownership of the land, officially CIT Tribal Land Parcel #7, reverted to the Tribe, but the management of the physical resources is back full circle as well and the area is often utilized for elk and deer hunting once again.

A second interaction that demonstrates the principles of Anker's (2002) environmental history is a major natural impact on the land that brought humans again to Euphoria Ridge in force: the Columbus Day Storm of 1962. It was probably the most intense storm to strike the Pacific Northwest in recorded history. According to Answers.com, the January 9, 1880 "Great Gale" and snowstorm may have been of larger scale but the wind velocity of the Columbus Day Storm is unmatched. At Cape Blanco wind gusts were registered in excess of 145 mph (233 km/h), peaking at 179 mph (288 km/h). In less than 12 hours, between 11 and 15 billion board feet of timber was blown down which exceeded the combined annual timber harvest for Oregon and Washington at the time.

Figure 2.3 Stump Remnants from Salvage Logging

This not only resulted in an intense timber salvage effort unique to the timber-focused culture of the Northwest United States in 1960, but also left massive uprooted stumps strewn over the landscape such as the one shown in Figure 2.2. These provide a record for land managers to read and reveal data for extrapolations of forest productivity. By measuring both their size and estimating the rate of growth and the density of the understory at the time of harvest, twenty-first century management

projections are calculated that serve the Coquille Tribe's management goal of restoring the parcel to contact era conditions. Furthermore, the network of unimproved backcountry logging roads that often follows the natural terrain and game trails are frequently used by hunters, four-wheelers, and other recreationalists and record a second interaction with the Columbus Day salvage logging across time. Increased access and use has led to the original, ancestral elk trails being granted official designation and inclusion into the national trail system as the Jones Creek/ Euphoria Ridge Trail, resulting in yet another cultural overlay on the environment.

These examples of the interactions of culture and nature lend validity to the concept of environmental history, yet fail to explain or define the complex concepts of what constitutes a cultural interface, or overlay. If the idea that there are natural landforms that through various interactions become landscapes, then a framework is needed for understanding the processes that transform these areas from their natural state into meaningful places, recognized by people. The authors Memmott and Long (2002) offer one such framework that considers cultural interfaces to exist through interactive processes that involve mutual accommodation between groups of people, their collective experiences, and their environment. Furthermore, it is these collective experiences that not only transform natural areas into meaningful places, but also maintain those places within their cultural meaning. They list three types of significant interactions that establish place, (1) the alteration of the physical characteristics of a piece of environment, (2) the enactment of special types of behavior at a particular piece of environment including emotional behavior in relation to place such as

affection, nostalgia, or dislike, and (3) by the association of knowledge properties such as concepts, past events, legends, names, ideals, or memories. The collective nature of these interactions creates social bonds between people, between people and the environment, and through feedback between living generations and historic periods.

Thus these social bonds and interactions create not only place recognition as a cultural overlay on the natural landforms, but also create an environment-dependent self-concept for individuals and cultures. I suggest that the connectedness between the interviewed Coquille Indians and their ancestral homelands is a specific example of countless iterations of culture-environment interactions that have created a unique place-meaning that bonds them together. Furthermore, the study of these dynamic, iterative interactions between nature and culture require an integrated suite of methodologies for their study that includes complementary components from literary and biological surveys, ethnographic interviews, and ethnohistoric research.

PHYSICAL AND BIOLOGICAL METHODOLOGY

Research into the 'nature' component is represented across time by generating data sets from historic records of the Bureau of Land Management Original Survey maps and notes and from twenty-first century data I obtained through a pedestrian survey on the 240 acre parcel across 106 sites. In the historical land survey notes, the surveyor and crew walked the section lines of each township, noting natural features along the exterior boundary lines and recording the trees and understory vegetation at each section corner post. These data cannot be considered representative of the overall

ecology nor as a random sampling, but it does offer a series of "snap shots' that when compiled give a close reconstruction of the general historic landscape components.

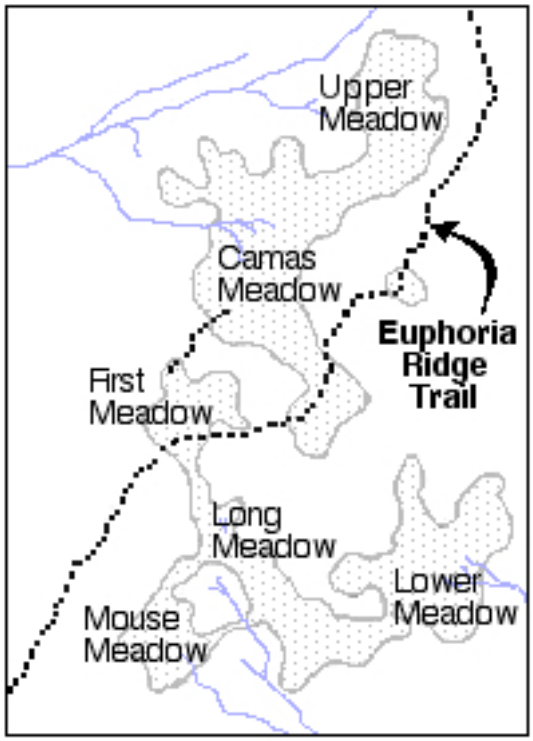

Figure 2.4 Euphoria Ridge Meadow Complex with Working Names

Botanical data were obtained during a pedestrian survey I performed over the 240 acres that comprise Parcel #7 (Fluharty 2003a). Data from this work resulted in a cross sectional distribution of 117 plant species, obtained across 106 sites. I selected sites in a purposive sampling strategy to represent all environmental areas on the parcel and to saturate each area with multiple viewpoints. When I surveyed, I recorded descriptive entries in notebooks while in the field throughout 2003 and cross indexed individual plant species in Excel by site to provide data on plant richness and to allow statistical analysis profiling the six different meadows that comprise the Euphoria Ridge

Meadow Complex as seen in Figure 2.4. My goal was to find patterns in the data that correlate with the general meadow conditions and record both the viability and cultural impacts on the native plant populations. The questions that guided my meadow analysis included:

1. What is the overall plant richness at Euphoria Ridge?
2. What is the plant richness in the Meadows?
3. What are the percentages of native to invasive species in the Meadows?
4. What was the level of impact on native plant populations due to Euro-American farming and ranching practices?
5. Are there viable populations of native species represented at Euphoria Ridge Meadow Complex?

Using the data on individual plant species and associated plant communities, I was able to profile and analyze the meadows on the parcel, which were initially designated by the general classification of grasslands. The species lists became my representative populations and the different meadows became samples. I next gleaned species data from my descriptive field notes and entered them into Microsoft Excel as a standard database listing and have included them in Appendix Two. The various plant species and their site locations represent independent variables, while the major unit of analysis is the existing six meadows: First, Camas, Long, Lower, Mouse, and Upper. Level of measurement was individual plant species with the characteristics of 'species origin' and the 'environmental area' assigned and coded attributes. Native versus exotic is a nominal category. The species' location was assigned as one of five possible environmental areas: forestlands, forested wetlands, shrublands, prairie, or wet meadow. My analysis flowed from a composite of the numbers generated in the survey listing and includes standard statistical calculations of dispersion, central tendency by

mode and mean, percentile comparisons of richness and invasive species in each meadow. This information allowed me to return to the Tribe with recommendations based on verifiable data for their meadow management and restoration options and is discussed on page 134-136.

The limitations within my survey and analysis of the botanical aspects of the parcel include the possibility of observational error, false data, or omissions. The primary cause of any observation error may have involved researcher bias when in the field due to fatigue and/or excessive attention to favorite plants, this was addressed by multiple follow-up visits to the same sites for verification of previous observations to the extent possible within the budgeted personnel, time, and expenses. Further error may have occurred as a result of category overlaps between the subjectively assigned environmental areas and the blending of boundaries. However, I crosschecked with my original entries in my field notebooks to minimize this and coded the individual species' environmental areas based on the dominant plant communities and not individual plant species.

The possibility of collecting false data due to incorrect identification of species was minimized by verification of species names against Oregon State University's Herbarium specimens. Omissions may have caused an incomplete data set if ephemeral plant species were dormant due to the survey season or due to individual species' tolerances to climatic variables during the particular year the data was collected. These problems were reduced by conducting the survey over multiple visits in the spring and early summer during which times the sampling covered areas throughout the entire

parcel area and then I conducted follow-up visits occasionally through the fall. Finally, I made additional visits to the parcel in following years for spot verification of previous observations. Upon review, data from subsequent visits were consistent with the initial records and indicate that omissions, if present, were minimal.

ETHNOGRAPHIC AND HISTORICAL METHODOLOGY

The cultural overlays and interactions are more diffuse and possibly even more complex than the physical and biological systems that can be surveyed, enumerated, and classified. It is one of my goals to understand people not only as part of the biological system on the landscape but to at least get a glimpse of the *human* component; the thoughts, feelings, spiritual needs, and mind-sets that lead to the ways people behave during episodes of interaction with their environment. Both individuals and their cultural institutions embed these in a vast array of actions and, although impossible to reproduce in every detail, they do provide a reflection of peoples' worldviews. The difficulty lies with the chronological sequences of an environmental history relying on past events that precludes attempts at the thick description that is commonly used as a means of studying cultural behaviors; it is impossible go back in time to record the information.

Historical data recovered from past eras relies on secondary evidence from other peoples' documents, journals, and recorded interpretation that are often fragmentary, both in the depictions of locales and continuity with the research topic. Furthermore, historic cultures do not only interact with the environment and during their specific time

locus, but their impacts on the environment continue with each new cultural era through time, continuing through the inexhaustible series of todays. It should be realized then, that this study does not seek to completely recreate the environmental interactions of different eras, but rather only to represent an honest picture of those eras. It is better to conceptualize this study as a series of single, concise snap-shots that when viewed together offer a continuing story of the environmental values of different cultures over time. As such, there can be no ending point or even sense of completion, but my hope is to achieve a relevant interpretation that portrays many different levels of environmental connections.

The criteria for the definition of environmental history as representative of the interrelationship between nature and culture through time developed in this study through an interpretation of both historic and twenty-first century environmental interactions and conditions. To achieve this, I have used a combination of standard ethnographic and ethnohistoric research methods. Historic records provide a look into past cultures and include both primary sources consisting of 19th and 20th century journals, photographs, and data compiled from the Coos County Tax Assessments, and secondary sources from period history books, early ethnographic studies, and scholarly interpretations of the archeological sites on Euphoria Ridge. All of these have the common limitations of the inclusion of cultural and personal biases from various authors, as well as unknown omissions, possible false representations, and built-in social guidelines, prejudices, and perspectives from each era, present and past.

In all cases, I have sought to filter these biases and maintain a consistency and authenticity in the descriptions and data by corroborating more than one source, substantiating one against the other. For example, descriptions of the landscape conditions offered by Dr. Hermann's journals were viewed through the perspective of his status as the leader of the "Baltimore Colony," the first mass-group immigration of homesteaders to the Middle Fork of the Coquille River. As such, he was responsible for the recruitment and, in many ways, the success of the homesteaders; thus his comments could tend to be overly positive, encouraging, and picturesque. I balanced his descriptions against the journal entries from some of the homesteader women who were dismayed by the desolation of the landscape and I utilized only the comments on the physical components of the environment that both recorded for my analysis.

I further minimized the secondary source limitations by searching not only for multiple authors but also multiple types of sources for similar evidence. An example of this is my cross referencing of the story that tells of the naming of Enchanted Prairie as a joking reference to the 'magical' disappearance of the homesteaders' dogs, which in reality was due to the large number of wildcats and cougars. This was substantiated in multiple references in journals as well as the Coos County Bounty Records on Predatory Animals. I have consistently utilized different authors and sought out different document categories that would contain duplicate or similar materials; homestead journals against military reports, against promotional advertising, against government records, et cetera.

The most serious weakness in my historical research exists in documenting a representative population of Coquille Indian Tribal members from ancestral and historic eras. The ancestral era is re-constructed and represented by the physical artifacts of the tribe's lifestyle left in various archeological sites and in their cultural myths, family stories, and memories passed down to those tribal members who were living at the time of Euro-American contact. This time period is more of an epoch than an era because it spans at least 10 thousand years; from the first known evidence of human occupation on the southern Oregon Coast dating from 10,430 ybp (Hall et al. 2005) until the discovery of gold in the Coquille area in the 1850's. No written records are known to exist from this epoch, compelling the Coquille Indian Tribe to rely on historians, ethnographers, and archeologists for an acceptable, generalized archetype to represent their ancestors. I have, therefore, kept my interpretations on the same generalized level as the available data in order to maintain a truthful representation of this ancestral epoch. I have always been mindful to remain scrupulous to the facts that we do have, and not to romanticize or create details that are non-existent.

The available data increase dramatically for historic period interpretations of Coquille Indians' lifestyle and subsequent environmental interactions than the archaic or ancestral epoch. The bulk of historic information from this time of early contact comes from brief mention in various historic Euro-American journals of the era and the later work of professional ethnographers associated with the Smithsonian Institute's Bureau of American Ethnology. They established a program to record vanishing Native American languages, dialects, and tribal mythologies. Unfortunately, these were

collected in the late nineteenth and twentieth century, predominantly after the dislocation of their informants from their ancestral lands and the associated loss and disconnect of their knowledge base. As they struggled to adjust on the Reservation, the Euphoria Ridge area was mostly abandoned for 100 years except for infrequent timber harvests and grazing cattle.

The unpublished field notes from these ethnographers along with the known biographical data of their informants contain a common thread of complaint: a borrowing of words and information between the people with different tribal affiliations (Hall 1992, 1995, Whaley 2001, Youst 2006). The data often merge into a maze of inferences, interpretations, and teasingly complete details of some activities and complete absence of other, complementary activities. Over 20 tribes were residing together at the Siletz Reservation, often exchanging friendship, information, and skills to help hone and maximize their survival techniques for Reservation life. However, perhaps this melding reflects a traditional mind-set among the Coquille ancestors: to filter, synthesize, and utilize customs and resources from surrounding peoples. They traditionally capitalized on distant trade networks and their environmental location to build a fluid and dynamic culture that is difficult to characterize by simplistic models or static representations (Hall 1992).

The Coquille rivershed was considered a crossroads between both southern and more northern coastal tribes as well as from the interior to the coastal areas. Although the Coquille were a politically stratified or ranked community based on wealth with nobles or headmen, commoners, and slaves similar to more northern cultures

(Beckham1977; Tveskov 2000), they were less rigid and appear to include components more similar to the southern coast cultures characterized by their loose association of independent households bound into villages by location, resource sharing, and kinship. Women were often multi-lingual, commonly speaking at least three dialects due to their marriage customs where partners were sought outside their own tribes. The women seem to have traditionally moved to live with the man's extended family, bringing their own language and perhaps their mothers dialect, then learning the husband's as well as the original of their mothers-in-law (Beckham 1977).

Other cultural amalgamations were their sweathouses, world renewal ceremonies utilizing tobacco (Pego et al. 1995), and dances involving skirts woven with fringe of strings pine nuts that are not native to Oregon's coast. These seem to be closely related to the Yurok and Kurok of California (Hammett 2000, Harrington 1932). They furthermore utilized several styles of canoes blending their own designs ranging from a stylized northern, 'Tillamook-sharp prow' to a more southeastern, blunt-nosed 'Klamath-lake prow.' Like their creation myths which speak of the intermingled layers of local blue clay, over the years they have blended many elements but have retained a uniqueness all their own (Wasson 1991).

I have therefore used what I interpret to be a traditional versatility as a model and rationale for my traditional ethnobotanical inventories, and have listed a compilation of all recorded uses within a general central coast area. I have deliberately not teased apart or assigned different uses to the multiple tribes sharing the regional locale, but rather suggest that there existed a general knowledge base. Instead of

individual, independent and perhaps unique use by the various tribal cultures, I focus on the specific plant species utilized as some form of resource. For example, if a plant is present on my research site with a known traditional utility I have simply listed the use, such as roofing material or medicinally for sore throats. I have not limited the information or interpreted it as to whether it reflects the technologies of the Umpqua, or the Coquille Tribes, or other area tribes. I have noted, however, any particular uses recorded as specifically practiced by Coquille ancestors.

Often this information concerning a specific plant's utility or resource use is only a phrase or two, buried within a vast number of pages from multiple documents, notes, books, and journals. For example Harrington's field notes from the 1940's run close to 2000 pages and were recorded to reflect his research goals and interest in linguistic studies, place names, and territories. Embedded within these pages, however, were 450 scattered references pertaining to the environment or resource use. To aid in filtering and sorting this information I have created a data base in Excel with the following eight fields for each reference: the ethnographer, the informant, where it was found in the original source by volume and page, the quoted reference, each species by its commonly recognized name, its scientific name if it was identifiable, the utility to allow the cross sorting by species or by its referenced use, and a final field for focus. Entries in this field were assigned by me and often required a rather subjective decision based on my knowledge of general research topics in the ethno-botanical and ethno-biological sciences. My goal in coding these references into a database was to discover and document relationships between tribal ancestors and their environment and the

various species within it. These are listed in Table 2.1 along with the number of different species that were referenced in each field category.

Table 2.1 Ethnographic Database Categories and Number of Species Referenced

REFERENCE FIELDS

1) ethnographer, 2) informant, 3) source by volume & page, 4) quoted reference, 5) species' common name, 6) species' scientific name, 7) utility /topic, 8) focus

UTILITY	FOCUS OF SUB-TOPICS	NO. SPECIES
biology		9
customs	insults, burials, moon, trade, tattoo	12
ecology		82
ethnobiology		23
ethnobotany		42
fire	brush, burning islands, history, trails	5
fishing,	canoes, customs, weirs	19
food	customs	42
hunting		7
mythology	moon, rain, rocks, Siuslaw	13
technology	baskets, canoes, face paint, fences, firewood, fishing, houses, lumber, ovens, plowing	17
trade		8

The ethnographic data I have collected is accumulated in over seven years of participant observation recorded in field notes and journals, including comments, conversations, aspects of the physical space of the Coquille Tribal offices, and general

themes referencing the environment that I heard during work with the Coquille Indian Tribe at meetings, in the field, and during various sessions of their yearly Cultural Preservation Conferences. My goal when taking these was to help me successfully complete my work contracts as both intern and ethnobotanist. These journals, however, also provide a springboard toward formulating research findings concerning the norms and values expressed by tribal members, government officials, and administrative employees. Additionally, I reviewed Tribal documents and conducted semi-structured interviews to frame and triangulate an emic perspective in order to accomplish this research's underlying goal; to report on the values and connections between themselves as Tribal members and what they perceive as their environment.

Initial interview participants were selected through their positions with the Tribe such as Tribal Historian and Cultural Resource Coordinator. Additional contacts for potential participation were made through the snowball technique of personal recommendations from these Tribal officials. In order to ensure the individual's right to voluntarily decide to participate in my research, a written informed consent form was explained to participants prior to the interviews where they were asked to read, ask questions about, and either sign or decline from the process. Although this study was non-invasive and did not cover any personally sensitive material, the consent form also had an option for the participants to remain anonymous if they desired. Copies of the consent form, initial interview questions, and phone recruitment script are found in Appendix Three.

Together the physical, biological, and archeological surveys, ethnohistoric documentation, and ethnographic investigations give a depiction of the Coquille Indian Tribe's Land Parcel #7, Euphoria Ridge and Meadow Complex through time. Three different cultural overlays are discussed in following chapters: the ancestral epoch, historic uses, and twenty-first century utility. Jointly, they inform and reflect this specific locale as a cultural product defined by Anschuetz et al's (2001) concept of landscape and organized around Memmott and Long's (2002) significant interactions. Chapter 3 begins with the most distant records in time represented by the pre-contact, 'archaic' hunting camps and describes how these cultural activities (1) altered the physical characteristics the environment, (2) were special types of behavior associated with the particular piece of environment resulting in emotional nostalgia, and (3) create a knowledge base associated with the concept of traditional lifeways. Chapter 4 addresses three cultural interactions that were significant during the historic era and Chapter 5 represents the existing environmental conditions of 2003-2007 and the tribal interactions with the Coquille Indian Tribe's Land Parcel # 7. I conclude in the final chapter with considerations of the processes that form these dynamic constructions of the Euphoria Ridge and Meadow Complex as a specific, identifiable landscape and validate it as an appropriate means for studying questions of what constitutes place.

Chapter Three

Ancestral Epoch Characterizations: Pacific Rivershed Cultures

INTRODUCTION

In order to generate a deeper understanding of the interaction between environment and a culture's resource utility, I begin this chapter discussing three biophysical components of Oregon's south coast environment: climate, topography, and vegetative zonation. First, the climate section begins with descriptions from an approximate date of the glacial retreat in the Pacific Northwest at least 10,000 years ago. Although the area of Tacoma, Washington was the glacier's most southern extent and the south coast remained free of ice glaciers, it nonetheless impacted the region's climate and gives a convenient opening point for this study. This sets an arbitrary starting point for the general overview of the regional climate that roughly coincides with known human occupation. While there may have been human habitation in the region prior to that time, an archeological site at Bandon returned dates on charcoal and lithic remains that establish human occupation from the Early Holocene or in the Late Pleistocene (Hall et al. 2005). Following the section on climate, the environmental section covers a review of the unique topography and finishes with the vegetation communities. Together, these establish and give rise to the specific resources available within the region and help form the basis for the cultural interactions represented at Euphoria Ridge that are discussed next.

The section on the cultural utility establishes an overlay on environmental conditions. It opens with a brief overview of commonly applied subsistence labels for the archaic Pacific Northwest Coast Native American Tribes. I then differentiate how the characteristics of Oregon's south coast region are distinct from these generalities and propose the need for a more comprehensive term for the unique interface of culture and environment found in this area. I end the chapter with a discussion of the Coquille Indian Tribe's ancestral use of the research site that (1) altered the physical characteristics the environment, (2) were special types of behavior associated with Euphoria Ridge, and (3) created a knowledge base associated with the concept of the Coquille Indian Tribe's traditional lifeways. This brings us into the historic period of Euro-American contact that is discussed in the following chapter.

BIOPHYSICAL COMPONENTS: CLIMATE, TOPOGRAPHY, AND VEGETATION

To begin, it is important to understand that environments result and are conditioned by the biophysical systems of climate, topography and vegetation zonation. Changes to these systems shift conditions either across landscapes or through time and are represented by interconnected and dynamic gradients that are not uniform, either in rate or scale. The environmental conditions driven by climate result from large, solar system scale patterns of solar activity, angles of revolutions, and planetary tilts slowly altering through the geological measure of eons. These large-scale controls are augmented and mediated by additional variations in global ocean salinity, earthquakes, uplifting and subsiding tectonic patterns, as well as single catastrophic events such as

volcanic activity and fires. The consensus holds that while most climatic shifts involving cooling were slow, over millennia, the changes in warming may have occurred rather rapidly, across centuries (Barnosky, et al 1987). Furthermore, large-scale climate patterns are mediated by localized weather systems that interact with and are affected by regional mountain ranges, glaciations, and even variable lake levels. We may speak in broad, sweeping terminologies of both climate and weather 'patterns', but we need to remember that they represent generalized conditions with possibly dramatic variations between locales within the same region.

Nonetheless, links between ancient and extant environments are based on the premise that if the plant pollen found in the archeological record matches the pollen from existing plants, then the climate and the associated species would be approximately identical in other respects as well. This premise is supported by both historical data of shifting vegetation communities caused by modern climate change and a sense of the slow movement of natural selection in the evolution of species. The basic assumption makes logical sense because even across the millennia in which these inferences apply, it is difficult to imagine a cold tolerant tree from the sub-alpine slope growing in the tropical rainforest. For example, the desert community of cacti, dry land grasses, shrubs, and succulents would have only existed within the same climatic parameters that exist in today's desert zones. Likewise, the archeological presence of wet loving or cold tolerant species' pollen will indicate wet or cold climatic regions respectively, interpreted from what we know of modern flora.

Most paleo-climatic models extrapolate their reconstructions from this relatively simple premise and supporting botanical studies. While palynology or pollen analysis informs the majority of environmental reconstructions, other models infer climate change through tree-ring analysis, diatom, varve, and radiolaria sediments, phytoliths, coral growth, and microfossil interpretations (Blinnikov et al. 2001; Hall et al. 2004; Pisias et al. 2001). Although these utilize varying methodologies specific to their fields, their results support the conclusion that the broad trend in the Pacific Northwest Coast during the late Pleistocene glaciations, prior to 10,000 ybp, was for cooler and wetter climate than today (Grigg and Whitlock 1998; Worona and Whitlock 1995; Thompson et al.; 1993). Beginning with the Holocene era, around 10,000- 9,000 ypb there was a shift to cooler winters and hotter summers with generally less available moisture. However, frequent

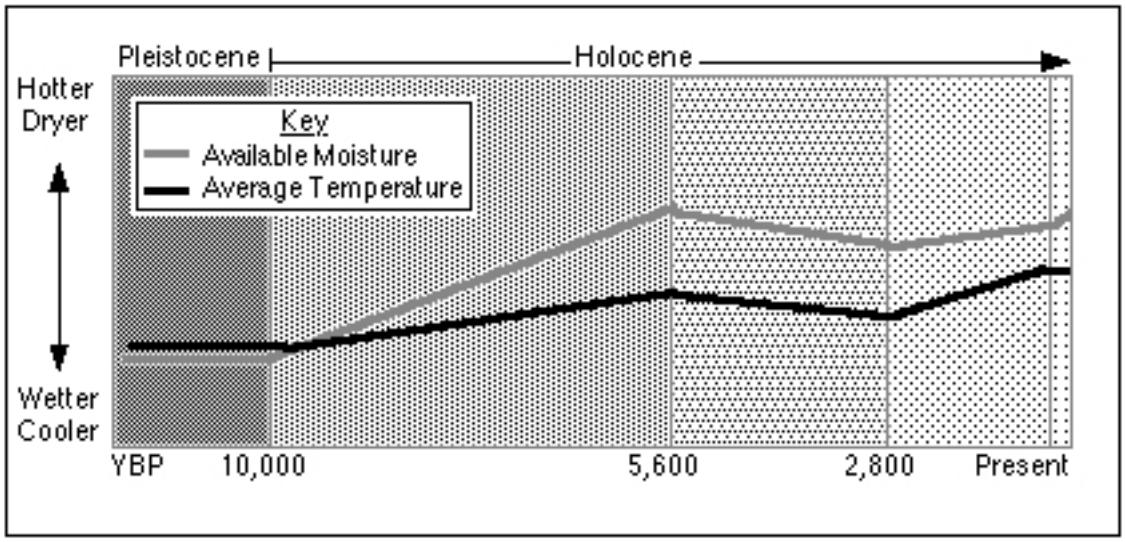

Figure 3.1 Oregon's Coastal Climate's Relative Change in Average Temperature and Available Moisture

intense rainstorms (Personius et al. 1993) may have maintained the overall moisture availability to the plant communities but shifted precipitation into increased seasonal variability.

This is reflected in the pollen assemblages from plant communities shifting across time from 'wet tolerant' forests dominated by mountain and western hemlock, fir, and white pine into the early Holocene forests composed of Douglas fir, red alder, and bracken fern. The loss of the true firs is attributed to hot, dry summers and is further supported by increased charcoal in the fire record. After 5600 ybp, the climate shifts to an increasing cool moist clime that allowed the forest composition to shift back toward communities of western hemlock and western red cedar as the dominant trees, but differing from the earliest forest by maintaining Douglas fir trees in the community (Thompson, et al. 1993; Worona and Whitlock 1995).

While most of these climatic references focus on the dominant trees, it is essential to remember that the associated understory vegetation shifts as well. Small trees and shrubs such as hazelnuts and willows as well as the various grasses, herbs, and wetland plants, also come and go to greater or lesser degrees and often with greater impact on human cultures and their resource use.

By approximately 2,800 ybp, conditions stabilized very similar to the twenty-first century climate in the coastal mountain region (Grigg and Whitlock 1998). It is also probable that the climate throughout this ancestral epoch was moderated by the same geo-physical parameters and constraints that are operating in the twenty-first century. Both regional insolation and continentality would moderate climate and generate

localized weather patterns on the south coast with (1) moderate temperature ranges, and (2) appreciably less rain than most of Oregon's Coastal Mountain Range.

First, regional insolation refers to climatologists' rule of thumb that is based on the standard laws of physical thermo-dynamics; such that, energy rays bombarding a surface at perpendicular angle will generate more heat than those at more oblique angles. A correlate is that the solar warming of the earth's surface will increase temperatures near the equator, creating warmer conditions than the more northern latitudes. Thus, the southern Oregon coast, south of Tillamook and lying physically below the Earth's 45 parallel, establishes a warm temperate zone characterized by a moderate weather regime. Taken together, they support the mixed evergreen forests that support a rich diversity of resources through all seasons and across the various exposures, elevations, and subsequent habitats.

Second, the southerly warming temperatures are moderated by continentality, the concept that oceanic climates are characterized by suppressed temperature extremes creating long spring and autumn seasons, with increased precipitation due to atmospheric circulation traveling over water (Tuhkanen 1980). For example, the regional trend of warmer temperatures in the southward direction creates a gradient with Washington state's coastline generally colder than California's; however, proximity to the ocean and increased precipitation suppresses the effect. This results in the Coquille River averaging two inches less rain for every 50 miles of travel south; six less than Newport and two less than Coos Bay (USGS 1999). However, the average minimum temperature is proportional to the distance inland from the coast.

Even though Parcel #7 is at a more southern location, and according to our rule of thumb should be warmer, it averages 4 ºF colder than Coos Bay because it lies somewhat inland and the close proximity of Coos Bay to the ocean keeps it more moderate. Yet the continentality function is not completely abated. Euphoria Ridge lies on the same parallel as the Klamath Marsh Refuge yet Euphoria Ridge averages a minimum temperature of 25 º F warmer than the interior Klamath region. This juxtaposition of local weather patterns creates in turn a unique environment that is characterized by a mosaic of micro-climatic habitats formed by the region's steep, rough topography of narrow valleys. These characteristic habitats each have specific attributes and their own unique plant communities or assemblage that give the overall vegetation a mosaic of plant assemblages (Barbour and Billings 2000).

Figure 3.2 Myrtlewood, *Umbellularia californica*

The most notable of these species is myrtlewood, a wet site indicator in California, yet

in Oregon, a hallmark of open, drier southern slopes. In turn, many coastal plants that cannot withstand extreme cold temperatures but do tolerate drier weather can thrive in the coastal mountains, including Euphoria Ridge. This includes many of the lilies, sword ferns, and Douglas fir. In general, this allows for a range overlap where both the more northern and southern characterized species coexist, bolstering the bio-diversity of Euphoria Ridge simply by sheer numbers. Again, this further increases the diversity of the plant communities that are available for resource use, giving yet additional options for any single resource attribute, be it food to fiber.

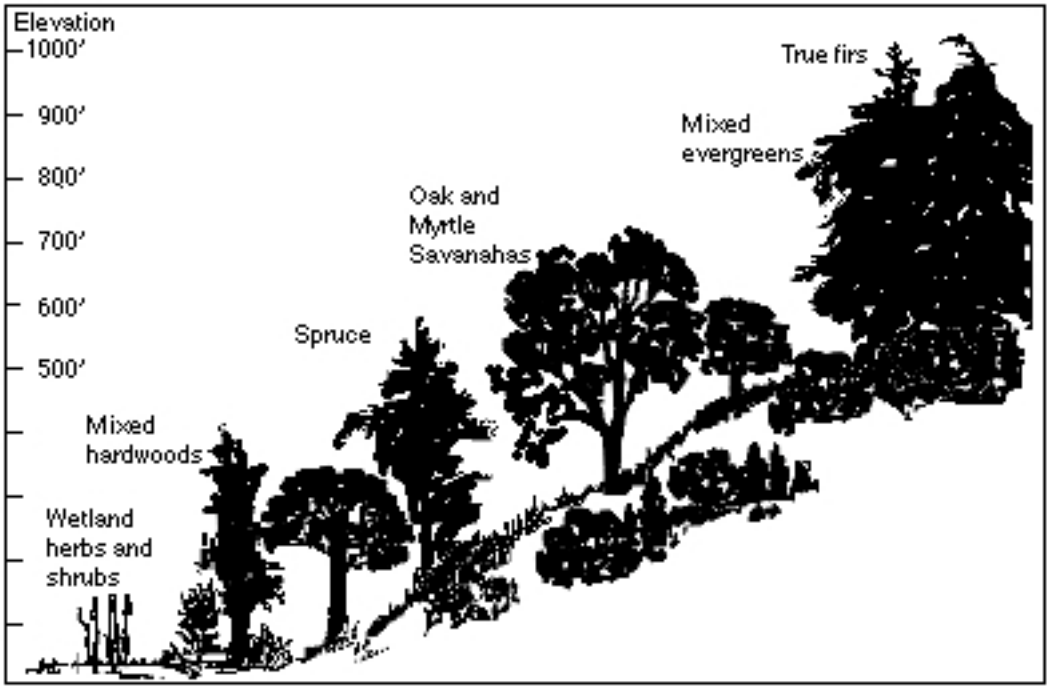

Figure 3.3 Examples of Typical Oregon South Coast Plant Communities with their Generalized Elevation Preferences

These coastal micro-climatic regimes and diverse habitats are also accentuated by the south coast's basic geographic pattern of alternating mountains and narrow river

valleys as you travel north to south. These create a continuous spectrum of ecological zones across landforms; open south facing slopes are drier than those across the valley that are often moist, shaded and protected. Furthermore, the pattern of small regional rivers also counters the classical pattern of rivers broadening toward river-mouths and deltas. The originally low-lying valley deltas were submerged since the last glaciation by a rise in sea levels and coastal plate subduction (Oregon Ocean-Coastal Management Program 2000). A distinctive landscape results where the river's watershed is characterized by a narrow channel topography that averages a width of 10 square miles for each mile in length. This gives the opportunity for plant species that might have an elevation preference to not only find habitats up and down the river from ocean level at the mouth to higher elevations of the eastern ridges, but to also find habitats up or down the south-north slopes. Figure 3.3 illustrates some of the plant communities with their general elevation preferences. Thus the added possibility of varying elevations throughout the river's course complements the general coastal watersheds' habitat mosaic as discussed above, and affords access to many resources throughout the river length.

Additionally, the east to west orientation of constricting mountains and valleys also forces the rivers to flow generally westward. Starting from numerous freshwater springs and streams along the valley's eastern ridgelines, rivers flow through the rich soils of mid-level riverine terraces, into tidewater, and eventually reach the low lying coastal zones with their moderate temperatures and maritime resources. This creates an east to west elevation gradient that is overlaid by the zones generated by slope

exposures and can be further characterized by the constraints of available moisture, seasonal temperature extremes, salinity, soil, and mineral types. Figure 3.4 illustrates

Figure 3.4 Oregon's Coastal Watershed Resource Model with Habitats (drawing after Oberrecht N.d.; Lane Council of Governments and McKenzie Watershed Education Network N.d.)

some of the resulting habitat zones that characterize the coastal region's rivers along with typical locations for villages, hunting camps, and ridgeline trails. To summarize; Oregon's south coast bio-physical components characterize the region by: (1)

temperate, ocean-mediated weather patterns with micro-climatic regimes, (2) river valleys with varied north to south slope exposures and east to west elevation gradients running from elevated ridges to sea level, and (3) a resulting mosaic of vegetation zones across diverse habitats.

SUBSISTENCE STRATEGIES

The generally accepted resource strategy label assigned to American Indian Tribes from the Pacific Northwest Coast is hunter-gatherer. This term was most often assigned in the broadest terms by early cultural evolutionists in the late 1800's to separate those groups that had progressed to an agricultural subsistence from those who had not. However, from the very inception of the label, there were problems with the classification being assigned to the Pacific Northwest region, whose tribes were always studied as the exception. Their sedentary villages and stratified social classes failed to meet the evolutionists' theory since these characteristics were supposed to co-evolve with agriculture and not exist in hunter-gatherer societies. Over time, cultural evolutionary theory has been discredited in its search for a single grand theory (Koyama and Thomas 1981); however, many of its terms remain as handy labels but have been expanded to include a wider spectrum of subsistence strategies. More recently, the term "affluent-foragers" has often been applied to set their lifeways apart from the general hunter-gatherer societies. Most attribute the level of affluence within the Northwest Coast to the region's reliance on abundant salmon runs that afforded the people a degree of security, wealth, and increased population density (Aikens 2005; Cohen

1981). However, on Oregon's south coast, the native people were not stereotypical 'Northwest Coast' salmon-dependent people but rather used a wide variety of resources from across all environmental zones of the Coquille watershed.

Many fish species were taken including estuarine flounder, riverine lamprey eels (perhaps what the Coquille River was initially named after), and ocean-going halibut. They utilized diverse marine and land birds, shellfish, sea mammals including seals and whales, otter, deer, and elk (Hall 2002). Botanical resources included almost countless foods that ranged from seaweed, numerous berries, nuts, leaves, roots, and tubers. They harvested Douglas fir, yellow, and red cedar for semi-subterranean plank houses and a variety of styles and types of canoes. Both hemlock from upper elevations and low-lying willows were used in fishing weirs (Byram 1998). Other upper elevation willow roots were utilized as fire drills. Wetland spruce roots were the most used basketry material of the area, along with local reeds and rushes for matting, hats, and hunting decoys. Maple, ash, and crab- apples were sought for specific tool use and tobacco was domesticated, hybridized, and cultivated for spiritual and everyday use (Harrington 1942, Hammett 2000).

Most of these coastal tribes had "little need of an extensive seasonal round such as that found in other regions of Oregon" (Beckham 1991:4) and utilized a rich variety of terrestrial habitats as well as abundant maritime resources including sea mammals, fishes, mollusks, crabs, and sea weeds (Hall 2002). Indeed, the homesteaders' verse that, "When the tide is out, the table is set" is often quoted to represent the wealth of the coastal regions. While this may be a truthful representation of the variety of food

resources, it seems to imply a too simplistic picture of food 'waiting' to be plucked! This may have been the occasional ploy of single families; it fails, however, to realistically represent either the full suite of subsistence strategies, nor the scope of providing at a tribal scale. I maintain that the subsistence activities of the coastal tribes were more than simply peoples plucking their rich local resources but rather, their

Table 3.1 Oregon's Central and South Coast Rivers' Physical Characteristics ([1]Benchmark Maps 2004; [2]State of Oregon 2000; [3]Oregon's Coastal River Atlas 2007)

River[1]	Length[2] (miles)	Watershed[3] (sq. miles)	Watershed area/length
Nestucca	12	322	26.8
Salmon	20	75	3.8
Siletz	70	373	5.3
Yaquina	50	253	5.1
Alsea	54	474	8.8
Yachats	15	44	2.9
Siuslaw	110	4560	41.5
Umpqua	111	605	5.5
Coos/ Millicoma	115	1058	9.2
Coquille	100	1058	10.6
Sixes	30	129	4.3
Elk	45	94	2.1
Rogue	215	5100	23.7
Pistol	40	106	2.7
Chetco	55	359	6.5
Winchuck	33	70	2.1
Average	**67**	**918**	**10.0**

activities were more intimately linked to an extensive and in depth knowledge of their environments that would allow a flexibility of fishing, hunting, and gathering opportunities.

First, within Oregon's central and south coast environment, the average river is both short in length and small in overall area. Table 3.1 shows Oregon's rivers south of Tillamook Bay to average 67 miles with an average width of a mere 10 miles to give the average watershed an area of 918 square miles, a relatively small territory. This small size is significant for developing subsistence strategies because its scope allows local populations to hold an intimate knowledge of the area. For instance, Harrington noted in his testimony before the US Supreme Court regarding the coastal tribes' traditional territories, that the Coquille knew, "Even the uppermost part of the stream abounded in salmon, while elk and deer were hunted in the woods, every foot of which was owned and used by the Coquille Indians" (*United States v. Alcea Band of Tillamooks,* 26, Supreme Court of the United States, 329 U.S. [1946]). Their intimate, foot-by-foot knowledge of their territory was facilitated by their small territories that could be traveled, boundary to boundary in only one and one half weeks; from the river's mouth at the coast to the elk hunting camps at the furthest ridges (Harrington 1942).

Second, the extensive and in-depth knowledge of their small territories developed within specific river environments, each river slightly different within the climate gradient. This allowed a close association to be forged between the coastal tribes and specific rivers. In fact, coastal tribes have become so closely associated with individual rivers that both the name for the river and the people living along it have become synonymous. If called off from north to south, the tribal names Nestucca, Yaquina, Alsea, Siuslaw, Umpqua, Coos, Coquille, Rogue, and Chetco, read like a geography

lesson. Table 3.1, above, listing the coastal rivers ranging from the north to south, gives not only their lengths, but also the rivers' watersheds area that would reportedly corresponded to traditional territories.

Contrasting the generally smaller coastal territories' physical characteristics with the larger geographic regions of the Plateau and Great Basin that supported the seasonal round, indicates a considerable disparity in size; approximately 918 square miles for the coast and about 4-5,000 square miles in the seasonal round region of Great Basin of Oregon. Another example of a region that supported a season round is the Plateau culture area that, "spans a vast region that includes portions of what is now British Columbia, Montana, Idaho, Washington, north-central and northeastern Oregon" (Hunn 1991:9). The Plateau and Great Basin peoples were dependent on widely dispersed resources that only became available during specific seasons, necessitating a cycle of travel over those vast areas by the entire tribe, which have become characteristic of the traditional lifeways of those regions (Hunn 1991, Aikens and Couture 1991). In comparison to this, many of the coastal region's resources were gathered not only from across the characteristically diverse habitats but also throughout the watershed. Both elk and camas are major terrestrial resources for the Coquille and are examples of this.

Harrington's informants Frank Drew and Lottie Evanoff (1942) remember multiple strategies for elk hunting depending on the locale. First, at the river's mouth it was common for elk to wade onto grassy islands during low tide to graze. The Indians would then circle the island in their canoes, keeping the prey on the island until high tide when they would scare them into swimming ashore. This gave the Indians the

opportunity of paddling close and clubbing an animal in the head without fear of being kicked, gored, or having the animal run off. Inland along the forested regions of the coast landscape, pitfalls were often used in an opportunistic manner. Pits were dug four feet wide by seven long and ten feet deep. These were lined with sharpened stakes of arrowwood (*Holodiscus discolor*) covered with brush and dirt camouflage that was strong enough to support humans but not strong enough to support a 400 to 600 pound elk which would crash through. An early homesteader, M.G. Pohl wrote about the process in 1903, "The best of the buck elk, in the lead would break in and generally spear themselves, thus becoming easy prey to the hunters" (Wooldridge 1971:33). This strategized the kill, targeting large male animals. Another way at steeper sites, where a recent tree had fallen across an elk trail, a narrower pit could be dug just on the far side of the tree. Then as an elk jumped over the tree trunk, it wouldn't see the pit, and would come down with their sides pinned against the pit walls. Unable to reach the bottom it couldn't escape and would have to wait for the Indians to come and either slit its throat or club it. In this way, the Coquille were assured of a fresh kill.

A final resource strategy for hunting elk was tied to a different, specific habitat and is demonstrated by the custom of travel to the eastern mountain ridges and prairies for two months of hunting and drying elk meat. Coquille Thompson, an 'up-river man' who was raised at the native village Chocrela-dun at the forks of the middle and south Coquille, reported that in these upper reaches the Indians would hunt with large black and white dogs. These were best utilized in groups of four and were trained to hold the elk by their haunches to give the hunters time to put several arrows into the animal.

Once the elk fell, the dogs would assist in the kill by biting the jugular (Bensell 1959). During this time in the late summer through early fall, the elk were gathering into larger herds in the upper elevations and were at their prime, having fattened for winter on the upper 'wild-oat' prairies (probably one of the oat-grass species, *Danthonia*). In August the elk gather into herds before the fall rutting and then in late September through October, they will 'yard-up' for the winter season (Edge 1992).

Although there are no first hand accounts from this ancestral epoch, early homestead journals from the 1860's report that elk in the upper Coquille River areas were 'abundant', 'plentiful,' and commonly found in herds of 250 (Hermann 1959, Wooldridge 1971). One reports that in 1881, Sarah Whobery "encountered a large herd of elk which took an hour and a half to cross the trail" (Wooldridge 1971:334). At the end of the hunting season the Coquille Indians would return to their winter villages with several bundled packs of dried elk meat interleaved with tenderizing fern fronds, each weighing close to 100 pounds. This strategy optimized both the quality and quantity of their resource procurement by taking advantage of distinct patterns of elk behavior related to seasonal variations and habitat. Together these four different strategies for obtaining elk ranged from single animals to multiple kills and occurred across all environments in the watershed from the river's mouth at the western extreme to the eastern ridges.

A similar example exists with camas procurement, a carbohydrate staple in many Native American Tribes' diets. Although there are no extensive ethnographic records for camas such as exists for elk, it is known that the plant grew and was dug at multiple

locations throughout the Coquille River valley. Daisy Codding told Harrington that camas is "a kind of onion that grew in sandy places…down the coast toward Bandon, and they got it out at Fairview, [on North Fork of Coquille River] toward the east.

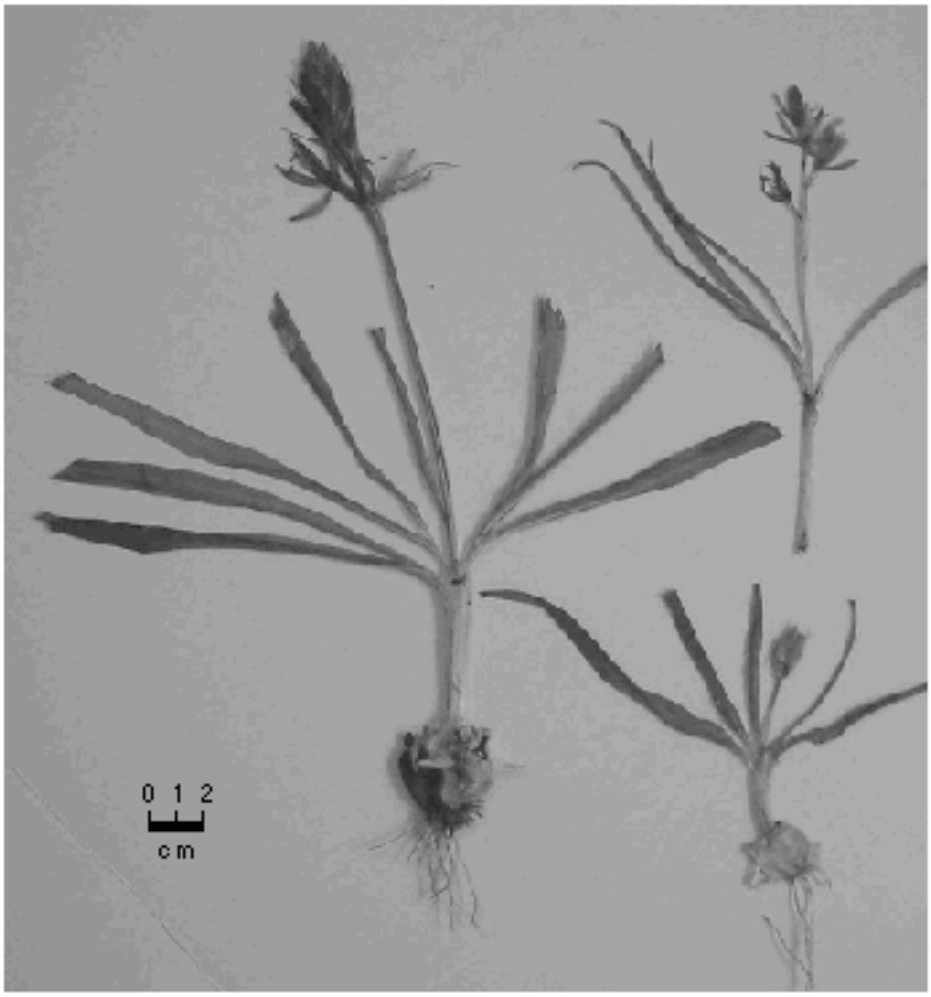

Figure 3.5 *Camassia quamash* Specimens from Oceanside Habitat

There was a lot of camas on the prairie out there" (1942:988). The availability of camas from these different locales would give flexibility to the harvesting options by locale, flavor, and probably harvest time due to temperature variations between ocean and mountain habitats.

Additionally, archeological excavations support the ethnographies, with probable evidence of intensified processing for mass storage carried out in resource camps at the time and place where yields could be maximized for size and quantity, such as Camas

Valley (Connelly 1991). Another area for camas was near the major Indian village of Nasomah. Patches of a small *Camassia quamash* grew from the very edge of the ocean dunes to slightly inland and running north of the Coquille River's mouth to Whiskey Run. Although no records exist of its processing nor drying for winter use, we do know it was utilized (Pullen 2006) and preferred for its reputedly better and sweeter flavor than other camas (Philips n.d.). Figure 3.5, shows the small size of this camas species from the oceanside habitat (collected by the author). In comparison, the taller and larger, *Camassia leichtlinii* grows to over a meter tall and could be found at the upper elevation vernal meadows (Fluharty 20003a) as well as growing abundantly in the rich soils of the mid-river terraces.

The mid-river areas, such as sites along the South Fork of the Coquille River at Dement's Prairie, were recorded by early Euro-American settlers, as probable harvesting sites. "When we struck the first prairie before we got to our home, we thought we saw two squaws digging camas. When they saw us they took their baskets on their backs and struck out for their camp…" (Wooldridge 1971:232 [1936]).

Earlier explorers also offer evidence that camas was harvested along the upper river. The Hudson Bay explorer, McLeod mentioned unidentified roots twice, once explaining that that the upper river villages are better off than those living in the lower

river area because “the former having the advantage of vegetable productions growing abundantly in their neighborhood” (Davies 1961:197) and while visiting another village he observed that, “they never kill an animal and depend solely on the produce of the waters for subsistence, with roots that grow spontaneously in the vicinity” (Davies 1961:197). However, 15 days later on January 27, 1827 three Indians stopped at their camp “on their way downstream, with a cargo of camas" (Davies 1961:210). We can presume that the camas was being transported from upriver sites. A later explorer, Lorin Williams, a member of the William G. T’Vault 1851 expedition, wrote that while in the Middle Fork area, they ate roasted camas at an Indian camp (Hall 1995).

Not only terrestrial resources, but also marine and estuarine resources benefited from the unique location of the Coquille River in a relatively warm and stable temperate climate. For example, we have multiple locations and times when flounder were taken. According to the tribal belief, flounder were made so they could be caught the whole year whenever people would get hungry for fish (Harrington 1942). It was common practice for children to walk along in the shallow waters and stand on flounder until they could be dipped up (Harrington 1942, Metcalf 1972). Furthermore, during pre-contact times, flounder were more common in the estuarine habitats. George B. Wasson reported that Catching Slough used to be full of flounder and that it wasn’t until after bass were introduced that the flounder populations declined. The bass reportedly feed on the flounders' tails (Harrington 1942). Flounder were also caught in large numbers for processing and drying when the spring runs occurred in the lower bay. For the

Starry Flounder, *Platichthys stellatus,* this occurs between the months of February to April (Sempier 2003). These examples are additional evidence of resource harvesting at multiple locations and times, as well as with varying techniques that represent flexibility in procurement options.

These examples of both terrestrial and aquatic species demonstrate what I propose as a defining characteristic of the coastal peoples' resource strategies: versatility. Neither a vast area such as the plateau region, nor the rich quantities of the salmon runs, nor the variety of resources, but rather the combined array of choices within a small geographic area best characterize the Coquille Indians' subsistence strategies. From permanent villages at the mouth of their rivers, coastal people traveled up and down the waterways to utilize the full spectrum of available resources. Ultimately, multiple options allowed a variety of actions that maximized the use of their unique, diverse environment allowing the optimization of resources, be it opportunistic, targeted harvesting, or intensified processing.

CULTURAL INTERACTIONS: PHYSICAL ALTERATIONS, ASSOCIATED BEHAVIORS, AND KNOWLEDGE BASE

The generalized picture of the Coquille Indian Tribe's archaic culture matches the modeled resource utilization of diverse resources (Hall 1984) physically across the entire Coquille River watershed, from coastal marine, estuarine, midlevel terraces, and higher mountain areas. Small villages, bound in loose association of independent households by location, resource sharing, and kinship, existed at two major environmental and cultural intersections; (1) those down river clustered at the mouth of

the river (Cressman 1953, Collins 1953, Tveskov 1999) and slightly inland along the winter storm protected estuarine banks (Byram 1998, Lyman 1991), or (2) up-river, mid level riverine villages with extensive evidence of processing wooden planks, stone tools, hazelnuts, and camas (Connolly 1991). Ethnographic documents record that both sub-groups utilized the upper elevations, including the research site at Euphoria Ridge and the adjacent Enchanted Prairie, predominantly as elk and/or deer hunting sites (Byram and Ivy 2001). However, activities involving the collection of chert for stone tools, plant foods, basketry materials, and medicines probably co-occurred (Byram and

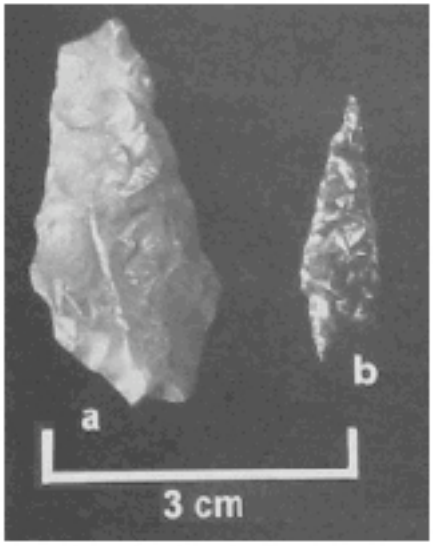

Figure 3.6 Characteristic Coquille Series Points Generally Associated with 1,500 ybp. (photo taken from Lindsay and Lindsay 1995)

Ivy 2001). Over the course of these cultural activities, tribal members would have interacted with their environment in three defining ways: altering physical characteristics, enacting associated behaviors, and accumulating an environmental

knowledge base.

First, the Coquille River has altered physical characteristics at more than 33 archeological sites that have been identified, surveyed, or excavated. These physical remains indicate that the initial occupation occurred at least 5,000 years ago (Byram 2001). Several subsistence use areas are represented including residential sites such as villages, travel camps, toolstone quarries, toolstone production sites, fishing camps, and upland prairie camps. Each of these sites has left changes in the physical setting evident through various archeological assemblages that reflect a range of ecological settings, resources that were seasonally procured, and different times of occupation. At Euphoria Ridge specifically, the lithic material includes bi-face points, groundstone tools, and debitage, which taken together indicates that the site was being utilized as a travel route, plant gathering place, and hunting area. Although the points, shown in Figure 3.6, were excavated at archeological sites near Bandon, they demonstrate the characteristics of the Coquille Series and are similar to those found at Euphoria Ridge. "The appearance of Coquille series points…situates it within the last 1050 years" (Byram 2001).

Second, the Coquille Indian ancestors utilized Euphoria Ridge in specific environmentally associated behaviors as an area for both hunting and plant gathering. This was demonstrated in my earlier discussions of their range of environmental zones that were utilized for their resource procurement of elk and camas. Behaviors were enacted that linked the utility of resources to the culturally desired trait, be it qualities of flavor, freshness, or quantity, to procurement at specific habitats. At Euphoria Ridge,

environmental habitats support upper prairie resources that included both the plant foods and preferred elk habitats of mixed open and protective cover that in turn facilitated the Coquille Indians' seasonal hunts. These actions generated the concept of Euphoria Ridge as a specific place apart from a generalized environment, linked it to specific cultural activities, and thereby moved it from a simple landform to a culturally utilized site: the place for fall elk hunting.

The third cultural interface demonstrated during this epoch is an accumulated knowledge base evident in the depth of their territorial information that allowed strategic options for resource procurement. The Coquille Indians use of multiple sources for any one resource was generated through their intimate knowledge base that allowed a resilient subsistence strategy to develop unique to their specific geographic environment.

Neither term, “hunter-gather” nor “affluent-foragers,” matches the traditional lifeways and associated knowledge base of the Coquille's small river territories and strategic options. I suggest that the archaic Coquille Indians are best characterized as developing a unique ‘Pacific Rivershed’ culture. Whereas watershed may be a more technically correct term, defined as “a region draining into a river, river system, or body of water” (*Random House Unabridged Dictionary* 1993), it creates images of large regional valleys and basins quite different from the coastal rivers’ topography that I discussed earlier. I argue that some anthropologic term is warranted for the southern Oregon /northern California coast region that addresses their existence in terms of being more than an exception to the Pacific Northwest Coast cultures of southern Alaska,

Western Canada and Washington State.

Coquille traditions are both culturally and environmentally differentiated from that more northern zone. They have validity within their own cultural traditions that should not continue to be overlooked. Nor should the void on the geographic maps of America's indigenous cultures be left to perpetuate the omission of early twentieth century ethnographers. Furthermore, their traditional culture pre-dates statehood and should be uncoupled from the necessity of using twenty-first century geo-political labels involving either Oregon or California. The term Pacific Rivershed evokes a sense of scale representative of their territories, links cultures to regional environments in much the same way as the term Eastern Woodland tribes, and allows their cultural studies to move forward on an equal standing.

In conclusion, the ancestral epoch on Oregon's south coast can be characterized by a culture that was intimately linked to their environment through holistic subsistence strategies that procured resources across four dimensions. Exploitable options existed throughout the unique mosaic of climatic and topographic habitats of their riversheds through variations in: (1) height, allowing elevation differences to access moisture gradients, (2) breadth, allowing ridge-to-ridge variations in solar exposures, (3) length, allowing up or down river habitat preferences to salinity variations, and (4) time, allowing seasonal opportunities for collection periods. The people of the Coquille culture who exploited these options strategically utilized both the ecology and available plant and animal species to dynamically meet their traditional lifeway requirements. When they were forcibly removed from their ancestral homelands they left the legacy

of a rich, abundant environment. The following chapter looks at the resource use of Euphoria Ridge, within those ancestral lands, by the early Euro-American homesteaders before it was returned to tribal ownership.

Chapter Four

Historic Era: Cultural Trends and Their Impacts

INTRODUCTION

This chapter brings us closer to my research site, focusing in on both time and space. Instead of covering thousands of years and considering the entire Coquille rivershed, I look at a little over 100 years and focus on the upper Coquille River valley. Table 4.1 lists some important dates for understanding the history of the use, ownership, and management of my research site. The time span is from the beginning of Euro-American homesteaders taking up residence in the Coquille River valleys in the mid-nineteenth century until Land Parcel #7 was returned to tribal ownership in 1998. The single, unifying characteristic of this era is the steep, rugged landscape that made the Upper Coquille relatively inaccessible. The terrain of densely forested mountains made it unsuitable for homesteading. During this time, Euphoria Ridge remained in the public domain, except for a period of neglectful ownership by the Oregon and California Railroad Company. However, nearby lowlands along the Coquille River and its Middle Fork were homesteaded and the common practice of allowing livestock free range impacted the research site.

After a systematic search through government and private offices, stores, and museums for environmental data and descriptions of Parcel #7, I located several news articles and journals from local homestead neighbors in the upper Coquille river valley that offer insights into the general environmental conditions of the time. The bulk of

this chapter is drawn from a review of these historic records and data from the early Coos County Tax Assessment Roles from 1850 through 1900. These assessments are located at the Oregon State Archives in Salem and the Coos County offices in Coquille. They list personal property including livestock and offer statistics that reflect changing patterns of land use.

Table 4.1 Brief Overview of Some Historic Period Dates Concerning the Upper Coquille River Valley and the Coquille Indian Tribe

Historic Dates in the Upper Coquille River Valley

1854	-Gold discovered on Johnson Creek, South Fork Coquille River
1859	- Settlement of Baltimore Colony, Middle and South Forks
1862	-The Homestead Act allowed ownership of up to 160 acres of public land if lived on for five years and improvements made.
1866	-Congress grants land toThe Oregon and California Railroad
1887	-General Allotment Act gives land title to individual, enrolled Native American tribal members.
1934	-Indian Reorganization Act, explicitly recognized tribes as sovereign nations and sought to "end blatantly racist policies"
1937	-O&C Lands Act places management under US Dept. of Interior
1946	-U.S. Grazing Service and General Land Office merged to form the Bureau of Land Management.
1989	- June 28, Federal Restoration and recognition of the Coquille Indian Tribe via HR-881.
1998	- additional 5, 410 acres of timber added to economic base of Tribe including Parcel #7, Euphoria Ridge Trail and Meadow Complex

I end the chapter, after reviewing the general environmental conditions, with considerations of the cultural interactions at Euphoria Ridge that have (1) altered physical characteristics, (2) developed associated behaviors and emotions, and (3) accumulated a cultural knowledge base.

The bulk of the early historical information about the homestead era comes from two sources, both of which are secondary sources. First are the many news articles that chronicle the lives of the early pioneers of the area. In her book, *Pioneers and Incidents of the Upper Coquille Valley*, Wooldridge (1971) has gathered hundreds of news articles, announcements, and obituaries from the *Southern Coos County American* and the *Myrtle Point Herald*, and published them without commentary. Her stated goal is to help "younger generations understand how these pioneers have lived" (preface). The most useful of these newspaper accounts for my purposes is a series of articles published in the mid 1920-30's by Fairy Davis Keleman that includes extensive descriptions and quotes from original homesteaders.

Although Keleman's style seems unembellished and factual, it must be noted that she was nonetheless filtering the information very often given her by elderly sources. She does seem to understand the value of original quotes and keeping the voice of her primary sources, which comes through in all her articles. In her introduction for the Dement Biography, she recommends, "best of all that his story is quoted in his own words " (Wooldridge 1971:225 [1936]). Table 4.2 gives the names of her informants who were often children when they settled in the Coquille Valley, the date they arrived, and the date of their interviews, often 60 or more years afterwards. Despite the fact that the information is in the form of reminiscences and twice filtered, once by Wooldridge in compiling the news articles and once by Keleman as interviewer, there is a common and undisputed description of the environment, consistent between all the informants.

Table 4.2 Informant Homesteaders, Dates of Settlement in the Coquille River Valley, Their Ages When They Moved into the Valley, and the Date Their Experiences Were Recorded

Name	Arrived	Place	Narrator	Recorded	Age
Lenherr Family; husband, wife, son, and daughter	1853	Johnson Creek mines	William Tell Lenherr, son	Sept. 24, 1925	3 yrs
Samuel Maxwell Dement, wife Caroline S. and son Russell Cook	Oct 1853	Empire City	RC Dement	Aug 6 1936-Dec 1936, bi-weekly	6 yrs
Dement, cont.	Middle of 1855	Dement Creek	RC Dement	Aug 6 1936-Dec 1936, bi-weekly	6 yrs
Dr. Henry King and wife and 2 daughters	1869	King's Creekk/ Middle Fork	Mrs. Lydia King McLeod, daughter	July 11, 1929	7? yrs
Andrew J. Radabaugh	April 24, 1875	Myrtle Point	self	Dec. 11, 1930	5 yrs
H.H. Brownson and wife Melissa W.	Oct. 10, 1875	Big Creek	wife, Melissa W. Brownson	Nov. 15, 1934	25 yrs
John Barklow and second wife Nancy, 7 children, & 2 brothers	1872	Ott (Coquille)	Son, Dan Barklow	Dec. 13, 1934	7 yrs
Barklow, cont.	1874	Myrtle Pt. (west side of River	Son, Dan Barklow	Dec. 13, 1934	7 yrs
Samuel Barklow and wife Anne and 5 children	1874	down river from Myrtle Pt.	letter/ Sam. Barklow, granddaughter	1874/ Dec. 13, 1934	
David and wife Elizabeth Miller and daughter, Julia	1874	down river from Myrtle Pt.	Nephew, Dan Barklow	Dec. 13, 1934	7 yrs
Baltimore Colony; approx 15 families, 80+ people	May 1859	South Fork Coquille	Binger Hermann	?	16 yrs

This uniformity gives a level of credibility to the data or at the very least, informs a common cultural mindset and shared viewpoint amongst these early homesteaders regarding their experiences within the upper Coquille River environment and research area. Taken together, their activities and beliefs provide an example of how an environment is impacted by a cultural overlay of beliefs, values, and actions.

The second source for my environmental information also comes filtered by editors, this time, by the Baltimore Colony Centennial Committee, who published the Baltimore Colony and Pioneer Recollections (1959). Binger Hermann writes the bulk of this book from his own experiences as a young man and from information gleaned out of the journals of his father, Dr. Henry Hermann, who became the *de facto* leader of the Baltimore homesteaders. There is no recorded date giving when Binger wrote his manuscript, but he talks of his father's burial at the family homestead near Broadbent, so it can be surmised that it wasn't until later in his life. He was an educated young man of 16 when the Baltimore families settled the Upper Coquille Valley, became the first publicly hired school teacher in the Myrtle Point area, and later became a US Congressman (Wooldridge 1971[1926]). Although his style is occasionally peppered with emotive terms regarding both the goodness and difficulties of the territory, it reads as a recording of largely factual information.

The final segment of this chapter's information is compiled data, gleaned from public records: Coos County Tax Assessment Roles from 1855 to 1900, the Coos County Bounty Records from 1909-1924, and the U.S. General Land Office Survey Records. Although the data are spotty and many different years' books are missing,

there are sufficient data to show general trends of homesteaders' land use that impacted their local area. Their removal of targeted native species and the introduction of others, particularly livestock, altered the local environment from mature forest ecosystems into profitable farms and timberland. Although the direct impact on the Coquille Indian Tribe's Euphoria Ridge Parcel was minimal, it was nonetheless pervasive and has had lasting consequences for its management that are considered in the next chapter.

EARLY ENVIRONMENTAL CONDITIONS

The research site, Coquille Indian Tribe Land Parcel #7, is located on the ridge above Enchanted Prairie that extends up the slope from the flood plain on the Middle Fork of the Coquille River. The prairie's soil was deposited in the river bend between Belieu and Tanner Creeks. Springs on the ridge feed those creeks toward the south-east, but others as well as most runoff gathers on the northwest slope and form Johnson Creek. It runs down as a tributary of Big Creek before entering the Middle Fork of the Coquille River. It is typical of the larger valley region in general, with high, rounded ridge-tops and steep slopes that are intersected with numerous creeks that nourish a generally mature mixed forest ecosystem. As discussed in chapter two, it is rich in biodiversity of native plant and animal species. Mrs. Effie King Shindall, who moved into the area just south- west of the Euphoria Ridge research site, describes it in 1869:

> There were lots of cedar here when we first came, I have seen many straight, beautiful cedars, 60 feet up to the first limb, cut down and most of them burned. No one lived on Big Creek then. A Mr.

> Anderson lived near where the old bridge across that creek is…the mountains were heavily timbered …Wild animals were plentiful… Salmon came up King's creek in great numbers…the big, hook-bill salmon would fight fiercely…(Woodbridge 1971:200[1934])

The record of these environmental conditions is further supported and remained seemingly unchanged six years later when Melissa Woodruff Brownson settled on Big Creek in Oct. 10, 1875 and wrote: "There was nothing to be seen but big trees, logs, and brush. The forest was full of wild animals; deer, bear, elk, panthers, wildcats and others." (Woodridge 1971:222[1934]).

The area was slow to be settled primarily because the dense forest and mountainous rock faces, often reaching into the water, block access along its banks and made travel nearly impossible. Canoes and boat traffic moving up the river were halted when they reached the rapids formed by the merger of the South and Middle Forks of the Coquille River. Overland travelers were left with two options. They could follow the Indians' trails for short distances, but the trails most often simply did not go where the Euro-American settlers wanted: into and out of the valley to markets and supply centers. Or they could attempt to follow the narrow elk trails that were often impractical for human tread. Large logs that could be jumped over by elk often blocked the trail. Worse were the steep slopes that were traversed almost vertically by the elk, cutting natural steps that matched an elk's stride, often with a spread of four to five feet! Homesteaders traveling on foot with packs could pass with difficulty, but the trails needed to be widened to allow the width of a single horse's passage and wagon travel was impossible. In order to carry in household goods and supplies it was standard

practice to build sleds that could be pulled by a horse and lifted and pushed by the human party. The entire process was aided by 'axemen' who traveled ahead to open the way, chopping, clearing, and often bridging both streams and fallen trees.

In excerpts from a letter home, Samuel and David Barklowe report of traveling from Roseburg into the Coquille Valley in 1872:

> After twelve days' travel we arrived within 20 miles of the place we wished to settle and the way would not admit a wagon any further… we prepared one-horse sleds, suitable to pass on a trail by which we conveyed our goods through the dense forest of fir and cedar, over small mountains, bridging logs by throwing smaller logs against them so that a beast could pass over…In this way, we worked through to the Coquille river, the distance of eight miles, which took us six days… (Woodbridge, 1971:367[1962]).

As Dement describes below, it was the discovery of gold on the South Fork at Johnson Creek, in 1854, that first brought Euro-Americans into the upper valley. A few of the miners fell in love with the region and later returned to homestead the area with their friends and families. These early homesteaders originally relied on the native bounty for their subsistence but gradually increased their impact on the landscape with introduced European livestock.

> About July 24 of that year (1854) a man by the name of Johnson discovered gold on Johnson creek, a tributary of the south fork of the Coquille. John Yoakam and my father took their blankets and some grub and started for the mines…They paddled up the bay past North Bend and Marshfield (the white man hadn't a mark at either place at that time), on up isthmus slough to the isthmus, hauled their canoe across the isthmus, paddled and waded down to the Coquille River, then upstream about 20 miles to the junction of the middle and south forks. It was not practical to go farther in the canoe, they took their blankets and grub and struck out for the diggings 30 miles away. The first night on the trail they camped where the trail crossed Dement creek (name given this creek later on). There they found quite a bit of open

> prairie country so they laid over one day and took a hunt and got acquainted with a tribe of Indians who were making their home on the creek…Father and Yoakam were very much taken with the country… [Then back in Empire], father and mother began how they were going to make a home in the new country among the Indians…[three years later] In March 1857…we were getting pretty well fixed. Father brought four cows in from Camas Valley…Mr Yoakam had a few cattle and a couple of horses. We also had a few hogs. Up until this time we had depended on wild game for our meat altogether. Elk tallow for candles, bear fat for lard and the only fruit we had was the berries we gathered in the woods…our hogs multiplied and did very well on acorns and myrtle nuts. (Woodbridge 1971:230-237[1936])

Each progressive wave of homesteaders and immigrants seemed to have an increased embodiment of the United States' Jeffersonian ideal of not simply extracting nature's resources but also the goal of transforming the native environment into a vision of their cultural norms. For example, early trappers and miners came single-mindedly to extract furs and gold and were generally uninterested in changing the environment beyond removing their bounty. The earliest pioneers and those miners who stayed were often content to live among the Indians and live off the land, subsisting on the bountiful wild foods for everything but flour. This, it seems, they could never give up and hunters would regularly "trade their hides and tallow at the stores for flour" (Woodridge 1971:222[1934]). Gradually bear lard was replaced with pork and more slowly, elk with beef. Later settlers increasingly record a desire for 'civilized things' that meant not only extracting and exporting what they could from the region, but also importing exotic supplies, crops, and animals. 'Doctor' Hermann advised his fellow colonists that:

> Nature had done much. This left less for man to do. We had a genial, healthful climate, a good soil, and immense resources for development. In the navigable waterways an outlet was already before us to the markets of the world when production should seek them. (Hermann 1959:31)

However, the region remained relatively isolated for another 30 years after the Baltimore Colony was settled. Not until 1889, when the Enchanted Prairie segment of the overland road was finally completed, were the populous regions and their markets reached via the route up the Middle Fork of the Coquille River, through Camas Valley, and into the Winston/Roseburg area. "Because of the rocky and mountainous terrain, it took many years of hard work with pick and shovel to widen the trails and make the roads passable for a wagon" (Wooldridge 1971: 354[1964]).

HOMESTEADERS' CULTURAL IMPOSITIONS

Although it seemed a slow transformation for the settlers, who manually cut and burned the dense forests, the region was eventually cleared and converted into prime farmland. "They immediately set fire to old logs, stumps, and brush; and for 15 years they kept the fires burning, whenever possible, until the land was finally cleared" (Dicken 1971:7). Pigs were some of the earliest imported livestock because bacon could be used as a cash substitute. William Tell Lenherr reported that in 1853, the merchant at Empire City sold his "father 40 acres of land and took his pay in bacon" (Woodridge 1971:142[1925]). A.J. Radabaugh remembered that in 1875, coon hide and bacon were "the common denominator of value" (Woodridge 1971:211[1930]). Small piglets were brought into the valley, carried over the narrow trails in pockets and packs. Once inland, they could be released to live mostly wild, roaming the lowland

prairies and forested mountain slopes and feeding themselves on camas bulbs, myrtle nuts and oak acorns. Binger Herman tells of how in 1853:

> the abundance of the myrtle nuts which fall from that tree and so extensive in quantity were these nuts in the forest at the time of the arrival of our Baltimore Colony and for years afterward, that they afforded a most nutritive mast for the settlers' hogs (Hermann 1959:20).

Later, Hermann continues to describe the common practice of letting the hogs live wild in the forest, giving the example of two men. One believed that hogs should, "earn their own living upon the myrtle nut mast, and only at times of dearth and high water, would he call them up from the forest." The neighbor however, had an opposite habit of nightly "calling in a loud voice in the forest to the hogs" (Hermann 1959:59). He did this in an attempt to keep the hogs safe from bears who seemed to have also developed a taste for pork! Hermann remembered that it was common to hear the hogs squealing, "in the forest at night time, for they never escaped the claws of their bruin enemy" (Hermann 1959:54). William Tell Lenherr tells that once a bear came right into their yard and stole a pig, but their dog treed the bear and the pig escaped. "Later it returned badly clawed but it got alright" (Woodbridge 1971:188[1925]).

Gradually, the value for pork bacon declined, as did their numbers in the county as shown in Figure 4.1, below. The changing trends in livestock ownership are reflected in cattle replacing pigs in importance and in being more numerous, followed by sheep. Each impacted the environment differently, slowly moving the landscape toward the form we see today of cleared forests, drained marshes and fenced pastures.

Not only were homesteaders replacing wild bear and elk with pigs and cattle but they were also further disrupting the native ecosystem in less obvious ways that are just beginning to be considered and studied. One was through the importation of

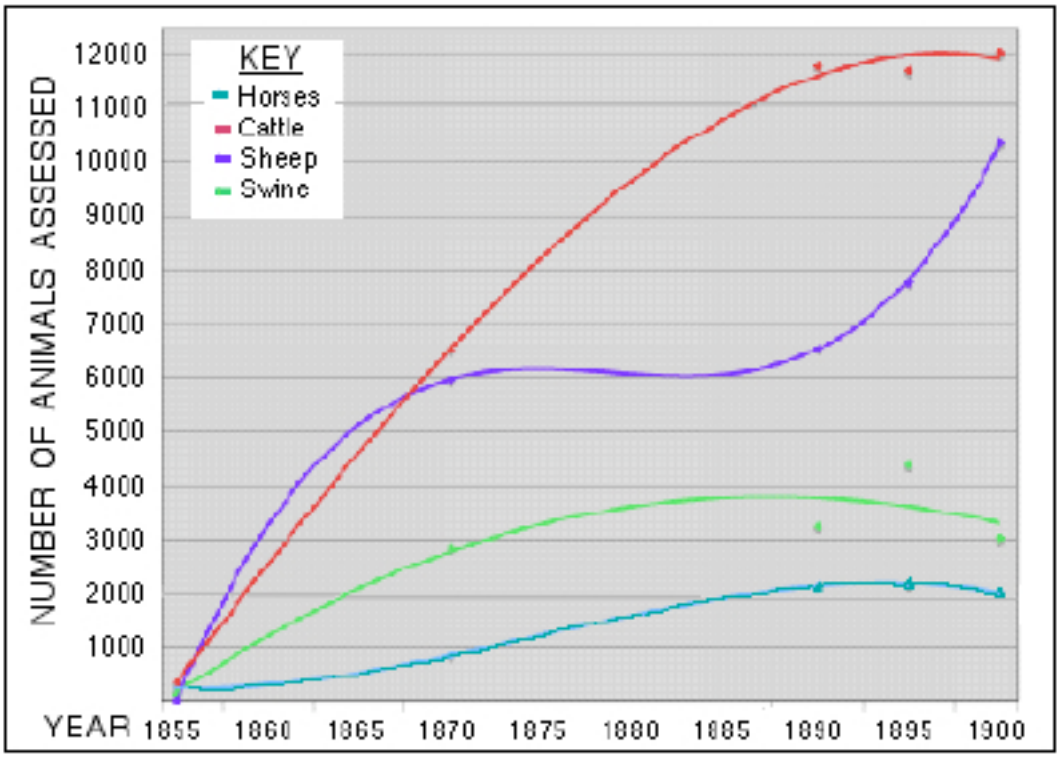

Figure 4.1 Averaged Trends in Total Assessed Livestock in Coos County, Oregon for the Years 1855-1900 in Five Year Intervals, compiled from the Coos County Tax Assessment Roles.

European honeybees, and second was the policy of extermination of hundreds of predators in attempts to make a safer environment for their livestock. Each would have altered the environment. Each must have displaced some native species and disrupted many species' interactions and any sustaining balance that may have been in place through countless generations of mutual adaptability.

In 1869, Dr. Hermann brought 14 hives of bees into the valley: "He next engaged in apiculture…for so bountiful was the growth of wild flowers and honeysuckle over the country that bee food was a sure thing" (Hermann 1959:31). Once he established a market for honey in San Francisco, other settlers followed his lead and by the next year, 93 hives were reported. Unfortunately, after that year, the tax assessors stopped documenting beehives and the trend cannot be traced further. However, Dr. Hermann planted buckwheat as a supplemental nectar source on the "burnt over hills" (Hermann 1959:32), but at this late date the cascading effects, if any, cannot be determined. Regardless, various scientists are studying the impact of imported honeybees on environments in other parts of the world. These studies include effects on the native species of bees, nectar feeding birds, and beetles, as well as the effect on various endemic plant species' survival with shifts in their pollinators (Butt et al 1998, Crozier et al 1994, Dupont et al. 2004, Hansen 2002, and Paini 2004).

A more dramatic shift was the wholesale reduction in the elk herds as well as the targeting of what were considered predatory species: cougars, wildcats, lynx, and coyotes. Elk was superior to deer and other meat animals because not only was the flavor preferred, but it provided multiple subsistence products including hide, horn, and tallow. Although it was used to feed early pioneer families and bartered for supplies, the greatest impact did not occur until the forming of the Benevolent and Protective Order of Elks in 1868. As these lodges gained in nationwide popularity, the demand and value skyrocketed as every lodge, no matter how small, demanded racks of elk horns, and the more affluent lodges mounted the entire head. Even elk teeth were in

demand to be worn as ornamental watch fob accessories. By 1912, elk came close to extinction with only 126 of these animals counted in Washington State. A decade later their number had dropped to approximately 12 when President Theodore Roosevelt set aside Olympic National Monument for their protection (USGS 2007). Later, in 1938, the Olympic National Park was established and as the herds grew, they have been used to reestablish elk in many regions. In Oregon, numbers were so low that all hunting was prohibited from 1908-1932 (OSDFW 2007). Although their herds are far from the numbers that the Coquille homesteaders reported, elk are making a comeback. In 2006, Oregon's Fish and Wildlife Department counted 2,266 in the Coast Range and the US Bureau of Land Management (2007) lists a herd of 60 to 100 living year round at their Dean Creek Elk Viewing Area outside of Reedsport, OR.

Those species considered predatory animals were killed to make the environment safer for the imported livestock. Although there was no direct market for them, local ranching organizations and the state government shared costs of a bounty system, rewarding those hunters who brought in proof of their kills. It is hard to estimate what changes their removal may have had on the local environment. Their numbers do, however, indicate that there were sizeable cat populations of wildcats and panthers in the region and provide insights on the composition and health of the ecosystem that once existed in order to support those levels of cat populations.

Homesteaders recognized the upper valley, including the research area as 'Cougar Country' and the historical story of the naming of Enchanted Prairie reveals

the prevalence of cougars and wildcats. Except for Enchanted Prairie, the prairies along the Coquille River have their names associated with the particular creek whose mouth forms the mini-flood plain that supports the prairie ecosystem. The creeks, and therefore, the prairies, have become associated with the homesteader whose claim was

Table 4.3 Numbers of Predatory Animals Presented for Collection of Bounty Rewards in Coos County, (compiled from the Bounty Record 1909-1914; Coos County Courthouse, Clerk's Vault and Scalp Bounty Claim Records 1921-1924, Coos County Courthouse, Clerk's Downstairs Archives)

Year	**Wild Cats**	**Panther**	**Lynx**	**Coyote**
1909	125	19	6	
1910	398	51	2	6
1911	417	23	10	1
1912	352	15		
1913	362	23		
1914	179	5		
1921	209	22	4	53
1922	90	18	28	2
1923	157	22	5	55
TOTAL	*2289*	*120*	*55*	*117*

on the creek. We, therefore have Berton's, Hall's, Hermann's, Hoffman's, Dement's, and Rowland's Prairies. Enchanted Prairie, however, was named with the homesteaders' sense of humor for the fact that they could never travel with their dogs across it without the dogs going missing; they were 'enchanted' away and reportedly eaten by cougars (Dodge 1898; McArthur 2003).

RESOURCE UTILITY OF TOWNSHIP 29 RANGE 11 SOUTH

While the general environment of the region changed, Parcel #7's physical characteristics kept it from becoming homesteaded and converted into farm land. The first attempt of the State of Oregon to record the township and range in their tax records was 1857; however, in the Coos County Tax Assessment Roles it was noted, "Lands not yet surveyed." It was not until two years later that surveyors even reached Coos County, but even then they had only completed their mapping in the more populated areas. It took 10 years before they were working in the Middle Fork region. Then,

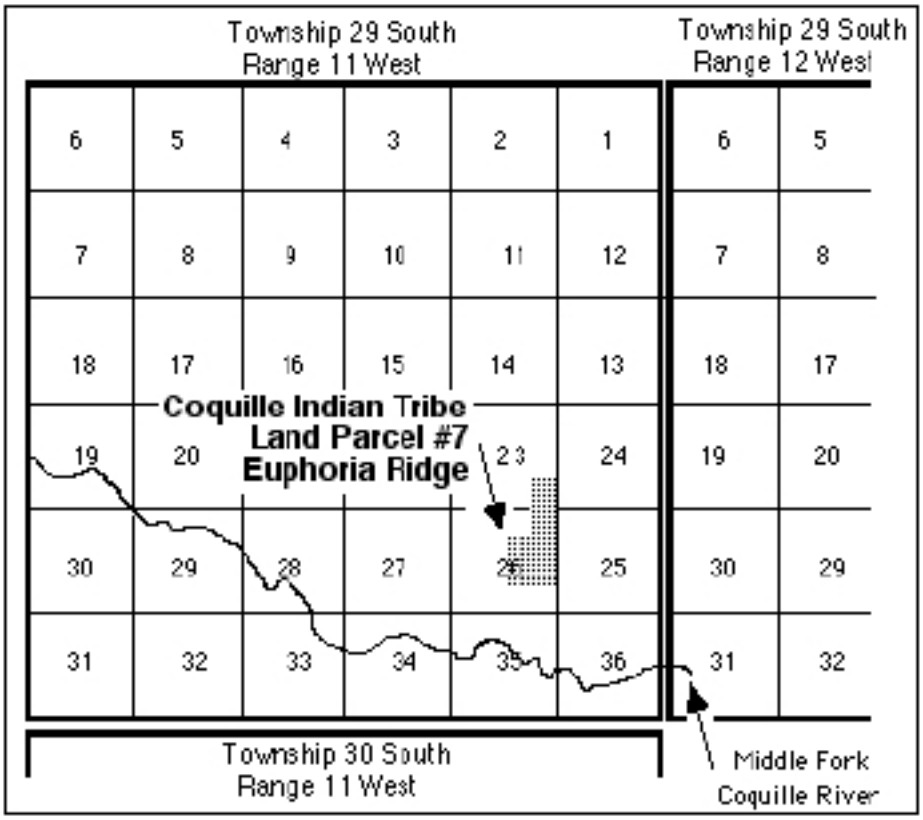

Figure 4.2 Coquille Indian Tribe Land Parcel #7, Euphoria Ridge's Location with Township, Range, and Section Overlay

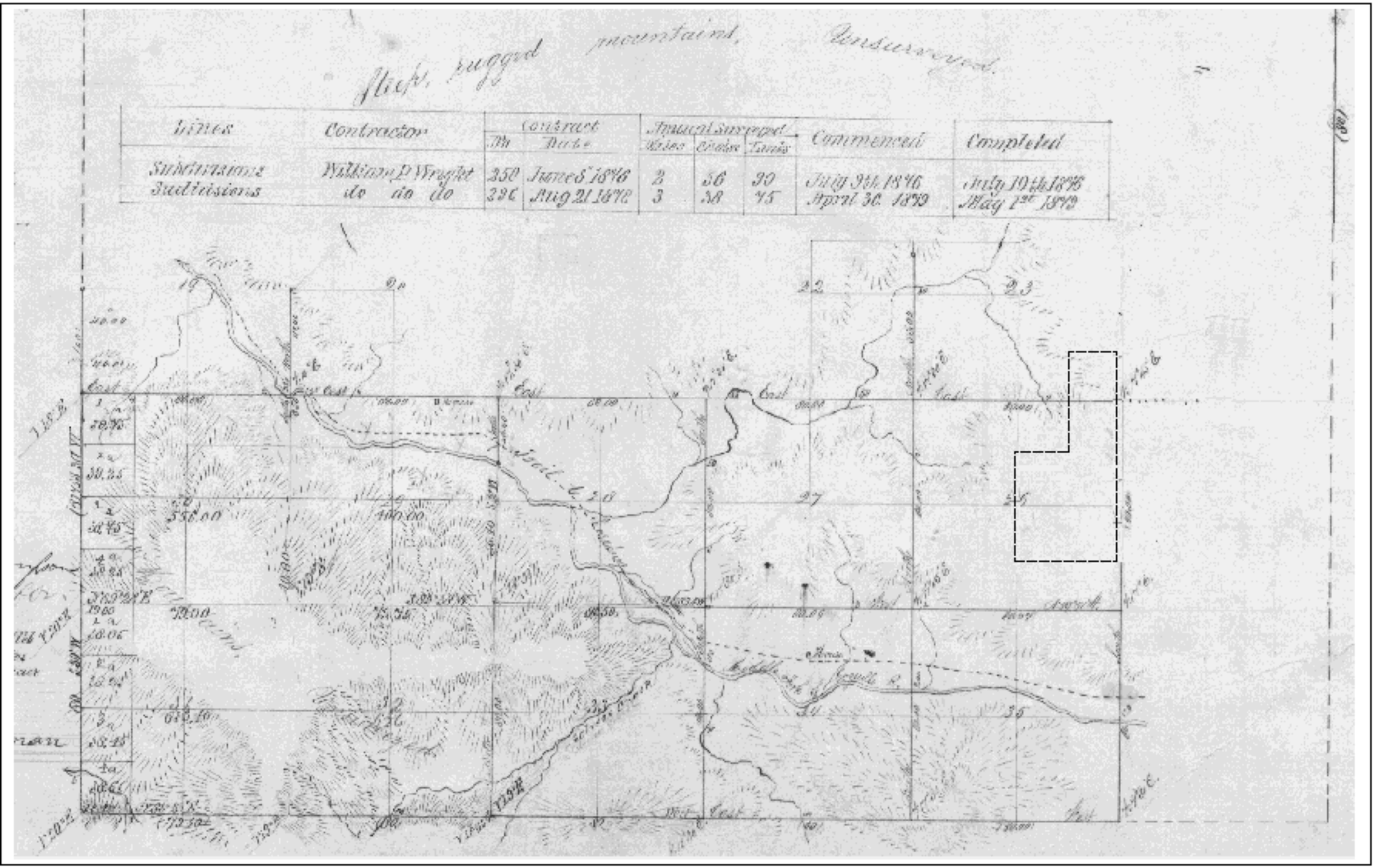

Figure 4.3 Cropped 1876 Cadastral Survey Map oif Township 29 south; Range 11 west; with added dotted line to show location of Parcel #7 (USBLM)

although the property itself was not surveyed until the 1990's, adjoining section boundaries were mapped and field notes repeated reference to the area of Parcel #7 as rough, mountainous land with second to third rate soil. Figure 4.2 shows the parcel overlaid on the standard township grid developed for surveyors to "create, restore, mark, and define boundaries of parcels of land for describing individual ownership" (USBLM 2007). Figure 4.3 is cropped from the surveyors' township map from 1876 with added, dotted lines to show where Parcel #7 lies within Township 29 south; Range

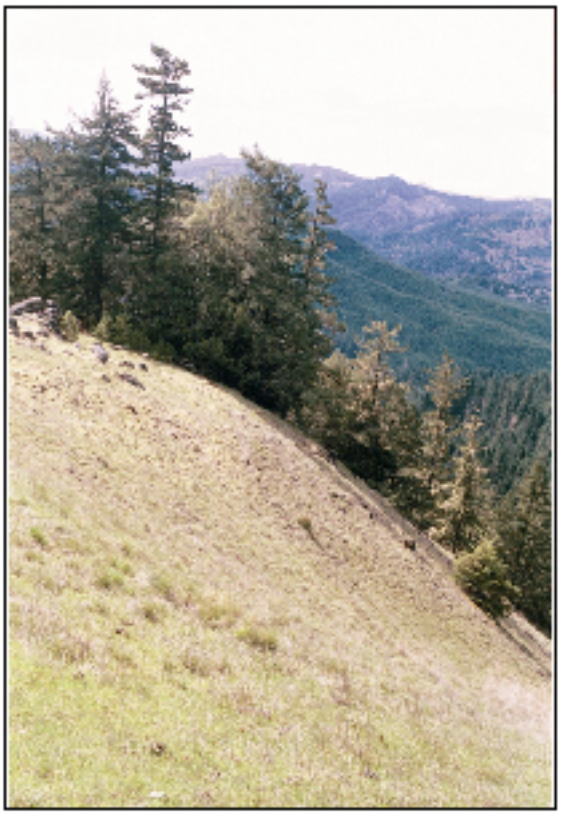

Figure 4.4 View Showing Steep Southwest Slopes of Parcel #7

11 west; sections 27 and 23. Note that on this 1876 map, that the surveyor has marked sections just north of Parcel #7, as "steep, rugged mountains" that they left unsurveyed.

Table 4.4 Field Notes Transcribed Verbatim from the General Land Office Survey Records for Township 29 south; Range 11 west (spelling and grammar of the original).

Date	Survey document	Description
1867	ORR007700490[1]	Between secs 35 and 36- descend Hill, trail to Roseburgh bears E &W, set corner post, a cedar 15 in. diam, a myrtle 6 in., a lilac 4 in., a hemlock 10 in. Land rough and broken, soil 3rd rate, timber fir and hemlock. April 29, 1867
1867	ORR007700530[1]	The corner to secs 33, 34 and 35- land in west half gently rolling, soil 1st rate. On east half, rough and broken; soil 2cd rate; Timber fir, cedar and alder. May 2cd, 1867
1875	t290s110w_001	The land in the part of the Township surveyed cannot be made valuable, unless for grazing purposes. The timber was mostly destroyed by an extensive burn, which took place years ago. These 4 sections, although very mountainous contain many acres of good grass. The timber has been almost all destroyed by annual fires, and the undergrowth is becoming very thick. Sections 7, 8, 9, 10, 11, 11, 12, 13, 14, 15, 16, 17, 18, 21 as well as northern sections of 19, 20 steep rugged mountains, unsurveyed.
1879	ORR021200170[1]	Sec 36. Land very rough, mountainous, precipitous; timber green, fir, cedar, chittam, and alder. Aug 8, 1880
1883	ORR027505710[1]	Secs 25, 26, 35, & 36. Land rough mountains; soil poor; dense timber of fir and cedar; thick undergrowth
1883	ORR027505740[1]	Sec 24. Land rough mountainous; timber fir and cedar; thick undergrowth of hazel, arrowwood, and briers
1883	ORR027506030[1]	The portion of this township included in this survey does not include much land fit for agriculture. And that only immediately on Big Creek. The timber on west half of township good fir and cedar in Sec 7, 8, 9, 10, and 18. The land very rough and thickly covered with elk brush making it almost impossible to travel.

The steep slopes, as shown in Figure 4.4 not only made it nearly impossible to survey, but, also made it unattractive to homesteaders who more often claimed the rich bottomland closer to the river. The first specific written descriptions of the property are General Land Office Survey Records and are transcribed into Table 4.4. Continued comments of 'rough mountainous land' predominates throughout the surveyors' notes and are best summarized in 1883 with the comment that the land was not fit for agriculture.

By the time they surveyed the Upper Coquille River valleys, the US Congress had passed the Oregon and California Railroad Act in 1866. This granted the odd-numbered sections of public lands to the railroad company. Called the O&C lands, they were intended to be sold to the public to help repay private investors their cost in building a railroad from Portland, Oregon, to California. In the Coquille River valley, those who had established homestead rights were allowed to claim their private ownership of land in these odd sections, with any unclaimed portion transferred to the O&C. In this way the north section of Parcel #7 became O&C land.

Once again the steep slopes and rugged nature of the area discouraged homesteaders' interest in claiming the land and the remainder of Parcel #7 that lies in section 26 remained public land, used primarily for open grazing. Although Figure 4.1, as discussed above, shows the county trends in livestock production, it doesn't reflect any local use of the research site. All specific references to livestock within Township 29 south; Range 11 west, were compiled in Appendix One Table 1.1, and plotted to

show localized distribution in Figures A1.1 through A1.9 (Appendix One). There are some interesting shifts in the recorded ownership of the livestock but the overall numbers match the general county trends, with swine peaking in the 1880's and cattle continuing to increase throughout all years.

In 1916, Congress brought back into federal ownership approximately 2.9 million acres of O&C land, but active management of these public lands didn't begin until 1937 when jurisdiction was given to the United States Department of the Interior. At this time, public lands were managed for timber and grazing utility. Then in 1946 the Department of the Interior combined the General Land Office duties and the U.S. Grazing Service to form the Bureau of Land Management, which managed Parcel #7 until it reverted to tribal ownership in 1998. During the last 50 years, prior to transfer to the Tribe, the BLM continued timber production and public grazing on the parcel.

While the relatively flatter and low elevation lands were pre-empted over time by the homesteaders for pasturage in a growing beef market, large tracts of grazing land are required to maintain economic viability and reduce costs for the homesteaders turned ranchers. In this local area, the dense public forestlands in theory keep the cattle from straying and provide a natural fencing. Unfortunately, this only works to a limited extent because of the stresses created by the region's dry summer climate pattern. Grazing and the resulting compacted soils leave the grasses stunted and in poor condition on the lower fields. The cattle become hot and hungry and use the riparian ravines and gullies as their own trail system to access the pasturage on the upper meadows. They are able to smell out both water and feed from upslope and they

wander up through the forest to springs and fresh grass. The ranchers leave them to fatten on this public land until they periodically round them up and herd them back to the private lands at marketing time. While this practice may ultimately be a benefit for the ranchers and cattle, it has created problems with invasive species, soil compaction, and degraded riparian zones on the public lands including some of the lower meadows of Parcel #7.

CULTURAL INTERACTIONS: PHYSICAL ALTERATIONS, ASSOCIATED BEHAVIORS, AND KNOWLEDGE BASE

As an overview, it can be seen that the movement of the 'homesteader' culture group into the environment of the upper Coquille River valley made large scale changes in the existing ecosystem from the previous uses of the ancestral Coquille Indians. Physical alterations involved trail and road widening, clearing of forests, removal of predators, and the creation of farms and ranches with their attendant imported crops and livestock. These actions, as discussed in earlier sections of this chapter, represent a set of associated behaviors designed to transform the native bounty into a cultural vision of marketable products. In the forests and meadow areas around Parcel #7, these behaviors included the culturally informed concept of 'free range' and allowed the homesteaders to leave their livestock unfenced and able to roam the forests.

Furthermore, during this time, the homesteaders were accumulating an ever increasing knowledge base: first, in learning which marketable products would benefit from the local environment and be profitable, and second, in learning the local

environmental landmarks by establishing a network of place names associated with their own set of friends and peers. And so the Coquille place names gave way to the encroachment of Euro-American homesteaders. The village Laenxas-dunne became Coquille City, Chocrela-dunne near the forks of the Coquille River became the town of Myrtle Point (Tveskov 2002) and the grassy landings along the length of the river became known as Hall's, Huffman's, Rowland's and Dement's Prairies. Thereby, the homesteaders not only created a sense of place in the upper Coquille River valley but made it *their* place.

Chapter Five

Early Twenty-First Century Tribal Ownership

INTRODUCTION

This chapter completes the process of narrowing the focus of information and research on the Coquille Indian Tribe's Parcel #7, Euphoria Ridge and Meadow Complex. I begin with a brief review of the general on-site conditions, discuss the representative soil types as surveyed by the US Department of Agriculture's Conservation Service (1989), and move into reporting the data I have collected at the parcel. This section builds on my discussion in chapter two of the regional climatic and vegetation zones and provides greater detail on specific exposure-dependent habitats and detailed descriptions of the defining vegetation communities. I then discuss the general management goals the Coquille Tribe has for the property and the options for the management of several culturally important plant species. The chapter ends with examples of how the Tribe is interacting with the property to form connections that generate a new meaning for the parcel as a place unique to them.

GENERAL PROFILE

Parcel #7 consists of 240 acres of the Coquille Tribal Lands and includes segments of Euphoria Ridge and Enchanted Prairie, approximately one mile north of the Middle Fork of the Coquille River. Its terrain of steep slopes, ridges, and natural meadows, ranging between 700 ft to 2000 feet altitude, were predominantly formed by

the weathering of underlying serpentine rock. It is a rich, diverse, botanical depository for some native plant varieties that are now almost unknown in more populated areas, with over 115 species inventoried during one spring season of fieldwork. The majority of the parcel is covered by "Pacific Northwest Mixed Forest" that has been managed and planted with Douglas fir for timber utility, but pockets of older, natural forest remain around riparian zones. These offer mature conifer specimens of Douglas fir, hemlock, grand fir, red cedar, and Port Orford cedar, as well as a selection of broadleaf oak, alder, chinquapin, and maple.

The Euphoria Ridge parcel has experienced a shift in its dominant plant communities at some time in the past and seems not to have yet stabilized into a single regime. With its position straddling a drier Klamath province within the moist Pacific Coastal belt, the various tree populations may be continuously stressed one way or the other by changes in the local weather patterns. For example, there are scattered, mature madrone trees throughout that prefer well drained dry soils. Many have thrived for years and have grown to be large specimens, yet today they seem sickly, with yellowing leaves and thinning canopies. Growing next to these madrones are many young cedar saplings that enjoy more wet sites.

This holds true throughout the parcel, and the string of white oaks at the interface between the forest and Enchanted Prairie at the parcel's southern edge gives additional evidence of shifting plant communities. This intermixing of different aged species with different habitat preferences seems to suggest that either the area was hotter and drier in the past and within the last decade it is currently experiencing a

wetter period; or possibly this is evidence of anthropogenic alteration of the ecosystem through burning.

It is highly probable that the Coquille Indians burned the ridges of this region and although evidence of native burning is suggestive, it is unfortunately obscured in the historic records and ethnographic reports by a catastrophic stand replacing fire in 1868. Harrington's (1942) informants talk of a historic fire that swept the river that was so hot that both the people and animals that sought refuge along the coastal shore were singed, and that along the river's shallows, the native oysters died. This seems to correspond to a forest fire that swept down the Elk and Sixes Rivers (Bandon Historical Society 1999) and nearly destroyed the town of Port Orford as well as evidence in many photos of the Coquille and Myrtle Point communities showing burnt, standing spars in the background (Douthit 1899). When the Dements came in 1872, "Fire had burned it off and there wasn't any trees. They could see all over the valley" (Wooldridge 1971:358 [1962]). Surveyor's notes from 1875 further support the fact of a stand replacing fire burning within Township 29S, Range 11W. They repeatedly found timber trees mostly burned over and frequently commented on an old burn.

However, they also left indications in support of Indian burning. Although the surveyors didn't reach the upper Coquille until 1875, seven years after the great fire, they were mostly local men who had an intimate knowledge of the land and its history. Occasionally they make similar comments that the vegetation had "almost all been destroyed by the annual fires" (Pershin 1879). Unfortunately they never expand on who lit the fires or why, but the reference to annual burns supports a regime that is more

frequent than the natural stand replacing fires that occur on average, every 271 years in the coastal forests (Impara 1997). Another datum in support of Indian burning is the brief mention of the "burnt over hills" (Hermann 1959:32) in 1865, which was before the great fire. Frank Drew told Harrington (1942) that it was common knowledge that the Indians burned throughout the mountains on a regular basis to keep the brush low so they could see deer on their hunts. Unfortunately, there is no direct mention of the research site.

I conclude that the Coquille Indians may have burned the area of Parcel #7 on a regular basis, perhaps yearly, but other evidence from many Euro-Americans about the impassibility of the forests suggests that at least in the upper river regions, the burning was contained to the ridges. Additional research on the fire frequency at the parcel could include additional vegetation studies, fire scarring of both live trees and stumps, and soil cores.

The existing pattern of intermixed xeric and mesic vegetative communities at Parcel #7 also includes at least 10 mature acorn-producing oaks that are strung along the boundary of Enchanted Prairie. Yet no really old specimen seems to exist, either as a relic within the forest to suggest that the forest is moving south, nor down slope on the prairie to suggest that it was once oak savanna. Based on research investigating Douglas fir and oak competition (Barnhardt, et. al 1987; Fuchs et al 2000; Riegel et al. 1992), I suggest that this forest-prairie edge represents a natural boundary between the two communities that has been fairly stable but with small shifts and incursions in both directions across time. Recently, the moist forest species have increased and the white

oaks are declining with at least one of the standing trees dead and the others stressed. This in itself doesn't represent an environmental loss, but rather if oaks are to be maintained within the parcel, then the concern should lie with the lack of replacements. With no refuge or sustainable oak community to provide their re-establishment during the next shift to drier regimes, their population could be lost at the parcel altogether.

Furthermore, several studies located within California's oak savannas (Griffin 1971, 1976, 1980; Jackson et al. 1998) have shown that the greatest impact to their oaks' health and regeneration is cattle grazing. Oaks take advantage of wet springs to germinate and become established saplings by sinking their taproots. Soil compacted from cattle grazing prevents their root development; the sprouts shrivel and die and the cycle of oak regeneration stops. The climate in these California studies is similar to Enchanted Prairie and soil compaction may also be a contributing factor at Parcel #7. With the intensive ranch management of adjoining properties and the free-range policies discussed in chapter four, management of the area for pasture is probably impacting the oak population.

In a review of the soil types surveyed by the USDA Soil Conservation Service (1989), the parcel is covered with well-drained mountain soils formed by two major processes: 'in colluvium" and "in residuum." The first process creates soil through a

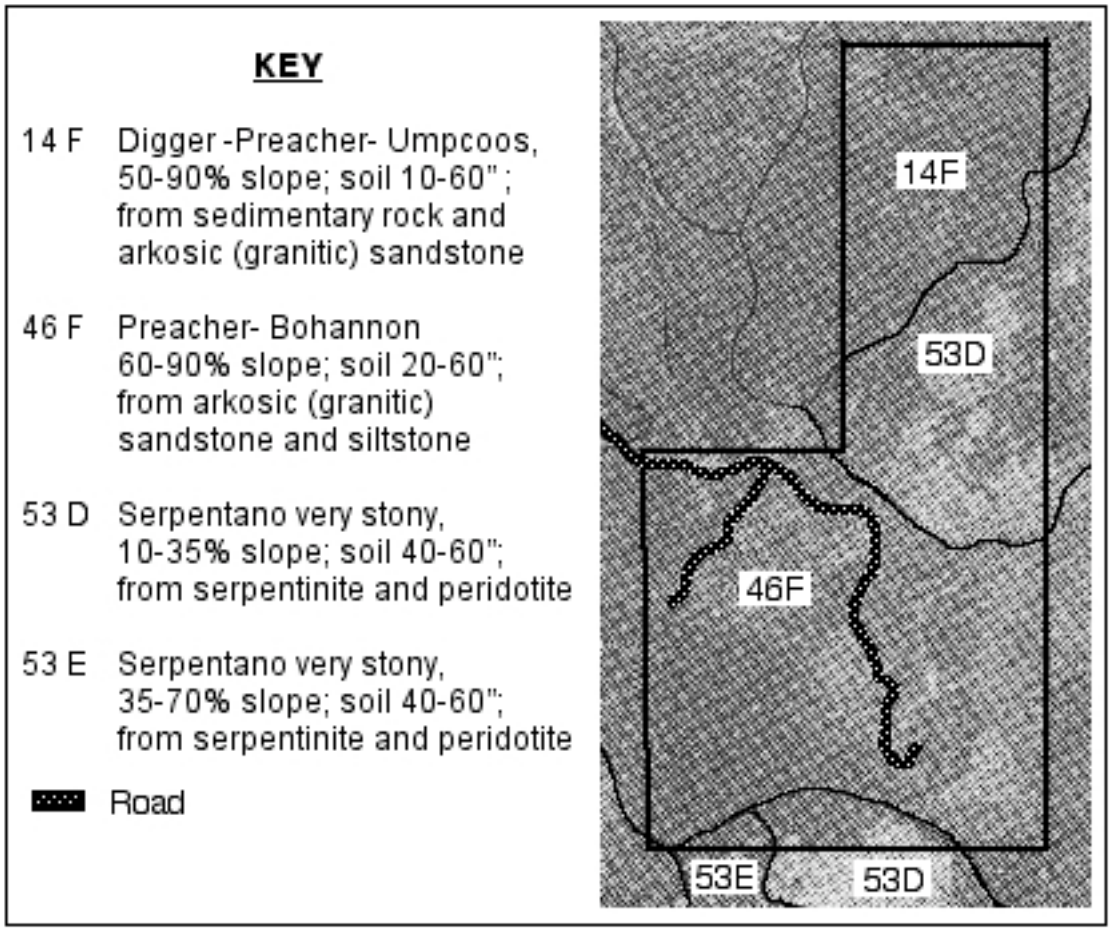

Figure 5.1 Representative Soil Types of Parcel #7, Enchanted Prairie and Euphoria Meadow Complex (US Department of Agriculture's Conservation Service 1989)

continuing deposition of material and rock fragments, moved down-slope by creep, slide, or local wash that accumulates at the base of slopes. This occurs throughout the forested areas and is represented in Figure 5.1 by both 14F, the Digger- Preacher- Umpcoos and 46F, the Preacher- Bohannon soil types. These are basically similar formations differing only in the size of their integrated particles, with the 46F series having components of smaller siltstone particulates. In addition to the deposition of soil from up-slope, the Preacher component in both 14F and 46F adds some on-site buildup

from decaying vegetative material and contributes to the Northwest region's typical acidic soil.

The second process is a residual buildup of soil material from unconsolidated, weathered mineral material that accumulates as the underlying rock disintegrates in place. This occurs in the grassy areas of Parcel #7 and is represented by both 53D and 53E, the Serpentano formations. On site it is clear that these are generally the upper level ridge-tops and that the forming soils continually creep downward to build up in the forested regions. Although the base of these soils is serpentine rock that is high in minerals, including chromium, magnesium, manganese, cobalt and nickel, it does not seem to have built up the high magnesium levels that are characteristically toxic to plants (Kruckeberg 2002).

Although "Serpentine Barrens" are open areas within the otherwise forested environment, similar to Parcel #7, they most often occur in the southern portion of the Klamath region and do not accurately describe Parcel #7's grassy environments. Although at Parcel #7, these serpentine areas are associated with open sections, I attribute this to the shallow soils that cannot support the large root systems of the tree species. Also, these areas' plant communities do not match the "slowed and stunted vegetation growth" of the serpentine barrens that Kruckeberg (2002) considers their defining characteristic. Quite to the contrary, at Euphoria Ridge the open areas support a variety of dense grasses and numerous wild flower species. In one small piece of sod only 2 X 4 inches, 31 individual seedlings were rooted: 15 wildflowers and three types of grass. I attribute these differences foremost to the general location and topography

of Euphoria Ridge's serpentine associations that occur along the ridge-tops. In contrast to the barrens that are often low lying habitats that pool run-off, Euphoria Ridge allows the minerals to leach away through the well drained, stony soils and thereby avoids the build up of toxic levels.

When comparing the general environmental zones with the soil profiles at Euphoria Ridge, there are two large divisions that closely correspond to each other; the Serpentano soils are associated with grasslands; and all other soil complexes support forests. However, except for their initial appearance, these zones are not internally uniform habitats. If we consider the slope exposures and the dominant plant communities, these two large areas can be broken down onto smaller habitats. The parcel has a predominant north-south orientation that results in most of the slopes having either a west and southwest drying habitat, or a protected and moister east and northeast exposure. These exposures set up a continuous shift in habitats by creating a wide gradient of moisture regimes and thereby, differing plant communities. Figure 5.2 a, shows the two larger, general environmental zones with the forestlands represented by the dark areas and the grasslands represented by the white areas. The middle diagram, 5.2 b, overlays the parcel's topography and slope exposures and 5.2 c, shows the ensuing smaller environmental habitats that characterize this land parcel.

Furthermore, in addition to the splintering of exposures, some individual plants with a special affinity to the high magnesium found in the serpentine rock have found protected pockets for themselves. For example, two fern species both with a seeming

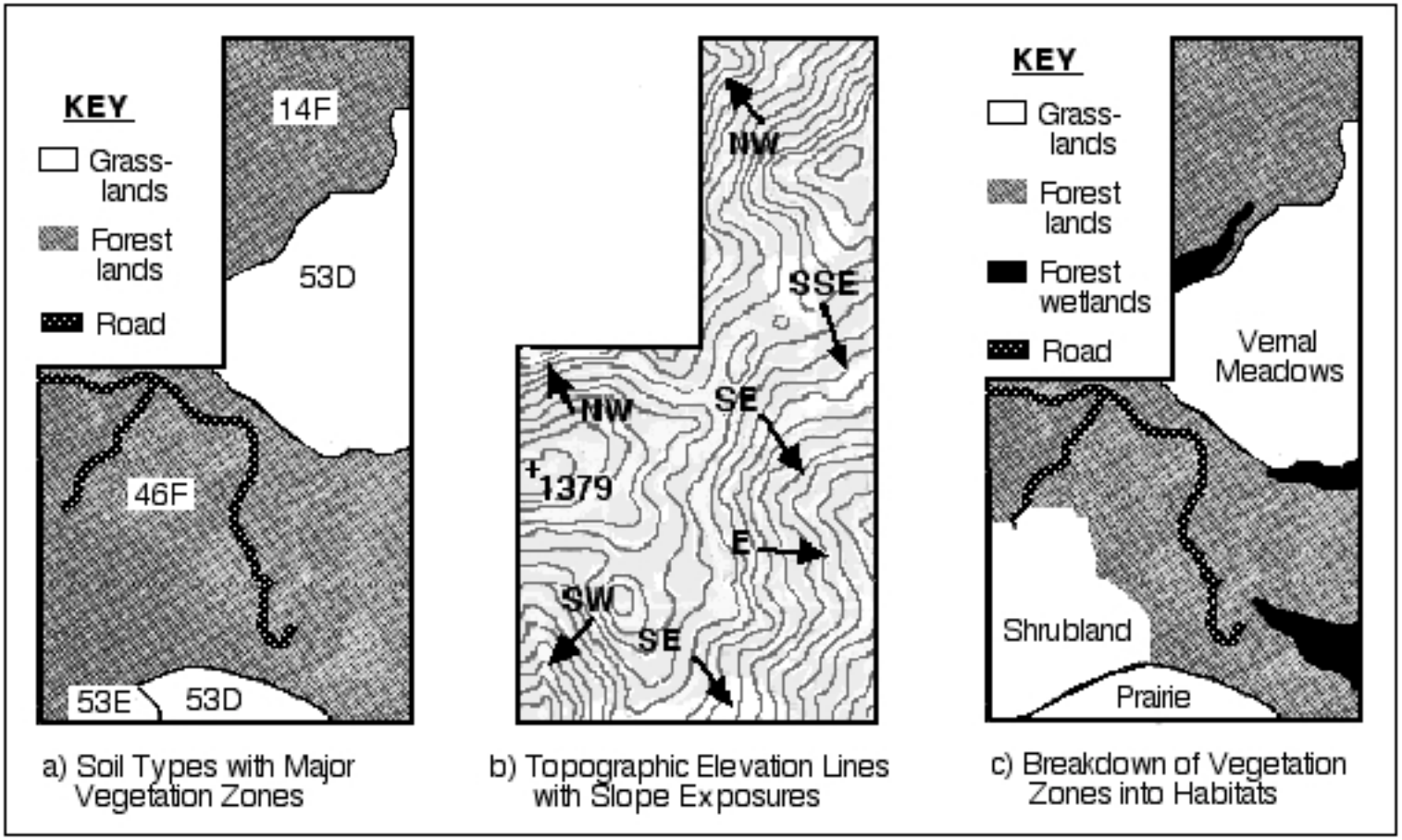

Figure 5.2 Breakdown of Major Vegetative Zones into Habitats Due to Slope Exposures

tolerance for the serpentine and always growing in association with the boulder outcrops, are found on the site, but each prefers different habitats. Pod fern grows on every sunny boulder, yet the golden-back fern is only located on boulders that are shaded and dripping moisture from active seeps. A visitor can marvel at a delicate fairy slipper orchid growing in the shadow of a moss shrouded Douglas fir and within 50 paces experience brilliant sunshine on a flower carpeted prairie. Together, the climate, soils, topography, and slope exposures support and contribute to the parcel's diverse community of both plants and animals that not only make it an experience to visit, but a uniquely special place.

ENVIRONMENTAL ZONES: FIVE HABITATS

As discussed above and shown in Figure 5.2, the broad environmental zones at Parcel #7 can be subdivided into smaller habitats; (1) forest into general forestland, forest wetlands, and shrub land that can mature into forests, and (2) grassland into prairies and meadows. These small environmental zones, or habitats, are admittedly artificial as there are no definite lines to separate one from the other. However, if we look at the progressive shift of plants across the landscape we can see typical areas that defined by the dominant plant communities in each area. While there are some plants, such as Douglas fir, that characterize the larger landscape and grow throughout the area, many other plants survive in the borders, or the understory, or overlap more than one area.

Most species of plants, however, have particular requirements for different growing conditions where they are able to flourish and establish distinctive populations specific to the different areas. Two examples are found among the ferns where the bracken fern can tolerate some shade and will then grow tall individual fronds; however, it prefers sandy, hot soils in the sunny meadows where it grows in thick, profuse populations. Another, the licorice fern, can survive some drying but prefers to grow in the moist, shady forests where it often covers the mossy maple branches. It is these environmental preferences that result in different plant populations growing within small, discrete areas and that form the basis of habitat differentiation.

With this in mind, I have subdivided Parcel #7 into the five habitats as specified above, but I have also listed below, the various associated plants that live in each habitat for a more holistic picture than simply focusing on individual, dominant plant species. To facilitate ease in reading for non-botanists, I describe the plants by their common names but have included their scientific names in Figure A2.1 along with the site numbers of where they were located on the parcel. These correspond to the map in Figure A2.1, and both names and map may be found in Appendix Two.

Forest Lands

The forested lands in the Euphoria Ridge parcel are a classic example of the Pacific Northwest's hemlock/ Douglas fir mixed forest with a major understory of rhododendron. These forests are characterized by a diverse mosaic of plant species including the addition of southern Oregon's distinctive myrtlewood, as well as an

abundance of tanoak, cedars, and the occasional chinquapin. These zones average between 80 and 95 inches of rain a year (USDA 1989) and the thick shade maintains a moisture laden air that nurtures a rich herbaceous ground cover on protected north slopes, including thriving populations of Oregon grape, trillium, fairy slipper orchids, fawn lilies, and diverse ferns. The understory species also include hazel, ocean spray, elderberry, and both evergreen and red huckleberries.

Forest Wetlands

Although the Euphoria Ridge parcel has many seeps and streams, most of these cut through the substrates to form steep mini-ravines and gulleys. Only three streams broaden and spread out enough to significantly soak the soils and change the dominant plant communities. When this occurs, red alder dominates the landscape with scattered maples and an increase in the red cedars. Rushes and sedges take over the understory along with dense fern populations that include maidenhair and ladyfern along with the more drought tolerant sword ferns. The herbaceous ground cover includes wild ginger, nettles, stream violets and mimulus/ monkey face flowers.

Shrublands

The shrubland at the Euphoria Ridge parcel is a result of timber harvests and mimic naturally occurring blow downs that create openings in the forest. They are, however, more extensive and have been replanted to a more uniform and denser Douglas fir population than in naturally occurring areas. Young firs cover the south-

west slope below the Forest Blessing site and the sweat lodge. They are mixed with tanoak and blue bloom. Blue bloom, *Ceonanthus thysifloris,* is the dry community equivalent of alder on wetter mountainsides. It moves naturally into disturbed sites as a first generation stabilizer, fixing nitrogen and slowing erosion until the Douglas fir seedlings with their shade tolerance grow up and through the shrubby blue bloom (Barbour and Billings 2000). Its seed germination rate increases with fire and the density of the plants can often be used as an indicator of the hottest, central corridor of past fires. Its thick growth up the southwest slope of the parcel is probably attributable to the slash burning techniques utilized for past timber management. There is a broad ravine on this dry slope that would have acted like a funnel, fueling any fire, stimulating the fire dependent seeds, and generating the thick stands of ceonanthus that exist on these slopes. In sections with thin shrub cover, such as along exposed road cuts, poison ivy and Himalayan blackberry compete for space.

There are two distinct grassland habitats within the Euphoria Ridge parcel that I have used to differentiate the larger environmental zone: (1) thin-soiled, rocky, well drained habitats like that of Enchanted Prairie, and (2) seasonally wet habitats with soils that dry by summer and make up most of the Euphoria Ridge Meadow complex. Although they each support similar species, there are enough physical attributes and species unique to each to warrant their individual classification.

Prairies

The dry prairie communities seem to result from a combination of physical and geologic conditions. The underlying serpentine substrate breaks out in these areas into a crumbling, gravelly surface with little soil buildup and little moisture holding capabilities. This is compounded by south sloping exposures that shed what water is available and become dried in the full sun. At the northern edge of Enchanted Prairie, these areas are characterized by the short height of the ground cover, small grasses, and many outcroppings of boulders covered with pod ferns, moss, and lichen. However, with spring warmth and moisture they become covered with blooms: blue-eyed grass, grass widows, red maids, wood-lover, yarrow, blue gilia, and saxifrage. The heavy moss and lichen layer provides a seedbed for many small annuals and short lived perennial flowers that carpet the hillsides with a seasonal progression of blooms from early spring into summer.

Vernal Meadows

In contrast, the wet meadows have their boundaries within the saddles between the knolls and ridge-tops of the parcel. The relatively flat areas allow soil to build up before it creeps down slope into an ever-thickening layer in the bottoms that can support a perennial sod base of European pasture grasses. The soils are supported by a sod of wild rye grass mixed with perennial rushes, bracken ferns, and lilies, such as camas. Highly productive in the spring, they also dry out by mid summer and are

susceptible to invasion by drought tolerant forest species such as Douglas fir and myrtle wood that gradually invade from the forest edges.

MANAGEMENT CONSIDERATIONS

The Coquille Indian Tribe's Parcel #7, Enchanted Prairie and Euphoria Ridge Meadow Complex holds multiple levels of concern for management. Some of these, such as safety and economic issues, are what I consider "normative," or what any mainstream land manager would take into account. In addition to these, however, are a set of concerns that are unique to tribal properties and those who deal with the tribes, such as the federal administrators for the Federal Bureau of Land Management, the National Parks Administration, and the US Forest Service. While each of these agencies has different and specific legal obligations, their interactions concerning land management issues reside in the various local tribes' cultural concerns regarding their ancestral land use. Quite simply, different tribes in different regions use different resources. Foremost among all these, that both federal and tribal managers attempt to deal with, are practical issues associated with gathering and hunting in the accustomed places.

Normative Concerns

Most land managers would consider safety one of, if not their top priority. This would include the safety of both the site, regarding issues of maintaining its biological

integrity, as well as the personal safety of human visitors while on the site. First amongst these is the physical safety of visitors to the site, while interacting both with the land and with other visitors. At Parcel #7, the general public and tribal members may be visiting to use the general area or, more specifically, to utilize the Euphoria Ridge Trail system that runs through part of the property. These visitors will find that although the terrain at the Euphoria Ridge parcel is steep, it is generally not over-rugged. The developed trails have fairly gentle grades and are on stable slopes. Most of the various game trails are sound and are on compacted soils except along the south-east slope, below a hairpin turn in the access road. This slope, however, has had several landslides and the game trails are hazardous and should be used with caution.

The Tribe has also been clearing the brush, reducing fire fuel loads, and cutting the lower limbs from trees along the trail area in order to keep an open line of sight and to create a comfortable, secure feeling for visitors. The management goal is to eliminate any areas that might camouflage or hide possible attackers. This is not only for safety of the general public but also to secure the safety of Tribal members who may be using off-trail areas for harvesting traditional foods, medicine, or basketry materials.

Another physical safety concern for all visitors involves the noxious poison oak plants. In the Pacific Northwest, poison oak is a highly variable plant that can take on different growth patterns. Either as a bush or a vine, it produces an allergic reaction in most people (Stehlin1996) and can make the enjoyment of outdoor areas uncomfortable for many. It is impossible to eradicate but can be managed in small areas. Although combinations of manual removal and chemical herbicides together have reduced its

presence in research areas by up to 80% (Murphy and Brown 1993; Daar et. al. 1984), this use of money and labor only seems warranted for high use areas. Additionally, many birds enjoy the seeds of both poison oak and honeysuckle and if chemicals are applied to one, both are lost as a wildlife resource. The best management tool is perhaps a pair of heavy loppers to cut through any large vines that are growing into trees and developing quantities of seeds that are efficiently dispersed over a wide area. Once cut they can be left to die without removal to minimize worker contact but still limiting any further spread of the plants. Again, both the general public and tribal members would benefit from its control along the trails, but the additional use of other areas for traditional gathering creates special hazard for tribal members and adds another layer of ancillary responsibilities in Native American territories and lands.

Native basket weavers collect both hazel sticks and honeysuckle vines from the brushy areas that are often highly impacted by poison oak. The honeysuckle vine sends out thin, whip-like branches that twine under and amongst other plants, including poison oak. This makes independent management of the two species very difficult as they co-exist, both often climbing together into mature timber trees as well as into brush, and if the gatherers are not careful it is quite easy to harvest poison oak instead of honeysuckle! When there are no leaves they are easily differentiated by their barks, shown in Figure 5.3; honeysuckle's is red and shredding, and poison oak's is rough and grayish. The Coquille Indian Tribe is currently managing targeted areas during their spring trail maintenance work at sites where gatherers may be impacted the most. It is

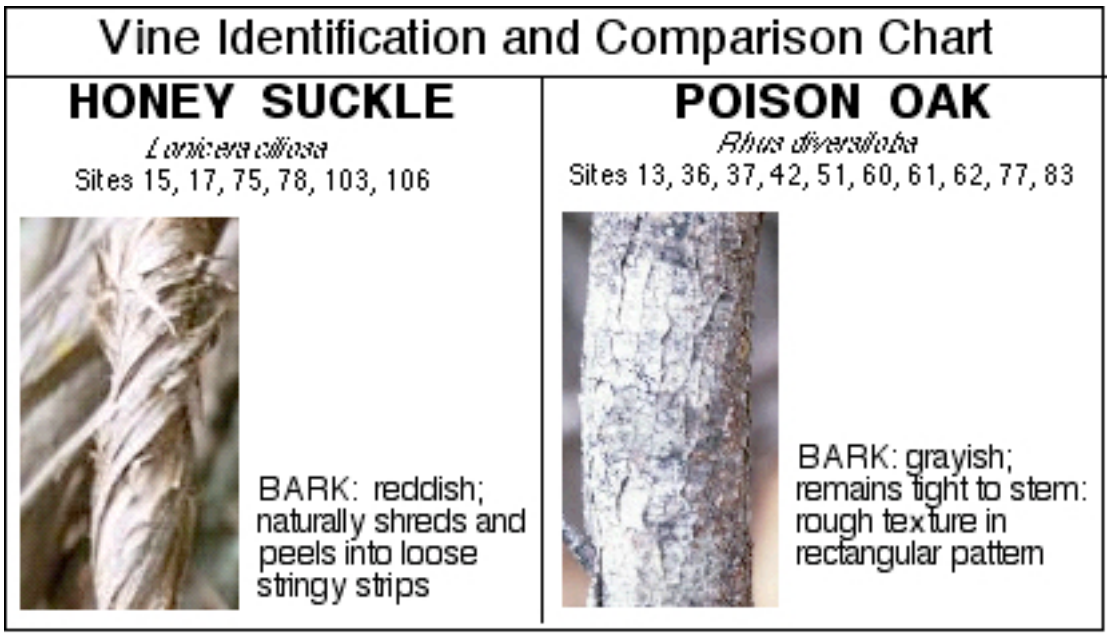

Figure 5.3 Euphoria Ridge Vine Identification and Comparison Chart

thought that poison oak has spread to such pervasive levels primary because of two mainstream cultural impacts: (1) by cattle whose hooves create churned, disturbed sites in moist soils that the ivy can invade and (2) by the cessation of tribal burning that would limit its growth along with other understory, brushy expansion.

A second area of concern for all land managers involves the control of invasive species. At Parcel #7, the largest group of non-native plants contains at least five European grasses brought in either with cattle fodder or planted as feed and pasture grasses. These include annual brome, fescue, hairgrass, dogtail-grass and wild oats, which together dominate both wet and dry meadows. These have integrated themselves into the local communities so well that little can be done to control them but in some cases periodic burning has successfully increased the percentage of native bunch

grasses in the sod cover (Brudvig et al. 2007; MacDonald et al. 2007; MacDougall and Turkington 2007). Another invasive species, Scot's broom, appears to have been introduced into the parcel through human transport on vehicles as it is currently establishing itself at roadsides and the parking area at the trailhead. There are a small number of individual broom plants that suggests an aggressive removal plan might be successful if implemented soon.

At Parcel #7, economic concerns are principally normative, mainstream management issues: balancing income to expenditure outlays. While trail improvement, maintenance, and the safety issues discussed above are fairly standard, their long-term management goals place them outside the mainstream. Their normative concerns involve harvesting timber as income and the out-going payments for road improvements to facilitate removing their harvests as well as post-harvest clean-up and recovery work. In addition to these, the Tribe also must earn enough revenue from the timber to support the additional costs of maintaining the Parcel as a cultural property. This is where the Coquille Indian Tribe's values begin to become more evident. Their timber income must also be enough to match the economic needs of fulfilling their Constitution's (1999) stated "sacred trust" to enhance their resources. Currently, this enhancement is interpreted as a desire to restore the land to conditions that reflect what existed for their ancestors, or at the least, to maintain existing habitats for future generations' management options.

This restoration management is calculated for the timber harvests on the parcel by the record left by the early logging stumps. These provide a good concept of the

ancient tree densities and helped set their goals for current harvesting. The tribal managers envision a low density of large trees, averaging 12-15 stems per acre, with a high, open canopy and a mixed shrubby understory (personal communication, Don Ivy 2002). Knowledge of what the parcel's overall species richness may have been 150 years ago, however, is harder to document, but managers are fortunate to have both living evidence on site as well as a store of traditional knowledge about the many species that were utilized by their ancestors. These plants, such as hazel, camas, and yerba buena, are labeled culturally important and individual populations are being managed for increase. Other relatively scarce native species, such as the small, native variety of the herb, 'heal all' or 'self-heal' (*Prunella vulgaris* var. *lanceolata*) that are found on the parcel are also considered assets. Yet while the tribe's cultural values may demand that they preserve these traditionally less utilized species, the economics of costs to both personnel and time prohibit individual management plans for each plant species' protection. Current management plans reflect a realistic compromise in a 'try to do no harm' policy. The reasoning is that if they can preserve the existing habitats that are found across the parcel, the various plants should be able to maintain their own populations as they have for millennia.

While both the tribe and the National Park Service might use the same mid-nineteenth century date as the baseline for their restoration goal, the tribe also has different reasoning to restore contact era conditions that set them apart from the mainstream. First, the Tribal management reflects another level of time commitment; it is quite ordinary for the Coquille Indian discussions to cover issues that span 250-300

years, far beyond the normative 20-50 year plans. Additionally, although government agencies may be using the same date of the mid-1800's as the base line for their restoration work, the value behind the goal is diametrically different. The National Park Service's goal is to mimic the conditions recorded in the Euro-American explorers' journals so that citizens might experience Nature in the same ways as these explorers recorded (Louter 2003).

For the Coquille Indian Tribe, there may be the same base line date for restoration, but their goals are to return it to conditions that their ancestors experienced and to reestablish the balance among ecosystem components that their ancestors created on the land before their removal. Parcel #7 offers a specific opportunity for this. As Sharon Parrish exclaimed when she looked down onto the prairies and witnessed camas digging during a field trip to Euphoria Ridge, "It hasn't been until just now that I can truly see how it must have been." These subtle shifts in scale and values demonstrate a tribal mindset that their people are not only here for the long haul but also here to stay. Furthermore, they are adamant that to achieve these renowned 1850's conditions, it will be necessary to use the same processes that 'worked' for their ancestors, principally burning. Any discussion of management options always includes questions of when they can proceed to burn again, a topic I discuss in the next section.

Tribal Concerns

While it can be stated that the Tribe has a general concern with meeting the over-sight goal established to restore the parcel to contact era conditions, it becomes

harder to tease apart what that means on a practical management scale. One problem for management is the holistic nature of their ancestral involvement with their management techniques; those individuals harvesting the resources were also the manufacturers, the product consumers, and simultaneously the equivalent of today's land managers (Anderson 1996). If a patch of hazel became insect infested, they noticed it when they harvested and they burned the patch. When the weaving sticks were brittle, they experienced it when they wove the basket and they were the ones who burned their collecting site to rejuvenate their resources and prevented the problem from happening the next season. If camas yields were low in one field, they moved to another, secondary patch the next season. Time and again across generations, intimate and connected decisions were made between the tribal ancestors and their lands that are difficult to re-create with early twenty-first century lifestyles and skills.

Although usually interested and involved with traditional tribal members' needs, quite often Tribal land mangers are not themselves weavers but professionals with full time positions, whose job it is to contend with government regulations and paperwork. While they may try to understand and meet the needs of the traditional elders and basket weavers, the coordination required to get those elders who are knowledgeable out to the sites can sometimes be logistically or physically overwhelming and communication can be difficult. For example, many weavers don't understand the complexities or needs of filing burn permits and managers cannot quite grasp what it means to "burn it to get buttery sticks." I think that many of these problems are a direct result of the disconnect forced on the Tribes with removal from their lands during the

Reservation era and subsequent, forced assimilation to mainstream American culture. As George Wasson explained at the 2005 Coquille Culture Conference, many of the Coquille Indian Tribe's traditional connections were kept by women who stayed behind on the land, often marrying Euro-American and Canadian miners and homesteaders. That way they avoided the concentration camps and reservations and were able to pass on their knowledge about the old ways, often late in life, to grandchildren, nephews, and nieces assigned to care for them in their old age. Often there has been at least one, or usually two generations since traditional activities were carried out in traditional ways on the traditional lands. Instead of a continuous dissemination of knowledge given to youth as they were growing up and working side-by-side with their parents, children of the late twentieth and early twenty-first centuries are attending schools and learning educational skills for the twenty-first century's needs.

Teaching basket weaving increasingly occurs at tribally sponsored workshops that are heavily attended by middle-aged women who are either retiring or established in their mainstream jobs and who finally have time to focus on learning the traditional skills that always interested them. These tribally sponsored workshops are a practical response to current needs, time management problems, and a feeling of urgency to pass on the traditional information to as many interested people as possible before this generation of elders passes. It is, however, a shift away from single elders training individual apprentices. Despite the fact that many elders seem to embrace the workshop format, they are often in their 80's and trying to teach groups of middle aged

children who have never directly experienced traditional management activities themselves and some frustrations are bound to arise.

One of these frustrations that the elders are fighting against at workshops is that the students are always concerned with the time spent in the field gathering when what they want is to concentrate on is just the weaving techniques. They want someone else to gather the materials and have it ready for them when they come to workshops. However, the elderly teachers scorn this attitude and absolutely refuse to allow this "kit" mentality into their lessons. Over and over, one can hear that it is not simply teaching weaving they wish to do, but rather they are there to share traditional knowledge, which must include the connections between Indian people, the plants, the animals, and the land. They state that in order to hold the tribes together, each generation needs to know who they are and where they come from before they can know where they are going. The elders want the students to understand that traditionally it is "not unusual to think of other things and other people than yourself" and that furthermore, there exists a circle of reciprocity. If the plants are not tended with compassion and consideration for the plants' needs, then the plants will leave and will not be available "to give" to the weavers. This is the traditional belief and the traditional value earned with weaving, that "Every basket helps us grow as humans." And so, students are left with the directive to tend, gather, and prepare their own materials.

As this trend in workshop learning results in increased numbers of basket weavers, subsequently there is a need for increased numbers of appropriately growing

resources. However, there is a general lack of good gathering sites and a growing concern about possible over-harvesting sites that do exist. New land management planning is needed in order to supply three or four carloads of weekend weavers traveling hours down back roads to visit multiple sites and harvesting material. I use the term "new" in consideration of the shift in scale that has become evident with the workshop trend. I propose, however, that what the Tribes need to do is not new at all, but rather that they need to use current management skills to duplicate older tribal-scale processes that would have been used during pre-reservation times.

For example, among the coastal tribes hazel was the dominant material for the spokes of most baskets and it is considered absolutely necessary for the strength requirements of large burden and storage baskets and cradle-boards. According to Thompson's ethnography (1916), hazel sticks were gathered in northern California by the thousands in the early spring when the sap is rising in order to peel them with one quick jerk. Over the last 100 years, determined but mostly individual elder weavers have struggled to obtain enough hazel to keep the traditions alive, mostly through pruning, small patch burning, or following the smoke to wild fire sites. These resource management techniques can just barely supply the needs of a single weaver and could not have supported a whole tribe's ancient basketry industry.

The elders have done their job in keeping basketry alive but with tribal population growth and increased interest by younger members, the only way to provide the projected needs for basketry materials is to mimic and create the conditions for large scale collecting as it was done in the past. With regained tribal autonomy over tribal

lands, it's the tribes' responsibility to start thinking about managing once again for a tribal scale of harvesting if they truly wish to maintain basketry traditions.

If, as Don Ivy the Cultural Resource Coordinator for the Coquille Indian Tribe, explained to me, that it is the human use that "manifests itself in cultural traditions," then those traditional uses must not only be fostered but the resources must also be managed, to meet tribal scale demands. I suggest that this concept is another alternative to mainstream mindsets concerning restorations and is unique to tribal concerns about the justifications and processes of their restoration work; cultural use creates traditional practices.

TRIBAL RESOURCES

Don Ivy uses the concept of cultural use for his management decisions for Parcel #7. As he explained in a round-robin of email communications between Tribal Resource Managers and various federal government managers (July 2006), traditional knowledge is based on "intuition, common sense, and millennia of human experience... it is only if folks get a chance for some hands-on applications of traditional practices that things will become clear." It is an unstated objective that the resources be defined by and maintained for use; therefore this section documents the traditional resources at Parcel #7.

The Euphoria Ridge Parcel is a classic example of what has been called a ‘natural pantry,’ with countless plants that would have provided food, fiber, medicine, tools, housing and other items of daily life. Out of the 118 species inventoried in the spring of

2003, 51 have some cultural utility and are documented in Appendix three. The parcel is further exceptional in that it not only has examples of these plants but in most cases, it has thriving populations.

Eleven different berries of varying utility and palatability are available: thimbleberries, blackberries, the red and evergreen huckleberries, salal berries, salmonberries, Oregon grape berries, strawberries, gooseberries, elderberries, and currants. Some are foods, others are dyes or medicines. Seeds of various grasses and sedges known to have been collected for human consumption in other areas are available at Euphoria Ridge as well. Nuts could be gathered from hazel, chinquapin, and oak trees. Over twelve different root plants could have been dug, including the bulbs from camas, harvest lilies, cat's ear lilies, fritillary, biscuit root, and spring beauties that are reported as providing a major carbohydrate staple for tribal people. This rich diversity of historic resources that were, in all probability utilized in the past and could still be gathered by interested people today.

In order to facilitate the layperson's ability to learn about and access these plants, I used an inter-active, standardized format to present the information and coordinate both the plant and person's location at Parcel #7. The handbook was designed for the tribe and has been transferred to Appendix three. It places knowledge of the local plants growing within the Euphoria Ridge Parcel into a system that is readily understandable for the interested person as they move about the landscape in two different ways. As

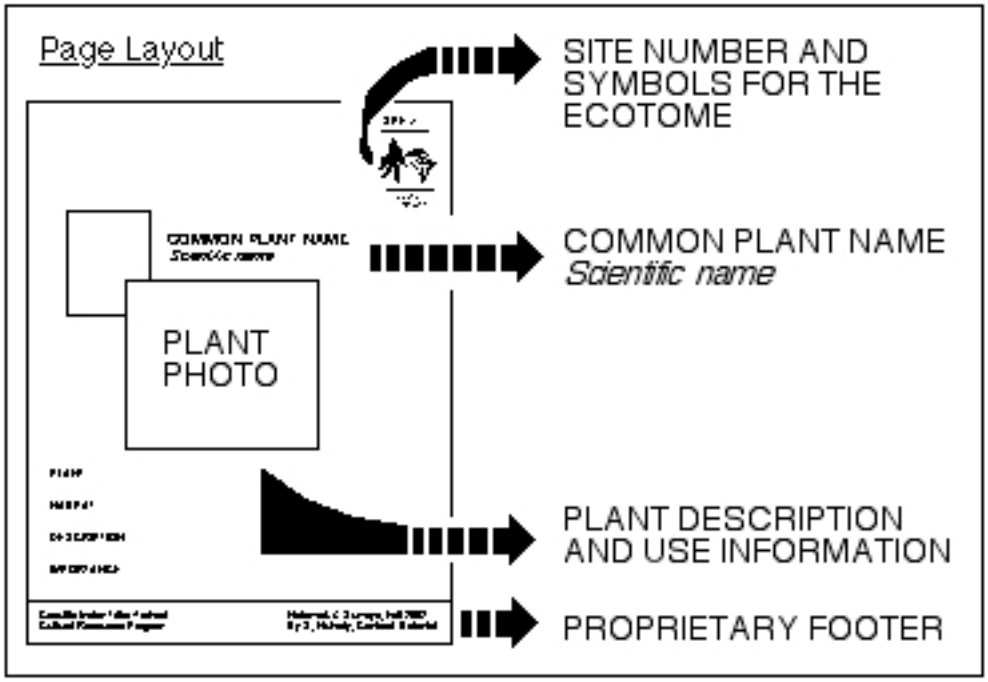

Figure 5.4 Description of the Layout for the Cultural Resource Handbook

Figure 5.4 shows, in the upper right corner, it links the location of plants to specific numbered places on the local site map where they were found during the survey. Additionally, symbols for the five habitats shown in Figure 5.2 are located on the pages directly below the site numbers to help users cross-check their location to the forest land, shrub land, forested wetlands, or grasslands. By matching these simplified symbols, it is hoped that the handbook will be user-friendly and locale-specific to greater degree than any commercially available texts that require knowledge of plant names or even color of blooms. Plant pages include photo documentation, habitat preferences, and the cultural utility of the plant species. Additionally, scientific names follow the common names on each page and include the botanical authority responsible

for the species naming. Both the Hitchcock and Conquist's (1973) flora as well as the Jepson Manual (Hickman 1993) were cross-referenced and where conflicts in scientific

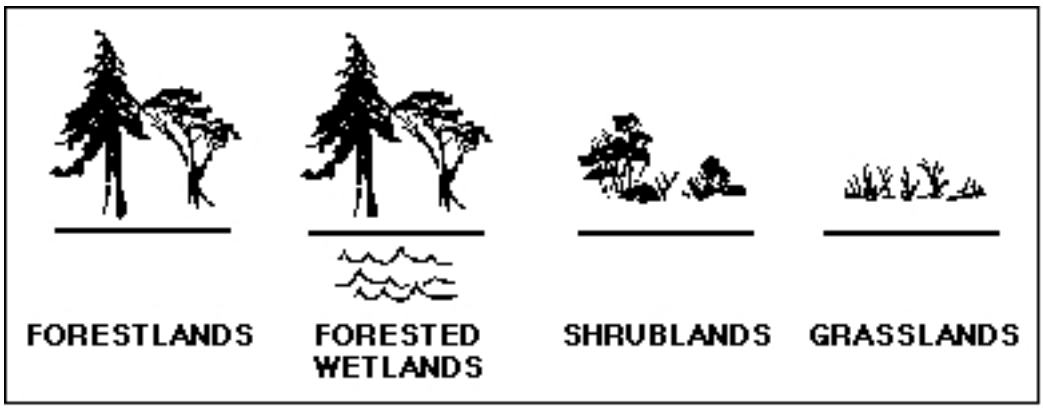

Figure 5.5 Habitat Symbols Used in the Cultural Resources Handbook

naming occur, Jepson's designation is given first on the page. Questionable identifications were resolved by following the nomenclature of the vouchered specimens held at Oregon State University's Herbarium and with the kind assistance of the Curator, Dr. Richard Halse. The handbook is designed to be a utilitarian tool for traditional gatherers as they learn the available resources at Parcel #7.

Cultural Utility

As mentioned briefly above, The Coquille Indian Tribe is generally encouraging individual tribal members' gathering of small quantities of materials on Parcel #7 by maintaining traditional plants and facilitating their location through listing in the parcel's Cultural Resource Handbook. Additionally, the tribe is also managing their

land for gatherings, workshops, and other group activities. This not only provides for the spiritual and emotional connections that gatherings on this piece of their ancestral lands offers, but also provides pragmatic, practical benefits. One of the greatest advantages of the Coquille Indian Tribe's ownership of the parcel is that it offers a safe place to gather without members fearing hostile remarks or attacks from non-tribal members, as well as the knowledge that they are obtaining safe, non-toxic materials.

Both camas, as a ceremonial food, and hazel, as a basic basketry material, are traditional plants that merit both special safety concerns and special quantity requirements. While both may be available elsewhere than at the Euphoria Ridge Parcel, both need to be managed in specific ways to be safe and useable for tribal members' bulk harvesting and specifically, the tribe needs to increase the numbers of these plants on the parcel. Camas is desired for a traditional food source at Tribal gatherings, festivals, and ceremonies; unfortunately, many of the alternate sites where camas can be collected are waste areas, roadsides, or abandoned fields. Quite often these have been subjected to herbicide sprays or other contaminants that in all probability are stored in the plant bulbs and therefore they are unsafe for consumption. This also holds true for many of the basketry materials that are often handled extensively in their processing before weaving begins. Weavers not only need to be protected from ingesting any poisons while they are peeling or splitting the sticks, which is often accomplished by placing one end of the stick in their mouths, but also the finished basket should be safe to store food products and cook with.

Traditional Hazel Management

Ownership of the parcel allows hazel to be grown and managed in traditional ways within burned patches beneath the shaded canopy of mature trees that will generate good quality as well as large quantities of weaving material. Hazel grows throughout the Euphoria Ridge parcel in moist sites with available sunlight, as seen in Figure 5.6. Unfortunately many of the hazel plants are growing densely and are mixed with other plants, shrubs, and timber that create problems for management. For example, several large mature Douglas fir and cedar trees would need significant branching or cutting to open the canopy to encourage hazel growth. There are, however, several more manageable sites that could be developed into culturally functional hazel patches for weavers as well as for nut gatherers.

One is located at the west edge of First Meadow in a small area with rich, moist soil and a gentle eastern slope. It is currently growing a mix of plants in a jumbled wasteland that includes ocean spray, hazel, young cedars, camas, death-camas, and poison ivy among others. The advantage of this site is that it brings visitors into the meadow complex and therefore, hopefully increases their awareness and appreciation of the entire parcel. It already has all the characteristics that hazel requires and is a readily manageable size that would give relatively quick results. Besides development into a hazel patch, this area already needs to be managed to keep poison oak from becoming rampant and moving further into neighboring trees and possibly into the main Camas Meadow. It offers a good test site for poison ivy control, burning, hazel, and camas management in one tight zone.

Two additional sites are in close proximity to the road and to each other and offer easy access for elderly and disabled visitors. Besides access, their main advantage is the existence of a high canopy that creates the dappled light conditions that reportedly help hazel to grow tall and straight. If managed together and burned on rotation, regular

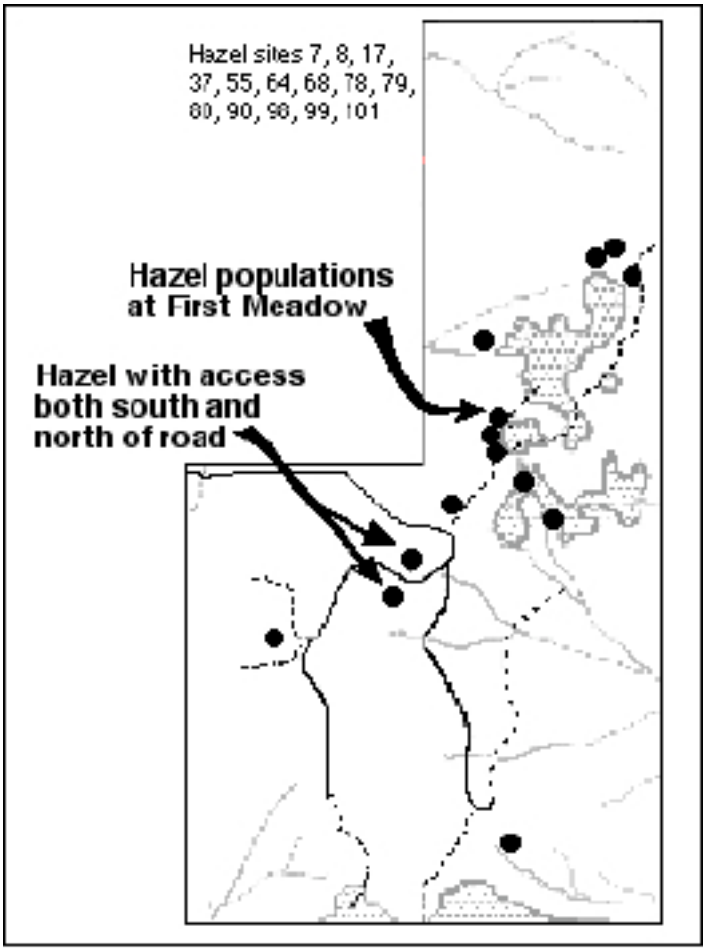

Figure 5.6 Possible Hazel Populations for Increased Management

yearly visits could be planned with weaving sticks cut from one patch, nuts gathered from another, and the third waiting for the burn. The planning of this as a yearly gathering event would introduce weavers to the area and hopefully foster the development of a self-perpetuating tradition after a couple of years.

Table 5.1 synopsizes the information from tribal weavers based on knowledge passed down to them and arising from their own experiences managing their traditional resources to achieve what they feel are the best quality traditional materials. They report that pruning alone may work to give a few straight sprouts but it doesn't kill the weevils that often get under the hazel bark and make weak spots in the sticks that causes them to snap while being woven. Another option is that individual plants may be pruned and then propane burned to generate a few high quality weaving sticks, but this often only gives mediocre and short time results. Frank Lake has been using this method with elderly Karok and Yurok weavers to help them work around not having access to larger hazel patches. He recommended to me (personal communication 2006) that you make a small pile of debris around the base of the hazel plant in order to generate enough heat to stimulate the crown to sprout. The fire needs to be hot enough so that the heat penetrates the ground, and not just a surface burning of the pruned woody stems. However, all ethnographies and interviews report the same information: repeated burning is critical to the production of long, straight, pliable weaving sticks.

Table 5.1 Burning Recommendations to Manage Hazel as Cultural Weaving Material

Hazel Burning, Harvest Cycle

3 years *between* burns

- **Year 1 Fall harvest of nuts and burn**
- **Year 2 Optional Spring burn after harvesting small sticks for fancy work and dance hats, if harvested in Spring, skip fall harvest**
- **Year 3 Fall harvest for large work, good length for cradle boards, storage baskets, etc**
- **Year 4 Fall harvest of nuts and burn**

Needs light overstory so that it doesn't bush out, but rather reaches up and lengthens sticks; best patches are under a 60-70% canopy. with dappled light.

Elk will not eat all the new shoots if some tall and old branches are left standing in the patch.

It appears that the qualities of length and straightness can be achieved from epicormic sprouts or side branches that are produced with pruning, but the qualities of pliability and the "buttery" feel that only older weavers seem to have experienced is a result of basal sprouting from the crown of the plant. This would be anatomically correct in that each level of vascular tissue that a plant develops also lays down additional fiber cells, sclerenchyma, and collenchyma that give plants their strength and support, so that early tissue developing from a main meristem is the most tender and supple. This interconnection between the structure and function is important not only to

the growing plant but also is an important connection between the structure of the weaving materials and its function in the weaving process (Fluharty 2003b) that is reflected in the quality of the finished product. The weavers' skills alone can achieve only a limited success with poor materials. I suggest that the incredible beauty and functionality of many of the oldest pre-reservation baskets are the result of both the finest skills and the finest materials, which many of the younger weavers have not had the opportunity to experience. Only through the application of fire that reaches temperatures hot enough to suppress the primary growth cycle and stimulate the meristematic tissues of the subterranean plant organs can long, straight, and pliable qualities be developed together.

The perspective of what it means to have fostered these qualities in a hazel "patch" struck me with both the realities of scale and traditional authenticity when I visited a site that had been cared for uninterrupted, across the generations. I do not want to give the specifics of the site in order to protect this cultural treasure, but it should suffice to say that it was tended by an elderly weaver who lived in a small cabin at the edge a Californian Tribal reservation. On a gentle easterly slope underneath a stand of mature California Black Oaks, approximately 20 acres of hazel shoots or suckers stand as a testament to the historic basket industries of Native American Tribes. While it is known that fire and prescribed burns are capable of altering the composition and densities of forests and grasslands (Kemball, et al. 2006; Norris 1990) and that the resulting shifts in vegetation communities were culturally maintained by Native American Tribes for their needs and values (Anderson and Barbour 2003; Egan 2003;

Keeley 2002: Peter and Shebitz 2006), nothing prepared me for the reality of a substantial, culturally altered growth characteristic of a single species.

Hazel characteristically grows as a small multiple stemmed tree or bush, but the repeated burning and harvesting at this historic site had created what appeared to be individually stemmed plants spread across the slope like a field of corn. The suckers are apparently developing from a dense, highly developed network of lateral roots in a manner more often associated with rhizomatous species. This remarkable site, which is being maintained by its tribe's Cultural Burn Program within their Forestry Department, and the manner of the hazel's growth are quite unique and could only be considered a cultural artifact. Its existence, however, opens questions as to the possibility that there may have once existed many such gathering sites and whether it is possible to recreate similar sites to meet the increasing demands for basketry materials.

I think it is highly probable that by mimicking this known example of ancestral management, using long term planning, hazel sites could be developed that could once again supply basketry material on a tribal scale. Not only does burning encourage existing growth characteristics, such as the increased production of suckers from the plants' crown regions, but also through repeated anthropogenic manipulation, it is possible to alter plants' basic patterns of growth characteristics to produce a more desirable cultural product. In support of this possibility are two lines of investigation. One is field research from Jennifer Kalt, the Resource Protection Associate for the California Indian Basketweavers Association. Using ethnographic testimonies that repeatedly speak of the need for burning as a guide, she developed a test plot of 50

plants to demonstrate that the application of fire would produce more sprouts per crown (personal communication 2006). Her results compared the pre-burn harvest that averaged from none to two useable sticks per plant with the post-burn harvest average of 15 useable sticks per plant. The California Basketweavers Association is using these data to reinforce the validity of burning as a traditional practice and bolster their petitions for burn permits.

The second line of evidence comes from botanical research that bolsters my hypothesis that plants may be capable of altering those traits considered characteristic to their species. While studying the effect of various enzymes and nutrients, several researchers independently discovered that plants are capable of spontaneously altering the morphological architecture of their root systems. Interestingly, they attribute the reported changes as adaptations to environmental stress and not a product of their chemical or enzymatic experimentation (Kaska, et al. 2003; Kuroha, et al. 2006; Peter and Shebitz 2006; Vessey 2003). Furthermore, Kaska, et al. (2003), were working with six different pine species, which support that not only do changes in root morphology occur, such as in grasses and herbaceous plants, but that it occurs in long lived tree species such as hazel. Kuroha, et al. (2006) reported an increase not only in the growth of lateral roots but also an increase in the formation of these underground organs; that coincides with what I propose has occurred at the historic hazel site.

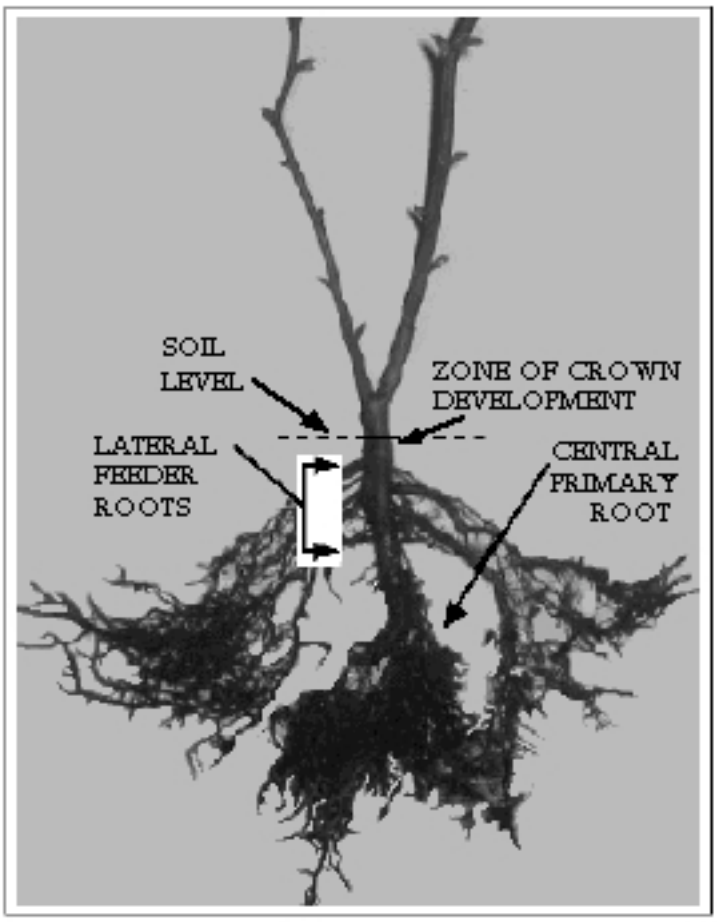

Figure 5.7 Two-Year-Old Hazel Plant Showing Characteristic Lateral Feeder Roots and Central Primary Root

Although I was unable to study or experiment with the hazel site specifically, Bob McConnell, a Yurok tribal member, told me that hazel has a central 'tap' root as well as feeder roots, "like grapes" (personal communication 2006). I was unable to find any literature on hazel roots, so I proceeded to dig two naturally growing hazel plants from my wooded yard to investigate their root morphology. These were selected because they were squirrel-planted, growing where I didn't particularly want them and I

thought they were small enough that I might have success in removing them from the ground with an intact root system.

Figure 5.7 is a picture of one of the plants, with the removal of as much soil as possible. It shows characteristics of these two hazel plants: they exhibit two components in their root architecture, a central primary root and upper level lateral roots. While certainly not duplicating the conditions at the ancestral hazel site, or demonstrating the effect of fire on hazel roots, it does nonetheless suggest that hazel has physical characteristics that could be developed to mimic the characteristics at the historic site and warrants further research. It is known that regular burning stimulates sucker production and may also increase the number of upper level lateral roots and adventitious sprouting.

Traditional Camas Management

While management of individual species such as hazel, medicinal or food plants is relatively straightforward, camas is an integral part of the wet meadow community and management issues can become more complex. Early considerations began with the Cultural Resource Handbook that achieved its initial purpose of documenting species richness and allowed correlations of the various plants' location onto a visual map of Parcel #7. It informed the Tribe of the diverse, culturally important plants on the parcel that they had targeted for management. Many of these were medicinal herbs or basketry material, but camas was of particular interest for the Tribe as it has recently

received a re-genesis as a cultural icon and members wish to harvest its bulbs from the property.

Camas has a long association with humans throughout history and pre-history (Eaton and Konner 1985; Turner 2005). It's bulb has been utilized as a major carbohydrate by Native American tribes within most of the United States (Norton et al. 1984) from the east coast through the northern central states, across the prairie, and into both the mountains and valleys of the Pacific Northwest (Statham 1982; Thoms 1989; Turner and Kuhnlein 1983). Camas was a dominant food, existing as a cultural icon along side salmon for many of Oregon's Tribes (Connolly 1986). As described in chapter three, it was utilized by the ancestral Coquille.

Camas is in the lily family and is a major vegetative component in Oregon's vernal wet meadows and can be found at varied elevations from sea level into the plateaus and the upper reaches of the Coast, Cascades, and Siskiyou Mountain Ranges (Oregon Plant Atlas 2005). It once provided a striking element visible at any mountain trail vista point. Its spring blossoms are held high above the surrounding meadow plants and can carpet the landscape in a striking blue haze.

As a genus, Camassia is a relatively small group of bulbaceous flowering species distributed predominantly in North and South America; however, there exists a great deal of contradiction and confusion around the taxonomic standing of the species within the genus *Camassia*. The following species are consistently recognized in their taxonomic status as species in the literature: *C. biflora* in South America, from Peru south to Chile and east to Argentina (Cocucci 1969); *C. scilloides* and *C. angusta* in

eastern North America (Ranker and Schnabel 1986); *C. leichtlinii and C. quamash* in northwestern North America. Of these, the first three species are recognized without subspecies, and *C. leichtlini* has only one subspecies that has white flowers instead of the common blue (Ranker and Hogan 2002).

Taken together, the genus appears to be a remarkably stable evolutionary group of species with little population differentiation and few hybrids until *C. quamash* is considered. Authorities are uncertain regarding this species' systematic relationships, principally because of its highly variable morphology (D'Alcamo 1993; Gould 1942; Gross et. al 2001; Ranker & Schnabel 1986). Gould (1942) states in his treatment of the taxonomic delimitation of the species that a combination of characters should be employed as no single characteristic can differentiate the species. Some floras list up to eight subspecies under *C. quamash* with some treatments considering the twisting of the tepals as a key species differentiation, others considering capsule shape, perianth segment length or nervation, and some find the pedicel angles critical. Following Munz (1973) who recommends that the species be differentiated by their geographic area, I have identified the camas at Parcel #7 as *Camassia lechtlinii*, but I think it is a distinct population with a unique grouping of traits including twisting at antithesis and a cupped lower petal held at a distinct angle away from the plane of its perianth. I recommend that the population warrants future study and think that perhaps it deserves sub-species status.

The underlying difficulty for identification of the camas at Parcel #7 is a product of the fact that the parcel lies at what appears to be the center of their morphological

diversity, Southwestern Oregon (Gould 1942). Furthermore, the geographic distribution of Camassia populations exhibits overlap: (1) *C. quamash* ssp. *quamash* and *C. leichtlinii* in most wet prairie valley habitats; (2) *C. leichtlinii*, *C. quamash* ssp. *walpolei*, and *C. howellii* in the serpentine-based mountains, and (3) *C. leichtlinii*, *C. quamash* ssp. *breviflora*, and *C. quamash* ssp. *linearis* within the Coast range. Fieldwork over several years has led me to believe that the morphological variability exists to a great extent not between individuals within populations but rather represents variation between different distinct, small-scale, isolated populations. If the morphological variability within *Camassia* is considered a product of habitat differentiation resulting from geographically established environmental influences (D'Alcano 1993; Gould 1942), then protection of the various populations becomes critical to maintain (Hufford and Mazer 2003; Reisch and Poschlod 2003; Reisch et al. 2003; Stebbins 1950).

A clearer understanding of which camas species or subspecies is needed because the general confusion over taxonomic names has led to the ill-informed opinion that any camas will do because they are all the same or just one big group. Quite the contrary, it becomes increasingly important as restoration of prairie habitats proceeds with growing public, tribal, and governmental awareness of the vital ecological functions performed by these historic landscapes (Hufford and Mazer 2003). It is necessary to know which camas population is growing on a site so that the identical seed or bulb stock can be used in restoring numbers. If different species are used, restoration efforts fail to maintain the camas already growing within the project areas and can lead to the loss of

historic genotypes. Correct identification and use not only protect our natural biodiversity and help maintain the evolutionary potential of the plants in these targeted areas but allows an historic validity to the cultural continuity of the Native American Tribes' camas fields.

At Euphoria Ridge, I had raw data on the camas plants and associated plant communities but felt unprepared when I was asked to make further recommendations for restoration work on the meadow complex. While I thought that there existed a viable native plant community that would aid and restore the meadows to approximate contact era conditions feasible, In order to inform my opinion, I reviewed my field data to answer the research questions I posed on paged 31.

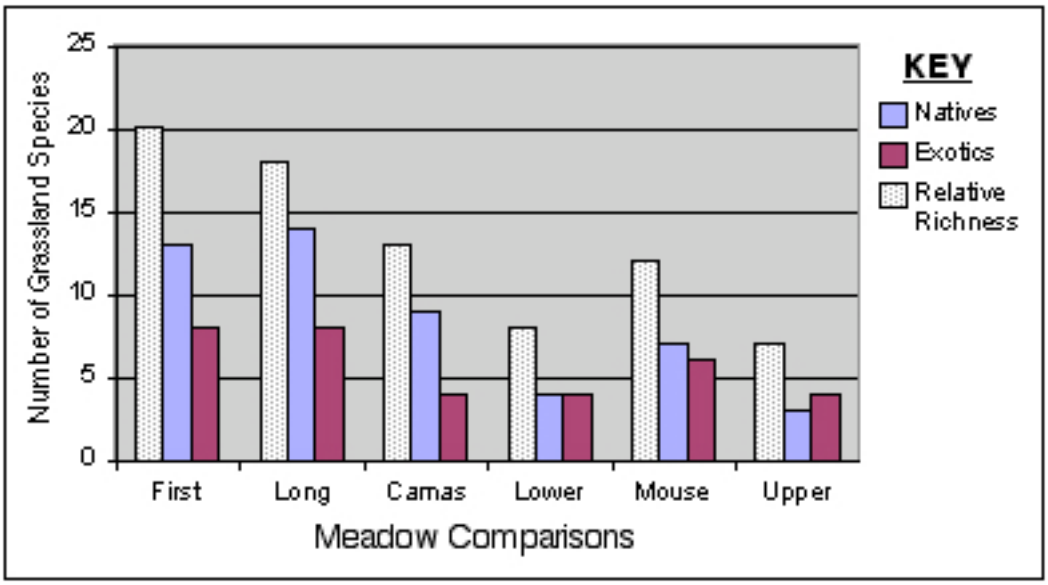

Figure 5.8 Comparison of Native and Exotic Species Richness in Euphoria Ridge's Meadow Grassland Communities

I therefore analyzed my research and profiled the six different meadows that comprise the Euphoria Ridge Meadow Complex in order to find patterns that correlated with the general meadow conditions and recorded native plant presence in Figure 5.8. Figure 5.9 demonstrates the comparison of native to exotic species by percent. The overall richness of the parcel was 117 plant species including 39 grassland species that I had recorded across the meadow sites. Of the grassland species on the meadows, only nine species or 23 percent were exotics, the mean number of species in the meadows was 13, and varied from 7 to 22 species, giving a range of 15 between meadows. The most common exotic species were imported pasture grasses that were planted to increase grazing on the parcel as was standard Euro-American farming and ranching practice. These pasture grasses have impacted all the meadows except the Upper Meadow, however, at least half the total species remain native plants, and the highest percent of natives is 69 percent in Camas Meadow. Camas was present in only three of the meadows: Camas, Long, and Lower.

These figures encouraged me to believe that if pasture grasses could be eliminated or controlled, the native species might increase on their own and generate a more historic meadow community. The number of native species in the meadows was higher than I expected when compared to other restoration sites I knew about. Alice White, the botanist for the Sweet Home District of the Willamette National Forest, reported that on a camas meadow that she was restoring that there were 35 native species out of 103 total present, or only 34 percent natives (personal communication 2006), less than half the percentage that I had surveyed for Camas Meadow at Parcel

#7. I attribute the relatively high number of native species to the isolated locale of Parcel #7 and suggest that the site holds a viable and exceptional historical assemblage of native plants and recommend it as a worthy candidate for restoration.

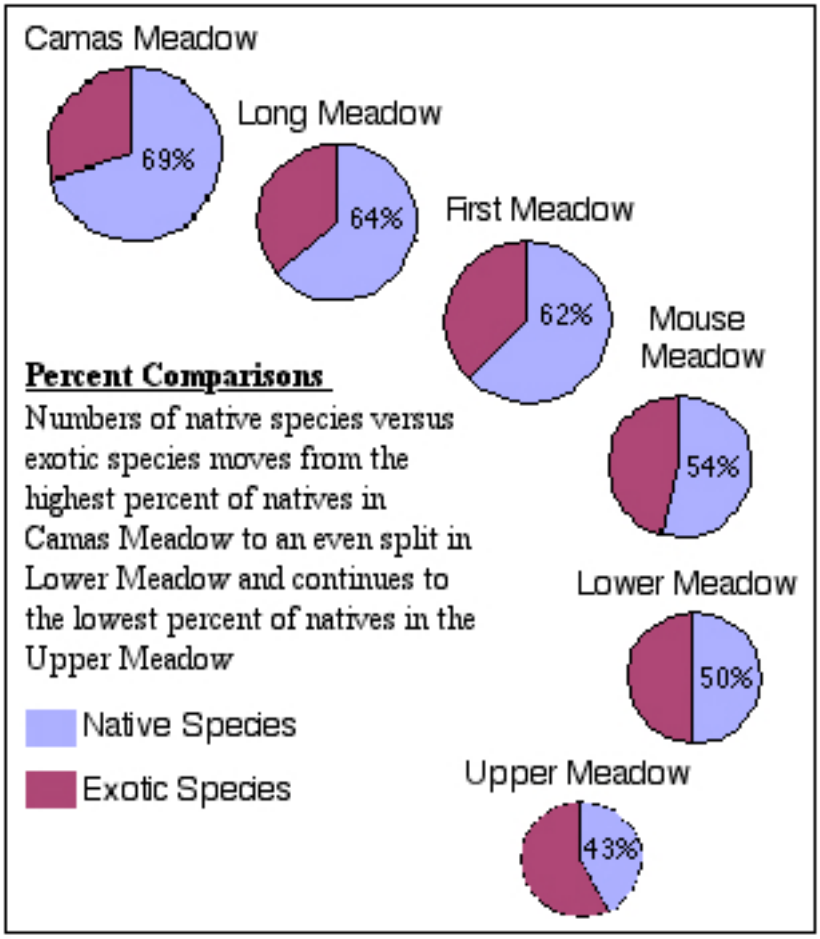

Figure 5.9 Comparison of Meadow Communities by Percentages of Native Species Versus Exotic Species

In summary, the Euphoria Ridge Meadow Complex includes populations of camas in the wet meadow complex growing with other integrated plants in a single, open habitat. However, the bulk of the southeast meadows remains highly impacted by

invasive pasture grasses, poison ivy, and weedy rush species. These limit the meadows' utility for both wildlife and human needs. Tall, dense, pasture grasses are impenetrable for ground fowl, unpalatable for elk and deer, prevent the recovery of native plant species, and generally reduce the available habitats. While many native plants have continued to survive on this parcel, they are being threatened by the imported, sod-producing pasture grasses left over from the period of free range cattle. In areas where these grasses are the densest, the numbers of natives are reduced, which suggests that the grasses are out-competing the natives. Additionally, the presence of the pasture grasses may prevent the natural spread of native plants as new areas are opened up through the Coquille Indian Tribe's meadow expansion efforts and thus they may prevent any natives from making a come back in those areas.

In order to promote healthier habitat conditions for camas and other natives, specific management action needs to proceed in the highly impacted Lower (approximately six acres) and adjacent Long Meadow (approximately four acres). The plant diversity in these meadows is minimal with a mere four to five species in contrast to the Camas Meadow on the north side of the Euphoria Ridge, which contains twice that number. In order to restore the impacted meadows, the pasture grasses need to be controlled or removed, preferably by burning and reseeding with native plant seed, which can be harvested during the early summer and broadcast after the burn to sprout in the exposed soil. Burning improves conditions that favor the native plants' recovery and offers a major setback to the invasive grasses by destroying root crowns and seed banks (MacDougall and Trukington 2007; Storm and Shebitz 2006). As far as possible,

local seeds from the meadow complex should be utilized to protect the unique gene pool of Euphoria Ridge plant populations. However, it is expected that most, if not all, of the grass seed will need to be bought from commercial producers that match the remnant native grass patches on Euphoria Ridge.

I suggest that an initial burn at Euphoria Ridge should be timed for late summer if at all possible, as timing seems to be critical so that the burn will aid the camas populations and not encourage their competition or encourage any additional invasive plants. This may not be feasible because of the high wild fire risk at this time of year in southern Oregon but it would speed the return of historic conditions. MacDougall and Trukington (2007) report that a summer burn should be planned to occur at the reproductive peak of the exotics and could thereby increase the effectiveness to near 100% mortality of the exotics. Furthermore, this would allow the camas' spring growth to be returned to the storage bulb and maintain the viability of individual plants as well as reducing the competing plants. The second option of burning the meadows in the early fall after the wildfire season was over would still be beneficial to the natives, but might give less complete results and require a longer time period to eradicate the pasture grasses.

In addition to burning, a less intense management plan might include the manual planting of young camas bulbs into the upper areas of Long Meadow and Lower Meadow where camas is spreading naturally, but slowly. The bulbs could be dug and taken from First Meadow where there is an existing, dense population of death-camas (*Zigadenus freemontii*). By 'weeding' or removing the edible, true camas from this

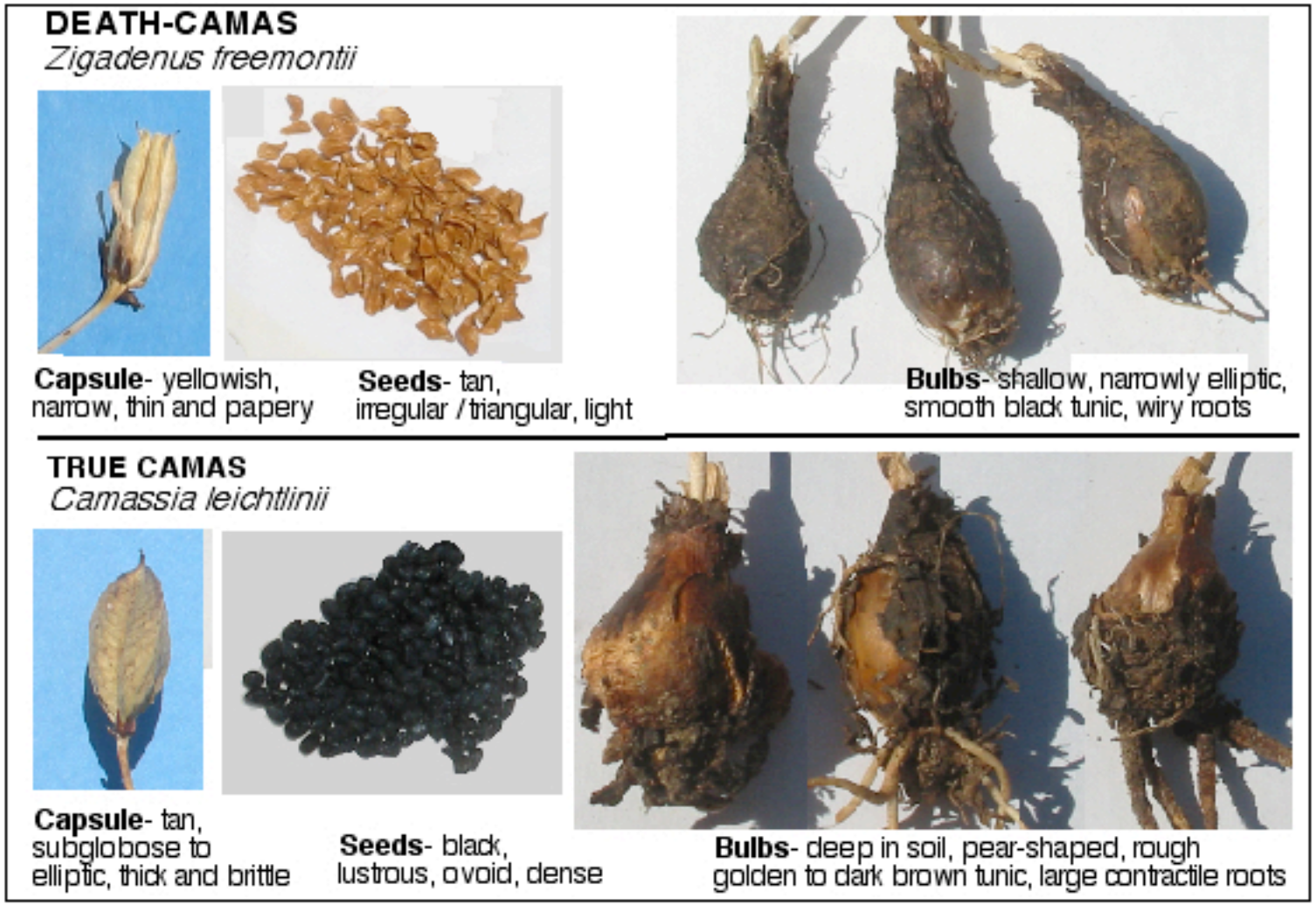

Figure 5.10 Comparison of True Camas, *Camassia leichtlinii* and Death-Camas, *Zigadenus freemontii*

meadow, any attempts at harvesting edible bulbs from this area would be discouraged and the chance of novice harvesters digging the wrong bulb eliminated. Although the species of death-camas at Euphoria Ridge is not one of the more poisonous members of its genera, it is still considered noxious to livestock and contains dangerous alkaloid compounds (Marsh and Clawson 1922; Majak et al. 1999). Figure 5.10 shows a comparison of true camas and death-camas species and both species' seed capsule persist upright through most of the summer. They are quite distinctive and if only those plants with standing seed capsules are dug, there is little chance of mistaking one for the other. However, until camas harvesters become experienced, it seems better not to have any edible true camas growing in First Meadow, which would eliminate any possible confusion.

Upon completion, the restoration of Lower and Long Meadows will provide greater accessibility, increased camas beds for harvesting, and native plants for wildlife. Game animals and hunting may increase as the native grasses are re-established. Idaho fescue is a preferred late fall forage of elk and deer, possibly aiding in the expansion of the resident elk herd as well as the threatened, native red-tail deer. Furthermore, the restoration of Euphoria Meadows would enhance its esoteric beauty, increase the utility of an important cultural site, and preserve a unique biotic landscape.

CULTURAL INTERACTIONS: PHYSICAL ALTERATIONS, ASSOCIATED BEHAVIORS, AND KNOWLEDGE BASE

When the Coquille Indian Tribe regained Parcel # 7, Enchanted Prairie and Euphoria Ridge Meadow Complex in 1998, their management options were faced with the same underlying physical conditions that had existed across the millennia. The serpentine Klamath Mountains run into the basalt-based Coastal Mountains throughout the southern region of Coos County and push up numerous steep ridges that are topped by shallow soils. The overlay of the biological environment, however, shifted since this was last Coquille Indian territory, through the cultural uses of the late nineteenth and twentieth centuries. As documented in previous chapters, the parcel had been utilized for mainstream cultural products of timber and cattle range. These left altered physical conditions that limit and impact the utility of the parcel by the Coquille Indians to meet their management goals. These cycles of different cultural overlays and their interactions with the landform that are known as Euphoria Ridge demonstrate a continual development of place through time. The restored Coquille Indian Tribe's cultural values of the early twenty-first century contribute another round of iterations between people and environment.

The current management of the parcel's natural resources by the Coquille Indian Tribe includes plans for its restoration to contact-era environmental conditions. This will alter the existing conditions in at least three fundamental ways; (1) by reforming the current forest structure through the reduction in the number of trees and thus allowing old growth conditions to develop, (2) by creating patches for traditional

basketry material, and (3) by restoring the meadow complex aided by traditional burning regimes that promote the spread of camas and eliminate pasture.

In addition to these physical changes to the parcel's environment, the Coquille Tribe is also developing culturally acceptable knowledge and practices that reflect their values. Some behaviors are specifically linked in spiritual ways, such as the Tribe's use of the parcel for Forest Blessing Ceremonies and the incorporation of the elder weavers' admonitions to care for the plants that provide materials for weaving. Others are more practical in nature, such as learning the best seasonal timing to burn in order to accomplish meadow restoration goals. These, as well as the creation of a broad body of site specific knowledge of native plants, their locations, and utilities are contributing to a growing set of associated actions to restore the holistic traditional practices of care, maintenance, and harvesting of resources on the parcel. All of these reflect the Tribe's use of the land as 'ancestral land,' a place that offers a physical connection to their ancestors and thereby, themselves as American Indians. Furthermore, it is the combined biophysical attributes, human behaviors, and developing knowledge of this parcel that is generating a culturally specific meaning to the site. The unique interface of the Coquille Indian Tribe with the property is the place where these things co-exist: Euphoria Ridge. As George Smith (2007), the Tribal Executive Director, related at a field trip for the Tribal Council and their resource managers, that I attended, "Whatever else Euphoria is, it is always an inspiration."

In conclusion, the Euphoria Ridge parcel is a valuable botanical gene pool for native plant populations as well as a cultural multipurpose site. The Coquille Indian

Tribe has reclaimed Parcel #7, Enchanted Prairie and Euphoria Ridge Meadow Complex, as a unique cultural landscape that reflects their values. It has an abundance of utilitarian, historic, and aesthetic resources that make it an asset deserving of stewardship as they seek to safeguard its distinctive character and meaning. Surely, their cultural decisions will impact the natural landform and continue the interaction of humans with their environments that began millennia ago.

Chapter Six

Conclusions and Challenges

INTRODUCTION

Landforms exist unknown until human cultures begin the process of creating place-meaning through their interactions with the land and its resources. These interactions between people and their environments include a wide range of culturally determined activities that perform diverse functions including extracting resources, meeting utilitarian subsistence needs, attaining aesthetic or spiritual purposes, and pursuing other socio-political activities. Not only do these interactions involve single culture /environment events but also include a cycle of progressive alterations to the natural biophysical components over time that define to a large extent the existing resource availability that impacts cultural developments. As such, these interactions are best described as dynamic iterative processes that are suitable for landscape level studies using multiple, interdisciplinary methods. Furthermore, by applying concepts from Memmott and Long's (2002) theories as a framework, these iterative processes can be incorporated into twenty-first century management decisions concerning land and natural resources.

If the various disciplines involved with government and agency land management practices would unify their usage of the term landscape, and considered all landscapes as cultural landscapes, as I discuss in chapter two, it can help in better management decisions over time. In society at large, discussions and debates about

land use and resource extraction can often be heard, but proposed solutions to resource problems are few and tentative. While this might be an artifact of the unease surrounding the increasing understanding of resource scarcity and the growing human population, it offers little direction in the search for answers on moral decisions, animal rights, economics of sustainability, and the ethics of conservation versus consumption ethics. Most debates fail to explain how these topics can be integrated into policy or incorporated into management decisions concerning natural resources. The physical sciences' reductionist tendencies to break down complex natural systems processes are over relied on and result in adding data to already existing collections that often are already overwhelming (Steel 2006; Van der Veer and Pierce 2003). The simple accumulation of data in itself offers very few insights into what is fundamentally a value-laden decision-making processes. In order to counteract these tendencies, I suggest that it can be helpful to utilize multiple methods and focus on a broader set of environment-culture interactions that generate the change from landform to a defined landscape. Researching the connections across time and cultures that are evident on any landscape can help guide management decisions.

While there is a growing understanding that local impacts extend into regional and global effects, I think that initially it should be accepted that the need for resource decisions and planning is a culturally imposed process. As such, the local culture is the entity prompting the planning and the local culture is where the primary focus should remain: planning *for* a particular localized place. This approach would then constrain

land use issues and their analysis to the local landscape level and include those factors that are culturally induced.

Unfortunately, many landscape analyses that are incorporated into standard management plans are customarily dominated by physical processes and conditions (Holl et al. 2003; Mitchell 1979; Panelli et al. 2003). Physical considerations may limit the resource availability for the culture, but they do not establish the possible uses, or possible solutions to environmental problems that are often a product of cultural interactions. I contend that although Zimmerman's (1933) cultural geography is dated, his theory remains valid in its call to consider both quantitative and qualitative research. Together, the physical and social sciences are capable of connecting people to their natural resources and land use practices through the use of Memmott and Long's (2002) framework on the construction of place as an iterative product. This academic blending would then reflect a more realistic modeling of the natural sphere that includes both human societies and their environments. It follows then that studies of place should (1) include altered physical characteristics of a piece of environment, (2) investigate what special types of human behaviors have been enacted at a particular piece of environment, and (3) integrate any associated knowledge involving the use and maintenance of the particular environment.

Aspects of these three cultural impacts on the physical characteristics of the land have left imprints and altered conditions that are incorporated into the structures and processes of the landscape that affect ongoing management decisions. I have given an example of one case where an investigation of culture and environment has come

together in three different but equally important overlays to create the landscape named Euphoria Ridge. First was the initial interaction between humans and the land during what I have discussed as the ancestral epoch. At some stage in this period, the tribal ancestors of the Coquille Indians began to utilize Euphoria Ridge for elk hunting and other resource procurement camps. This era is represented in the early twenty-first century by stone arrowheads and other physical remains preserved in scattered archeological sites across the landscape. The second culture-environment interaction to leave its imprint on the land was the technologies, practices, and economic considerations of the historic-era homesteader culture of the mid-nineteenth century as they developed the region into their cultural image of a utilitarian utopia. On the positive side, it is preserved in the continuing timber industries that contribute to the economic stability of the Tribe, but it is also represented by the negative impacts of exotic and invasive species. The final interaction that I have discussed is the continuing use and management of Euphoria Ridge's physical and biological attributes by the Coquille Indian Tribe to meet their needs while matching their values, some of which are distinctively Native American tribal concerns.

TRIBAL CULTURE

Initially my goal for this study was to model the norms and values expressed by the Coquille Indian Tribe in the physical alterations and impacts on their land. I hoped to restrict the study in this way to distance myself from unrealistic stereotyping associated with various Indian images such as 'the noble savage in tune with Nature.'

Although Jostad et al. (1996) found in their research the existence of common, generalized spiritual themes regarding Nature within the Native American community, over the years I have known enough friends from different Native American tribes to avoid the misconception that any universal Native attitude results in common practices, nor that "proper and real Indians" embrace the popularized spirit of Chief Seattle (Bordewich 1996). Each tribal group has their own specific customs and traditions that reflect their mutual briefs. Mr. Morrie Jimenez, a Klamath tribal member and speaker at the Oregon State University's Sacred Landscape Conference (1999) expressed these as four ethical needs for stewardship of the land: reciprocity, respect, responsibility, and relevancy. His four words hold a moral vitality that is missing in mainstream resource management yet they emerge as an underlying cultural responsibility for both Native American land managers and those working with them.

For the purposes of this dissertation, I conceptualize a tribe as an organization, following Bernard's 1938 definition of social institutions: those frameworks constructed to coordinate and unify human efforts. This definition allows tribes and their various governmental branches, departmental associations, and managers to be considered and studied as organizations rather than the generally conceived cultural stereotypes. Tribal government, administration, and employees are their work force and as a unique group, they have organizational goals, values, and cultures in the same ways as mainstream organizations. However, despite the similarities in process, I have come to believe that at least for the Coquille Indian Tribe, their organizational culture and values cannot be separated from their larger Native American identity.

I do not deny that there are tribal organizational communications in the form of letters, contracts, newspapers, announcements and such things that are institutionalized in order to facilitate their mainstream, organizational needs. I found, however, that the tribal organization and their coordinating efforts are specifically focused towards the single value to maintain and unify the larger Tribal culture. This makes it difficult to separate the two. Perhaps for other Tribes as well, it is impossible to separate their organizational culture from Tribal culture. For example, the Constitution of the Confederated Tribes of Siletz Indians of Oregon states that their tribal government was established to “continue forever, with the help of God, our unique identity as Indians.” If we consider culture as defined by Geertz (1973) as the socially constructed and historically transmitted pattern of symbols, meanings, premises, and rules of groups of people, then the Tribe has long existed as a cultural entity. As such, the tribal organization is only its extension, required by today's legal and economic structures, nested within the larger culture.

The Strategic Planning Mission Statement for the tribe's Resources and Environmental Services Department states this succinctly, "The Coquille Indian Tribe's cultural values and national sovereignty, drive land and forest management..." and goes on to reinforce the concept again with the assertion, "Every land and natural resource action taken by the Coquille Indian Tribe is founded in Coquille culture..." (Coquille Indian Tribe 2006). So, my caveat for this dissertation is that individual tribal members comprise, inform, and direct the Tribe's organization, and that from the composite of their values, Tribal organizational actions, such as habitat restoration and low-impact

logging, arise. I make no claims about individual tribal members' personal values, behaviors, and actions but only the collective result that manifests itself as their Tribe; that "strives to understand traditional knowledge and technology as wealth that is collected by the government and distributed back to the community" (Coquille Indian Tribe 2006). It is this concept of traditional knowledge being equivalent to wealth that reveals the values that drive their resource management. Their management decisions and interactions with their environment are valued and considered worthy when they maintain their ancestral connections and reinforce the continuity of their Tribal identity.

In chapter five, I focused on the hazel and camas management plans that include fall, prescribed burns for three reasons: (1) the general need for literature that addresses traditional burning practices from the Native American perspective, (2) the practical goal of planning for and obtaining quantities of quality weaving materials, and (3) the need to share the evidence from a tribal, historic hazel patch that has been continuously burned across untold generations. Although there exists a consensus across the academic fields that indigenous people worldwide have impacted, managed, and altered their environments through out the last 10,000 years at least, very little data have been gathered from a Native American perspective concerning the long-term, practical applications of historic methods for twenty-first century management. The pioneering works of Kat Anderson (1993; 1996; 1999; 2001; 2005; Anderson and Barbour 2003), Kathy Hefner (1984), and Nancy Turner (1991; 1995; 1999; Deur and Turner 2005) have helped to stimulate interest in the impacts, processes, and utility of traditional native practices in ecosystem restoration work. Unfortunately, as discussed earlier,

restoration work needs to be locally informed and Turner's works focus on the Northern Coast of Washington State and its border with Canada, and Anderson and Hefner both work in California. The information I have gleaned concerning Oregon's southern coastal areas helps to bridge these two areas and presents options for American Indian Tribes of western Oregon for their land management efforts and may help non-Indians understand Native American goals and practices better.

ADDITIONAL RESEARCH INVESTIGATIONS

While decisions regarding the use of science versus traditional knowledge can often appear as a moral dilemma to scientists and researchers working with Native American Tribes, it is not the contradictory message it seems. Many times it has been explained to me that, generally speaking, the native viewpoint is that it is not the what, so much as the why, that is important. It is the considerations of why research is, or should be, carried out that drive the tribal managers' decision-making process. If researchers accept that science must remain subordinate to traditional practices then it often becomes feasible for the two to move forward together. In the e-mailed, round-robin discussion that I quoted earlier, Robert Kentta, the Cultural Resource Director for the Confederated Tribes of Siletz, explained that,

> from my perspective, science has its place, but proposals for restoration shouldn't rely upon someone needing to quantify the results, and the project shouldn't be held up by a great debate over how much pre-treatment inventory needs to be done, the establishment of control plots, a monitoring plan, etc. Again, not that I'm against those things, but they should be background to the purpose of every intention in maintaining the resources, and should not create bureaucracy (13 Jul 2006).

When working with tribal managers and especially on ancestral lands, science that seeks to inform traditional practices can move forward, often with benefit to society in general. In general conversations with various tribal managers, I have been asked for information and additional research proposals that include a wide range of topics from diverse fields including: soil studies to expose the extent of aboriginal burning, effects of honey-bees on pollination of culturally important plants and the structure of native communities, restoration of native fodder for elk management, wetland management for culturally important plants and animals, pathological studies on various white oak blights, smuts, and galls, and genetic determinations of camas populations. I have found a favorable reception and support within the tribal communities for any studies that contribute to the practice of 'wise resource management,' "that springs out of a sense of responsibility to maintain special places and biodiversity generally" (Kentta, personal communication 2007).

CONCLUSION

In conclusion, while a reduced reliance on the analytical components of the environment and an increased focus on culture may not solve resource problems, this landscape approach can provide a methodology for reaching viable management decisions through an understanding of the background forces that developed the existing physical conditions and the socially constructed management goals. Conditions that exist across local areas must be accounted for in efforts to create

successful management plans and include the analysis of landscapes and the cultures that define them. In these ways, people have the opportunity to perceive and comprehend specific effects that humans have on the environment. Furthermore, from the great breadth and interdependency produced by peoples' interactions with their environments, successful resource planning can emerge if Mr. Morrie Jimenez's (1999) challenge to all land managers to proceed with "Right Action" is accepted. To do that, he states, management actions must be relevant and that relevancy tied back to an inclusive respect for everything. Every action is tied into a set of reactions and every take has to have a give: reciprocity. And finally, Jimenez warns that it is necessary to think of the Earth with a great sense of responsibility to her and her creations and a gratitude that ties back into the other four themes that can hold us all together in one "massive mutual collaboration." These actions support the final contention of this paper, that the general public that uses it, the researchers that study it, and the managers of the natural resources on it, are creating new cultural, place-meaning.

In the case of the Coquille Indian Tribe, the physical environment of Parcel # 7, Enchanted Prairie and Euphoria Ridge Meadow Complex is important as the place where their ancestors, their Tribe, has lived through time. Furthermore, the tribal connections to their ancestral lands are more than nostalgia for lost lifeways. Instead, these connections represent a set of particular, motive driven actions to restore and maintain the unique culture /environment interface that has defined the locale specific Coquille Indian Tribe. Euphoria Ridge holds a unique place-meaning for them as an area where their ancestors once traveled and where they can travel to become connected

to their ancestral traditions. Jerry Running Foxe, a retired Coquille Indian Tribal Vice-chairman and Council Member, reinforces the value of having a place in Nature where their identify as Coquille Indians can be experienced and connections found. He expresses it best in the following excerpt (Foxe 2004:168-169):

THE VISION

The old Indian was just sitting
And looking at the sky
When he thought he saw a vision
Of his ancestors passing by

The whole place seemed so peaceful
As he slowly looked around
All the people were gathered around him
Though they didn't make a sound

The old Chief told him stories about
The history of the Tribal Band
And of all the suffering and hardships
They had to endure on this land

Of the hunting trips they had gone on
In the valleys and on the streams
And the fishing trips out on the ocean
Far as they could see

The Chief DE-LOT-SOM stood up
And touched the Old Man on the head.
And told him never to forget the things
And the ways of life that he had said

Now much later, he can hear
Their whispers in the wind
This was not just a dream
But a message from the Great One
That our History would never end.

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APPENDICES

Appendix One:

Livestock Assessments

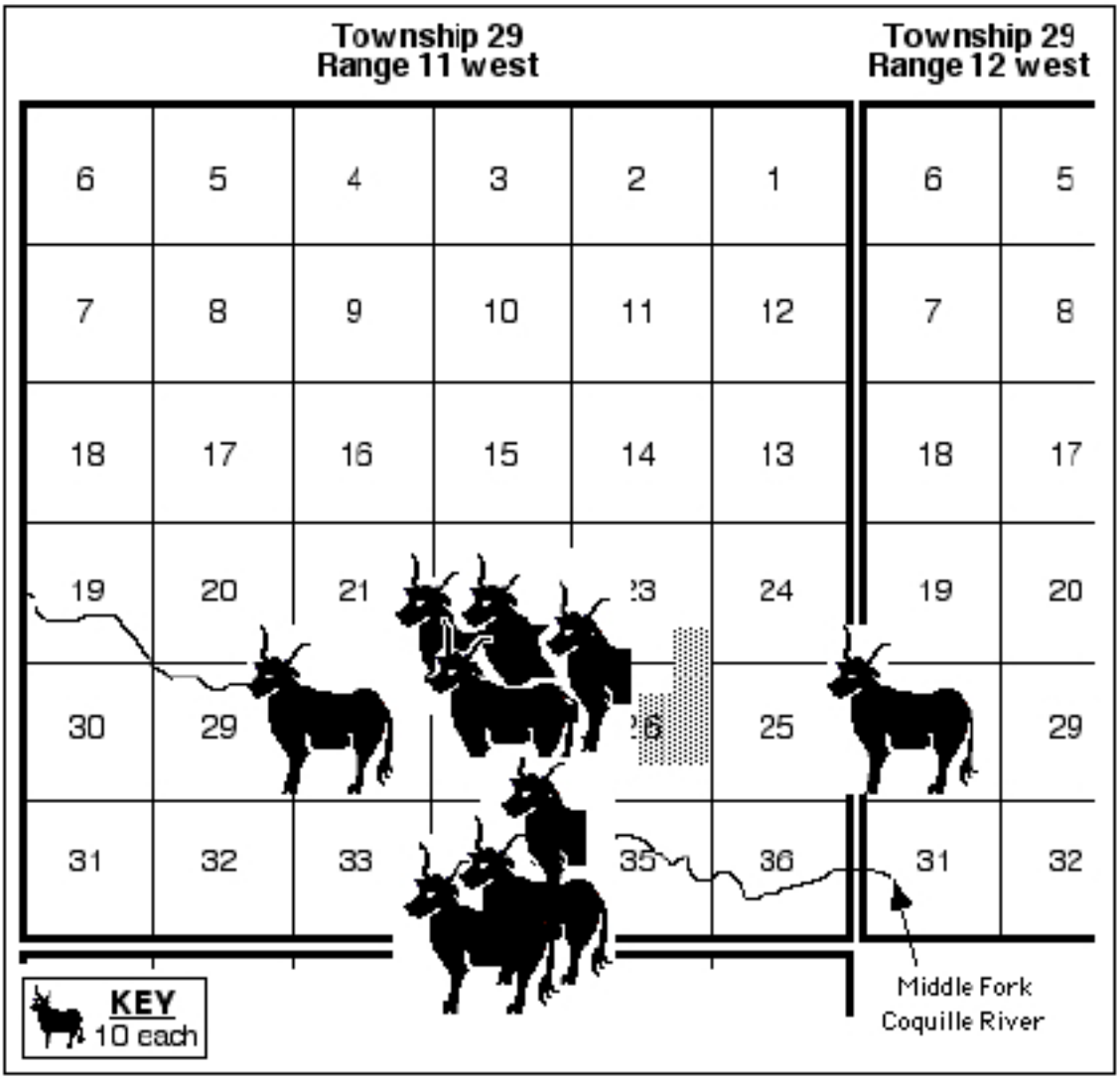

Figure A1.1 Cattle Distribution Plot for Township 29 South, Range 11 West, from Summarized Data,1882 Coos County Tax Assessment Roles

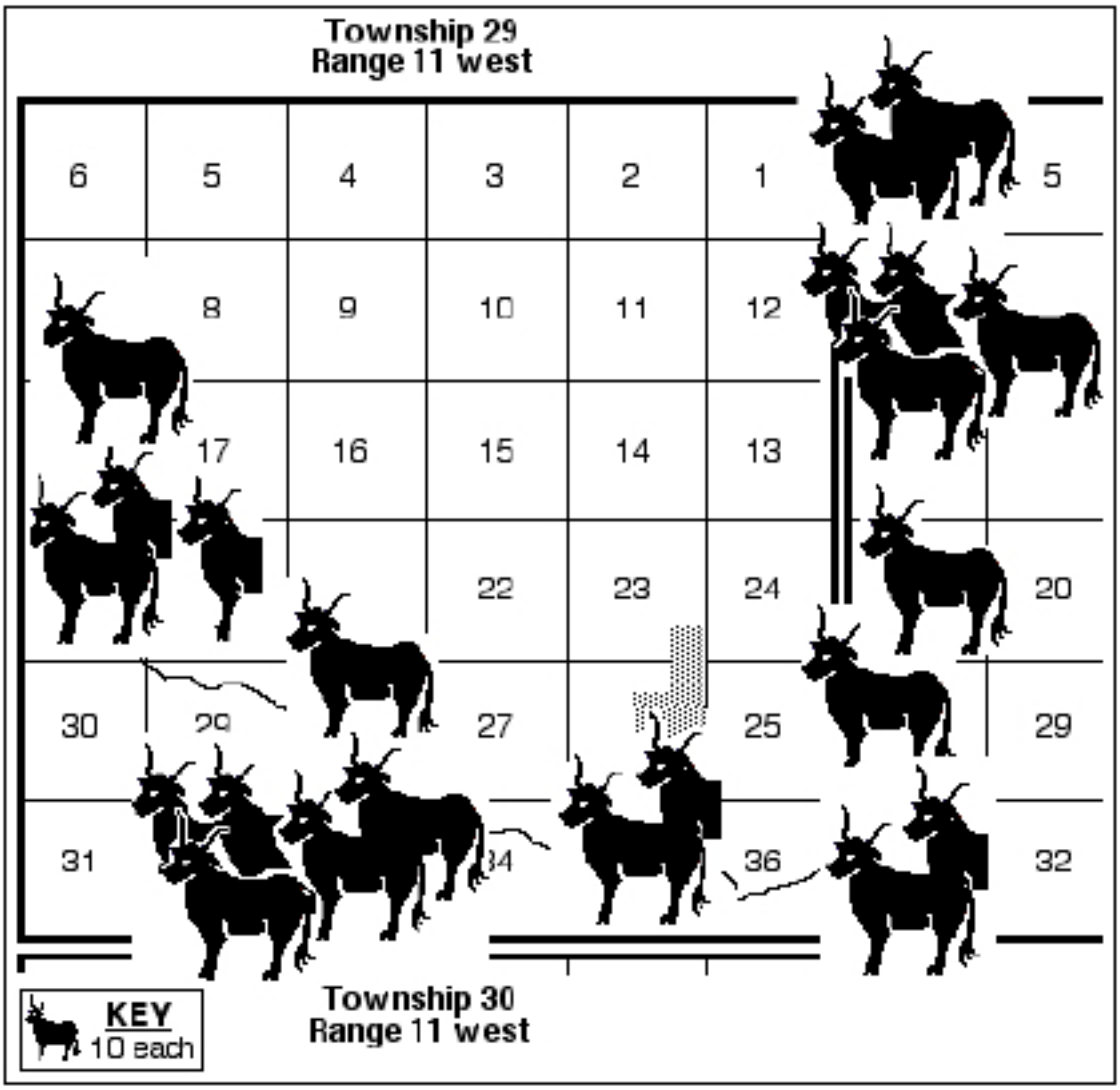

Figure A1.2 Cattle Distribution Plot for Township 29 South, Range 11 West, from Summarized Data, 1890 Coos County Tax Assessment Roles

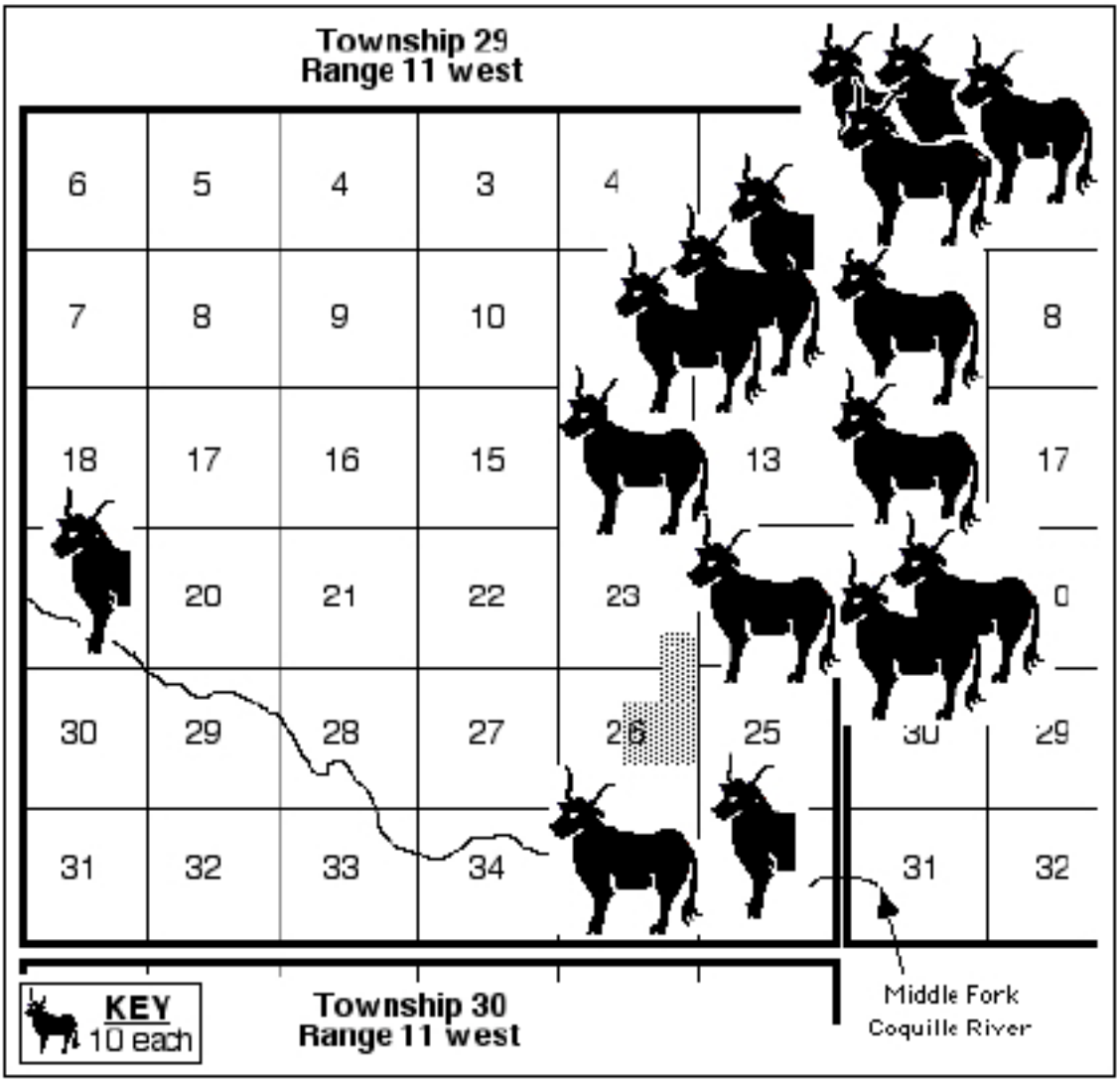

Figure A1.3 Cattle Distribution Plot for Township 29 South, Range 11 West, from Summarized Data, 1900 Coos County Tax Assessment Roles

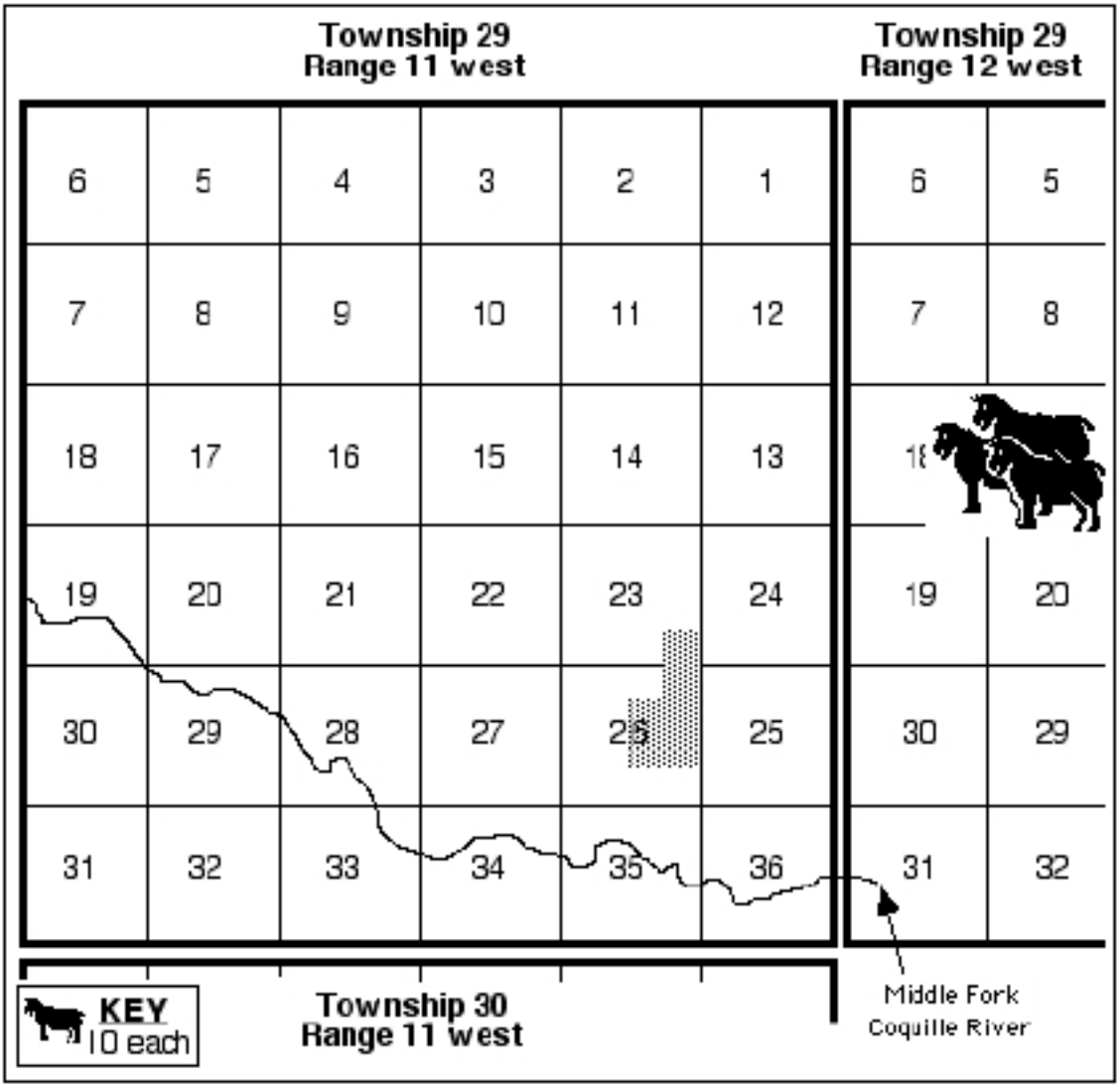

Figure A1.4 Sheep Distribution Plot for Township 29 South, Range 11 West, from Summarized Data, 1870 Coos County Tax Assessment Roles

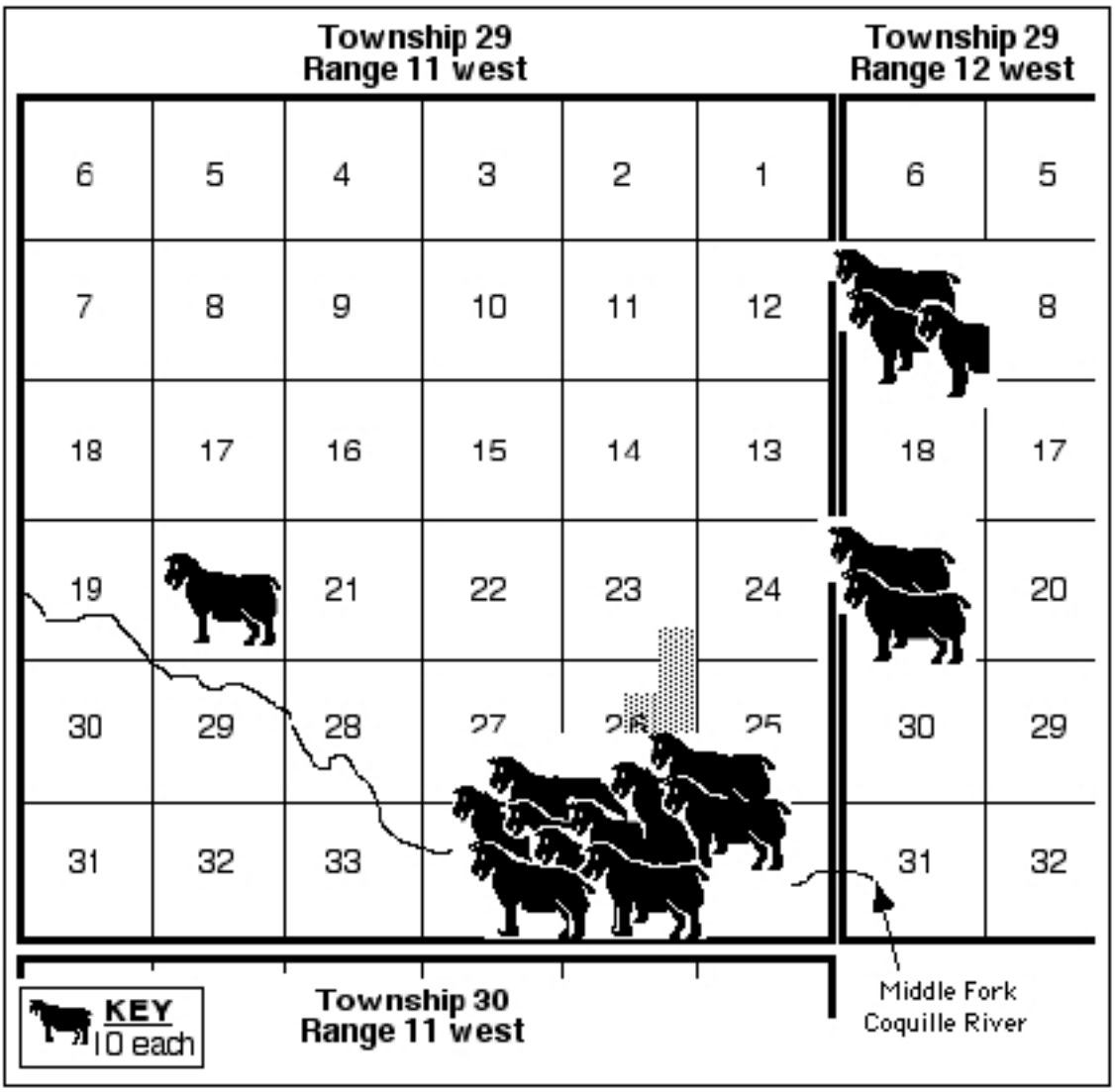

Figure A1.5 Sheep Distribution Plot for Township 29 South, Range 11 West, from Summarized Data, 1890 Coos County Tax Assessment Roles

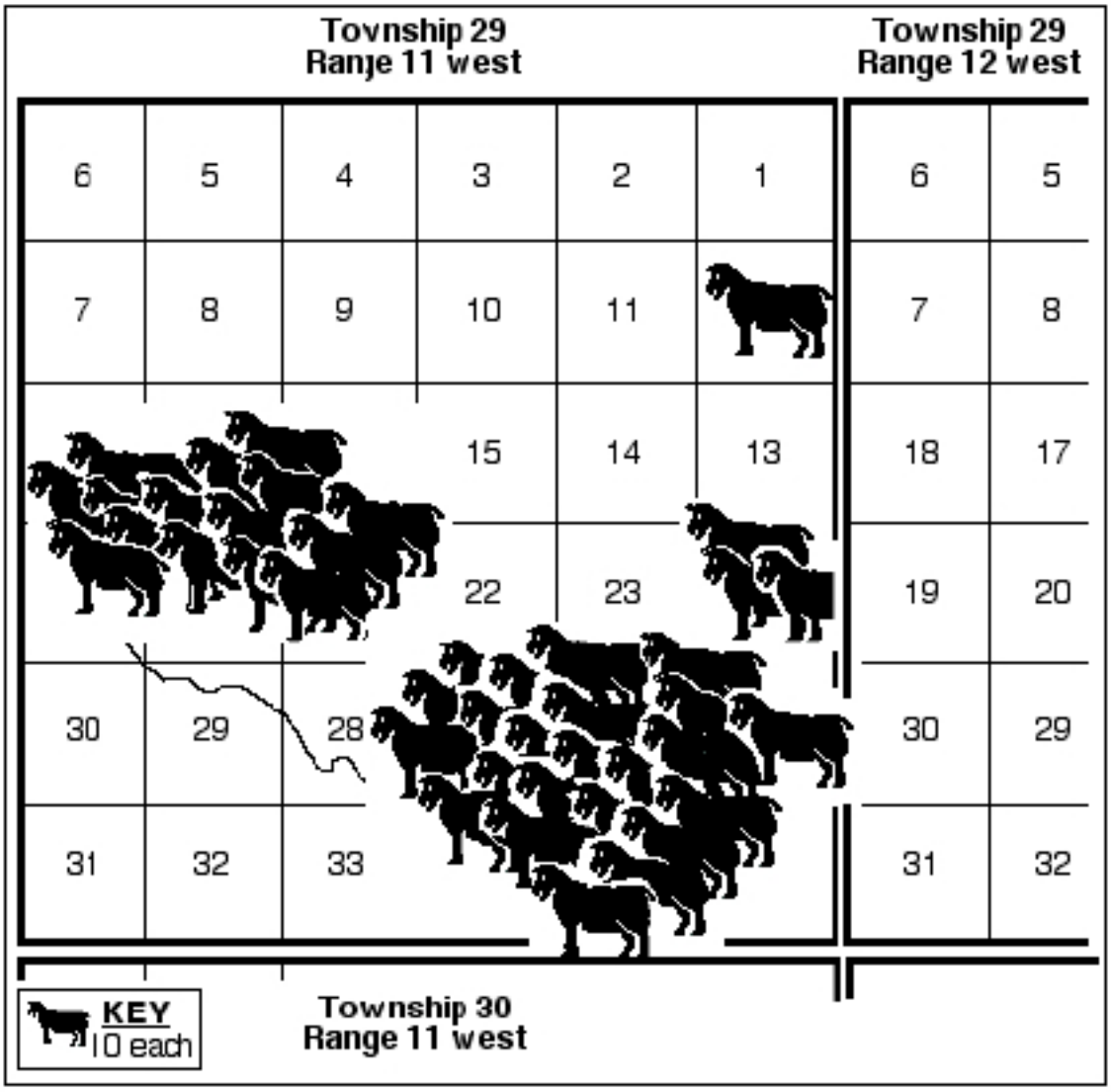

Figure A1.6 Sheep Distribution Plot for Township 29 South, Range 11 West, from Summarized Data, 1900 Coos County Tax Assessment Roles

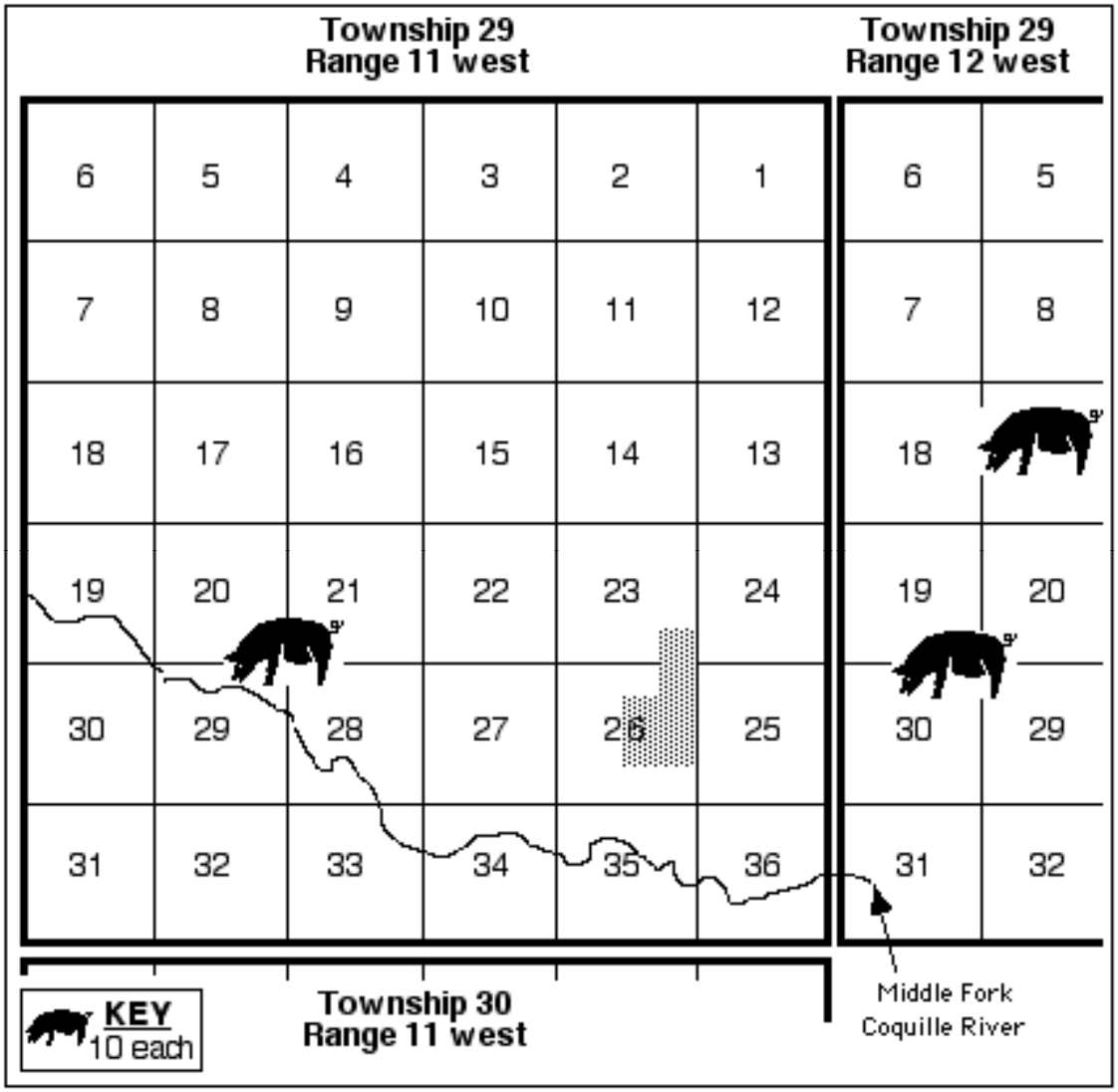

Figure A1.7 Swine Distribution Plot for Township 29 South, Range 11 West, from Summarized Data, 1870 Coos County Tax Assessment Roles

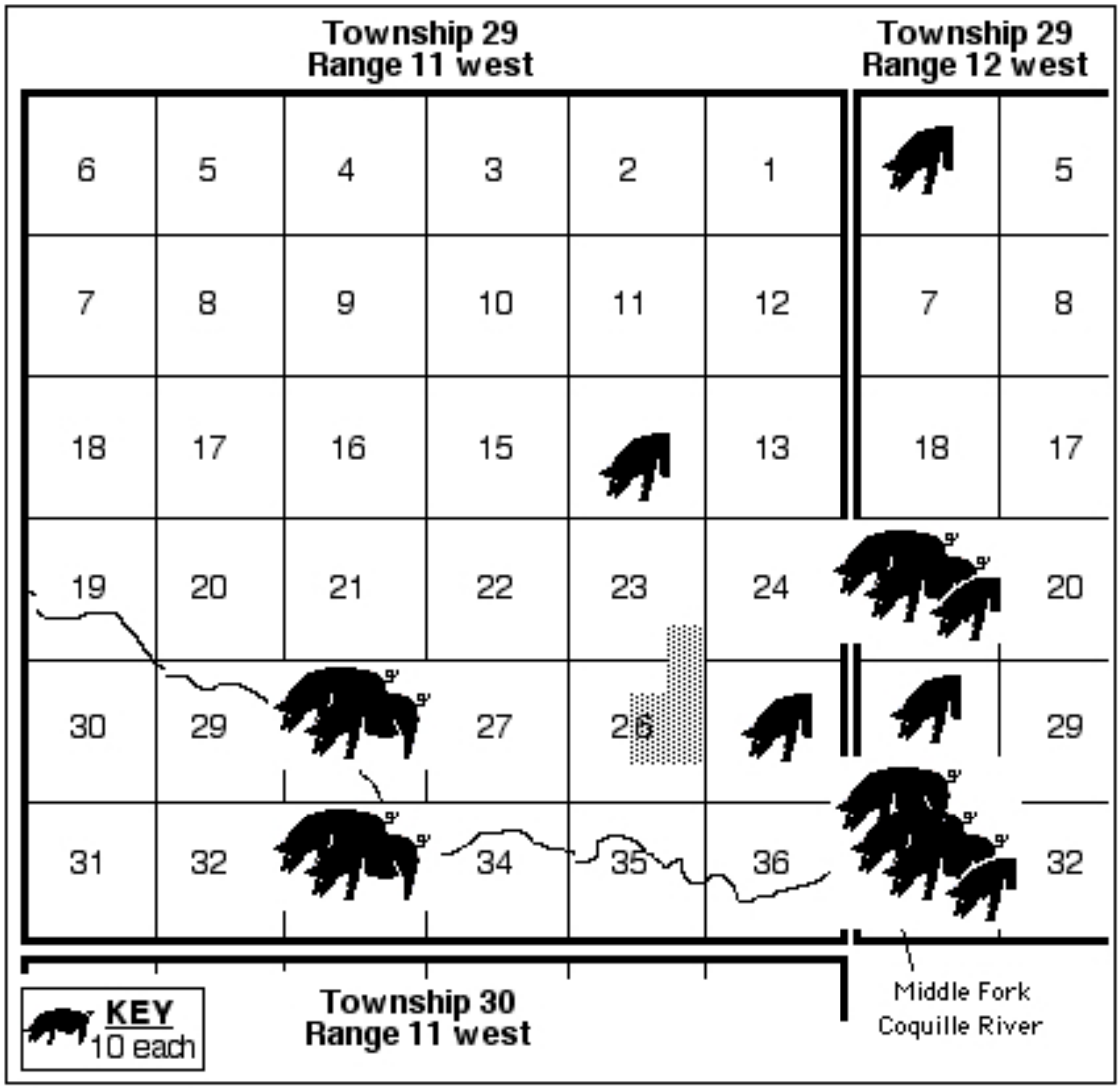

Figure A1.8 Swine Distribution Plot for Township 29 South, Range 11 West, from Summarized Data, 1890 Coos County Tax Assessment Roles

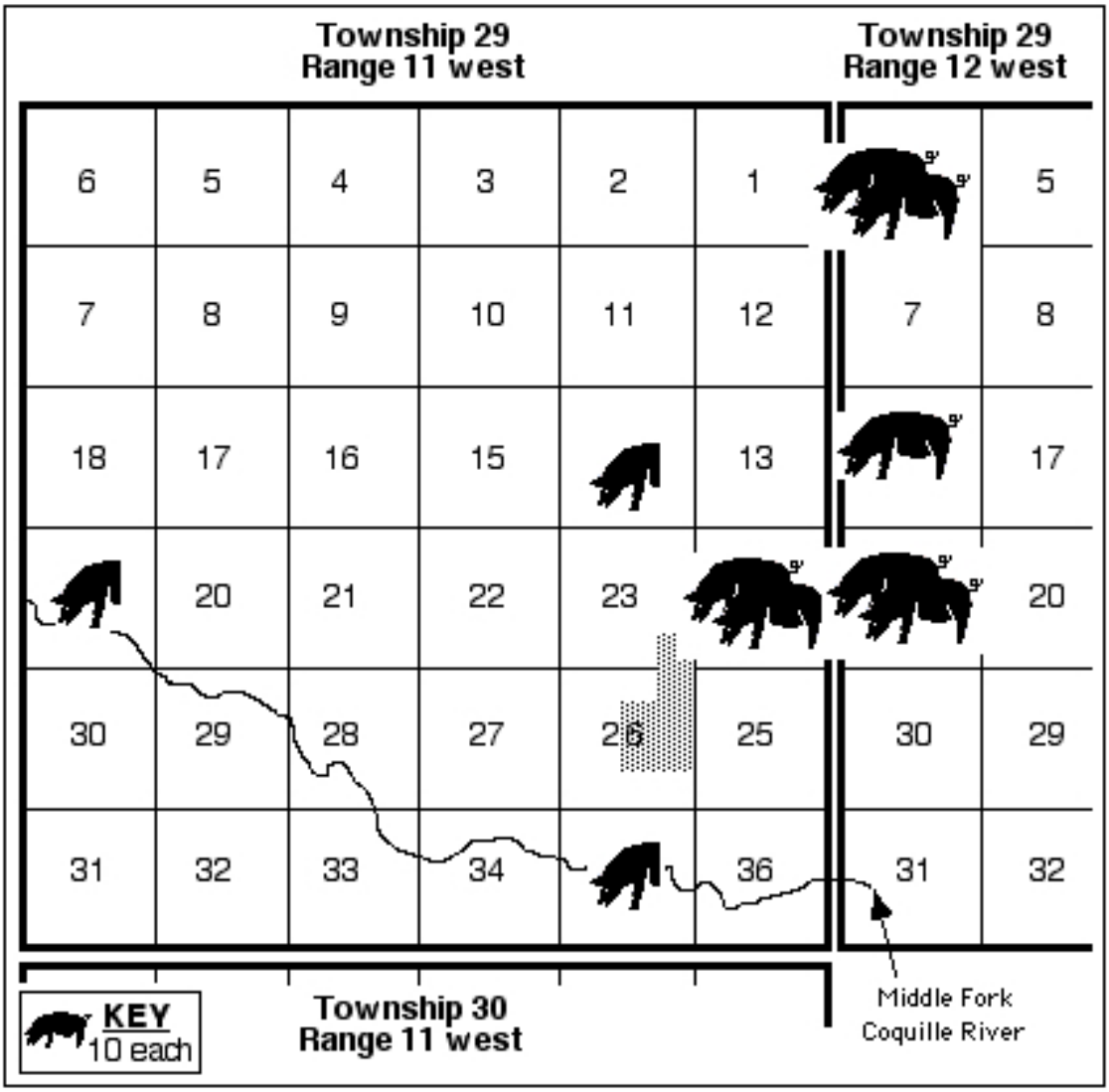

Figure A1.9 Swine Distribution Plot for Township 29 South, Range 11 West, from Summarized Data, 1900 Coos County Tax Assessment Roles

Table A1.1 Compiled Data from 1869-1900, Coos County Tax Assessment Roles for Township 29 south; Range 11 west; all sections and Township 29 south; Range 12 west; sections 5-8, 17-20, and 29-32.

YEAR	NAME	SEC	TNP	RG	HORSES	CATTLE & MILCH COWS	SHEEP	SWINE
1869	Palaski, Daniel	28, 29	29	12		5m		
1870	**Anderson, Milton**	**28**	**29**	**11**	**21**	**15m**		
1870	**Belieu, MB**				**16**	**27**		
1870	**Cribbins, Wm**				**4**	**3**	**2**	**4**
1870	**Dodge, Orville (leased)**	**28, 29**	**29**	**12**	**2**			**50**
1870	**Flanff, Alexander**		29		**3**	**4**		
1870	**Hill, Wm G**	**35**	**29**	**11**	**5**	**1m**		**6**
1870	**King, Rufus P**	**20, 29**	**29**	**11**	**8**	**8m**		**2**
1870	**Lehnherr, Chris**	**17**	**29**	**12**	**1**		**28**	**25**
1882	Anderson, ME	28	29	11	3	7		
1882	Barkklor, John	8	29	12	3	26 & 20m		
1882	Belieu, Jas.				2	10	115	
1882	Belieu, JG	35	29	11	2	3		
1882	Cribbins, RA				2	11		
1882	Cribbins, Wm	30	29	12	2	4	73	7
1882	Heney, J	34	29	11	4	11	3	22
1882	Herman, TN				2	2		
1882	Herman, WP	29, 32	29	12	3	4		50
1882	Hoffman, Mrs. J	22, 27	29	11	4	36	100	12
1882	Howell, SD	33	29	11				
1882	Mast, John	32	29	12	2	6		
1882	Matheney, Jas H	19	29	12				
1882	Mullen, JW	29	29	11	2			
1882	Rookard, Thomas	34	29	11	2	15	10	6
1882	Whittington, MP	32	29	12	6	2		80
1883	**Anderson, John**							
1883	**Anderson, ME**	**28**	**29**	**11**	**3**	**10**		
1883	**Barkklor, John**	**8**	29	12				**25**
1883	**Belieu, DD**	**35**	**29**	**11**	**4**	**7**	**100**	

Table A1.1 Continued

YEAR	NAME	SEC	TNP	RG	HORSES	CATTLE & MILCH COWS	SHEEP	SWINE
1883	**Belieu, JA**	**30**	**29**	**12**	**3**	**17**	**135**	
1883	**Belieu, JG**	**35**	**29**	**11**	**2**	**11**		
1883	**Brown, GA & JW**	**21, 32, 29, 33**	**29**	**12**		**5**		
1883	**Cribbins, RA**				**2**	**17**		
1883	**Cribbins, Wm**	**30**	**29**	**12**	**2**	**4**	**70**	**9**
1883	**Giles, John H**	**19, 20**	**29**	**12**	**5**	**11**	**2**	**22**
1883	**Herman, WP**	**31, 32**	**29**	**12**	**4**	**5**		**70**
1883	**Hoffman, Ms. J**	**22**	**29**	**11**	**7**	**37**		**20**
1883	**Howell, SD**	**33**	**29**	**11**				
1883	**King, Alice**	**20, 29**	**29**	**11**				
1883	**Mast, John**	**32**	**29**	**12**	**4**	**72**	**6**	**29**
1883	**Matheney, J H**	**19**	**29**	**12**	**2**	**19**		**23**
1883	**Muller, JW**	**34**	**29**	**11**	**1**	**4**		**4**
1883	**Reed, Oscar**	**17**	**29**	**12**	**4**	**6**		**20**
1883	**Rhoda, JH**	**32**	**29**	**12**	**2**	**16**		**10**
1883	**Rookard, Th L**	**34**	**29**	**11**	**2**	**12**	**8**	**3**
1883	**Schroder & son**	**29**	**29**	**12**	**2**	**21**	**3**	**39**
1889	Anderson, ME	28	**29**	11	2	16		
1889	Belieu, LD	35	29	11	3	19	100	
1889	Bonewitz, John	7	29	12	3	7		
1889	Bryan, SH	30	29	12	5	3		
1889	Cribbins, Mrs CM	35	29	11	2	4	80	
1889	Decker, Sam	16	29	11	2	7		
1889	Easter, JP	33	29	11	4	4		8
1889	Endicott, SS	19	29	11	2	15		7
1889	Giles, Daniel	19	29	12	7	14	65	33
1889	Giles, John H	19	29	12				
1889	Herman, Binger	31	29	12				
1889	Hett, Anthony	7	29	12		4		
1889	Huffman, EM	35	29	11	1	10	200	

Table A1.1 Continued

YEAR	NAME	SEC	TNP	RG	HORSES	CATTLE & MILCH COWS	SHEEP	SWINE
1889	Jarrell, Thomas	29	29	11	1			
1889	King, Alice	29	29	11	2	9		3
1889	King, Mrs ML	20	29	11		9		
1889	Kirkpatrick, RO	14	29	11	3	13		
1889	Lyons, JA	7	29	12				
1889	Roberts, WD	16	29	11	1	9		
1889	Robertson, JC	34	29	11	1	7		
1889	Rookard, Thom L	27	29	11	5	31	4	
1889	Sengstacker, Pete	30	29	12				
1889	Snyder, AH	7	29	12	1	15		
1889	Williams, Mrs LC	18	29	12	2	7		
1890	**Anderson, ME**	**28**	**29**	**11**	**2**			**17**
1890	**Anderson, SDG**	**17**	**29**	**12**	**3**	**17**		**3**
1890	**Barklow, David estate**	**5**	29	12	**2**	**15**		
1890	**Belieu, JG**	**30**	**29**	**12**	**3**			
1890	**Belieu, LD**	**35**	**29**	**11**	**3**	**15**	**100**	**5**
1890	**Billings, LL**	**31**	**29**	**12**	**3**	**5**		
1890	**Bryan, SH**	**30**	**29**	**12**	**1**	**10**		**7**
1890	**Carl, August**	**6**	29	12	**5**	**19**		**6**
1890	**Cribbins, Mrs C**	**35**	**29**	**11**	**1**			
1890	**Cribbins, RA**				**3**	**5**		
1890	**Crutchfield, BL**	**32**	**29**	**12**	**3**			**5**
1890	**Dixon, WL**	**8, 7**	29	12	**7**	**29**	**25**	
1890	**Easter & Hill**	**33**	**29**	**11**	**8**	**40**		**20**
1890	**Ebb, Anthony**	**7**	29	12		**5**		
1890	**Edwards & Dalmas**	**8, 17**	29	12		**6**		
1890	**Endicott, SS**	**19**	**29**	**11**	**2**	**15**		
1890	**Ferry, Jos**	**29**	**29**	**12**				
1890	**Giles, Daniel**	**17, 19**	**29**	**12**	**7**	**11**	**17**	**25**
1890	**Herman, Bin.**	**31**	**29**	**12**				

Table A1.1 Continued

YEAR	NAME	SEC	TNP	RG	HORSES	CATTLE & MILCH COWS	SHEEP	SWINE
1890	**Herman, WP**	**31**	**29**	**12**	**11**	**10**		**35**
1890	**Hill, BJ**	**33**	**29**	**11**	**1**	**12**		
1890	**Jerell, Thos**	**29**	**29**	**11**	**1**			
1890	**King, Alice**	**29**	**29**	**11**				
1890	**King, Mrs. ML**	**20**	**29**	**11**	**1**	**6**	**10**	
1890	**Kirkpatrick, R**	**14**	**29**	**11**	**7**			**4**
1890	**Laird, Joseph**	**8**	29	12	**4**	**11**	**50**	**10**
1890	**Lehnherr, W**	**17**	**29**	**12**	**9**	**9**	**10**	
1890	**Lyons, JA**	**7**	29	12				
1890	**Maryanski, M.**	**36**	**29**	**11**				
1890	**McNair, Arch.**	**5**	29	12	**4**	**4**	**30**	
1890	**Radabaugh, H**	**29**	**29**	**12**	**1**	**5**		**5**
1890	**Smith, OE**	**18**	**29**	**11**		**7**		
1890	**Snyder, AH**	**7**	29	12	**2**	**8**		
1890	**Thompson, H**	**16**	**29**	**11**				
1890	**Wagner, J L**	**20**	**29**	**12**	**4**	**10**		**35**
1890	**Wagner, WD estate**	**20**	**29**	**12**	**1**	**3**		
1890	**Whitington, J**	**29**	**29**	**12**				
1890	**Whitington, M**	**32**	**29**	**12**	**8**	**13**		**30**
1890	**Whittington,W**	**32**	**29**	**12**	**3**	**19**		**5**
1890	**Williams, Mrs LC**	**18**	**29**	**12**				
1892	Anderson, SDG	17	29	12	3	24		7
1892	Belieu, Jessie	30	29	12				
1892	Belieu, LD	36	29	11	3	18	125	
1892	Billings, LL	31	29	12	3	1		
1892	Blackman, A	36	29	11	2	2		
1892	Bonewitz, John	7	29	12				
1892	Brosi, Geo	28	29	11				
1892	Bryan, SH	30	29	12	1	16		6
1892	Easter, JP	34	29	11	4	28		3
1892	Endicott, SS	19	29	11	3	18	20	
1892	Giles, Daniel	29	29	12	9	11		3
1892	Giles, John H	19	29	12	2	12		
1892	Jarrell, Thomas	29	29	11	4	6		

Table A1.1 Continued

YEAR	NAME	SEC	TNP	RG	HORSES	CATTLE & MILCH COWS	SHEEP	SWINE
1892	King, Alice	29	29	11				
1892	King, Mrs ML estate	20	29	11				
1892	Kirkpatrick, RO	14	29	11	2	14		
1892	Knight, Tomas L	16	29	11	3	25		
1892	Maryanski, Modest	16, 36	29	11				
1892	Matheney, Jas H	19	29	12	7	13		10
1892	Nosher, JH	22	29	11				
1892	Rancier, Henry	18	29	12	2	3		
1892	Rookard, Thomas L	34	29	11	7	16	34	
1892	Smith, Chas J	16	29	11	1	9		
1892	Snyder, AH	7	29	12	3	1		
1892	Thompson, Herbert E	16	29	11				
1892	Ward, Robert estate	29	29	11				
1892	Williams, Mrs LC	19	29	12				
1893	**Axe, Peter**	**22**	**29**	**11**	**1**	**13**		
1893	**Belieu, Jessie G**	**30**	**29**	**12**				
1893	**Belieu, LD**	**32**	**29**	**11**	**3**	**15**	**100**	
1893	**Billings, LL**	**31**	**29**	**12**	**1**	**5**		
1893	**Blackman, Andrew**	**36**	**29**	**11**	**2**	**5**		
1893	**Bonewitz, John**	**7**	29	12				
1893	**Brosi, Geo**	**28**	**29**	**11**		**8**		
1893	**Bryan, SH**	**30**	**29**	**12**	**1**	**16**		**7**

Table A1.1 Continued

YEAR	NAME	SEC	TNP	RG	HORSES	CATTLE & MILCH COWS	SHEEP	SWINE
1893	**Easter, JP**	**32, 34**	**29**	**11**	**1**	**25**		**1**
1893	**Elliott, JKP**	**19, 35**	**29**	**11**	**5**	**12**	**37**	**6**
1893	**Giles, Daniel**	**19, 20, 29**	**29**	**12**				
1893	**Giles, John H**	**19, 30**	**29**	**12**				
1893	**Jarrell, Thom**	**29**	**29**	**11**	**3**	**16**		
1893	**King, Alice E**	**29**	**29**	**11**	**1**	**3**		
1893	**King, Mrs ML estate**	**20**	**29**	**11**				
1893	**King, WA**	**20**	**29**	**11**	**1**	**3**		**6**
1893	**Kirkpatrick, RO**	**14, 23**	**29**	**11**	**2**	**16**		
1893	**Knight, TomL**	**16**	**29**	**11**	**4**	**4**		
1893	**Maryanski, Modest**	**16, 36**	**29**	**11**	**2**	**1**		
1893	**Matheney, J H**	**17, 18, 19**	**29**	**12**	**7**	**13**		**50**
1893	**Nosher, JH**	**22**	**29**	**11**				
1893	**Rancier, Henry**	**18**	**29**	**12**	**3**	**3**		
1893	**Rookard, Thomas L**	**27, 34**	**29**	**11**	**7**	**22**	**38**	**7**
1893	**Smith, Chas J**	**16**	**29**	**11**	**2**	**7**		
1893	**Snyder, John H**	**7**	29	12	**1**			
1893	**Thompson, Herbert E**	**16**	**29**	**11**				

Table A1.1 Continued

YEAR	NAME	SEC	TNP	RG	HORSES	CATTLE & MILCH COWS	SHEEP	SWINE
1893	**Ward, Robt estate**	**29**	**29**	**11**				
1893	**Williams, Mrs LC**	**18, 19**	**29**	**12**	**2**	**1**		**7**
1893	**Wittington, Mrs**	**31, 32**	**29**	**12**	**2**	**2**		
1894	Axe, Peter	12	29	11	1	15		
1894	Belieu, LD	36	29	11	3	15	100	2
1894	Billings, LL	30, 31	29	12	1	2	1	
1894	Bonewitz, John	7	29	12				
1894	Bronson	14	29	11				
1894	Brosi, Geo	28	29	11				
1894	Easter, JP	33, 34	29	11		25		
1894	Easter, Mrs Martha A	19	29	11	3	12	49	5
1894	Endicott, SS							
1894	Fetter, John L	28, 33	29	11				
1894	Fetter, LB	33	29	11	3	9	7	6
1894	Houser, CE				2	18		2
1894	Jarrell, Thomas	29	29	11	6	17		2
1894	King, Alice E	29	29	11				
1894	King, Mrs ML estate	20	29	11				
1894	King, WA	20	29	11				
1894	Kirkpatrick, RO	14, 23	29	11				
1894	Lushbaugh, Sam	23	29	11	3	13		3
1894	Majory, Chas. W	34	29	11				
1894	Matheney, Jas	19	29	12	7	15		16

Table A1.1 Continued

YEAR	NAME	SEC	TNP	RG	HORSES	CATTLE & MILCH COWS	SHEEP	SWINE
1894	Mullen, John W	34	29	11	2	13		6
1894	Ranssier, Henry	7	29	12				
1894	Rookard, Thom L	27, 34	29	11	3	18	40	3
1894	Snyder, JH & AM & EA	7	29	12				
1894	Thompson, Herbert E	16	29	11				
1894	Ward, Robt estate	29	29	11				
1894	Williams, LC	18, 19	29	12				
1894	Williams, Mrs LC	18	29	12				
1894	Wittington, JT	31, 32	29	12				
1895	**Anderson, GDG**	**8**	29	12	**2**	**11**		**1**
1895	**Anderson, GDG**	**17**	**29**	**12**				
1895	**Anderson, ME**	**28**	**29**	**11**				
1895	**Axe, Peter**	**12**	**29**	**11**	**1**	**17**		
1895	**Barkklor, Issac**	**8, 17**	29	12	**3**	**3**		**3**
1895	**Barklow, Albert**	**17**	**29**	**12**	**3**	**4**		**4**
1895	**Barklow, Daniel**	**8**	29	12	**4**	**2**		**2**
1895	**Barklow, David estate**	**5**	29	12	**2**	**6**		**8**
1895	**Barklow, Frank**	**8**	29	12	**2**	**4**		**2**
1895	**Barklow, JD**	**17**	**29**	**12**	**3**	**10**		**6**

Table A1.1 Continued

YEAR	NAME	SEC	TNP	RG	HORSES	CATTLE & MILCH COWS	SHEEP	SWINE
1895	**Barklow, Manl**	**8, 17**	29	12	**2**	**3**		**3**
1895	**Barklow, Mrs Nancy**	**8**	29	12				
1895	**Barklow, Thom**	**7, 17**	29	12	**2**	**3**		
1895	**Belieu, JA**	**30**	**29**	**12**		**11**		**2**
1895	**Belieu, LD**	**32, 36**	**29**	**11**	**3**	**17**	**100**	**1**
1895	**Blackman, And**	**36**	**29**	**11**	**2**	**4**		
1895	**Bonewitz, John**	**7, 8**	29	12	**4**	**21**		**1**
1895	**Breitenbucher,**	**20**	**29**	**11**	**1**			
1895	**Brosi, Geo**	**29**	**29**	**11**				
1895	**Brown, JC & M**	**17**	**29**	**12**	**2**	**3**		
1895	**Brownson, HH**	**14**	**29**	**11**	**4**	**9**		**15**
1895	**Butler, Chas H**	**5, 8**	29	12	**2**	**17**		**9**
1895	**Cardell, Erik**	**6**	29	12	**1**	**10**		**2**
1895	**Cribbins, RA**				**2**	**8**		**16**
1895	**Crutchfield, BL**	**32**	**29**	**12**	**3**	**2**		**21**
1895	**Dixon, WL**	**17**	**29**	**12**				
1895	**Dobbs, Mattie J**	**17**	**29**	**12**				
1895	**Ebb, Anthony**	**5, 7**	29	12		**5**	**40**	
1895	**Eckhoff, Charlotte**	**32**	**29**	**12**				
1895	**Endicott, SS**	**19**	**29**	**11**	**4**	**8**	**60**	**6**
1895	**Giles, Daniel**	**17, 20, 29**	**29**	**12**	**3**			**26**
1895	**Giles, John H**	**19**	**29**	**12**				
1895	**Gryder, Frank**	**29**	**29**	**12**				

Table A1.1 Continued

YEAR	NAME	SEC	TNP	RG	HORSES	CATTLE & MILCH COWS	SHEEP	SWINE
1895	**Hall, JW**	**20**	**29**	**11**	**2**			**3**
1895	**Haughton, Henry**	**5, 6**	29	12	**2**	**9**		**4**
1895	**Herman, Binger**	**31**	**29**	**12**				
1895	**Hermann, Mrs. Emma**	**17-20**	**29**	**12**				
1895	**Hill, BJ**	**33**	**29**	**11**	**2**	**13**		
1895	**Hoover, Mrs. E**	**6**	29	12	**2**			
1895	**Houser, CE**	**11, 14**	**29**	**11**				
1895	**Jarrell, Thomas**	**29**	**29**	**11**	**3**	**10**		
1895	**King, Alice**	**29**	**29**	**11**				
1895	**King, Rufus P**	**20**	**29**	**11**	**2**	**4**		**3**
1895	**King, WA**	**20**	**29**	**11**	**2**	**2**	**6**	**1**
1895	**Kirkpatrick, RO**	**14, 23**	**29**	**11**	**1**	**11**		**11**
1895	**Knight, Tom L**	**16**	**29**	**11**	**3**	**8**		**2**
1895	**Laird, Joseph**	**8**	29	12				
1895	**Lehnherr, Ella**	**8**	29	12				
1895	**Lehnherr, JA**	**17**	**29**	**12**	**1**	**7**		
1895	**Lehnherr, Lizzie G**	**17**	**29**	**12**		**2**		
1895	**Lehnherr, WT**	**8**	29	12	**2**	**1**		

Table B1.1 Continued

YEAR	NAME	SEC	TNP	RG	HORSES	CATTLE & MILCH COWS	SHEEP	SWINE
1895	**Lushbaugh, Samuel R**	**23**	**29**	**11**	**2**	**15**		**7**
1895	**Lyons, JA**	**6, 7**	29	12	**1**			**5**
1895	**Majory, Chas. W**	**16, 34**	**29**	**11**	**4**	**6**		**2**
1895	**Maryanski, Modest**	**16, 36**	**29**	**11**				
1895	**Matheney, Jas H**	**17, 18, 19**	**29**	**12**	**125**	**13**		**25**
1895	**McNair, Archa**	**5**	29	12	**4**	**21**		**9**
1895	**Mullen, John W**	**34**	**29**	**11**				
1895	**Nosher, JH**	**22**	**29**	**11**		**3**		
1895	**Phelps, Eugene**	**17**	**29**	**12**		**2**		
1895	**Rackleff, CE**	**8, 9**	29	12				
1895	**Rackleff, Ed**	**8**	29	12	**1**	**2**		
1895	**Reed, Oloff**	**6**	29	12	**3**	**20**		
1895	**Reed, SS**	**17**	**29**	**12**	**2**	**3**		
1895	**Reedy, Oscar**	**17, 20**	**29**	**12**	**3**	**6**		**20**
1895	**Renfro, Wm HH**	**30, 31**	**29**	**12**	**2**			**9**
1895	**Roberts, Wm**	**5**	29	12	**1**	**12**		
1895	**Rookard, Thomas L**	**27, 34**	**29**	**11**	**2**	**18**	**40**	**6**
1895	**Root, Dan & Wife**	**17**	**29**	**12**	**1**	**6**		**4**
1895	**Shull, BC**	**29, 32**	**29**	**12**	**2**	**19**		**15**
1895	**Symons, Susan estate of**	**8**	29	12				

Table A1.1 Continued

YEAR	NAME	SEC	TNP	RG	HORSES	CATTLE & MILCH COWS	SHEEP	SWINE
1895	**Thompson, Herbert E**	**16**	**29**	**11**				
1895	**Wagner, J M**	**20**	**29**	**12**				
1895	**Wagner, John L**	**20**	**29**	**12**				
1895	**Wagner, Miss Lillie, Lizzie, Sarah**	**20**	**29**	**12**	**1**		**12**	
1895	**Wagner, Mrs El**	**20**	**29**	**12**				
1895	**Wall, James**	**8**	29	12				
1895	**Ward, Robert estate of**	**29**	**29**	**11**	**2**	**34**		**3**
1895	**Widby, WH**	**28, 29**	**29**	**12**	**3**	**3**		
1895	**Williams, Mrs LC**	**18, 19**	**29**	**12**				
1895	**Wise, Peter**	**18**	**29**	**12**	**1**	**1**		
1895	**Wittington, JC**	**29**	**29**	**12**	**5**	**19**		**64**
1895	**Wittington, JT**	**31, 32**	**29**	**12**	**2**	**2**		**2**
1895	**Wulff, Geo**	**8**	29	12				
1900	Adams, Chas	8	29	12		2		
1900	Ahr, Robert	8	29	12	1			
1900	Aldrich, Mrs. AE	36	29	11				
1900	Axe, Peter	12	29	11	3	8	12	1
1900	Barklow, A	8, 17	29	12				
1900	Barklow, BF	18	29	12	2	6		3
1900	Barklow, CH	18, 20	29	12				

Table A1.1 Continued

YEAR	NAME	SEC	TNP	RG	HORSES	CATTLE & MILCH COWS	SHEEP	SWINE
1900	Barklow, Chas		29	12	2	2		4
1900	Barklow, George	7, 8, 17,18	29	12	1	1		
1900	Barklow, Ira	17, 18	29	12				
1900	Barklow, Isic	17	29	12	3	5	20	2
1900	Barklow, JD	6, 7	29	12	3	12		2
1900	Barklow, Jm. W	17, 18	29	12		1		2
1900	Barklow, Manly	8	29	12		1	80	
1900	Barklow, Thom	18	29	12	2	3		4
1900	Bartlett, B	30	29	12				
1900	Belieu, JG	36	29	11	2	2		
1900	Belieu, LD	35	29	11	2	10	100	3
1900	Blackman, Andr	36	29	11				
1900	Brownson, Harriot	14	29	11				
1900	Brownson, HH	14	29	11	4	10		3
1900	Bryant, Ella N	20, 24, 29	29	11	4	12	16	18
1900	Buchanan, Lew	30	29	12	3	3		17
1900	Butler, Chas Jr	5, 7	29	12				
1900	Butler, Rosa	5	29	12	3	27	30	10
1900	Carl, August	5, 6	29	12	2	39		12
1900	Colton, Alva	12	29	11				
1900	Cribbins, Dan, Albert, RA	35	29	11	5	2	130	

Table A1.1 Continued

YEAR	NAME	SEC	TNP	RG	HORSES	CATTLE & MILCH COWS	SHEEP	SWINE
1900	Crutchfield, BL	32	29	12	2	12		10
1900	Devaul, Al				2	2	1	4
1900	Devaul, BE	19, 30	29	12				
1900	Devault, JR	17	29	12	2	13		20
1900	Easter, Mrs Martha A	33, 34	29	11				
1900	Eckhoff, Charlotte	32	29	12				
1900	Endicott, SS	19	29	11	4	3	150	4
1900	Felsher, John	17-20	29	12				
1900	Giles, Daniel	19, 20, 29	29	12	1	19		
1900	Goodman, LE	16	29	11				
1900	Grishaber, Mrs RL	14	29	11	3	1		2
1900	Hall, Jessie W	20	29	12	2	16	44	
1900	Harris, Mary G	17	29	12				
1900	Hartley, R	32	29	12	2	12		10
1900	Haughton, Sarah	32	29	12	2	3		2
1900	Haynes, JC	17	29	12	2	22		
1900	Herman, Binger	31, 32	29	12				
1900	Herman, EW	20	29	12		1		
1900	Herman, NC	32	29	12				
1900	Herman, SE	20	29	12	1	2		
1900	Herman, WP	31, 32	29	12	5	15	20	12
1900	Huges, WB	8, 9, 16, 17	29	12	1	5	11	

Table A1.1 Continued

YEAR	NAME	SEC	TNP	RG	HORSES	CATTLE & MILCH COWS	SHEEP	SWINE
1900	James, William	17-20	29	12				
1900	Jarrell, Thos	29	29	11	2	5	13	3
1900	Keer, Addie	20-29	29	11	2	1	50	
1900	King, Mrs AE	20, 29	29	11				
1900	King, RP	20	29	11	4			
1900	Laird, Joseph	8	29	12				
1900	Maryanski, Modest	16, 16	29	11				
1900	Matheney, Jas H	17, 18, 19	29	12	2	1		
1900	Mullen, John W	34	29	11	2	1		
1900	McNair, Archa	5	29	12	2	25		
1900	Orr, GW	7	29	12	3	1		
1900	Rackleff, Mrs. CE	8, 9	29	12	3	26		
1900	Rackleff, WE	7	29	12				
1900	Rausier, Nancy	8	29	12	1			
1900	Reader, Dr. JK	8	29	12				
1900	Reed, Oscar	29	29	12	2	28		6
1900	Renfro, Wm HH	30, 31	29	12	2	3		2
1900	Roberts, David	6	29	12				
1900	Rogers, Henry	18	29	12				
1900	Root, Martha A	17	29	12	3			

Table A1.1 Continued

YEAR	NAME	SEC	TNP	RG	HORSES	CATTLE & MILCH COWS	SHEEP	SWINE
1900	Royer, Henry	18	29	12				
1900	Royer, Mary Ann	17	29	12				
1900	Samuelson, Oli	8	29	11	2	28		4
1900	Shull, PC	29	29	12	3	33	8	12
1900	Smith, Geo. A	18, 19	29	12				
1900	Snyder, AM, JH, & AE	7	29	12				
1900	Stewart, WR	18	29	12				
1900	Straug, Mrs. Ella	20	29	12				
1900	Wagner, Miss Lillie,	20	29	12				
1900	Wagner, Miss SA	20	29	12				
1900	Ward, Robert heirs	29	29	11				
1900	Wildw, WT	17	29	12	2	6		1
1900	Wilson, Thos	8	29	12	2	19		3
1900	Wise, Peter	18	29	12				
1900	Wittington, JC	29, 32	29	12	4	44		11
1900	Wittington, Mrs. IF	31, 32	29	12	3	4	10	3

Appendix Two:

Botanical Survey and Cultural Plant Handbook

Table A2.1 Common Plant Names with Scientific Nomenclature and Site Data

COMMON NAME	SCIENTIFIC NAME	SITE #
alder, red	*Alnus rubra*	34, 40, 49, 68
bitter cherry	*Prunus emarginata*	47
blackberry, Himalaya	*Rubus discolor*	9, 19, 21, 36, 67, 68, 74, 78
blackberry, wild	*Rubus laciniatus*	3, 18
bleeding heart	*Dicentra formosa*	15, 104, 105
blue bloom	*Ceanothus thrysifloris*	9, 15, 16, 19, 21, 26
blue gillia	*Gilia capitata*	82
blue wildrye	*Elymus glaucus* ssp. *virescens*	lower meadows
blue-eyed grass	*Sisyrinchium angustifolium*	84, 87
bracken fern	*Pteridiumbellum*	9, 15, 16, 87,105
broom	*Cystisus scoparuis*	54
buttercup, creeping	*Ranunculus repens*	in forest road ditches
buttercup, woods	*Ranunculus unicinatus*	moist roadsides
camas	*Camassia*	65, 69, 80, 84, 85, 90
campion	*Silene scouleri*	82
cat's ear	*Calochortus tolmiei*	36, 59, 77
chinquapin	*Chrysolepis chrysophylla*	16
cleavers / bedstraw	*Galium*	25
common timothy	*Phleum pratense*	76, upper meadows
coyote bush	*Ceanothus ferrisae*	15, 19, 26
deadly hemlock	*Conium maculatum*	41, 104
death-camas	*Zigadenus freemontii*	33, 80, 81, 82, 85, 93
deer fern	*Blechnum spicant*	43
dogtail grass	*Cynosurus echinatus*	64, 65
Douglas fir	*Pseudotsuga menziesii*	throughout forest
elderberry	*Sambucus*	54
fairy lanterns	*Disporum smithii*	55
fairy slipper	*Calypso bulbosa*	95, 96, 105
fawn lily	*Erythronium oregonum*	27, 38, 60, 75, 96, 103
fescue, barren	*Festuca bromoides*	dry meadows

Table A2.1 Continued

flax, narrow-leaved	*Linum bienne*	15, 23
foxglove	*Digitalis purpurea*	51, 66
ginger	*Asarum caudatum*	1, 3, 9, 67, 68, 91
goldenback fern	*Pentagramma triangularis*	17, 36, 60
gooseberry, canyon	*Ribes menziesii*	18
grass widows	*Olsynium douglasii*	28
hairgrass, silver	*Aira caryophyllea*	dry meadows
hazel /filbert	*Corylus cornuta*	7, 8, 17, 37, 55, 64, 68, 78, 79, 80, 90, 98, 99, 101
hemlock	*Tsuga heterophylla*	scattered through forest
honeysuckle	*Lonicera ciliosa*	15, 17, 75, 78, 103, 106
horsetail	*Equisetum arvense*	67
huckleberry, evergreen	*Vaccinium ovatum*	8, 13, 15, 17, 25, 91, 98
huckleberry, red	*Vacinium parvifolium*	11, 16, 17, 25, 66, 86
Idaho bentgrass	*Agrostis idahoensis*	lower meadows
Indian peach	*Oemleria cerasiformis*	5
Indian pipes	*Monotropa uniflora*	39
iris	*Iris tenax*	26, 27, 29, 30, 38, 54, 59, 61, 75, 76, 86, 101, 105
lady fern	*Athyrium filix-femina*	39, 43, 46, 49, 52, 68, 92
Large false Solomon's seal	*Smilacina racemosa*	55
large leaved geum	*Geum macrophyllum*	78
larkspur, low	*Delphinium nuttallianum*	82, 93
licorice fern	*Polypodium glycyrrhiza*	17
lovage, celery-leaved	*Ligusticum apiifolium*	104
madrone	*Arbutus menziesii*	14, 24, 102, 104
maidenhair fern	*Adiantum aleuticum*	17, 34, 52, 67, 90, 91
maple, bigleaf	*Acer macrophyllum*	92
maple, vine	*Acer circinatum*	9, 18
May lily	*Maianthemum dilatatum*	27, 52, 55, 58
meadow brome	*Bromus erectus*	dry meadows
meadow rue	*Thalictrum occidentale*	43, 70, 104, 105
mimulus	*Mimulus glabratus*	50
miners' lettuce	*Claytonia parviflora*	4, 42, 46, 68

Table A2.1 Continued

myrtle-wood	*Umbellularia californica*	throughout meadows
narrow plantain	*Plantago lanceolata*	19
nettle, stinging	*Urtica dioiea*	9, 68, 92
noble fir	*Abies grandis*	10, 40, 47
oats	*Avena sativa X A. fatua*	44
ocean spray	*Holodiscus discolor*	16, 17, 18, 59, 64, 68, 72, 77, 92, 101
Oregon Grape, Cascade	*Berberis nervosa*	6, 13, 15, 42, 53, 56, 63, 71, 79, 86, 103, 106
Oregon white oak	*Quercus garryana*	30, 31, 32
pathfinder	*Adenocaulon bicolor*	42
pea, Pacific	*Lathyrus vestitus*	18, 48, 51
pennyroyal	*Mentha puleguim* or *Hedeoma* ssp.	54
pod fern	*Aspidotis densa*	dry meadows
poison ivy	*Rhus diversiloba*	13, 36, 37, 42, 51, 60, 61, 62, 77, 83
rattlesnake plantain	*Goodyera oblongifolia*	27. 94. 96. 99
red currant	*Ribes sanguineum*	9. 10. 18
red maids	*Calandrinia ciliata*	29
rhododendron	*Rhododendron macrophyllum*	moist forest
rice root	*Fritillaria lanceolata*	57, 82
rose, wood	*Rosa gymnocarpa*	17, 30, 62, 101
ryegrass, wild	*Elymus glaucus*	wet meadows
salal	*Gaultheria shallon*	4, 6, 15, 16
salmonberry	*Rubus spectabilis*	4, 18, 92
saxifrage	*Saxifraga integrifolia*	29
sea blush	*Plectritis congesta*	89
self heal	*Prunella vulgaris*	23, 30
slough sedge	*Carex obnupta*	10, 11, 18, 22, 65, 68, 69, 73, 74, 92
small-seeded rush	*Scirpus microcarpus*	4, 11, 22, 45
snowberry	*Symphoricarpos albus*	27
soft rush	*Juncus effusus*	18, 22, 26, 69, 73
spring beauty	*Cardamine nuttallii*	4, 9, 18, 27, 55
Spring gold	*Lomatium triternatum*	83, 82, 90

Table A2.1 Continued

spring queen	*Synthyris reniformis*	27, 29, 38, 76
star-flower	*Trientalis latifolia*	43, 55, 83
strawberry, wood	*Fragaria vesca*	19, 29, 38. 63, 75, 86
sweet pasture grass	*Anthoxanthum odoratum*	throughout meadows
sword fern	*Polystichum munitum*	140, throughout forest
tan oak	*Lithocarpus densiflorus*	throughout drier forest
thimbleberry	*Rubus parviflorus*	3, 4, 10, 46, 51, 52
trillium	*Trillium ovatum*	3, 27, 38
twin-flower	*Linnaea borealis*	54
twisted stalk	*Steptopus amplexifolius*	55
vanilla leaf	*Achlys triphylla*	38, 41, 43, 46
velvet grass	*Holcus lanatus*	84
violet, evergreen	*Viola sempervirens*	25
violet, stream	*Viola glabella*	27, 43, 68, 105
whipplevine	*Whipplea modesta*	15, 75, 89
white brodiaea	*Triteleia hyacinthina*	84, 87
wild carrot	*Daucus pusillus*	19
wind-flower	*Anemone deltoidea*	43
wood fern	*Dryopteris austriaca*	34, 42
wood lover	*Nemophilia parviflora*	28, 32
wood sorrel	*Oxalis oregana*	moist forest
woodrush, field	*Luzula comosa*	wet meadow
yarrow	*Achillea millefolium*	19, 30, 54
yerba buenna	*Satureja douglasii*	15, 69, 98, 103, 106

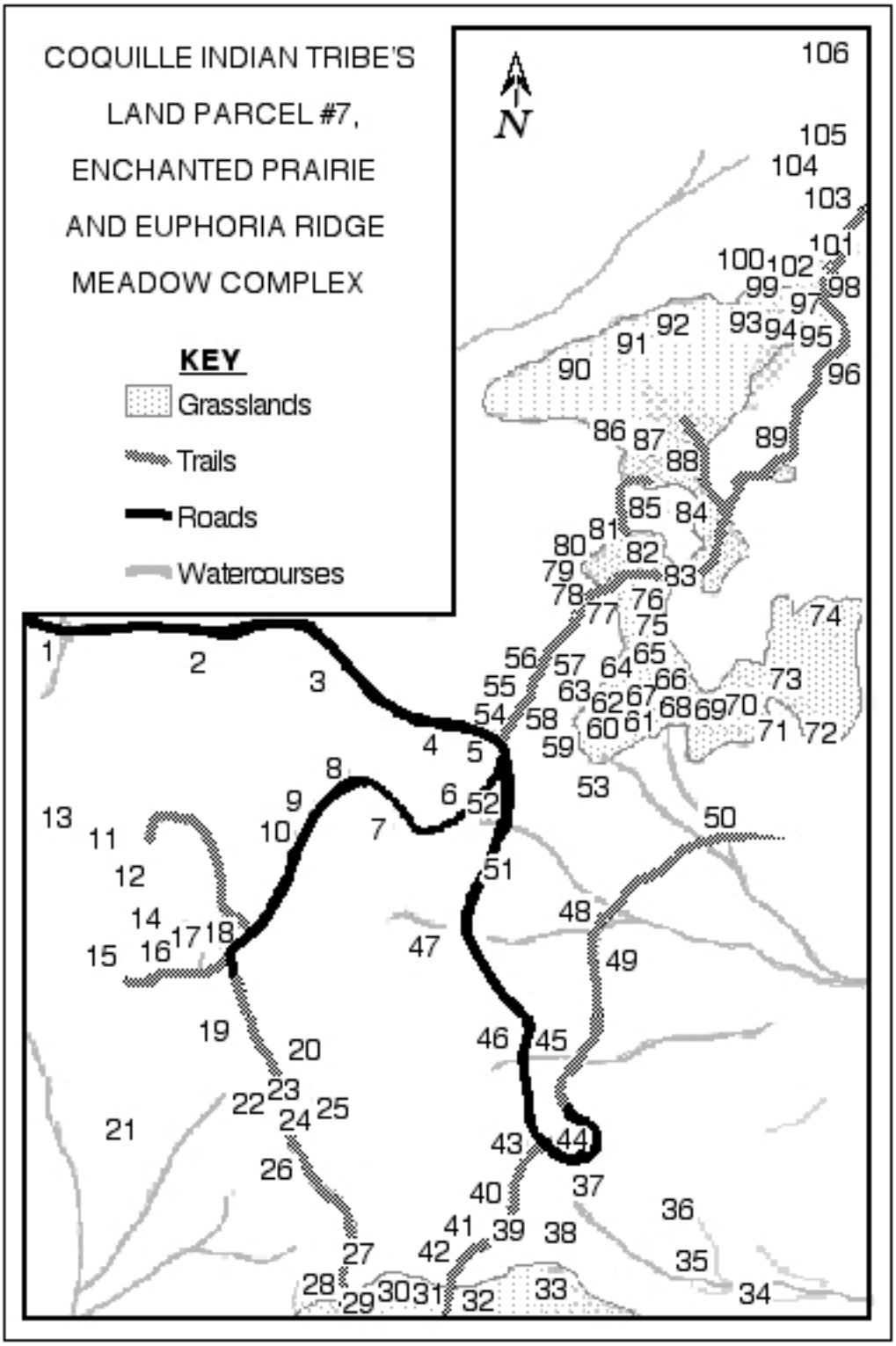

Figure A2.1 Coquille Indian Tribe's Parcel #7 Botanical Survey Site Map

SITE# 25

BEDSTRAW / CLEAVERS

Gallium aparine
Gallium triflorum

PLANT: Bedstraw/ Cleavers
Gallium aparine L., *Gallium triflorum* Michx.

HABITAT: Widespread, cosmopolitan species generally preferring moist shaded soils in our area. *G. aparine* is a European species, *G. triflorum*, native.

DESCRIPTION: Annual and perennial generally sprawling, decumbent herbs with whorled leaves; delicate white flowers held on airy pedundes; fruits have hooked hairs or bristles to aid in their dispersal.

IMPORTANCE: Some species are sweet smelling as they dry but all were commonly used as stuffing for bedding. Oral history reports it was used medicinally, generally for its soothing qualities on mucus membranes in a seeped tea (not boiling), either drunk or as bath, reported to help skin irritations and blemishes. The seeds were roasted and ground for a coffee substitute during the homestead era. Roots can by used for a purple dye.

Coquille Indian Tribe / Parcel #7, Euphoria Ridge
Cultural Resources Program

Fieldwork & Botanical Surveys, update 2007
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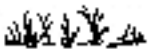
Figure A2.2 Bedstraw, Euphoria Ridge Cultural Plant Handbook

SITE# 3



Pacific Blackberry / Dewberry

Rubus ursinus

PLANT: Pacific Blackberry /Dewberry
Rubus ursinus Cham. & Schlect.

HABITAT: Open, disturbed sites in prairies to forest sites; coastal to mid-mountain.

DESCRIPTION: Trailing, dioecious vine with slender, red-purplish stems with flattened thorns; trifoliate deciduous leaves; and separate male and female 5 petaled white flowers. Female blossoms mature to juicy reddish-black 'berries.'

IMPORTANCE: Astringent qualities released from the cut roots when steeped for a half hour and then used for diarrhea medicine for children. Tea from the leaves aid indigestion and stomach problems. Berries eaten fresh and dried. Berry patches were cared for by layering a thick mulch of braken fern fronds under the canes to keep them producing.

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Figure A2.3 Blackberry- Wild, Euphoria Ridge Cultural Plant Handbook

SITE# 82

BLUE GILIA / BLUEFIELD

Gilia capitata

PLANT: Blue gilia / Bluefield
Gilia capitata Sims

HABITAT: Lower elevations of open mountain slopes and meadows with moderately fertile and rocky soils.

DESCRIPTION: Annual, with tubular blue flowers in a globular head held above the small finely dissected leaves; blooming late spring or early summer.

IMPORTANCE: Little is known of any medicinal value however its seeds form mucilage when moistened that lends itself to salves and ointments. It is easily seeded into wild gardens and landscape beds to give early color.

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Figure A2.3 Blue Gilia, Euphoria Ridge Cultural Plant Handbook

SITE # 87

BLUE-EYED GRASS

Sisyrinchium bellum

PLANT: Blue-eyed grass
Sisyrinchium bellum S. Watson
Sisyrinchium angustifolium Mill.

HABITAT: Rocky slopes and prairie grasslands, lives in wide variety of habitats including hot and dry areas as long as they are wet in the early spring

DESCRIPTION: Member of the Iris family with similar shaped, reddish purple petals and sepals with most plants having a single bloom; the filaments are fused together for 1/3 to 1/2 their length, the flattened leaves arise from a short rhizome.

IMPORTANCE: Can be used like other members of the Iris family for fiber or delicate twining

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Figure A2.4 Blue-eyed Grass, Euphoria Ridge Cultural Plant Handbook

SITE# 87

BRACKEN FERN / BRAKE

Pteridum aquilinum

PLANT: Bracken fern / Brake
Pteridum aquilinum (L.) Kuhn var. *pubescens* L. Underw.

HABITAT: In well drained disturbed soils, prefers open areas with partial to full sun, often found along road banks

DESCRIPTION: Single triangular fronds emerging from long, often hairy rhizomes, highly variable height from 25-250 cm. tall and 60 cm wide at lowest segment. Petiole hairy at base becoming smooth as it rises. Sporangia near margins with inconspicuous indusium.

IMPORTANCE: Emerging fronds may be steamed and eaten as a spring-time tonic and survival food; they contain toxins which are carcinogenic so should be used sparingly. The rhizomes can also be pit-roasted, pealed, and the starchy meal eaten. The yellow, tough, central core from long rhizomes can be woven into baskets. Fronds were threaded over maple poles and hung in over-lapping layers to form walls of temporary summer 'grass houses'. Fronds were traditionally layered between drying elk meat to tenderize the jerky, and then stood on to compress and form it into bales.

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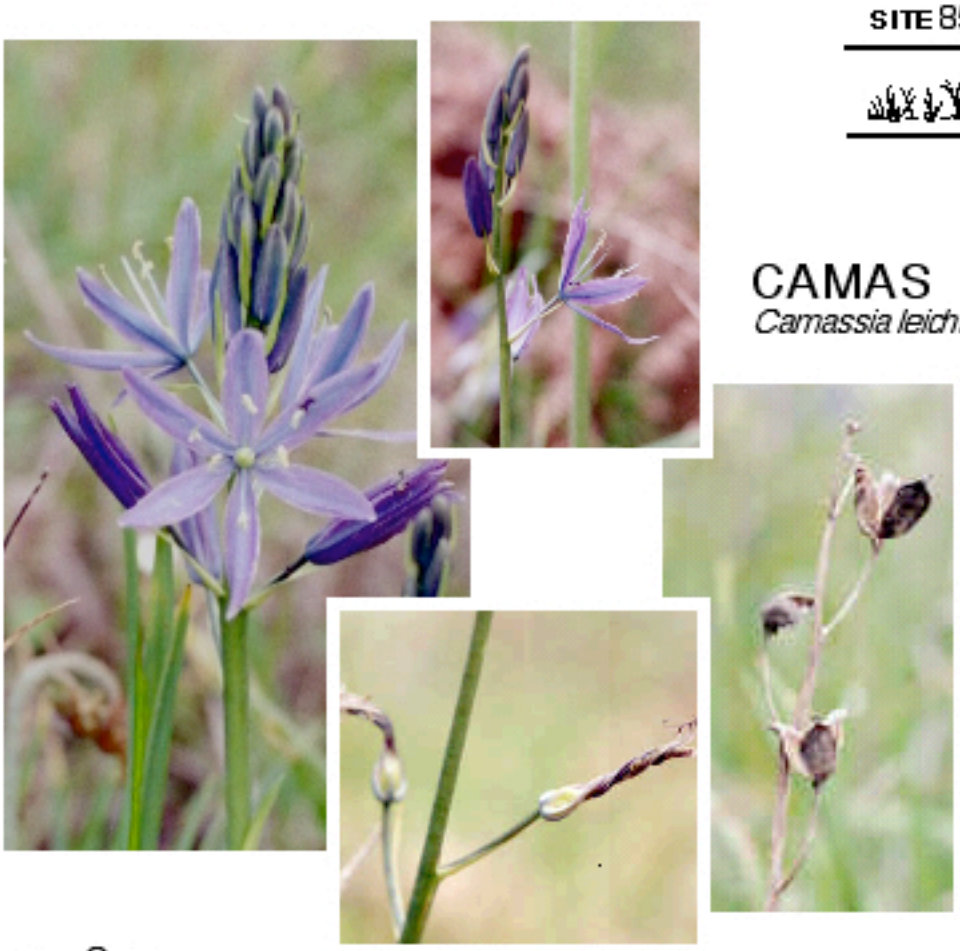
Figure A2.5 Braken Fern, Euphoria Ridge Cultural Plant Handbook



SITE 85

CAMAS
Camassia leichtlinii

PLANT: Camas
Camassia leichtlinii (Baker) S. Watts

HABITAT: Vernally wet meadows, grasslands which dry by midsummer

DESCRIPTION: Perennial herb from oval bulbs with grass-like leaves; single erect stalk holds blue-violet to white; 6 petal flowers with yellow stamen; upper petals evenly spaced like wheel spokes but with lower petal often on different axis; twist together to cover developing oval capsules; shiny black seeds

IMPORTANCE: Bulbs are a valued food source, low in carbohydrates and rich in natural sugars that become increasingly digestible with long, steam cooking. Reported to help people with stomach problems. Stems are edible as well.

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Figure A2.6 Camas, Euphoria Ridge Cultural Plant Handbook

SITE# 3

WILD CARROT / QUEEN ANNE'S LACE

Daucus carota

PLANT: Wild carrot / Queen Anne's lace
Daucus carota L. or possibly *Daucus pusillus* Michaux

HABITAT: Open, grasslands, roadsides. *D. carota*, with purplish central flower, is European introduction while *D. pusillus*, an all white flower cluster is an introduced native from south - eastern US and S. America.

DESCRIPTION: Hairy, tap rooted herb with erect stem and finely dissected leaves and white flowers clustered in flat umbels which curl into dried 'birds nest' shape as seeds mature

IMPORTANCE: Roots may be steamed, pithy core slipped out and eaten as food. Tea from dried roots and seeds used as diuretic, decongestant for the kidneys, bladder, and liver as well as a menstrual stimulant. A few seeds make a nice digestive aid but if used in quantity may act as a female contraceptive. Oral history reports that if you burn the flowers, with a cover to catch the smoke, and then inhale it, it will eases migraine headaches.

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Figure A2.7 Carrot- Wild, Euphoria Ridge Cultural Plant Handbook

SITE# 59

CATS-EAR
/ MARIPOSA LILY
Calochortus tolmiei

PLANT: Cats-ear / Mariposa lily / Tolmie's Mariposa
Calochortus tolmiei H. & A.

HABITAT: Lowland to alpine elevations; prefers drier soils with rich humus content, most often at forest edges or canopy openings where sunlight can penetrate

DESCRIPTION: Perennial from deep seated bulb; few basal leaves on a branching stem with white to purplish flowers most often blooming in succession with only one open at a time; petals softly hairy with dark fringed glands near center

IMPORTANCE: Edible bulb, often described as a 'delicacy' for its mild but unique flavor. Rarely transplants but propagates easily from seed.

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Figure A2.8 Cat's Ear Lily, Euphoria Ridge Cultural Plant Handbook

SITE # 47

BITTER CHERRY
Prunus emarginata

PLANT: Bitter Cherry
Prunus emarginata (Hook.) Walp.

HABITAT: Moist forests; sea level to mid-mountain; often forming thickets.

DESCRIPTION: Medium tree growing to 10m with thin, peeling bark outer bark with large lenticels; with elliptic, serrated leaves with two glands at base of leaves; white flowers in sparse flat- topped dusters; red to blackish purple fruits develop.

IMPORTANCE: Oral history reports that the bark was used to sooth the bitter and harsh acting chittam or cascara when it was used as a laxative. The bark was traditionally peeled in the spring and used to wrap the handles of any baskets or tools that would be associated with fisheries. The tannins in the bark cut through the 'fish-slime' and slipperiness to help keep your grip. Fruits generally inedible but relished by birds.

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Figure A2.9 Cherry- Bitter, Euphoria Ridge Cultural Plant Handbook

SITE# 33

Death-camas / Star lily

Zigadenus freemontii

PLANT: Death-camas / Star lily
Zigadenus freemontii (Torrey) S.Watson

HABITAT: Grassy, often rocky outcrops or open, wooded slopes; more drought tolerant than true camas

DESCRIPTION: Often shallow seated perennial bulb, mostly basal, linear leaves but they continue up the single stem; white, 6 tepaled flowers held stiffly erect in open panide; matures to papery, three parted capsule with many brown, winged seeds

IMPORTANCE: Poisonous to livestock but not deadly as are some other species in the same family. Has been used medicinally but sensitivity varies greatly between people and treatment can be dangerous. Showy lily, transplants well.

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Figure A2.10 Death-camas, Euphoria Ridge Cultural Plant Handbook

through-out

DOUGLAS FIR
Pseudotsuga menziesii

PLANT: Douglas fir
Pseudotsuga menziesii (Mirbel) Franco.

HABITAT: Moist to dry forests; sea level to mid-mountain

DESCRIPTION: Large evergreen tree, with drooping branches, flattened needle-like leaves, narrow-oblong cones mature in one year, scales with 3 lobed bract said to resemble a mouse's tail.

IMPORTANCE: Economic timber tree. Oral history reports that tea was made with it for sacred ceremonies due to its cleansing qualities. New growth and young tips collected for tea and jam for its high vitamin C content to prevent scurvy after hard winters. Vine maple and the branch wood were sometimes prefered by one person or the other for harpoons, spears, and dipnet poles.

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Figure A2.11 Douglas Fir, Euphoria Ridge Cultural Plant Handbook

SITE# 54

RED ELDERBERRY

Sambucus racemosa

PLANT: Red Elderberry
Sambucus racemosa L.

HABITAT: Moist forests and along watercourses to 3000 m.

DESCRIPTION: Shrubby, deciduous trees to 6 m. in height with pinnately compound leaves; cream flowers on conspicuous cone shaped inflorescence that develops into bright red berries.

IMPORTANCE: Stem-wood was traditionally used for pipestems and side limbs used for ceremonial dappers and arrow shafts. They were cut, peeled, and slowly dried before straightening the shafts over hot rocks. The crushed leaves were rubbed on poison oak to dry up rash. The berries have to be cooked to remove their bitterness and toxic seeds which could be done by cooking them on hot rocks, or in some areas steamed the berries in pit ovens, rolled in thimbleberry leaves that would be held shut with a thorn. After scraping and boiling a pulp of the bark, was applied to mother's breasts to increase their milk flow.

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Figure A2.12 Elderberry- Red, Euphoria Ridge Cultural Plant Handbook

SITE # 95

FAIRY SLIPPER / CALYPSO ORCHID

Calypso bulbosa

PLANT: Fairy slipper / Calypso orchid
Calypso bulbosa (L.) Oakes.

HABITAT: Deep, cool shade of moist forests; sea level to mid-mountain

DESCRIPTION: Small but showy perennial from slightly globular corm with single leaf which grows throughout winter and shrivels in summer; flower with violet wings and magenta, mottled cup/sac with brownish interior streaking; slight perfume.

IMPORTANCE: Associated with healthy undisturbed Douglas fir forests with deep litter and mulch. As ecosystems are disturbed or change to more open conditions that are dryer or colder, this orchid is one of the first to disappear. Corms are edible.

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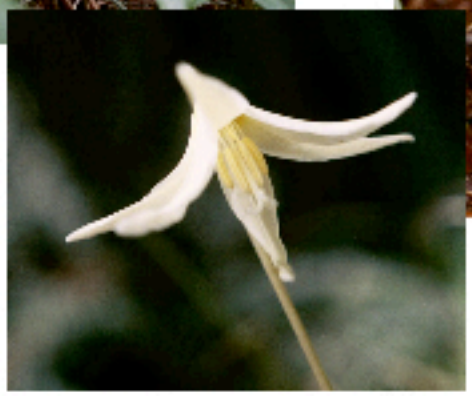
Figure A2.13 Fairy Slipper, Euphoria Ridge Cultural Plant Handbook

SITE# 63



FAWN LILY
Erythronium oregonum

PLANT: Fawn lily
Erythronium oregonum Appleg.

HABITAT: Moist forest openings and edges

DESCRIPTION: Perennial from deep seated corm; 2 basal, mottled leaves and single flower stem with 1-3 nodding flowers; cream to yellowish petals, yellow anthers and recurving stigma lobes.

IMPORTANCE: Genus with edible bulbs / corms.

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Figure A2.14 Fawn Lily, Euphoria Ridge Cultural Plant Handbook

SITE# 1

WILD GINGER

Asarum caudatum

PLANT: Wild ginger
Asarum caudatum Lindl.

HABITAT: Lowland to mid- mountain, moist, shady forests and stream banks

DESCRIPTION: Evergreen perennial from extensive matted thin, fleshy rhizome with simple, heart shaped leaves emerging in pairs at stem nodes; brownish-pink to yellowish flowers with 3 long pointed tapering petals joined at base to form cup shape with a single maroon stripe.

IMPORTANCE: Rhizome used as a flavoring- fresh, candied, or dried powder. Medicinally it has been used to promote sweating, quicken the eruption of chicken pox, treat infant colic, and to settle children and adult stomachs by stimulating the digestive processes. Considered excellent tea for new mothers to help ensure flow of their urinary tract. Listed in the U.S. Pharmacopoeia as stimulant diaphoretic with two antibiotic agents; it was gathered and sold by the pound causing many areas to become stripped of ginger populations.

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Figure A2.15 Ginger- Wild, Euphoria Ridge Cultural Plant Handbook

SITE# 18

CANYON GOOSEBERRY

Ribes menziesii

PLANT: Canyon Gooseberry
Ribes menziesii Pursh

HABITAT: Open shrubland and forest openings at low to mid-mountain elevations

DESCRIPTION: Deciduous shrub to 8-9 ft, with spines at each leaf node and bristles between; leaves 3-5 lobed; 4-tiered flowers with purplish red sepals curving backward to reveal white petals which curl inward, the long anthers hang below and surround yet longer styles; matures into purple, bristly fruit

IMPORTANCE: Although its berries are edible the main contribution this gooseberry has is as a nectar source. Its flowering time overlaps but lags behind the red currents, giving hummingbirds a continuing food source in the forested mountains. A tea from the roots is said to help sore throats.

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Figure A2.16 Gooseberry- Canyon, Euphoria Ridge Cultural Plant Handbook

SITE# 28

GRASS WIDOWS

Olsynium douglasii

PLANT: Grass Widows
Olsynium douglasii A. Dietr.

HABITAT: Rocky slopes and prairie grassland habitats, including hot and dry areas as long as they are wet in the early spring.

DESCRIPTION: A member of the Iris family with similar shaped, reddish purple petals and sepals with most plants having a single bloom; the filaments are fused together for 1/3 to 1/2 their length, the flattened leaves arise from a short rhizome.

IMPORTANCE: Can be used like other members of the Iris family for fiber or delicate twining.

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Figure A2.17 Grass Widows, Euphoria Ridge Cultural Plant Handbook

SITE# 106

HAIRY MANZANITA

Arctostaphylos columbiana

PLANT: Hairy Manzanita
Arctostaphylos columbiana Piper

HABITAT: Rocky, open slopes at low elevations and edges of forests

DESCRIPTION: Evergreen shrub with grayish alternate leaves covered with short hairs, pale-pinkish urn shaped flowers that ripen into brownish berries

IMPORTANCE: Medicinally a strong astringent, the berries have been used as cure for diarrhea, a weaker tea from the leaves eases urinary infection, or as an external wash for sores and infections. Oral history says a tea of crushed berries was used as a stimulant. Survives well as a landscape ornamental.

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Figure A2.18 Hairy Manzanita, Euphoria Ridge Cultural Plant Handbook

SITE# 87

HARVEST LILY / WHITE BRODIAEA

Triteleia hyacinthina

PLANT: Harvest lily / White Brodiaea
Triteleia hyacinthina (Lindley) E. Greene

HABITAT: Coastal grasslands, wet meadows at lower mountain elevations in soils that dry during summer.

DESCRIPTION: Perennial herb from deep corm with generally 1-3 long basal leaves which emerge in early spring and wither by early summer, often by flowering; tubular flowers with 6 white tepals and flat stamen filaments attached midway on tepals.

IMPORTANCE: Reported as one of the most utilized and best tasting edible lily bulbs, raw they taste like celery with the texture of nuts.

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Figure A2.19 Harvest Lily, Euphoria Ridge Cultural Plant Handbook

SITE# 64

HAZEL
/ HAZELNUT
Corylus cornuta

PLANT: Hazel / Hazelnut / Beaked Hazel
Corylus cornuta Marsh.

HABITAT: Open forests and shrublands, prefers moist but well drained sites

DESCRIPTION: Shrubby, small, multiple trunked tree with toothed, alternate leaves giving the branches a zig-zag appearance. Male flowers in catkins are some of the earliest bloomers in the spring. Female flowers are in small clusters at end of branches, mature nuts are enclosed in bracts.

IMPORTANCE: Edible nuts. Young branches and sprouts are preferred weaving material for foundations of pack baskets and cradle-boards. Canoe poles of hazel were said to be strongest and would bend when used to push without breaking.

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Figure A2.20 Hazelnut, Euphoria Ridge Cultural Plant Handbook

SITE# 124

HEAL ALL / SELF-HEAL

Prunella vulgaris var. *lanceolata*

PLANT: Native Heal All/Self-heal
Prunella vulgaris L. var. *lanceolata* (Barton) Fern.

HABITAT: Moist grasslands and open stream banks

DESCRIPTION: Tender perennial with weak square sided stem, sparse leaves, and hooded, purplish-pink, bi-lipped flowers clustered in head held above surrounding grasses

IMPORTANCE: Edible leaves. Medicinally used for its anti-inflammatory qualities; boiled as poultice, seeped in oils and/or fats to make healing ointment, and steeped as a cold tea for a gargle. Considered cooling and tonic so tea was used for fevers.

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Figure A2.21 Heal All, Euphoria Ridge Cultural Plant Handbook

SITE# 51

HEMLOCK
Tsuga heterophylla

PLANT: Hemlock
Tsuga heterophylla (Raf.) Sarg.

HABITAT: Low elevation forested mountains to 2000m.

DESCRIPTION: Evergreen tree with generally drooping leader and small, flat, soft needles with whitish stomata; rough bark. Greenish cones at branch tips that mature one year later as small brown cones.

IMPORTANCE: Has a dense, rot resistant wood that reportedly sinks in water and therefore used in building fish weirs, as it wouldn't float. Hemlock stakes were driven into the mud and didn't work their way up to the surface. Spear and leister points were often made of the dense knots as well as some people preferring saplings for their canoe poles. Hazel and vine-maple were good for their tough springy-ness for work against rocks but hemlock was better for deeper water so you didn't have to fight the floating tendencies of the other woods. Inner bark could be baked and used as food.

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Figure A2.22 Hemlock, Euphoria Ridge Cultural Plant Handbook

SITE# 67

HORSETAILS / SNAKE GRASS

Equisetum ssp.

PLANT: Giant Horsetails, Scouring rush, Snake grass
Equisetum telmateria Ehrh.
Field Horsetails *Equisetum arvense* L.

HABITAT: Generally open, wet to moist places.

DESCRIPTION: Rhizomatous, dimorphic herb with green sterile stems with regular whorls of needle-like branches; fertile stalks, branchless and tipped with blunt sporangia cones often withering after maturity.

IMPORTANCE: Oral history reports that the fertile stalks were eaten when tender, "cooked like asparagus" then peeled back and the insides are quite good. The leafy stalks were used for a highly stimulating tea that reportedly speeds you up! Medicinally it is a diuretic and kidney tonic and is used to strengthen the connective membranes of the internal organs. Traditionally used as a hair rinse. The stems were commonly used similarly to modern sand paper to smooth and to polish all wooden implements including arrow points and spear shafts.

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Figure A2.23 Horsetails, Euphoria Ridge Cultural Plant Handbook

SITE# 61

LEATHERLEAF IRIS
Iris tenax

PLANT: Iris, leatherleaf
Iris tenax Dougl.

HABITAT: Open areas including forest edges, roadsides, stream banks, and grassy margins, can tolerate dry and hot conditions after spring blooming.

DESCRIPTION: Perennial from slender rhizomes; flat lance shaped leaves, and large 3 sectioned flowers are formed from colored sepals and petals curving over each other to create distinctive crest that ranges from pale blue to deep purple with contrasting venation.

IMPORTANCE: Bleached leaves used by weavers for overlay designs on twinned basketry items; main vein separates and can be used for strong twine and fishing line; roasted seeds can be used like coffee; dried roots have been part of the herbal pharmacopoeia to stimulate the liver and in spring tonics. Caution should be used as ingesting of tonics causes a skin rash in some people and allergic shock for others.

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Figure A2.24 Iris, Euphoria Ridge Cultural Plant Handbook

SITE# 39

LADY FERN
Athyrium filix-femina

PLANT: Lady Fern
Athyrium filix-femina (L.) Roth.

HABITAT: Shady stream banks, seeps, and wet forest floors

DESCRIPTION: Tender fern emerging from short, thick rhizome base with straw colored central vein that blackens toward petiole base, blade twice segmented with toothed margin, and J shaped sori.

IMPORTANCE: Fiddleheads eaten steamed, boiled, or baked. Leaves used to cover berries and other food while drying and medicinally to ease aches and pains. and ulcerous wounds. The center of roasted and peeled rhizomes gathered and eaten once plant was dormant in fall and winter, traditionally served with dried salmon eggs.

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Figure A2.25 Lady Fern, Euphoria Ridge Cultural Plant Handbook

SITE# 82

LOW LARKSPUR / DELPHINIUM

Delphinium nuttallianum

PLANT: Low Larkspur / Delphinium
Delphinium nuttallianum Walp.

HABITAT: Open, dry grasslands, often in association with Death-camas.

DESCRIPTION: Perennial with palmately lobed leaves; single stem with open panide of deep violet blue, irregular flowers, oldest flower pedunde at least twice as large as the youngest; easily detached from tubular root crown; 5 sepals, one deeply spurred, lowest white; 4 paired petals.

IMPORTANCE: Poisonous to livestock, historically used as powdered insecticide including as a remedy to rid head lice.

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Figure A2.26 Larkspur, Euphoria Ridge Cultural Plant Handbook

SITE# 90

MAIDENHAIR FERN / 5-FINGER FERN

Adiantum aleuticum

PLANT: Maidenhair fern / Five finger fern
Adiantum aleuticum (Rupr.) C. A. Paris
= *Adiantum pedatum* L. var. *aleuticum* Ruper.

HABITAT: Wet seeps, sandy and gravelly stream banks and waterfall edges in shady scrub to forest riparian zones.

DESCRIPTION: Delicate medium fern from creeping rhizome with 2 unequal, spreading leaf sections on long stems ranging from brownish purple to shiny black

IMPORTANCE: Blackish brown leaf stems are a favorite for overlay in twined basketry. Newly emerging stems are browner and darken as they age. Medicinally used either green or dried leaves used to increase endurance, ease shortness of breath, clear the mucus membranes, and stimulate slow menses. Leaves make excellent hair rinse for body and luster.

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Figure A2.27 Maidenhair Fern, Euphoria Ridge Cultural Plant Handbook

SITE# 55

MAY LILY /
Maianthemum dilatatum

PLANT: May Lily / Wild Lily of the Valley
Maianthemum dilatatum (Wood) Nels. & Macbr.

HABITAT: Almost all shady, moist habitats that have composting leaf litter from sea coast to 3500 ft. elevations, especially along stream banks.

DESCRIPTION: Perennial herb from rhizome with short, 1-4 dm., erect stems crowded with heart shaped leaves; small white 4 petaled flowers held on spike-like raceme above leaf mass; mature red berries 5-6 mm.

IMPORTANCE: Berries are edible but you need to wait until they are deeply ripe, better cooked. Pulp from the leaves makes a good drawing salve for boils, infected cuts and bruises.

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Figure A2.28 May Lily, Euphoria Ridge Cultural Plant Handbook

SITE# 89

MYRTLEWOOD

Umbellularia californica

PLANT: Myrtlewood / Oregon Myrtle
Umbellularia californica (Hook. & Arn.) Nutt.

HABITAT: Genera typically associated with the tropics but this species found in southern temperate zones, in open chaparral and grasslands. Temperature seems limiting factor, as it can be found in various moisture regimes.

DESCRIPTION: Broadleaf, evergreen tree growing to 45 m with alternate, shiny, very aromatic leaves; cream to yellow-green flowers emerge from leave axils followed by dark brown to purplish drupe.

IMPORTANCE: Nuts gathered in the fall after they have fallen from the tree are the easiest to remove from their husks (perhaps before leaving when the elk hunts were over?). Their shells are often found in archeological sites and explorers reported that Indian people sat around the campfire and cracked them against flat rocks. They reportedly give you a caffeine-type stimulation. Leaves are generally stimulant and contractive, especially for mucous membranes making it useful as a mouth wash. Reputed to slow hemorrhages and menstrual flow. A hot mash of leaves in a tea were used to draw boils. Leaves can also be ground for seasoning but may produce toxic effects in some people.

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Cultural Resources Program

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Figure A2.29 Myrtlewood, Euphoria Ridge Cultural Plant Handbook

SITE# 68

STINGING NETTLE

Urtica dioica

PLANT: Stinging Nettle
Urtica dioica L.

HABITAT: Moist areas, often in shaded forests and along stream banks.

DESCRIPTION: Perennial rhizomatous herb growing from 2-3 m. with opposite narrowly heart-shaped, toothed leaves on square stems. Inconspicuous, cream-to-green flowers emerge from leaf axils on spikes. The leaves have glandular bristles or short hairs that create burning sensation when touched.

IMPORTANCE: Boiled spring greens from tops are an excellent source of iron and other minerals. Generally diuretic and roots and stalks used for bladder trouble and blocked urine flow. Once the plant has wilted, stinging properties disappear and oral history reports that it was common practice to set them in the sun to speed this up. The sour dock plant that grows in same areas is said to stop the sting if chewed up and spat on nettle burns. Harvest in August for traditional twine and rope making; it has then reached its top height and if left longer, the stem hardens and makes separating out the fibers difficult. Supposedly, sexually wayward girls were whipped with this.

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Figure A2.30 Nettle- Stinging, Euphoria Ridge Cultural Plant Handbook

SITE# 59

OCEANSPRAY / ARROW-WOOD / IRONWOOD

Holodiscus discolor

PLANT: Oceanspray, Arrow-wood, Ironwood
Holodiscus discolor(Pursh) Maxim.

HABITAT: Moist open forest from oceanside to lower mountains.

DESCRIPTION: Small deciduous shrub to 3 m. with alternate, soft sometimes fuzzy, lobed leaves; cream flowers on loose pyramid-shaped panides are said to resemble sea foam. Dry seeds in achenes.

IMPORTANCE: Traditionally used whenever hard, dense wood was needed: for digging sticks, prongs of flounder spears, arrow tips, awls, netting needles, tongs, and pit-fall stakes. When in full flower at the coast, in July, it is the sign to strike out for the mountains for hunting elk; cold tea made from inner bark and flowers was used as eye wash. Seeds were boiled with cherry bark as a tea to purify the blood and ease symptoms of contagious diseases.

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Figure A2.31 Oceanspray, Euphoria Ridge Cultural Plant Handbook

SITE# 63

OREGON GRAPE

Berberis aquifolium

PLANT: Oregon Grape
Berberis nervosa Pursh and *Berberis aquifolium* Pursh

HABITAT: The 2 species overlap, but generally, *B. nervosa* prefers moist, conifer forests and *B. aquifolium* dryer zones including oak savannas.

DESCRIPTION: Evergreen understory shrubs with leathery, compound leaves; yellow flowers and blue berries. *B. nervosa* lower growing with rhizomatous roots and 9-19 leaflets; *B. aquifolium* with 5-9 spine tipped leaflets. *B. nervosa* contains higher dye alkaloids.

IMPORTANCE: Oral history reports the roots were gathered in the spring to make a tonic called 'Old-peoples' Medicine' as it clears out impurities in the endocrine glands. The roots were added to shredded alder bark and used as a yellow dye, especially for beargrass; gather mid-summer through fall. Medicinally the roots were used in traditional 'blood medicine' and to aid in the delivery of the placenta. They were dug and sold commercially to stimulate the liver. Salves are antimicrobial. The leaves keep mice out if placed in a ring around the house; they didn't like to walk on the prickles!

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Figure A2.32 Oregon Grape, Euphoria Ridge Cultural Plant Handbook

SITE# 48

PACIFIC PEA

Lathyrus vestitus

PLANT: Pacific pea
Lathyrus vestitus Nutt. var. *ochropetalus* (Piper) Isely

HABITAT: Open conifer or mixed forest and oak woodlands.

DESCRIPTION: Perennial herb with sharply angled stem and compound leaves with 8-12 elliptic leaflets ending in branched tendril; 8-15 whitish flowers in dense, terminal grouping;seeds mature in long flattened pods.

IMPORTANCE: Although some wild peas may be eaten like garden peas the wild ones are highly variable and often cross-pollinate which makes it impossible to rely on them as a food source. In order to know if the green seeds are usable, the pods must be opened and tasted individually.

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Figure A2.33 Pacific Pea, Euphoria Ridge Cultural Plant Handbook

SITE# 54

PENNYROYAL

Mentha pulegium
Hedeoma species

PLANT: Pennyroyal
European *Mentha pulegium* and
Native *Hedeoma* species

HABITAT: Dry open grasslands, disturbed sites

DESCRIPTION: Small to 3 dm upright, stiff stemmed herb with small, opposite, aromatic leaves and pinkish-purple, 2 upper and 3 lower lipped flowers clustered in whorls at leaf nodes.

IMPORTANCE: Strongly aromatic herb named for similar European counterpart; an effective insect repellent and diaphoretic to induce sweating. Potions of differing strength used variously for menses regulator; some people may react violently to internal use exhibiting symptoms of rashes to convulsions and death.

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Figure A2.34 Pennyroyal, Euphoria Ridge Cultural Plant Handbook

SITE# 62

POISON IVY

Rhus diversiloba

PLANT: Poison Ivy
Rhus diversiloba T. & G.

HABITAT: Generally open, disturbed sites but can withstand light shade; moist to dry areas

DESCRIPTION: Deciduous, woody plant with diverse growth and leaf shape. May vine up trees to 15 m. or remain shrubby in full sun. The lobes on the three compound leaflets may vary from very shallow to deeply incised and often turn scarlet in fall. Bark remains tight on stem with square cracks. Smooth yellow berries follow small white blooms.

IMPORTANCE: Its reported that some people have traditionally used its sap to remove warts! However today, its an important food for many bird species and everyone I know is happy to leave it to the birds! Avoid contact. Volatile oils are long lasting and difficult to remove; tools and equipment that come into contact should be wiped down with alcohol to dissolve residues. Wash your body in cold water and clothes in hot.

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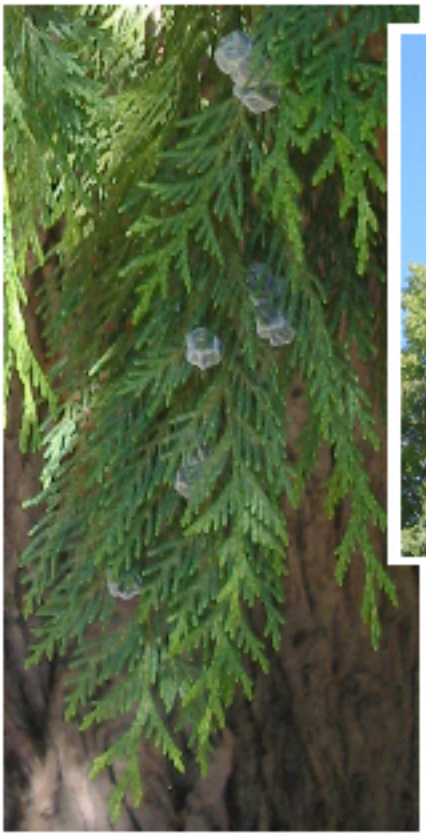
Figure A2.35 Poison Ivy, Euphoria Ridge Cultural Plant Handbook



SITE# 53

PORT ORFORD CEDAR

Chamaecyparis lawsoniana

PLANT: Port Orford Cedar
Chamaecyparis lawsoniana A. Murray

HABITAT: Coastal mixed-evergreen forests to 1700m., often associated with serpentine. Can tolerate drier conditions than red-cedar.

DESCRIPTION: Large evergreen tree to 65m. with trunks to 6m. Reddish brown to tan bark. Scale like leaves generally as wide as long, therefore 'showing' white X on back of twigs. Spherical cones, 10 cm. composed of 5-6 scales. Aromatic.

IMPORTANCE: Wood fire resistant, otherwise used much the same as red-cedar. Inner bark has softer fibers than red-cedar but requires salt water processing. Reportedly this made it preferred for inner garments and other finely woven items, including ceremonial blankets. Wood is fine, straight grained making it easy to split into planks. Historic industries used it for manufacturing arrow shafts.

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Figure A2.36 Port-Orford Cedar, Euphoria Ridge Cultural Plant Handbook

SITE# 96

RATTLESNAKE PLANTAIN

Goodyera oblongifolia

PLANT: Rattlesnake plantain
Goodyera oblongifolia Raf.

HABITAT: Coniferous forests with layer of decomposing leaf liter

DESCRIPTION: Perennial orchid with highly variable but often striking, white veined, basal leaves in a rosette; small inconspicuous, densely ranked flowers on upright spire.

IMPORTANCE: Leaves and roots used medicinally as tea to ease sore throats and dry coughs and as a poultice to ease skin irritations and insect bites.

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Figure A2.37 Rattlesnake Plantain, Euphoria Ridge Cultural Plant Handbook

SITE# 50

RED-CEDAR
CANOE CEDAR
Thuja plicata

PLANT: Red-Cedar, Western Red-Cedar, Canoe cedar
Thuja plicata Donn.

HABITAT: Moist to swampy forested slopes, within coastal fog belt.

DESCRIPTION: Evergreen tree to 70 m. with scale like leaves, green above and pale below. Leaf scales form butterfly pattern moving up the twigs due to the scales being longer than broad. Small upright cones to 10 cm. Trunk generally widens significantly at base sometimes forming buttresses.

IMPORTANCE: The inner bark used for blankets, capes, skirts, nets, ropes, baskets and other implements; slabs of the outer bark for roofing due to its fire resistant quality. Wood was split for planks and house timbers. Branches were cured for spear shafts and arrows, and used green as withes for weaving and lashing. Trunks of old. large trees were made into dugout canoes. Branches collected and added to bedding for use as an insecticide to keep fleas away.

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Figure A2.38 Red-cedar, Euphoria Ridge Cultural Plant Handbook

SITE# 10

RED CURRANT

Ribies sanguineum

PLANT: Red currant
Ribies sanguineum Pursh

HABITAT: Dry to moist shrubby habitats, forest openings, roadsides; valley and low mountain elevations to 2200 m.

DESCRIPTION: Deciduous shrub with alternate, palmately lobed leaves with sparse hairs on underside; 10-20 flowers hanging in clusters with 5 spreading, bright reddish magenta sepals and white to pinkish tubular petals; black to blue berries.

IMPORTANCE: These flowers are a mainstay for hummingbirds who in the early spring search out their nectar, often returning to the same shrub for repeated feedings. The berries are unpalatable to humans but birds feed on them. The juice is said to heal mouth sores.

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Figure A2.39 Red Currant, Euphoria Ridge Cultural Plant Handbook

SITE# 15

SALAL
Gaultheria shallon

PLANT: Salal
Gaultheria shallon Pursh

HABITAT: Generally low to mid elevation, moist forest edges and shrublands

DESCRIPTION: Sprawling understory evergreen shrub growing to 6 feet; leathery, alternate leaves; racemes of urn shaped white to pale pink flowers that bloom through out spring and summer; mealy, dark blue fruit with multiple seeds.

IMPORTANCE: Fruit eaten and often mixed with other berries and pounded into cakes and dried on cedar boughs or skunk cabbage leaves for winter storage. Cakes traditionally eaten dipped in seal oil. Oral history reports that a tea made with the leaves and bark was called "moon-lodge medicine." Reportedly high in female hormones and that eating the berries in quantity could cause abortions; just a few, however, are good for indigestion.

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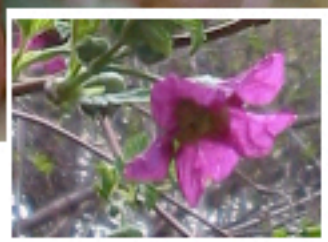
Figure A2.40 Salal, Euphoria Ridge Cultural Plant Handbook

SITE# 18



SALMONBERRY
Rubus spectabilis

PLANT: Salmonberry
Rubus spectalilis Pursh

HABITAT: Moist forest edges, shrubland, and stream banks.

DESCRIPTION: Erect, generally thorn-less, deciduous shrub with three parted leaves; brilliant magenta red flowers mature to salmon colored fruit, generally the darker the sweeter.

IMPORTANCE: Traditionally, the spring shoots were cut peeled, and eaten like candy and oral history reports that if they were steamed they become even sweeter. Leaves could be chewed by themselves and spit on burns or mixed with the bark of non-flowering canes and uva-ursi / kinnikinnick and used as an astringent tea to bathe infected skin wounds, especially burns. Bark was boiled in seawater and drunk to relieve pain of childbirth. Berries need to be quite ripe but then they become quite delicious if you can beat the deer to them.

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Figure A2.41 Salmonberry, Euphoria Ridge Cultural Plant Handbook

SITE# 27

SPRING BEAUTY / TOOTHWORT

Dentaria tenella

PLANT: Spring beauty
Dentaria tenella Pursh
= *Cardamine nuttallii* E. Greene

HABITAT: Open, lightly shaded, moist forested foothills to alpine slopes.

DESCRIPTION: Tender, perennial plant from small, 2 cm. globular rhizome; basal leaves rounded and lobed; stem leaves 3-5 parted and white to pink 5 petaled flowers on weak stems.

IMPORTANCE: Edible corms collected early in spring from close to the soil surface, eaten not only by humans but a favorite of most forest animals from squirrels to bears.

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Figure A2.42 Spring Beauty, Euphoria Ridge Cultural Plant Handbook

SITE# 82

SPRING GOLD / BISCUIT ROOT

Lomatium triternatum

PLANT: Spring Gold / Biscuit root
Lomatium triternatum (Pursh) Coult. & Rose ssp. *triternatum*

HABITAT: Mid-mountain; open slopes and meadows; dry to moist soils

DESCRIPTION: Thickened, tuberous tap rooted perennial, with up to 10" long, narrow, basal leaves dissected into threes; small yellow flowers in spreading umbel; oblong seeds with narrow winged edges

IMPORTANCE: The family in general has strong anti-viral and bacterial properties that are especially effective against respiratory infections, as well as mildly stimulating to the immune system. The seeds may be used as a flavoring for a peppery, bitter, nut taste. Oral history reports that it was eaten by Coastal Tribes by grinding the root to make flour. It was steamed first, like camas, dried, and then ground.

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Figure A2.43 Spring Gold, Euphoria Ridge Cultural Plant Handbook

SITE# 83

WESTERN
STAR-FLOWER
Trientalis latifolia

PLANT: Western Starflower
Trientalis latifolia Hook.

HABITAT: Open woods, forest edges, to shady prairie slopes.

DESCRIPTION: Perennial herb from 3-10 cm long tubers; single terminal whorl of leaves; 6-7 petaled, pinkish white flowers with narrow sepals extending between petals to form 'rays' from the star.

IMPORTANCE: Edible tubers.

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Figure A2.44 Star Flower, Euphoria Ridge Cultural Plant Handbook

SITE# 63

WOODLAND STRAWBERRY

Fragaria vesca

PLANT: Woodland Strawberry
Fragaria vesca L. var. *bracteata* (Heller) Davis

HABITAT: Meadows, stream banks, open woods, and shrublands with rich leaf litter and acidic soils

DESCRIPTION: Perennial herb with running stems and basal, 3 segmented, yellow-green leaves with the center tooth forming a point; large 5 petaled white flowers with over 20 stamens and numerous pistils; matures into juicy red berry.

IMPORTANCE: Delicious, edible fruit either raw or boiled and then dried; traditional preserved as cakes; oral history reports the leaves were made into a refreshing tea; high in vitamin C. Their astringent, drawing qualities make them a mild aid for diarrhea, wash for wounds, sore eyes, etc. Entire plant is a favored browse for deer.

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Figure A2.45 Strawberry- Woodland, Euphoria Ridge Cultural Plant Handbook

SITE# 68

STREAM VIOLET
Viola glabella

PLANT: Stream violet
Viola glabella Nutt.

HABITAT: Moist, shady, open woods and shrubland

DESCRIPTION: Tender, heart shaped leaves arising on slender stalks from creeping rhizome with pale yellow flowers with some with dark venation.

IMPORTANCE: Used much the same as evergreen violets however the leaves are far superior chopped fresh into salads. Both the leaves and flowers are good eaten greens in the spring, either fresh or steamed. Very high in both vitamin C and beta-carotene which makes it specifically useful for skin problems such as eczema. Prepared as tea it is laxative and sedative.

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Figure A2.46 Stream Violet, Euphoria Ridge Cultural Plant Handbook

SITE# 38

SWORD FERN
Polystichum munitum

PLANT: Western Sword Fern
Polystichum munitum (Kaulf.) Presl.

HABITAT: Moist forests

DESCRIPTION: Large evergreen fern 1-1.5 m with stiff, tough leaves; sori half way between mid vein and edge

IMPORTANCE: Rhizomes can be pit steamed, peeled and eaten. The tough leaves have been used fresh to line cooking pits, to dry seaweed on to flavor it; to carry, steam, and dry berries on as they are said not to stick them. Traditional herbal remedy is to chew the leaves and swallow the juice to ease sore throats.

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Figure A2.47 Sword Fern, Euphoria Ridge Cultural Plant Handbook

SITE# 47

TANOAK

Lithocarpus densiflorus

PLANT: Tanoak / Tanbark Oak
Lithocarpus densiflorus (Hook. & Arn.)Rehder var. *densiflorus*

HABITAT: Minor component in the south of the Pacific Northwest mixed evergreen forests to elevations of 1500 m.; greater populations in the drier Klamath forests.

DESCRIPTION: Shade tolerant, broadleaf evergreen maturing in 200- 300 yrs. with trunks 3 ft in diameter and averaging 80 ft. high; the leaves emerge in spring a striking tan color and age to a dark green; leaves, stiff, serrated with soft, silvery hairs underneath; clusters of 3 acorns mature in 2 years at branch tips, caps with distinctive pronged scales.

IMPORTANCE: The little used wood is hard and strong with large porous rings making it somewhat brittle. Acorns are used in traditional acorn soup and some elders relate they like the unique 'sharp' taste of these as compared to the white oaks. Homesteaders used bark to tan hides.

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Figure A2.48 Tanoak, Euphoria Ridge Cultural Plant Handbook

SITE# 3

THIMBLEBERRY

Rubus parviflorus

PLANT: Thimbleberry
Rubus parviflorus Nutt.

HABITAT: Moist open forests and shrublands from sea level to mid-montain

DESCRIPTION: Deciduous shrub to 2m. with large soft, palmately lobed leaves and showy white, 5 petaled flowers; pinkish to red fruits.

IMPORTANCE: Edible berries but look for plants in moist areas for juciier berries, the redder the better! Bark boiled and used for soap; leaves used to store and steam elderberries. Oral history reports that if dried leaves are powdered and used on burns they will prevent scarring. In the fall, leaves were gathered and used to make tea to strengthen the blood. During historic times, its said they made the best toilet 'paper' and so outhouses were often placed next to a patch of thimbleberries.

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Figure A2.49 Thimbleberry, Euphoria Ridge Cultural Plant Handbook

SITE# 3

TRILLIUM / INDIAN BALM / BIRTHROOT

Trillium ovatum

PLANT: Trillium / Indian Balm / Birth root
Trillium ovatum Push

HABITAT: Moist, open forests and shrubland as an under story herb in well composted soils, often along ravine bottoms and stream banks.

DESCRIPTION: Native perennial herb with a short, thick rhizome from which a whorl of 3 acute leaves arise on a single stem; 3 petaled, stalked flowers vary in color from white at opening to a purplish pink as they darken with age. Individual plants can live to over 80 years.

IMPORTANCE: Astringent tonic or tea useful in slowing, or coagulating blood flow, a uterine stimulant, as well as an excellent poultice to soothe skin irritations. The over collection and commercial sale of the roots, until the 1940's, resulted in some populations becoming endangered; therefore care should be taken to preserve the plant population if they are dug for harvesting today.

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Figure A2.50 Trillium, Euphoria Ridge Cultural Plant Handbook

SITE# 41

VANILLA LEAF

Achlys triphylla

PLANT: Vanilla leaf
Achlys triphylla (Smith) DC.

HABITAT: Moist deep, shaded forest floors and along north slope openings and road cuts

DESCRIPTION: Perennial herb with 3 fan shaped segmented leaves, arising from wide-spreading rhizomes; inconspicuous white flowers in spikes held above leaves

IMPORTANCE: Insecticidal and aromatic. As the plant dries it gains a vanilla smell and was traditionally always included with the grasses to make base of bedding that would then be covered with woven mats. Leaves used for flavoring, added to teas, smoking mixtures and tobacco, and with alcohol to make a vanilla substitute as well as a cordial. The root contains coumarin, medicinally used as an anticoagulant to relieve chest congestion and tuberculosis.

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Figure A2.51 Vanilla Leaf, Euphoria Ridge Cultural Plant Handbook

SITE# 25

EVERGREEN VIOLET

Viola sempervirens

PLANT: Evergreen Violet
Viola sempervirens Greene

HABITAT: Moist, open woods and shrubland

DESCRIPTION: Fleshy, elongated, evergreen heart shaped leaves arising in clusters from creeping rhizome with pale yellow flowers on erect stems, some with dark venation.

IMPORTANCE: Both the leaves and flowers are good eaten as greens in the spring, either fresh in salads or steamed. Very high in both vitamin C and beta-carotene which makes it specifically useful for skin problems such as eczema. Prepared as tea it is laxative and sedative.

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Figure A2.52 Violet- Evergreen, Euphoria Ridge Cultural Plant Handbook

SITE# 15

WILD
BLEEDING
HEART
Dicentra formosa

PLANT: Wild Bleeding Heart
Dicentra formosa (Andr.) Walp.

HABITAT: Moist, shady forests; lowlands to mid montaine.

DESCRIPTION: Deciduous, rhizomatous herb with lacy triangular leaves; dangling pink to flowers with sac-like outer petals and protruding yellow inner petals.

IMPORTANCE: The pounded root, boiled acts as a worming agent. These were collected in the summer before the foliage wilts and fades. Generally used as an analgesic; chewed for toothaches, and as a poultice for sprains, arthritic joints, and healing wounds. Traditionally a tea was used to calm the nerves from over-exertion, ease shaking from shock, and calm uncontrollable anger. It acts on the central nervous system and as such, should be considered dangerous. It may produce a positive return as opiate use in substance abuse urinalysis.

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Figure A2.53 Wild Bleeding Heart, Euphoria Ridge Cultural Plant Handbook

SITE# 43

WINDFLOWER / WILD ANEMONE

Anemone deltoidea

PLANT: Windflower / Wild Anemone
Anemone deltoidea Hook.

HABITAT: Open, with light shade in moist conifer forests

DESCRIPTION: Perennial herb 10-15 cm, from slender rhizome; single 3-segmented leaves; surprisingly large, to 25 cm, white sepaled, single flower with no petals but persistent, multiple stamens.

IMPORTANCE: Medicinally used to stimulate and dilate blood vessels, therefore great care should be exercised in its internal use, however poultice of leaves said to help relieve stiffness of rheumatism.

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Figure A2.45 Windflower, Euphoria Ridge Cultural Plant Handbook

SITE# 61

FIELD WOODRUSH

Luzula comosa

PLANT: Field woodrush
Luzula comosa E. Meyer
=*Luzula campestris* (L.) D.C. var. *congesta* (Thuill) E. Meyer

HABITAT: Open shrublands, gravelly meadows, and open edges of moist conifer forests

DESCRIPTION: Grass-like perennial herb with long flat leaves with slender hairs on their edges: flowers are inconspicuous but mature into spikes of single celled capsules with 3 seeds each.

IMPORTANCE: The seeds provide an important protein and oil component to the diet of many wildlife species, particularly for game birds. Can also be ground into flour or boiled as a porridge for human consumption.

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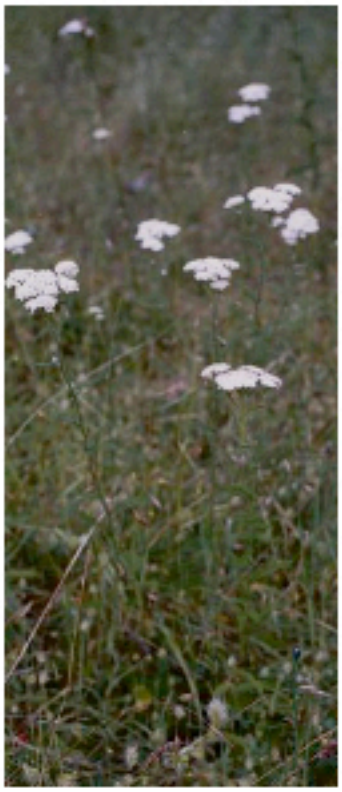
Figure A2.46 Woodrush- Field, Euphoria Ridge Cultural Plant Handbook

SITE# 30



YARROW / MILFOIL

Achillea millefolium

PLANT: Yarrow / Milfoil
Achillea millefolium L.

HABITAT: Found around the world in open, grassy sites and road sides; withstands poor soils but grows into a striking plant in meadow soils.

DESCRIPTION: Common aromatic perennial herb, 18-24 in. with alternate finely dissected leaves and white petaled flowers in terminal, oblong head. Roots often form interconnected mats.

IMPORTANCE: Medicinally used to lower the body temperature and to induce mild sweating as an aid to break fevers. It is anti-inflammatory, antimicrobial, and hemostatic which makes it useful to stop bleeding; externally as powder, the root chewed for gum problems, and the whole plant as tea for stomach ulcers. Also its strong smell makes it used as a repellent in many insecticide recipes. Oral history lists several uses; roots boiled as a poultice for athletes foot; and heal bruises; leaves crushed and used on infections in the woods.

Coquille Indian Tribe / Parcel #7, Euphoria Ridge
Cultural Resources Program

Fieldwork & Botanical Surveys, update 2007
By S. Fluharty, Contract Ethnobotanist

Figure A2.47 Yarrow, Euphoria Ridge Cultural Plant Handbook

SITE# 54

YERBA BUENA

Satureja douglasii

PLANT: Yerba buena
Satureja douglasii (Benth.) Briq.

HABITAT: Associated with light shade areas under Oregon white oaks and open conifer forests from the Cascades to coast. Needs well-drained soil.

DESCRIPTION: Perennial herb with running, slightly woody stems that occationally root and form connected mats. Aromatic, ovate leaves with minute hairs and glands on undersides; single small flowers emerge from the leaf axils and darken as they age; whitish to purple.

IMPORTANCE: A pleasant, mild tea is generally strenghtening and reported good for the heart. The subtle aromatic oils were used historically to mask the human scent. In preparation for hunting, a man would give up relations with women and attend the sweat lodges for up to 10 days where he would rub himself down with the leaves. Before the use of rifles, this allowed the men to move in close to the game without being detected.

Coquille Indian Tribe / Parcel #7, Euphoria Ridge
Cultural Resources Program

Fieldwork & Botanical Surveys, update 2007
By S. Fluharty, Contract Ethnobotanist

Figure A2.48 Yerba Buena, Euphoria Ridge Cultural Plant Handbook

KEY SOURCES FOR CULTURAL PLANT INFORMATION

Information about tribal use of the various plants comes from two sources:

1) The Coastal Oral History Project; Principal Investigator Dr. Roberta Hall and documented by Coquille Indian Tribe Volunteers and the Earth Watch Volunteers in 1978 and 1980. For the Oral History, sources included:

Robert Bodreau
Rob Collier telling information from Anna Hatch
Jerry Running Foxe
Bob Holden
Jim Metcalf
Bill Miller
Shannon Applegate Mueller
Ester Stutzman
Tony (Howard) Tanner
Will Watson
Elena Willman

2) The Field Notes of John P. Harrington from 1942; Notes of Interviews with Alsea, Siuslaw, and Coos Informants, *In* John Peabody Harrington Papers, Alaska/Northwest Coast 23:951. Elaine Mills ed. Washington, DC: Smithsonian Institution National Anthropological Archives, In Harrington's work, his sources were:

Ione Baker, Tututne
Jim Buchannan, Hannis lived on the Siuslaw
Frank Drew, lived on North fork of Siuslaw
Lottie Evanoff, daughter of Deloose or Chief 'Jackson,' lived near Dewey's Rock
Ida and Ned Mecum, lived at Bandon
Denzel Orton, Upper Coquille lived near Siletz

Questionable plant identifications were resolved by following the nomenclature of the vouchered specimens held at Oregon State University's Herbarium and with the kind assistance of the Curator, Dr. Richard Halse.

General information came from the following:

Elliott, D.
1995. Wild roots: A Forager's Guide to the Edible and Medicinal Roots, Tubers, Corms, and Rhizomes of North America. Rochester: Healing Arts Press.

Gunther, E.
1973. Ethnobotany of Western Washington: The Knowledge and Use of Indigenous Plants By Native Americans. Seattle: University of Washington Press.

Haskin, L. L.
1977. Wildflowers of the Pacific Coast. New York: Dover Publications, Inc.

Hickman, J. C., editor.
1993. The Jepson Manual of Higher Plants of California. Berkeley: University of California Press.

Hitchcock, C. Leo and Arthur Conquist.
1973. Flora of the Pacific Northwest. Seattle: University Press.

Moore, M.
1993. Medicinal Plants of the Pacific West. Santa Fe: Red Crane Books.

Phillip, Patty Whereat.
N.d. A Summary Ethnobotany of the Coos, Lower Umpqua, and Siuslaw. Unpublished paper compiled for the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians.

Pojar, Jim and Andy MacKinnon.
1994. Plants of the Pacific Northwest Coast. Renton, BC: Ministry of Forest and Lone Pine Publishing.

Smith, H.
1997. Ethnobotany of the Gitksan Indians of British Columbia. Vancouver: Columbia Museum of Civilization.

Turner, N.J.
1995. Food Plants of Coastal First Peoples. Vancouver: University of British Columbia Press.

Turner, N.J. and B. Efrat.
1982. Ethnobotany of the Hesquiat Indians of Vancouver Island. Vancouver: British Columbia Provincial Museum.

Viereck, E. G.
1987. Alaska's Wilderness Medicines: Healthful Plants of the Far North. Seattle: Alaska Northwest Books.

Appendix Three:

Ethnographic Documents and Forms

INITIAL INTERVIEW QUESTIONNAIRE

While the interviews are informal and not structured I will use the following questions

to stimulate the participants initial communication:

(1) Do you work for the Tribe? In what position? (Depending on answer discuss Tribal 'sustainability practices' in logging, cranberry cultivation, reservation ground maintenance, casino, and other operations.)

(2) Are you involved in the Tribal Government? In what position? (Depending on answer discuss Tribal resolutions that involve management, purchase of lands, and other environmental impacts.)

(3) Were you or your family members involved in the Federal Recognition process? (Depending on answer discuss drafting of Tribal Constitution and the inclusion of the Article on natural resources.)

(4) Do you consider yourself informed on Tribal activities?

(5) When you think about the 'environment' what do you include?

(6) When you think about 'your lands' what does that mean?

(7) What activities does the Tribe carry out that impacts the environment?

(7) Are the impacts good or bad? What does this mean to you?

(8) In general are the decisions the Tribe makes regarding the environment good or bad? What makes a decision a 'good' one?

(9) What changes would you like the Tribe to make, if any regarding the environment?

PHONE RECRUITMENT SCRIPT

(1) Hello, I'm Suzanne Fluharty, an Oregon State University graduate student.

(2) I was given your name by the Coquille Tribal Historian (Sharon Parrish), as someone who might be interested in being in a study I'm conducting here at OSU.

(3) I'm documenting the connections that the Tribe has with its ancestral lands and values about the environment in general.

(4) Is this something that interests you?

(5) [If not, "Thank you for your time. Goodbye."]

(6) If yes, "That's great. I'd like to interview you, which will probably take about 30 minutes initially and possibly longer depending on your comments. I have some papers explaining your commitment more fully and a form you'll need to sign. I've arranged to use the Tribal offices and was wondering if there's a time that we could meet?

(7) Verify time.

(8) Thank you, I look forward to seeing you then.

(9) Do you have any questions that I could answer now?

(10) Maybe you could write down any questions or thoughts before we meet so that we don't get distracted and forget anything that you might be worried about.

(11) Thanks again, see you on the (agreed upon time), goodbye.

INFORMED CONSENT DOCUMENT

Project Title: Coquille Indian Tribe and Environmental Values
Principal Investigator: Dr. Kingston, Department of Anthropology
Co-Investigator(s): Suzanne Fluharty, Student Researcher,

WHAT IS THE PURPOSE OF THIS STUDY?
You are being invited to take part in a research study designed to document current and historical connections that the members of the Coquille Indian Tribe have with their environment and ancestral lands. We are studying this because we hope to aid in the general understanding of the way people interact with the places they inhabit. I propose that this is expressed as a three way interdependent function of the physical, biological, and cultural relationships. The physical and biological components can be analyzed, however cultural aspects can best be understood through the experiences of the members that comprise the culture. The information you give may be included in the published dissertation of Suzanne Fluharty.

WHAT IS THE PURPOSE OF THIS FORM?
This consent form gives you the information you will need to help you decide whether to be in the study or not. Please read the form carefully. You may ask questions about the research: the risks, benefits, your rights, and anything that is not clear. When all of your questions have been answered, you can decide if you want to be in this study.

WHY AM I BEING INVITED TO TAKE PART IN THIS STUDY?
You are being invited to take part in this study because you are either a member or employee of the Coquille Indian Tribe, or your name has been recorded in public documents concerning the Tribe. As such you may have experiences to share.

WHAT WILL HAPPEN AND HOW LONG WILL IT TAKE?
Your involvement in this study will be in form of an interview that may last 30 minutes. It may be possible that one or more follow up interview(s) will be requested to confirm your opinions or obtain clarification. Should you choose to participate at that time, the additional interview(s) should not take longer than an additional 30 minutes.

WHAT ARE THE RISKS OF THIS STUDY?
The information you are asked to share at the interview(s) is not personal in nature and should create no discomforts or known risks.

WHAT ARE THE BENEFITS OF THIS STUDY?
You will not benefit from being in this study. However, we hope that other people might benefit from this study because an understanding of the way people interact with their environment helps in the formation of policy and land use decisions. Additionally the Coquille Indian Tribe will benefit from historic documentation for their future use.

WILL I BE PAID FOR PARTICIPATING?
You **will not** be paid for being in this research study.

DO I HAVE A CHOICE TO BE IN THE STUDY?
If you decide to take part in the study, it should be because you really want to volunteer. You can stop at any time during the study. If you choose to withdraw from this project before it ends, the researchers may keep information collected and this information may be included in study reports unless you clearly state that you wish it removed.

POTENTIAL FOR FOLLOW-UP STUDIES
There is a chance you may be contacted in the future to participate in an additional study which will require the researchers to retain your contact information. If you would prefer not to be contacted please let the researchers know, at any time.
If you are contacted, you can choose whether or not to participate.

WHAT IF I HAVE QUESTIONS?
If you have any questions about this research please contact:
Deanna Kingston (541) 737-3854.
If you have questions about your rights as a participant, please contact the OSU Institutional Review Board (IRB) Human Protections Administrator: (541) 737-4933.

WHO WILL SEE THE INFORMATION I GIVE?
If the results of this project are published, your identity will be made public. The information you provide during this research study will **not** be kept confidential unless you request by checking the line below. If you wish to remain anonymous, your confidentiality will be protected by our removal of your name in our records. Thereafter, only general reference will be made regarding your information, such as, "One woman told about…." or "an elder reported…"

Your signature indicates that this research study has been explained to you and that your questions have been answered. You will receive a copy of this form.

_____I agree to take part in this study, and understand that my name will be public.
_____I agree to take part in this study but wish to remain anonymous.
I do not want my name made public.
_____I agree to be re-contacted for possible follow up interviews and understand that at that time I may decline to participate.
_____I agree to take part in this study but **do not want to be re-contacted** for follow up interviews.

_____ _____
(Signature of Participant) (Date)