

**Overview of the Environment
of Native Inhabitants of Southwestern Oregon,
Late Prehistoric Era**

Research and Writing by Reg Pullen

Pullen Consulting
RR 2 Box 220
Bandon, OR 97411
TELEPHONE: (503) 347-9542

Report Prepared for
USDA Forest Service
Rogue River National Forest, Medford, Oregon
Siskiyou National Forest, Grants Pass, Oregon
DOI Bureau of Land Management
Medford District Office, Medford, Oregon

1996

ACKNOWLEDGMENTS

This project was directed by Janet Joyer of the United States Forest Service (Grants Pass), and Kate Winthrop of the Bureau of Land Management (Medford). Both provided great assistance in reviewing drafts of the manuscript, as did Jeff LeLande of the United States Forest Service (Medford).

Individuals from three southwest Oregon Native American tribes participated in the collection of ethnographic and historic data contained in the report and appendix. Robert Kentta of the Confederated Tribes of Siletz Indians reviewed ethnographic material from the John Harrington collection. Don Whereat of the Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians provided extensive help with records from the National Archives, Bancroft Library, and the Melville Jacobs collection. Troy Anderson of the Coquille Tribe helped to review materials relating to his tribe found in the Melville Jacobs collection.

The staff of the Bancroft Library at the University of California at Berkeley helped to track down several early journals and diaries relating to the historic exploration of southwest Oregon. Gary Lundell of the University of Washington helped to locate pertinent materials in the Melville Jacobs collection. The staff at the Coos Bay Public Library assisted in accessing sources in their Oregon collection and through interlibrary loan.

Other individuals who provided assistance through their comments, reviews, and/or help in locating relevant data include Thomas Atzet of the United States Forest Service (Grants Pass), Richard Drehobl and Larry Zowada of the Bureau of Land Management (Medford), and Ken Wilson of the United States Forest Service (Eureka, California).

Table of Contents

	<u>Pages</u>
Executive Summary	1-4
<i>Map of the Study Area</i>	5
1. Objectives and Purpose	I-1 to I-2
2. Research Questions and Problems	II-1 to II-5
3. Environmental Overview	III-1 to III-3
4. Cultural Overview	IV-1 to IV-21
5. Land Management Overview	V-1 to V-17
<i>Table of Use of Fire follows</i>	
6. Native Environment	VI-1 to VI-20
<i>Table of Vegetative Cover follows</i>	
7. Recommendations	VII-1-VII-2

Bibliography

Appendix

Index to Appendix I-III

- I. Cultural Overview, including subsistence
- II. Land Management Overview, including use of fire
- III. Native Environment, including historic references

Executive Summary

This project provides a comprehensive study of the native ecosystems of the Applegate and Illinois River watersheds of southwestern Oregon. Research conducted shows that the native people inhabiting this area combined trading networks, inter-tribal marriage, careful resource and land management practices and additional skills to encourage the bio-diversity and food production necessary to survive.

The Applegate and Illinois Rivers of southwestern Oregon have their headwaters in the Siskiyou Mountains that separate Oregon and California. Both rivers flow in a northwesterly direction to confluences with the Rogue River, and are part of one of the largest drainage basins in Oregon.

Much of the Applegate River was inhabited prehistorically by the Da-ku-be-te-de people and the upper Illinois River by the Gu-sla-dada. These groups spoke dialects of the same language, Athapascan, and shared many cultural attributes.

Both groups utilized large portions of their respective drainage basins in the quest for food and other resources. They also actively managed portions of the landscape, through the use of fire and manipulation of root and seed crops, in an effort to maintain a desirable environment in which to live.

This landscape reflected their presence in the form of a greater diversity of habitats, a broader expanse of oak-pine woodland, and higher populations of certain plant and animal species. The removal of Native Americans from southwestern Oregon in 1856 dramatically changed the environmental, as well as cultural, diversity of the region.

Hunting, fishing, and gathering were of relatively equal importance to the Native people. The elaborate fishing technology of the lower Klamath River, with massive group efforts for weir construction, was paralleled on the Applegate and Illinois Rivers by an elaborate hunting technology and the construction of sometimes miles-long fences that required a major group effort. It is probable that elaboration of ritual occurred with deer-fence construction, just as it did with weir construction on the Klamath River.

Snares were set in small openings in the fences. Snares were made of beargrass, which was a very important resource because of its role in the hunting technology. Beargrass was readily available in Applegate territory but not in abundance in Takelma territory in the neighboring Rogue Valley. Because of this, beargrass became an important trade item.

Root gathering was of major importance to this area. A great abundance and diversity of root species were available, and comprised a major part of the diet during significant portions of the year. Although acorn production fluctuated greatly in the Applegate-Illinois area, root crops were relatively dependable. This situation was reversed in the Klamath region to the south, so the Applegate and Illinois peoples were able to trade roots for acorns.

Scheduling was a significant problem for the people of the Applegate and Illinois Rivers. Resources were abundant during certain times of the year, and almost non-existent at others (i.e., early spring). In addition, major fluctuations occurred in salmon runs and acorn crops. This created a cycle of periodic abundance and scarcity of food, and a certain amount of stress. Planning, therefore, became an essential element of survival.

Because of resource and scheduling problems, an elaborate regional redistribution system (one based on trade, intermarriage, and social stratification) was developed to help compensate for periodic food shortages. This system was destroyed during the historic era by the impact of epidemic disease, which cut across social lines and shattered trading networks and reciprocal relationships.

Several subtle but significant differences, related to environmental factors, appear between the Applegate and Illinois peoples. Illinois territory contained a greater diversity of resources, which may have allowed the Gu-sla-dada to live in semi-permanent villages for more of the year and to have larger village populations than the Applegate people. Tanoak, myrtle, and Sadler oak acorns are found in the Illinois drainage, but not in the Applegate. The Illinois has runs of lamprey eels while the Applegate did not; and the Illinois possessed a run of exceptionally large salmon, as opposed to the Applegate, which was noteworthy only for its large steelhead population. In addition, several large falls along the Illinois provided for better fishing during the high winter runoff, whereas the Applegate River possessed no major obstructions to fish runs along its lower length.

Biodiversity was extremely important as a survival factor for the Applegate and Illinois peoples, and they managed the landscape in certain areas to promote it. This biodiversity, as exemplified by a variety of ecotones and vegetation communities, was maintained at lower elevations near semi-permanent villages, and at higher elevations near seasonal camps. It included a mix of forest types, stands of chaparral, and prairies or meadows.

One of the most important features of this environment was cover, including stands of chaparral. Villages were often built in heavy cover. Brush fences were constructed around houses as a windbreak in cases where vegetation was absent. Deer hunting usually took place in areas of considerable chaparral growth, both

as cover for stalking hunters, and to make it easier for brush fences to force deer into trails where snares were set. The berry of one of the dominant chaparral species of this area, manzanita, was also an important food resource.

Fires were set during the spring, summer, and fall to promote a variety of resources, both plant and animal. The Applegate and Illinois people were well aware of the varied impacts of burning by season. They developed the art of limited burning to achieve specific objectives to a well-defined science.

Fires were usually set by "specialists" who owned formulas that were prescriptions for successful burning. Temperature, wind direction, and impacts to specific plants were all carefully considered before fires were set. Fire was viewed as a valuable tool, but it had the potential to damage precious resources that were essential for survival.

Some fires may have been set for ceremonial as well as utilitarian purposes. On the lower Klamath River, for example, certain mountain slopes were set ablaze each year as part of rituals to ensure a bountiful harvest and to protect against the death of married people. This practice may have been employed by the Applegate and Illinois peoples as well.

Research also indicates that root gathering areas were carefully managed to ensure sustainability and were "cultivated" to some extent. Methods employed included burning to remove competing vegetation, tilling, weeding, thinning, replanting, and maintaining reserve areas. Grasses, tarweed, oaks, and deer browse may also have been spread by deliberate planting of seeds.

Conservation measures were employed in the management of fish and wildlife populations. Deer and elk were hunted before or after the mating season and springtime birthing. Fish harvests were carefully regulated through an elaborate system of rituals, and a conscious effort was made to ensure that enough fish escaped to maintain the runs.

The oak-pine woodland was much more prevalent than today, especially at lower elevations. This was created by both natural and anthropogenic fire. Frequent burning resulted in open, parklike forests of older, more scattered trees than are typical of today's forests. Elk and deer populations were much higher than today because of this environment.

This type of forest was definitely preferred by the Applegate and Illinois peoples. The nuts and seeds of acorns and pines, respectively, formed a vital part of the diet. Grasses and lilies of several species flourished in this environment. Pines also provided cambium that could be eaten during times of privation, wood for house planks and canoes, roots for basket-making, and pine nut beads as a trade item. Oak wood was the preferred fuel for heating and cooking. In contrast, Douglas-fir forests provided few useful resources.

Riparian zones were densely vegetated with a combination of conifers, hardwoods, and shrubs. These areas probably burned infrequently because they were more moist, and may have been protected from fire to some extent by the people, who recognized the value of riparian zones as cover for both humans and animals.

Valley floors were covered with scattered ponderosa pine, interspersed with open prairies and groves of Oregon oak. Annual burning to obtain tarweed seeds and insects and to maintain root-gathering areas probably kept chaparral from creeping onto the valley floor to any great extent.

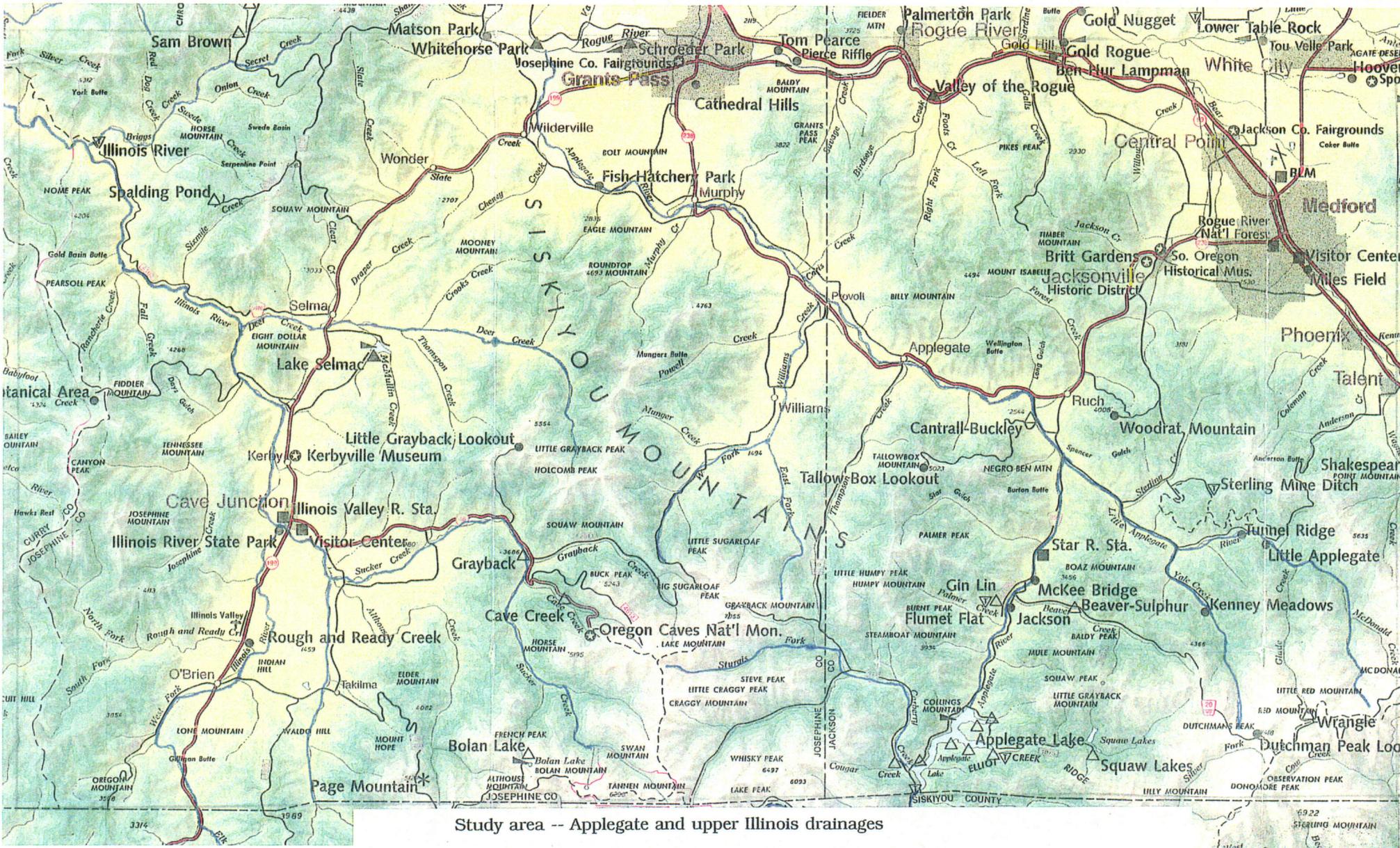
North-facing slopes of the Applegate and Illinois Valleys were covered with an open stand of ponderosa and sugar pines and occasional Douglas-fir. South-facing slopes were covered with grass, except along ravines where oaks, chaparral and scattered ponderosa pine occurred. Exposure to intense summer heat was largely responsible for this pattern, but annual burning of valley floors and slopes by the Da-ku-be-te-de and the Gu-sla-dada kept chaparral and Douglas-fir from becoming established.

A fairly uniform, mature coniferous forest with a brushy understory covered much of the mid-elevation zone in the Applegate and Illinois region. North-facing slopes were heavily timbered, while south-facing slopes were covered with chaparral and oak. Small prairies were present in scattered locations, but most of this zone was vegetated.

Upper elevation zones in the Applegate and Illinois drainages appear to have been covered with a mature forest of fir, pine and cedar. Much of it probably had an open understory, with brushfields located on south-facing slopes.

Anthropogenic burning was concentrated at lower elevations near villages and higher elevations near camps. However, the mid-elevation zone, which comprises the greatest geographic area, was probably affected more by lightning-caused fires. Less frequent burning of this zone allowed for a considerable amount of downed, woody debris on the forest floor and a shrubby understory, as evidenced by early historic descriptions of the region.

Vegetation at all elevations was directly related to aspect, regardless of native burning practices. South-facing slopes tended to be covered with grasses, oaks, and chaparral along and in the moist ravines, and scattered pine species. North-facing slopes, on the other hand, contained a denser mix of conifers and chaparral species. Native Americans no doubt quickly recognized this pattern, and concentrated their burning efforts on south-facing slopes where it would have the greatest effect.



Study area -- Applegate and upper Illinois drainages

Chapter 1: Objectives and Purpose

This project provides a comprehensive study of the native ecosystems of the Applegate and Illinois River watersheds of southwestern Oregon. It was initiated because the Bureau of Land Management, the Siskiyou National Forest, and the Rogue River National Forest desire information regarding native ecosystems as background to their present-day land management efforts.

This document is the first part of a two-part study addressing Native American land use practices and effects, and Historic Period land use practices and effects. The results of these two research projects, each by different authors, will assist the Bureau of Land Management and the Forest Service in developing land management policies for the Applegate and Illinois River watersheds.

In order to complete the task, the current ecological condition of each watershed must be assessed. This requires a knowledge of past human uses and their manipulation of the environment. A range of possible future conditions can then be formulated and decisions made regarding land management policies to achieve those conditions.

Native ecosystems were the outgrowth of interaction between natural processes and human management. An overview of Native American land use practices is the first of two major products of the present study, and the second is a description of the "natural" environment of the Applegate and Illinois watersheds prior to Euro-American influences.

As part of the overview of Native land management practices, the current environment of the Applegate and Illinois watersheds is discussed to provide context for a description of the environment before Euro-American influence. The study area includes the entire drainage basin of the Applegate River, and the drainage basin of the Illinois River above Briggs Creek.

The cultures of the Native American groups which inhabited the Applegate and Illinois drainage basins are discussed in some depth to help the reader understand the types of prehistoric land management practices that might have taken place. This information includes discussion of language, specific village locations, settlement and subsistence practices, social structure and world view. Each of the major resources used by prehistoric peoples of the region is discussed in some depth.

Known and potential land management practices of the Native Americans are then explored. To cover the broadest range of possibilities, the practices of the Applegate and Illinois peoples and those of adjacent tribes are included. Adjacent tribes encompass the Shasta, Karok and Yurok immediately to the south; the Tolowa, Tututni, and Upper Coquille to the west, and the Takelma and Umpqua to the north. Indirect comparisons are made with the Kalapuya of the Willamette Valley and the Miwok of the central California Valley.

The land management segment includes discussions of the use of fire and other less-direct types of management. Fire use is considered in terms of environmental zones, purpose, seasonality, intensity, and interval. Manipulation of edible root and seed "crops" through horticultural techniques is also discussed. The desired state of the environment is hypothesized, and conservation methods are detailed.

The environment is divided into three primary environmental zones. These include lower, mid-elevation, and upper zones, as defined by historian Jeffrey LaLande in his 1995 publication, An Environmental History of the Little Applegate River Watershed. Lower zones are from approximately 1,500 to 2,500 feet in elevation; mid-elevation zones rise from 2,500 to 4,500 feet in elevation, and upper elevation zones are above 4,500 feet.

The second major product of this study provides a description of the "natural" environment of the Applegate and Illinois watersheds prior to Euro-American influences. Included in this section are descriptions of vegetation patterns related to elevation zones, and populations of fish and wildlife. Historic and ethnographic references are used to develop descriptions of the landscape and its inhabitants. As much as possible, historic references made before removal of Native Americans to reservations in 1856 are utilized.

Information is included from the Applegate and Illinois drainages and adjacent areas, including the Siskiyou Mountains at the headwaters of the Applegate and Illinois Rivers, the upper Rogue River Valley adjacent to the Applegate River, the mountains north of the Rogue River from Evans Creek to Agness, and the Siskiyou Mountains west of the Illinois River.

A three-section appendix is also provided. Much of the research information collected is summarized in the body of the paper, but some pertinent details in the reference material may have been omitted in the discussions. Therefore, all of the historic and ethnographic references relating to vegetation patterns and wildlife populations, methods of environmental manipulation, and settlement patterns and subsistence practices of the Native American inhabitants are attached.

Chapter 2: Research Questions and Problems

The sources used in this study came from a wide variety of places. Some were easy to obtain, while finding others required a great deal of effort. Thousands of pages of manuscripts were examined to spot fragmentary information relating to the landscape and Native American management of that landscape. An evaluation of the sources used and the biases and problems encountered is necessary for an understanding of the interpretation that follows.

The historic record is fragmented and full of biases. Most Euro-Americans were very poor observers of the landscape, and the record they left was terse. It becomes obvious after comparing Euro-American and Native American observations of the landscape that the native view was usually far more discerning.

Much of the historic record consists of second-hand accounts of events that happened years before they were recorded. This creates a great deal of ambiguity and lack of clarity in the material.

Most Euro-American observers were extremely biased against the Indians, and had neither understanding of their culture nor a desire to learn anything about it. In many cases, they misinterpreted actions of the Native peoples, and it is necessary to heavily interpret their remarks if they are to be useful.

Conflicting descriptions of the same event abound. For example, Charles Wilkes' subordinate Navy officer George Emmons and Titian Ramsay Peale, both members of the U. S. Exploring Expedition that traveled through the Rogue Valley in the fall of 1841, gave completely different depictions of Indian burning and subsistence practices. As much as possible, these contradictions are discussed in the body of this work.

Most early visitors to southern Oregon traveled along the Oregon-California Trail through the Rogue Valley, and they did not visit the Applegate or Illinois River drainages. Descriptions of the Applegate-Illinois area do not begin to appear until the 1850s, after Euro-American influences in the region were pronounced. Because of this, many of the landscape descriptions must be based on observations made several miles to the north of the study area.

Better records exist for river valleys than for uplands, because this is where Euro-Americans focused their travels and activities. Thus, the uplands are looked at from the perspective of people on the valley floor, creating a certain

amount of bias in the descriptions. For example, the openness of the country may be exaggerated if an individual is living on the valley floor and does not utilize the surrounding uplands, as was the case with most early settlers.

Many of the best vegetation descriptions are related to battles with the Native peoples during the Rogue Indian Wars. References are often made to Indians fleeing into the chaparral during pursuit, leaving the impression that the landscape was extremely brushy. However, the total extent of the chaparral is not discussed in these accounts, and they should be viewed with some caution.

With those cautionary notes, a brief discussion follows about the historic materials cited in this report. The first and perhaps most important is the journal of Peter Skene Ogden, a Hudson's Bay Company trapper who visited the Rogue Valley during the spring of 1827. His journal contains a wealth of information about ethnographic practices, vegetation, and fish and wildlife populations. However, the route of his exploration is unclear, and requires use of a later reinterpretation, titled First Over the Siskiyou (LaLande, 1987) in order to be useable.

David Douglas, a British botanist also traveling with the Hudson's Bay Company fur brigades in 1827, described the landscape of southern Oregon extensively. Unfortunately he never reached the Rogue Valley. His detailed descriptions of the vegetation of the Umpqua Valley are quite useful, however, for comparative purposes.

Ewing Young traveled through the Rogue Valley in 1837 with a herd of cattle bound for the Willamette Valley. One of his cattle drivers, Philip Edwards, kept a detailed journal. His descriptions of the trail between the Rogue and Klamath Valleys were very important sources for this project.

The great bulk of landscape descriptions of the Rogue Valley come from the journals of several men who served with the U. S. Exploring Expedition of 1841. George Emmons, Henry Eld and George Colvocoresses, all Navy officers sent by Charles Wilkes on the 1841 overland detachment of the expedition, as well as William Brackenridge and Titian Ramsay Peale, who were naturalists and botanists, all kept detailed records of their travels.

An important journal regarding vegetation patterns and ethnological data was provided by Reverend Gustavus Hines, who visited the Umpqua Valley in 1840. Although biases are evident, Hines did write extensively about Native subsistence practices.

In 1846, James Clyman and Lindsay Applegate traveled through the Rogue Valley on expeditions to California. Clyman, a noted mountain man and explorer, was highly observant regarding the landscape, and his journal, which is housed at the Bancroft Library in California, proved a major contributor to this project. Applegate likewise gave detailed descriptions of the landscape.

The journals of several early settlers and miners were useful in describing vegetation patterns. These include works by James Cardwell, a miner who visited the Applegate Valley in 1851; Daniel Giles, who operated a store near present-day Ruch in 1853; John Beeson and S.H. Taylor, who homesteaded along Bear Creek in 1853; and George Riddle, who settled in the nearby Cow Creek Valley.

Just before the Rogue Indian War of 1856, several explorers described portions of the landscape under consideration. Lorin Williams wrote a detailed description of his privations during the ill-fated T'Vault expedition to blaze a trail from Port Orford to Jacksonville in 1851; in 1856, Dr. John Evans recorded many details about the country east of Port Orford; and William Wells wrote about southwestern Oregon for his readers back East in the Harper's Weekly.

A number of detailed accounts of the region are available from journals and articles written by individuals who participated in the Rogue Indian War, especially the professional soldiers and doctors stationed with the U.S. Army. These include Drs. Lorenzo Hubbard and Rodney Glisan, who were at the mouth of the Rogue River and at Fort Orford during this time; letters and journals of Captains Edward Ord and A.J. Smith, and the autobiography of William Tichenor, who was given the contract to round up several bands of Indians who were not removed from southwestern Oregon following the Rogue Indian War.

The letters and reports of Joel Palmer, Superintendent of Indian Affairs for the Oregon Territory, and Sub-agents Samuel Culver and Josiah Parrish are rich in details about the Native Americans under their charge, and the topography and vegetation of southwestern Oregon.

Many of the civilian volunteers who served in the Rogue Indian War also contributed pertinent descriptions of the landscape. These include, among others, letters from William Lewis and John Ross and the journal of Harvey Robbins. The Battle of Hungry Hill and the vegetation that played so significant a part in the defeat of the volunteers is especially well-described in this material.

A.G. Walling and Hubert Bancroft, among others, wrote detailed histories of southwestern Oregon in the 1880s. Although filled with second-hand accounts and biased against the Indians, these works provided many fragmentary landscape descriptions useful for this project.

This project by no means examined all the historic records that are available. An attempt was made to capture as much data as possible during the relatively short time frame of the contract. The archives of the Bancroft Library and the National Archives in Washington, D. C., were sampled extensively, but many important sources, such as the newspapers of Del Norte County, were not scanned for data.

The paucity of direct descriptions of the Applegate and Illinois Valleys makes it necessary to use outside descriptions to infer what vegetation conditions might have been like in this area. This is not an ideal situation, but it is unavoidable under the circumstances.

Ethnographic data also played an important role in this project. Many problems exist with this material as well. Native Americans were removed from southwestern Oregon in 1856, after decimation by disease and warfare. Ethnographers did not begin interviewing the Native peoples of the Rogue, Applegate, and Illinois Valleys until the early 1900s, when many of the informants were elderly, sick and often forgetful. Some of the best material comes from individuals who were born on the reservation and learned second-hand from their elders of what life in the southwestern Oregon homeland was originally like.

Most of the data on each tribe come from one or two individuals, so there are many gaps in the record. If only men from a particular tribe were interviewed, for example, there is no information available on gathering activities of women, and if women were the only informants available, there are no details about the hunting practices of men.

The ethnographers themselves often possessed biases. Comparisons between cultures in northwest California, which were not as badly damaged by disease and warfare, and cultures in Oregon, which were almost wiped out by the same forces, always end up negatively for the Oregon people.

Several ethnographers worked with informants from southwestern Oregon, including Pliny Goddard, Elizabeth and Melville Jacobs, John Harrington, Cora DuBois, Philip Drucker, and T.T. Waterman. All collected valuable data from the following informants: Frances Johnson, Molly Orton, and Elizabeth Harney (Takelma); Hoxie Simmons and Aneti Scott (Galice Creek/Applegate); Coquille Thompson (Upper Coquille); Wolverton Orton (Shasta Costa); and Lucy Metcalf (Tututni).

Because of the fragmentary nature of the record provided by these individuals, it was necessary to examine material from adjacent tribes in an attempt to fill in gaps. Most researchers, for example, feel that the Shasta were similar in culture to the Applegate, and that the Karok were analogous in culture to the Illinois peoples. Voluminous amounts of material are available for the Karok, and this helped greatly in the completion of this project.

The best detail on Native use of fire comes from John Harrington's work Tobacco Among The Karok Indians of California, published in 1932. Other sources used for the Karok included Edward Gifford's unpublished 1939 field notes on the Karok, which provided the heretofore unknown information about Native fire specialists. Sara Schenck and Gifford collected extensive data

regarding the ethnobotany of the Karok, and Gifford and A. L. Kroeber wrote about the World Renewal ceremonies, which included the ceremonial burning of mountaintop revegetation. Gifford and Kroeber also published works on the mythology of the Karok and their downstream neighbors, the Yurok. Abundant descriptions about fire use and ethnobotany were gleaned from them.

Philip Drucker and T.T. Waterman collected extensive data on the Tolowa, an Athapascan-speaking group with many cultural similarities to the Applegate and Illinois tribes. Developing a model of subsistence practices for the study area required the use of a great deal of this data. Waterman's work, like so many others, was never published, and is available only at the Bancroft Library.

Descriptions of Shasta culture are available in the works of Roland Dixon, Catherine Holt, and Stephen Powers. All are published and readily available to researchers. Because the culture and the environment of the Shasta are so similar to the Applegate, their material was heavily cited during the course of this project.

Chapter 3: Environmental Overview

The project area encompasses the interior, western portions of the Rogue River drainage basin, including the Applegate River and non-coastal portions of the Illinois watershed. Both watersheds are in the Siskiyou Mountains, in the Klamath geographic province. This province has been described as being complex geologically, climatologically, and floristically. (Franklin and Dyrness, 1973, p. 130) Diversity is the dominant theme affecting all aspects of the project area.

The Applegate River originates near Dutchman Peak and Red Buttes, at the boundary between the states of Oregon and California. It flows in a northwesterly direction to its confluence with the Rogue River near the town of Grants Pass. It is bounded on the east by mountains that include Mt. Ashland and Wagner Butte, and on the west by Grayback Mountain. The latter peak blocks moisture from the west and results in the classification of the Applegate as an interior valley.

The headwater drainage of the Illinois River includes the area around Oregon Caves and Grayback Mountain, Page Mountain, and Oregon Mountain. It also flows in a northwesterly direction towards its confluence with the Rogue River, near the town of Agness. The Illinois River is bordered on the east by a range of mountains including Grayback Mountain, Roundtop Mountain, and Onion Mountain. Another range of mountains that comprise the Kalmiopsis Wilderness area is to the west, and includes Eight Dollar Mountain and Pearsoll Peak.

The upper portions of each river dissect the rugged Siskiyou Mountains, forming narrow, steep-sided valleys. At lower elevations, around 2,000 feet, the Applegate forms a fairly wide and level valley. The Illinois turns into a broad valley at that elevation.

The highest mountain in the area is Mt. Ashland, with an elevation of 7,500 feet above sea level, followed by Dutchman Peak at 7,300 feet, Grayback Mountain at 7,055 feet, and Red Buttes at 6,700 feet. The elevation drops to approximately 2,000 feet along the lower portions of the Applegate River and in the Illinois Valley.

Considerable diversity of rainfall exists within the study area. Rainfall ranges from an annual average of 150 inches at the Chetco/Illinois divide of the Kalmiopsis wilderness to 40 inches in the drier areas along the eastern edge of

the Applegate drainage. Average annual rainfall near Grayback Mountain measures 90 inches, but only 40 inches in the Illinois Valley, which is in the rain shadow of the Coast Range. (Atzet and Wheeler, 1982, p. 6)

The climate has been described as Mediterranean, with frequent winter precipitation and dry, hot summers. Temperature extremes are considerable. South-facing slopes typically attain temperatures over 100 degrees during much of the summer. (Riegel, Smith, and Franklin, 1993, p. 2) As a result, many of the vegetation communities are aspect-dependent. (Zowada, 1993)

There appears to be a distinct break between the vegetation types of the Western and Eastern Siskiyou, as defined by a line running through Condrey Mountain and Grayback Mountain. Several species – including Brewer's spruce, Sadler's oak, and Marshall's gooseberry – which have been described as representative of the Klamath region do not occur in the eastern Siskiyou. Tanoak and myrtle are also absent, suggesting that this eastern area is more xeric in nature. (Waring, 1969, pp. 1-3) This division has been recognized by most researchers describing the botany of the area.

Several distinct vegetation communities occur within the study area. These include riparian zones, valley floors, valley foothills and slopes, mid-elevation forests, and upper elevation forests. The last four communities can be further broken down to include western and eastern Siskiyou, or Illinois and Applegate drainages.

Riparian zones throughout the region are characterized by ponderosa pine as the dominant conifer species, with an association of hardwoods including Oregon ash, black cottonwood, big-leaf maple, white alder, and white oak. (Franklin and Dyrness, 1973, p. 126) This community in a mature form, sometimes called a gallery forest, is estimated to have bordered over 90 percent of the region's riparian zones at the time of white contact. (LaLande, 1995, p. 21)

Valley floor communities are dominated by ponderosa pine stands with an understory of hoary manzanita. Incense cedar and wedgeleaf ceonothus are also found on valley floors. Most researchers believe that ponderosa pine is climax for this zone, and may have been widespread at the time of white contact. (Detling, 1961, p. 33)

Valley foothills are characterized by an oak/ponderosa pine forest. In this zone, which is probably the driest of all the communities, an oak woodland comprised of Oregon white and California black oak and a grass understory occur on south and east facing slopes. Shrubs present in this community include deerbrush ceonothus, white-leafed manzanita, and mountain mahogany. The more moist northeastern-facing slopes support open stands of Douglas-fir, ponderosa pine, and incense cedar, with an understory of Oregon white oak. (Franklin and Dyrness, 1973, p. 114)

The foothills of the eastern Siskiyou Mountains are dominated by California black oak, but also include Douglas-fir, ponderosa pine, madrone, and scattered white oak. On the most exposed south-facing slopes, ponderosa pine forests are found, with an association of madrone and several species of manzanita. (Franklin and Dyrness, 1973, p. 119)

Mid-elevation forests dominate the largest environmental zone in southwestern Oregon. This mixed conifer forest along the Illinois River is comprised of Douglas-fir, tanoak, and canyon live oak. Less abundant tree species present are sugar pine, madrone, and black oak. Shrubs forming the understory include poison oak, Oregon grape, honeysuckle, rose, oceanspray and hazel. In other portions of the western Siskiyou, this forest includes Douglas-fir, sugar pine, and ponderosa pine, with an understory of madrone, golden chinquapin, canyon live oak and a shrub community of Oregon grape, poison oak, snowberry, vine maple, big-leaf maple, and Pacific dogwood. (Franklin and Dyrness, 1973, p. 135)

In the eastern Siskiyou, the mixed-conifer zone is made up of Douglas-fir, sugar pine, ponderosa pine, incense cedar, and white fir. Mature forests in this region, especially on south-facing slopes, are typically fairly open stands of ponderosa and sugar pine, with an understory of manzanita. On north-facing slopes, typical understory species include hazel, oceanspray, golden chinquapin, and snowberry. (Franklin and Dyrness, 1973, p. 139)

Upper elevation forests are dominated by stands of white fir, and are bordered at lower limits by a mixed conifer zone and at upper elevations by a "red fir" zone. Associated species include Douglas-fir, sugar pine, ponderosa pine, white pine, and incense cedar. The understory includes oceanspray, rose, Oregon grape, hazel, Rocky Mountain maple, trailing blackberry, serviceberry, and golden chinquapin. (Franklin and Dyrness, 1973, pp. 150-152)

The "red fir" zone is found at highest elevations in the Siskiyou Mountains. Associated conifers include white fir, white pine, lodgepole pine, and mountain hemlock, with scattered Douglas-fir, ponderosa pine, incense cedar, Engleman spruce, silver fir, and subalpine fir. Shrubs include huckleberry, gooseberry, manzanita, and chinquapin. (Franklin and Dyrness, 1973, p. 154)

All of these plant communities have been influenced by fire in the past. Much of this region has a fire frequency of between ten-to-twenty years, caused by lightning, and, before whites arrived, by Native Americans manipulating the environment. (Atzet and Wheeler, 1982) One of the most dominant features of all the plant communities is the presence of chaparral, which perishes without frequent fires. (Detling, 1961) Oak and pine forests are also dependent upon fire, since Douglas-fir and white fir will tend to crowd out other species at medium elevations if not controlled by fire. (LaLande, 1995, p. 82)

Chapter 4: Cultural Overview

At the time of white contact, the Applegate and Illinois peoples spoke dialects of the Athapascan language, linking them linguistically and culturally to a much larger group of tribes, including the Tolowa and Tututni, who occupied the southern Oregon and northern California coastline. The Takelma, who bordered the Applegate on the north; the Shasta, who bordered them on the south, and the Karok, who bordered the Illinois to the south, all spoke completely different languages, (although all these groups were culturally similar in many ways).

Most researchers believe that Athapascan-speaking groups moved into the region a little over one thousand years ago, and first occupied territories that were not being intensively utilized by indigenous tribes. Thus, the newly arrived Applegate and Illinois peoples settled on tributaries of the Rogue, while the Takelma, who were the original inhabitants, controlled the main stem of the river, which was probably richer in terms of fish, animal, and plant resources. (Harrington, Reel 27; Berreman, 1937, p. 29; Gray, 1985, p. 119)

Three related tribes utilized the study area, including the Galice Creek, or Taltuc-tun-te-de; the Applegate, or Da-ku-be-te-de, and the upper Illinois, or Gu-sla-dada. Melville Jacobs observed that "the Gu-sla-dada were the people at the head of the Illinois River.....These people talked a dialect intelligible to Galice-Applegate. Thus, the Illinois, Galice, and Applegate formed one dialect group." (Jacobs, Notebook 128) This is further illustrated by the fact that much of the Galice Creek ethnographic data collected by Jacobs from informant Hoxie Simmons related to subsistence activities at the head of the Applegate River.

Another closely related tribe was the Shasta Costa or Chasta Costa, who lived along the lower Illinois River and the Rogue River between present-day Agness and Foster Bar. (Berreman, 1937, p. 29) The distinction between the Gu-sla-dada at the head of the Illinois River and the Shasta Costa along the lower portion of that river was perhaps caused by the difficulty of travel through the rugged canyon carved by the middle portion of the Illinois River.

Each of these groups occupied a nuclear territory along their respective river drainages, but had peripheral exploitation zones that extended into the uplands. These areas were also utilized by adjacent tribes. (Gray, 1985, p. 46) Thus, the Applegate Athapascans shared the use of the Dutchman Peak and Mt. Ashland area with the Hokan-speaking Shasta, the Wagner Butte area with the Takelma,

and the Red Buttes with the Hokan-speaking Karok. The Illinois people likewise shared the Bolan Lake and Page Mountain area with the Karok and the Kalmiopsis Range with the Athapascan-speaking Tututni. The Grayback Mountain area was used by both the Illinois and Applegate.

At the time of white contact, this region appears to have had a very small native population. According to Melville Jacobs:

The Applegate and other villages consisted of only from two to ten villages. There were probably only three Applegate villages. There was only one Galice village, on both sides of Rogue River. On Illinois River, there was a village at the mouth, and another three or four miles upriver. Way up the Illinois River were two more villages which were deserted, the survivors joining in with the Galice people. (Jacobs, Notebook 130)

Three areas on the Applegate River appear to have been intensively occupied by native people at the time of white contact. They include the mouth of the river, the confluence of the Little Applegate with the main Applegate River, and the upper river near present-day Applegate Reservoir. At these locations were semi-permanent villages, but there are probably numerous campsites in the uplands that were occupied for a few weeks each year, especially during the spring, summer, and fall.

At the mouth of the river was a village named Tatmelmal, described as "an Indian winter town, a little below Mouth of Applegate Creek on the bank of Rogue River." (Harrington, Reel 28) According to Hoxie Simmons, Galice Creek informant for Melville Jacobs, "a lot of people were right at that place at the mouth of the (Applegate) River. That is where they were dipnetting salmon. They lived there at that time (in a summer camp)." (Jacobs, Notebook 126) This village was also documented by James Cardwell in 1850. Cardwell observed that "when the Indian on the opposite shore on horseback saw that we were intending to cross, he immediately galloped off up the Applegate. All hands over and packed up and went up Applegate a short distance and came to quite a large Indian village." (Cardwell, 1879, p. 5) Two late prehistoric village sites have been excavated at the mouth of the Applegate River, including the Ritsch and Marthaller sites. (Aikens, 1993, pp. 242-243)

The second well-documented area of habitation was near the confluence of the Little Applegate with the main Applegate River. This village was occupied by Chief John's band of people. (Giles, 1946) John is perhaps the most famous of the Indian leaders of the Rogue Indian War. His home village is in some doubt, since he is also attributed to be the chief of a village in Shasta territory, as well as having a homeland on Deer Creek in the Illinois Valley. (Victor, 1894, p. 407)

The residents of this village were engaged in drying fish when first contacted by prospectors in the early 1850s. (LaLande, 1995, p. 17) Later, this village was attacked and burned during the Rogue Indian War. A smaller site probably associated with this village was also destroyed at nearby Sterling Creek. (Walling, 1884, p. 216)

Another apparently Da-ku-be-te-de site is documented for the area below present-day Applegate Reservoir. Several housepits were excavated here before construction of the reservoir. This may have been the village of Tipsu Tyee, a Shasta chief "whose home was in the mountains between Applegate and Bear Creeks." (Walling, 1884, p. 211)

Several village sites have been documented ethnographically for the upper Illinois River. The most prominent is at the large falls below Selma. This site, called Talsalsan, was an important fishing site and trading center. Another village, named Hathkapusu Ta, was located a short distance downstream, perhaps in the vicinity of Upper Oak Flat. (Harrington, Reel 28)

A third village was located at the mouth of Deer Creek. Most historic accounts place this as the home village of Chief John. When Chief John was negotiating with the whites during the last days of the Rogue Indian War in 1856, he said: "If the white people are willing, I will go back to Deer Creek and live among them as I used to do." This village was attacked several times by miners and soldiers. (Victor, 1894, p. 407; Walling, 1884, p. 228)

Several Illinois place names were collected by T.T. Waterman during field work conducted at Smith River, California in 1921. These include a site named "prairie" at the mouth of Lawson Creek, "Alder place" at the mouth of Indigo Creek, "Kamass much place" at a great bend of the river, and "hulled hazel nuts" at a large flat prairie along the river. Some of these names may refer to village sites. (Waterman, 1921, p. 21)

From an examination of the historic and ethnographic record, it does not appear that the study area was heavily occupied at the time of white contact. However, there are some indications that the population had declined dramatically because of diseases even before Euro-Americans arrived in southern Oregon. Dr. Lorenzo Hubbard, speaking about the Tututni residents of the lower Rogue River in 1856, said:

According to tradition, many years ago they were far more numerous than at the present time, wars and diseases having in some instances destroyed whole tribes. The marks of old towns and large settlements everywhere found, now entirely deserted, are strong evidence of the truth of their traditions. (Hubbard, 1861)

Most researchers believe that people in southern Oregon and northern California lived in semi-permanent villages, but spent significant portions of the year away from the village living in temporary upland camps while obtaining various resources. As archaeologist/ethnographer Dennis Gray has pointed out, "of the three significant tributary drainages south of the Rogue and west of Bear Creek (i.e., the Applegate River, Galice Creek and the Illinois River), each was reported ethnographically to be inhabited by Athapascan speakers. The intervening territory is steep mountainous terrain suitable for seasonal resource exploitation, but not likely as an area for semi-permanent settlement (Gray, 1985, p. 40). 1850s settler John Beeson, remarking on Chief John's attempts to elude white pursuers, noted that "this was extremely difficult; for, during several months in the year, the mountains, being extremely bleak and covered with snow, offered nothing for subsistence." (Beeson, 1857, p. 67).

This settlement pattern has been well-documented for southern Oregon and northern California by both archaeologists and ethnologists. According to archaeologist Joanne Mack, "at this time, the most likely settlement pattern during the Late Prehistoric Period for the inhabitants of Upper Klamath River Canyon was year-around living in pithouse villages. Temporary camps associated with resource acquisition activities were in the surrounding uplands." (Mack, 1991, p. 49)

This opinion is supported by historian LaLande, who states that:

Although few ethnohistorical accounts address the topic directly, taken together they support the ethnographic portrait of the Indians' 'annual round,' with semi-permanent winter villages and dispersal of smaller family groups into the uplands during the warm months. (LaLande, 1990, p. 106)

A similar position is provided by archaeologists Elena Nilsson and Michael Kelly, writing about the Elk Creek project on the upper Rogue River:

The distribution of winter villages reflects a riverine subsistence and settlement orientation. Villages appear to have been located with reference to water; availability of anadromous fish; flat, open terrain, and good acorn gathering areas. River terraces provided the optimum setting for these requirements." (Nilsson and Kelly, 1991, p. 19)

The movement of people from villages to camps during the summer to take advantage of various resources is well-expressed by the comments of Dr. Lorenzo Hubbard, written in regards to the Tututni of the lower Rogue:

The larger tribes divide themselves up into small bands during the fishing and hunting seasons, and scatter over a large section of country, each party bringing in the products of their labor when the season closes. The reunion is always celebrated by dances and music. (Hubbard, 1861)

The people of the Applegate and Illinois Rivers relied on a broad range of resources for subsistence during these seasonal movements. Hunting, fishing, and gathering were all of major importance.

The Applegate people conducted much of their hunting activity at the head of the Applegate River, in the area of Squaw and Carberry Creeks. (Harrington, Reel 28; Gray, 1985) Here they constructed brush fences that were sometimes miles in length, with snares set in openings to catch deer that were driven toward the fences. According to ethnographer Melville Jacobs's Da-ku-be-te-de consultant Hoxie Simmons:

The Applegate people stay (in a camp) at the foot of the mountains in the early autumn (September, leaves-begin-to-yellow-and-fall.) The deer are very fat and that's the time that they snare them (in a rope snare) because they are going to dry meat. They make a corral (a brush fence). The deer (have a) trail leading on in the middle (of a brush fence corral that is made around the deer trail.) In the autumn the deer travel from the sunrise direction towards this way. Always (every year in September) that's the way they do it (catch deer wholesale for the purposes of drying) so that they may eat it in the wintertime. The bones (with meat adhering) are the only (part) they eat (then, at that time. They also make soup of it then.) The meat (most of the meat) they dry (smoke dry). They trap a lot of deer. They go there in the morning when not quite daylight and hit all sorts of things (to make noises to chase the deer all around the corral). The deer all run and each one gets caught, one here, one there (in another snare). (Jacobs, Notebook 2)

Deer were forced into the fences through a variety of methods. Fires were sometimes set for this purpose. Often, "the entire tribe would encircle a considerable district" and scare animals to the fences. (Sapir, 1907a, p. 260; Peale, 1841)

Constructing these traps was a major group effort, perhaps analogous to the construction of fish weirs along the lower Klamath River by the Yurok and Karok. Ceremonies were probably performed before construction, just as they were for the fish weirs on the Klamath River.

The most important item in this type of hunting is the rope used for snares. This rope had great ritual significance, as shown by the following comments by Hoxie Simmons:

One way to get power is to dig a place in the gravel of a stream and lay there in the water, naked (nearly submerged with only the neck out of water) for an hour or so in the evening. A man does this twice each night (warming himself between sessions at the fire) for ten nights. For ten nights he fasts, bathes in cold water, and makes snare ropes. He rolls rope as he warms himself. In the daytime, he gathers the grass for the rope. With this rope, he makes snares with which he successfully pursues game because he has trained for it and perhaps because something has taken pity upon him. Thus he becomes rich. (Jacobs, Notebook 128)

Snare rope was constructed from iris and from beargrass, which in Applegate territory could be collected only in the uplands at the head of the Applegate River, and in the Wagner Buttes area. (Harrington, Reel 28) Beargrass was first moistened and placed under ashes and heated. (Jacobs, Notebook 128) It was then split and rolled on the thigh to make rope. Good beargrass came from patches that were burned on a semi-annual basis. (Fields, 1985, p. 51)

Deer were sometimes hunted in early summer through the use of a deer head disguise. As informant Coquille Thompson observed:

The Jacksonville, Takelma people, and down that way, in the times when they still used bow and arrows only, used a buck's head with deer's forelegs hitched to Indian's thighs, wearer stooping over on all fours and raising head in imitation of deer, thus getting close to deer and maybe shooting several all at once. (Harrington, Reel 25)

Elk were obtained through the use of drives in early August, since they were too powerful to be taken by snares. Herds were driven into a pass or ravine where waiting hunters killed them with arrows. (Jacobs, Notebook 128) Dogs were sometimes used for this purpose. According to Thompson:

The Indian dogs I saw were elk dogs. These dogs did not bother deer. A man would stay by the fresh elk track and dog would go along the track alone. Elk was lying down up on ridge, and got up slowly as dog approached. The elks tried to go, but the dog wouldn't let them. The dog would bite them behind and make the elks turn and wheel, trying to fight the dog. Hunter meanwhile approached and shot. As elk fell, the dog at once bit the elks in the throat and thus killed the elk. The Indian then butchered the elk, giving the dog the blood and some meat and grease. (Harrington, Reel 25)

The Tututni and probably the Illinois people also used pits to capture deer and elk. According to Lorenzo Hubbard:

The elk and deer are mostly captured by driving them into traps and pits. The pits are dug on trails leading from one mountain ridge to another, and are ten or twelve feet deep, and three wide. A narrow pass is selected on the ridge, and the elk and deer are driven from their pastures by the Indians, and in endeavoring to escape their pursuers, find themselves suddenly brought up, or rather down, in the bottom of the pit. (Hubbard, 1861)

Bears were hunted through the use of bows and arrows. Hunting grizzly bears in this way was probably the ultimate test of courage. John Adams' father, a Takelma, was said to have killed 40 grizzly bears. (Harrington, Reel 28) Hoxie Simmons stated:

The grizzly stands up on his hind legs when he comes across you. He does this because he wants you to run, and as you run he jumps on you and you have no chance. But a brave Indian does not start to run, he arrows the grizzly as he stands erect in the collarbone region, or if the Indian cannot do this, then slantingly into the grizzly's small floating ribs. (Harrington, Reel 28)

Smaller mammals were captured through a number of techniques. Rabbits were driven into small enclosures or smaller versions of the brush fences and traps used to catch deer. (Wilkes, 1845, p. 125) Squirrels were hunted with bows and arrows by men as they watched their wives dig roots along the edges of the valleys. (Anonymous, Notebook 135)

Beaver were taken in their lodges as they slept, either by entering and slipping a rope around their feet, or by tearing the lodge apart and either spearing or shooting them with arrows. (Holt, 1946, p. 311) Marten, mink, fisher, raccoon, and otter were captured in snares, and otters were sometimes shot with arrows. (Jacobs, Notebook 128; Holt, 1946, p. 311)

Fishing was also of considerable importance to the peoples of the Applegate and Illinois. A number of techniques were employed to capture fish, including dipnetting, utilizing weirs and traps, spearing fish from platforms or canoes, driving fish to fishermen waiting with spears at shallow riffles, or simply picking up dead or dying fish that had completed spawning.

Dipnetting was perhaps the preferred method of catching fish in this area. Hoxie Simmons recounted that "a lot of people were right at that place at the mouth of the (Applegate) River. That is where they were dipnetting salmon." (Jacobs, Notebook 126) Since there were no falls at the mouth of the Applegate, the people possibly built a fish weir across the river with openings where the fish were netted as they attempted to jump over.

Another version of this technique was probably utilized at the large falls on the Illinois River, next to the village of Talsalsan. At this location was one of the major fisheries in the region. During midwinter, when the Rogue was in flood stage and salmon were impossible to obtain, the Takelma turned to the Illinois River at Talsalsan. (Harrington, Reel 28) Here fish were scooped up as they tried to leap over the falls, in a manner similar to that employed at Celilo Falls on the Columbia River.

Throughout the Pacific Northwest, weirs and traps were utilized to obtain salmon. This was also true in the Applegate, Galice Creek, and Illinois drainages. Anthropologist Pliny Goddard noted in his work that the "Galice used a fish basket to catch salmon. They made a fish dam." (Goddard, Notebook 2)

Unfortunately, there are no direct historical or ethnographical descriptions of fish weirs and traps on the Applegate or Illinois Rivers. However, an excellent description of a Tututni weir on the Rogue River is available from the observations of Lorenzo Hubbard:

Fishing is a favorite employment, and they are more expert in this art than any other, particularly salmon fishing. The streams abound with salmon, and in the season, vast numbers of these fish are taken and preserved for use during the months that none are caught. They are taken in various ways. The dam is more frequently resorted to. A curiously wrought dam, made of willow boughs nicely woven and supported by stakes, is thrown across the stream at the head of a rapid, so as to prevent the fish from ascending; at the distance of every 15-20 feet, niches are made in the dam some four or five feet wide, and as many deep, into which the fish collect in attempting to pass the rapid. The Indians place themselves below the dam, some with nets, some with spears, and others with clubs, and slaughter the fish in vast numbers, while the squaws are ready to catch them up when disabled, and put them in canoes. (Hubbard, 1861)

Smaller weirs, sometimes in association with traps, were probably more popular on tributaries of the Rogue, such as the Applegate and Illinois Rivers. Weir stakes were driven into the bottom of the river, and brush was woven in. Traps with open work twining made of hazel withes were placed in openings along the weir. Large traps were used for spring and fall salmon, while smaller ones were employed for trout. (DuBois, Notebook 6) Such a weir would take about a day to make, and represented the labor of an entire village. (Harrington, Reel 25)

Fish were also speared from canoes, platforms, or in shallow water. A shaft with detachable spearhead was used for this purpose. Explorer Charles Wilkes described Indians spearing salmon from canoes on the Rogue River upstream

from the Applegate River in 1841. (Wilkes, 1845, p. 123) Oftentimes, fish were speared at night when they could be attracted to the surface by light from fires. Spearing platforms were built out over shallow portions of the channels that fish followed while migrating upstream. Sometimes, fish were driven downstream by women splashing through the water to men waiting with spears. As described by anthropologist Roland Dixon:

Among the Shasta in Oregon, a different mode of catching salmon was in vogue, successful only where a stream was shallow, and not too rapid. Several rude rafts were constructed of logs, and on these a number of women placed themselves, and floated downstream, thrashing the water violently all the time with branches. This proceeding frightened the fish, who turned and ran downstream to where the men stood shoulder to shoulder in a line across the whole width of the river. As the fish came down, they were speared... (Dixon, 1907, p. 430)

One of the most surprising things to Euro-American observers was the native interest in dead or spawned-out salmon and steelhead. Peter Skene Ogden noted in February of 1827 that "at this season dead salmon are most numerous in all the small rives and the natives are busily employed in collecting them, no doubt for food....what a depraved taste." (LaLande, 1987, p. 67) This observation of native dietary proclivities was confirmed by a Tututni informant, who said that "rotten salmon and spawned out salmon much esteemed by some. Eat dead fish found on shore. Will sometimes boil into soup." (DuBois, Notebook 6)

Trout were also abundant in all of the coastal rivers and tributaries of the Rogue River. They were usually caught with hook and line. Coquille Thompson remembered the following about fishing for trout:

At night only, poles several feet long were tied at both ends to overhanging willows or the like so that the pole floated transverse to the current and from the pole hung several yard-long strings each with a baited hook. Trout would bite these hooks and would stay on the hook perhaps all night till the pole was taken up in the morning, maybe with several trouts caught. If these were used in the daytime, the bait would be nibbled off by tiny fish near the bottom. (Harrington, Reel 25)

Eels were an important food resource to the people of the Illinois River, but apparently were absent or present in only very small numbers on the Applegate River. (Harrington, Reel 28) According to Wolverton Orton: "My father said that when they had the run of eels in Illinois River, which was in June or July, Indians made fence and dipped eels out with dipnet." (Harrington, Reel 25) An

excellent description of eel fishing is available from the Tututni field notes of Cora DuBois, who says:

Two weirs are built with their opening facing downstream. White stones are laid on the floor of the stream at the opening. A platform is built on the edge of one of the weirs. A canoe is drawn up alongside on the downstream side. On the platform are laid stones as hearths. A fire of pitchwood is kept burning there. The eels as they pass through the weir and over the white stones are hooked out by a man on the platform. The hook is made of a deer rib. The hook passes around the body of the eel and with one sweeping movement is hooked out of the water and into the canoe. The weirs are built on riffles. Two men fish, one hooks and one tends the fire. (DuBois, Notebook 6)

Gathering of plant foods was probably of greater nutritional importance to the people of the Applegate and Illinois Rivers than was either hunting or fishing. Acorns and roots were of primary significance, but a wide variety of seeds, shoots, and berries were also collected.

Several varieties of acorns were available, including those of the white oak, black oak, tanoak, Sadler's oak, and canyon live oak. Closely related were myrtle nuts and hazel nuts. This resource was available in varying abundance throughout the region, but certain species were favored over others.

White oak acorns were present throughout the river valleys and foothills of the Applegate and Illinois Rivers, but were not especially favored as a source of food. As George Riddle noted for the Cow Creek Indians: "The white oak acorn was used as food, but I do not think relished, and perhaps only used to appease hunger." (Riddle, 1953, p. 45) These acorns were high in tannic acid, making them hard to process. The tannic acid was leached out by placing the acorn meat in a shallow depression, and repeatedly pouring water over it until the meal was palatable. According to Dixon, the white oak made "a more slimy, glutinous mixture, which was not as well-liked" as the more popular black oak acorn. They were also harder to pound into meal. (Dixon, 1907, p. 426)

Edward Sapir recorded that the black oak acorn was the main variety used by the Takelma. These acorns were also gathered in the spring as well as fall, probably the only variety that could thus be used. (Sapir, 1907a, p. 258) California black oak acorns would have been available throughout Applegate and Illinois territory in the foothills and lower edge of the mixed-conifer forest, especially on south-facing slopes, and on lower elevation north-facing slopes.

Throughout most of the areas west of the Applegate drainage, tanoak was the favored acorn. Fairly abundant along the Illinois, the tanoak only occurs sporadically further to the east. It was favored because it grew on low-growing

trees, was fairly low in tannic acid as compared to the white or black oak, and was probably available on a more consistent basis than the first two species, which appear to be very cyclical in production. (Schenck and Gifford, 1952, p. 382)

During the fall, fires were set in the leaf litter under stands of tanoak to remove competing vegetation, and to roast the fallen nuts. (Harrington, Reel 6) Tanoak groves at higher elevations were favored, because "the acorns have a lot more meat." (Heffner, 1984, p. 58)

Sadler's oak, which occurs primarily in the Illinois drainage, was perhaps the most favored of all acorns, although it was probably never available in great numbers. According to historian Percy Booth, "the most desirable acorns came from the Sadler's oak, sometimes known as the sweet oak. This scrubby, low growth oak, normally under eight feet in height, was found throughout the Siskiyou and Coast ranges. It was usually a dependable and heavy producer of nuts and its acorns were mild in their content of bitter, tannic acid, compared to the more widespread black oak." (Booth, 1971, p. 56)

Other ethnographers have noted that native peoples would travel for long distances to obtain favored species of acorns, ignoring less-favored species growing near their villages. (Baumhoff, 1978, p. 16)

Hazel nuts were eagerly sought by the peoples of the Illinois and Applegate, who had an abundant supply available. In midsummer, the hazel patches were burned and the roasted hazel nuts collected for use. (DuBois, Notebook 6) Generally, hazel nuts were eaten as a side dish. Hines documented this practice during a meal with the Umpquas in 1841:

While we were enjoying it, our neophytes prepared supper for themselves, and it was not a little interesting, to one who was not familiar with such scenes, to see them prepare their food. Their supper consisted of fresh salmon, and a species of hazel nut, which is found in the country in great abundance. Having made a suitable fire, they commenced the operation of cooking their salmon...stones were then provided for the purpose of cracking nuts... (Hines, 1850, p. 102)

Myrtle "nuts" (technically, drupe) were another species available to the Illinois people but not to the Applegate. They were gathered in October, roasted in ashes, and the meat was eaten. They were usually eaten immediately, as they did not store well. According to Lucy Smith, "our Indian folks eat one half myrtle nuts and one half acorns, cooked together and good. Myrtle nuts are oily; the two mixed together have an awful good taste to it." (Harrington, Reel 25) Sometimes myrtle nuts were roasted in earthen ovens and eaten with salmon eggs. (Harrington, Reel 25)

Chinquapin nuts were collected late in the fall. They were usually eaten immediately, as a side dish similar to hazel. Because the nuts were favored by a wide variety of animals, there were seldom large numbers available. Occasionally there was enough to store for later use. (Schenck and Gifford, 1952, p. 383)

Several kinds of seeds were used for food, including those of the madrone, manzanita, tarweed, various grasses, sunflowers, and pine. Of these, the tarweed was perhaps of greatest importance. One of the best descriptions of tarweed collection is provided by settler George Riddle:

During the summer months the squaws would gather various kinds of seeds of which the tarweed seed was the most prized. The tarweed was a plant about thirty inches high and was very abundant on the bench lands of the valley, and was a great nuisance at maturity. It would be covered with globules of clear tarry substance that would coat the head and legs of stock as if they had been coated with tar. When the seeds were ripe the country was burned off. This left the plant standing with the tar burned off and the seeds left in the pods. Immediately after the fire there would be an army of squaws armed with an implement made of twigs shaped like a tennis racket. With their basket swung in front, they would beat the seeds from the pods into the basket. This seed gathering would only last a few days and every squaw in the tribe seemed to be doing her level best to make all the noise she could, beating her racket against the top of her basket. (Riddle, 1953, p. 46)

Tarweed appears to be especially abundant in the Applegate Valley, based on personal observation, discussions with BLM ecologists, and historic accounts of the problems caused by its presence. (LaLande, 1995, p. 57) Annual burning of the valley floor and hillsides would have promoted both the propagation and collection of this species.

Tarweed seeds were pounded in a mortar with a tall pestle, and the resulting flour was cooked into a rich soup. (Harrington, Reel 28) Coquille Thompson remembered that "at the time of wild oat harvest, the thud of pounding in Indian mills was heard in almost every house." (Harrington, Reel 25)

Sunflower seeds were obtained by field burning at the same time as tarweed seeds. After the plants were burned, the seeds were beaten out into a funnel-shaped basket or buckskin container. The seeds were parched over coals with a winnowing tray. (Sapir, 1907a, p. 259; Anonymous, Notebook 135)

Manzanita berries were another resource of considerable importance, perhaps more so than most researchers have indicated. Manzanita occurs throughout the drainages of the Applegate and Illinois Rivers, and the berries could be gathered

in vast quantities during the fall. Older bushes are the best berry producers. (Harrington, 1932, p. 65)

The berries were sometimes crushed and water was poured over the paste to create "manzanita cider." (Dixon, 1907, p. 424) The berries were also pounded into a flour and mixed with sugar pine seeds, acorn meal, or dried salmon eggs. The importance of this resource is illustrated by a Karok myth, in which famine is predicted by the absence of acorns, fish, and manzanita berries. (Kroeber and Gifford, 1980, p. 145)

Archaeological investigations have also revealed the importance of manzanita in the diet of prehistoric residents of southern Oregon. At site 35JA42, on the upper Applegate, the floral assemblage was dominated by manzanita. (Brauner, 1983, pp. 69-70). Manzanita nutlets were also the most abundant plant species recovered from excavations at Elk Creek on the upper Rogue River. (Nilsson and Kelly, 1991, F-1)

Madrone berries were gathered in the fall by shaking the tree. The berries were steamed or parched in an open twine basket plate, and stored for later use. The berries were then soaked before eating, and sometimes mixed with pounded manzanita berries. (DuBois, Notebook 6; Schenck and Gifford, 1952, p. 387) Madrone seeds would have been fairly abundant along the Illinois drainage, but less so on the Applegate River. As with myrtle and tanoak, madrone trees are very susceptible to fire.

Various species of grass seeds were gathered in midsummer. Two species that have been documented as to use are Bromus hordeaceus and Elymus glaucus. The seeds were gathered in much the same way as tarweed seeds, and then placed in a tight shallow winnowing basket with coals of black oak bark and shaken to parch. The grains were pounded in a hopper mortar, and the meal mixed with water to form a soup. (Anonymous, Notebook 135; Schenck and Gifford, 1952, pp. 380-381) Annual burning of valley floors and hillsides would have promoted the growth of this resource.

Sugar pine seeds were another important resource, especially because of their high fat content. Seeds from all pine species were used, but those of the sugar pine were preferred. Sugar pine is an abundant tree in both the Applegate and Illinois Valleys. Regular burning would have promoted the continued flourishing of this species, which can be crowded out of some environments by Douglas-fir and white fir.

The gathering of sugar pine cones was a major event in the lives of the people. An extensive description of this process is available for the Karok, close neighbors of the Applegate and Illinois peoples:

When it is time to gather the cones, each owner invites his family and friends to come with him, and then, when the cones are gathered, they are divided equally among the relatives and guests. Tanuaxanuwa, "Let's go and bite the nuts," is the Karok phrase for the expedition to gather sugar pine nuts. They make a hook, wurannaru, of a long pole of fir with a stick tied on it at an acute angle with hazel withes. The climber hooks this on the first limb of a sugar pine tree, and with this help climbs up the tree. Then he hooks another limb if necessary and thus climbs as high as he wishes. With a smaller hooked stick called teita, he hooks a branch near a cone and shakes it until the cone falls. In the meantime, the others on the ground are "making medicine" and singing, "Cut it off, Beaver, cut it off!" Or they sing, "Cut it off, Pitchy-hands (gray squirrel), cut it off!" The climber has made his medicine (sung the charm) while climbing the tree. (Schenck and Gifford, 1952, p. 378)

The cones were usually heated in a fire so they would open and the seeds could be removed. The seeds were then steamed in an earth oven, dried and stored for use. The seeds were often crushed in a mortar and mixed with powdered salmon, acorns, or manzanita berries. (Dixon, 1907, pp. 426-427)

The sap and inner bark of the sugar pine and ponderosa pine were also used as food. This was perhaps a very important resource during the early spring when other foods were not yet available. (Harrington, Reel 28)

Along with acorns and seeds, root crops were important for subsistence. Species that have been documented as to use in this region include blue camas, Mariposa lily, yampa, brodiaea, tiger lily, soaproot, fritillaria, balsamroot, and clover. (Harrington, Jacobs, Dixon, Sapir, DuBois, Merriam, Riddle, Holt, Heffner, Schenck and Gifford)

Two historic accounts reveal the importance of this resource to the people of this area. In February of 1827, Peter Skene Ogden observed the "natives from the dawn of the day until late in the evening employed in digging roots and the greater part of the night is spent in pounding and preparing their food nor do they appear to collect more than a sufficiency in one day's labour than one meal." (LaLande, 1987, p. 103)

Another description of root-gathering is provided by Indian Agent Samuel Culver, who noted:

Formerly they subsisted in the main upon roots, of which there was a great variety and quantity, each kind had its locality and time of ripening, or becoming fit for use....They did not find these roots upon any one tract of country, but there would be an abundance in one locality one month, and of another variety at another place during the ensuing. (Culver, 1854)

As with many other food resources, proper scheduling or planning was critical for survival. Roots would have been available in varying locations during much of the year. Roots were available throughout the valleys of the Illinois and Applegate Rivers. One Athapascan place name for the Illinois Valley, "kamass much place," refers to abundant camas. (Waterman, 1921, p. 21) Much of the lower Applegate River adjacent to the riparian zone was water-saturated for portions of the year, and probably supported populations of camas. Remnant populations were observed during a recent field trip to this area. Annual burning of the valley floor would have removed competing vegetation and promoted camas growth. (Boyd, 1986, p. 79)

Camas and other bulbs were steamed in earth ovens. Camas was sometimes then pounded and "molded into a large block like cheese. This cut like fruit cake and was very sweet." (Holt, 1946, p. 308)

Shoots of various species formed a relatively minor part of the diet, although one that was probably relished during the spring after a winter of subsisting on dried foods. The stalks of *Wyethia*, or sunflower, were peeled and eaten raw. Cow parsnip stalks were steamed and eaten. (Harrington, Reels 25 & 28) However, they were not as abundant in much of this area as they are adjacent to the coast.

Several types of berries and other fruits were gathered for use during the seasons when they were ripe, including huckleberries, chokecherries, plum, grape, blackberries, elderberries, gooseberries, thimbleberries, serviceberries, salmonberries, and sumac. (Harrington, Dixon, Holt, Walling) Many of these varieties were dried and mixed with other foods during the winter, providing a welcome way of sweetening staples such as acorn meal. Berries, especially huckleberry and serviceberry, were gathered in the mountains surrounding the Illinois and Applegate River Valleys. Periodic burning would have maintained the productivity of such areas.

Plants were also important as a source of material for basket-making, house construction, clothing, and tools. Baskets were made from hazel, beargrass, pine roots, maidenhair fern, willows and rushes. (Harrington, Jacobs, Holt, DuBois, Dixon, Schenck and Gifford) House planks were usually made from sugar pine or incense cedar boards, and the bark of both species was used to cover the roof and sides of the house. (Dixon, 1907, p. 417) Women wore skirts made of big-leaf maple bark. (DuBois, Notebook 6) Cordage was made from wild hemp, iris, and beargrass. (Harrington, Dixon, DuBois, Jacobs and Riddle) Mountain mahogany provided material for digging sticks. (Harrington, Reel 28) All of these species would have been managed to some extent to provide the best possible material for use.

It is difficult to determine the relative importance of various types of resources for the peoples of the Applegate and Illinois Valleys. According to archaeologist/ethnographer Dennis Gray, hunting was of primary importance, while fishing was secondary on the Applegate. (Gray, 1985, pp. 123-124) Anthropologist Gordon Hewes wrote that "The Upper Coquille, Upper Umpqua, and Chasta Costa Athapascans, dwelling away from the coast, were perhaps nearly as dependent upon hunting as fishing.....Even less given to fishing were the smaller inland groups like the Galice Creek and Applegate Creek Athapascans, and the little-known Takelma and Latgawa." (Hewes, 1947, p 89) Philip Drucker felt that the greater reliance upon gathering by the Galice Creek Athapascans was caused by their location in an environment of greater floral than fishery resources. (Drucker, 1937, p. 283)

Historic observations provide an equally contradictory viewpoint for people living in the Rogue River Valley. John Beeson complained that his fellow settlers had taken all of "the bottom land, from which the Indians had been accustomed to derive a large amount of their subsistence, in seeds, roots, and berries." (Beeson, 1857, p. 67) Wilkes's explorers observed Indians fishing in the Rogue River during the U.S. Exploring Expedition of 1841, and he wrote that fish were the primary resource, while Peale, commenting on the same expedition, felt that berries and roots were most important, even with the abundance of deer and elk in the mountains. (Wilkes, 1845, p. 122; Poesch, 1961, p. 190) James Clyman felt that acorns were of critical importance to the diet, and that when they failed, the people were forced to "live on clover." (Clyman, 1846) Indian agent Samuel Culver provided a more balanced view in 1854 when he wrote: "The food of the Indians consists of Deer, Elk, and Bear meat, with fish of several kinds, principally salmon, and a great variety of roots." (Culver, 1854)

Archaeological work just outside of the project area has provided some clarification to this problem. Nilsson, interpreting the results of excavations at Elk Creek, stated that "to a degree, site assemblages reflect the use of a wide range of resources available in the area." (Nilsson, 1991, p. 381) A similar conclusion was reached by Joanne Mack in regards to sites on the upper Klamath River where "equal importance seemed to be given to the gathering of plants, and the hunting of mammals and fishing...." (Mack, 1991, p. 35)

Perhaps the greatest problem facing the inhabitants of the Applegate and Illinois Rivers was not the relative abundance of various resources, but the necessity of careful planning, or scheduling, to ensure that an adequate amount of each resource could be obtained at the peak period of availability. Many resources were present during the fall, but few were available during the spring. This problem was aptly expressed by Coquille Thompson who said: "They get

(tired) during end of that season when they come down to camp on gravel bar (to fish for fall chinook). Hazel nuts, acorns, everything comes at once! Lots of work." (Jacobs, Notebook 116)

In the early springtime, starvation was a real threat, as archaeologist Martin Baumhoff noted:

The lean time of the year for most aboriginal Californians was the early spring, before plant growth began and before the start of the spring salmon run. It was then that the threat of starvation was most serious. (Baumhoff, 1963, p. 161)

Coquille Thompson described this as the time "when grass begins to grow -- still raining, still too early to hunt or fish. No dances or gambling games. All quiet, not much grub now. Just what's left and it has to be taken care of." (Jacobs, Notebook 116) For the Galice Creek people March "was a bad month when there was nothing to eat and no way to obtain food (because of snow)." (Jacobs, Notebook 126)

This was also true of the coastal groups living to the west of the Illinois River. Philip Drucker stated:

If there were lean times, they must have been in the late winter and early spring. Then the winter's supplies would be running low, the water too high for fishing, and the deer and elk beginning to move up into the higher country. Unlike the Yurok, who are said to lack even legendary references to famine, the Tolowa point out vaguely defined town sites (some are surely imaginary), deserted because all the people starved to death. (Drucker, 1937, p. 232)

An Athapascan/Shasta myth relating to this fact was often told to young people so they would conserve food during the spring:

Coyote was tricked into believing that winter was past and summer had arrived, so he wanted to throw away all his dried fish, but his wife hid them. Coyote tried to catch eels, which only came in the summer, but he could not, and realized that he had been fooled. (Ferrand and Frachtenberg, 1915, pp. 228-233)

Fluctuations in resource abundance also occurred on a regular basis. This was especially true of acorns and salmon, two of the most important resources for the people of southwestern Oregon. As anthropologist Helen McCarthy has pointed out:

A species of oak tends to produce good crops in several-year cycles, bearing well once every two or three years in a specific region; a bumper crop may be followed by one to three years of light or even no crops. In other geographical areas, however, only one or two species may be available; this can lead to a situation in which potentially serious shortages can occur during a year of crop failure. (McCarthy, 1993, p. 215)

Both trapper James Clyman and Indian agent Ben Wright wrote about great fluctuations in the acorn crops along the Rogue River during the historic period. (Clyman, 1846; Wright, 1856)

A possible explanation for such fluctuations is provided by archeologist Nan Hannon, who has observed that:

While southwestern Oregon has a diverse flora because of its transitional environment, most of these species are at the limits of their ranges, and far from the optimum conditions they require in order to reliably produce edible parts. Plants which are poor producers in this region include such potentially important species as California black oak, Klamath plum, hazel and serviceberry. (Hannon, 1990)

Several researchers have observed an historic pattern of considerable fluctuation in salmon runs on the Northwest Coast as well. (Kelly, 1991, p. 146) A poor salmon run on the Applegate or Illinois River could have led to severe problems for its inhabitants, especially if it coincided with a poor acorn crop.

Regular flooding also affected food resources. The Applegate River system has a natural flood cycle of 6.5 years. In years when this river or the adjacent Rogue River flooded, it may have been difficult to obtain salmon for considerable lengths of time. (Zowada, 1995)

As a result of resource scarcity and fluctuation in the Applegate and Illinois River drainages, some method had to be devised to provide for alternative food resources. As Edward Ord noted for the lower Rogue peoples, "the coast Indians did not wander from their own valley, for there is no unoccupied room, and if a tribe does not confine its fishing to its own home, a fight is the consequence." (Ord, 1856) The only alternative was adopting "risk management strategies for resource procurement, specifically, arranging for substitutes or alternative sources for both salmon or acorns." (Olmo, 1990, p. 7)

Since moving to an adjacent territory to fish or gather acorns was usually not a viable alternative, other methods had to be developed. Inter-marriage and trade were widely utilized for this purpose in southwestern Oregon. The importance of these mechanisms to protect against shortages can be seen in the hypothesis proposed by researcher Robert Kelly:

In cases where resources are spatially heterogeneous and populations are sedentary, access to another group must be maintained through marriage ties and/or other mechanisms, such as debt-producing ceremonies like the potlatch...Consequently, access to another group is usually limited to a few individuals, who become the funnel or window through which the entire group has access to another group's resources. This differential access automatically initiates sociopolitical inequality, for the ranking individual must appear (and be) generous to his own people while manipulating them if he is to appear to another group to be capable of repaying his debts to that group. (Kelly, 1991, p. 152)

Differential access to outside groups was based upon the social organization of villages. All of the males of a village were related, but most of the wealth was held by one individual. Wealth items included red-headed woodpecker scalp headdresses, dentalium necklaces, obsidian blades, and white deerskins. Wives were purchased from outside groups through the exchange of wealth items (Drucker, 1937, p. 245-247) Among southwestern Oregon tribes, it was a mark of distinction and status to purchase wives from a considerable distance. (Drucker, 1937, p. 247) This can be seen as a way to ensure access to resources far enough removed that the impacts to the group from localized fluctuations or resource failures would be lessened. Marriage established "a formal bond between the two families involved. In-laws were supposed to respect and aid each other." (Drucker, 1937, p. 247)

This principle is illustrated by the following story:

Once long ago at Applegate River in early spring everything was all gone. (Then) it got to be a famine. (a recent happening in Applegate country shortly before 1855, perhaps 1830 or 1835. Told by Hoxie's stepfather to him.). Long ago lots of people lived in Applegate River (in one village there). Long ago they stored all the food away good in the summertime, all kinds of edibles. One time in early spring (March) nearly everything was gone (used up). In the wintertime there had been a big snow, (lots of) ice. That's why in early spring (March) snow lay a long time; (it didn't melt). There was no way for them to dig anything that grew (and was edible). That was a time (when) salmon also was gone. The summer salmon (i.e. spring salmon) begin to run a little while later, the first part of summertime (at the 1st of June or so). Then famine began to spread all over; there was nothing to eat; the people all had no strength. The Shasta (near Yreka) people had bought one person's daughter not very long ago. (thus the Applegate people were able to go to the Shasta and obtain food and avoid starvation.) (Jacobs, Notebook 126)

The Illinois and Applegate people intermarried with all adjacent groups, including the Shasta Costa, Tolowa, Karok, Shasta, and Takelma. In this way, they were able to obtain food from these groups if resources in their territory were diminished by natural cycles. This pattern has been documented by archaeologist Richard Olmo, who found that:

Exchange relationships between Shasta Valley and Rogue Valley peoples were stronger, perhaps because Shasta Valley experienced good rainfall while the Rogue Valley experienced drought, and vice-versa, encouraging exchange as a method of coping with environmental stress." (Hannon, 1990)

Intermarriage also allowed an individual the chance to hunt or fish in adjoining territory, as illustrated by this story:

Long ago, a young Applegate Creek Indian man knew how to hunt well. "Lots of Camas" people (Illinois Creek Indians) were his brothers-in-law there. Therefore he went back and forth (between his Applegate home and his Illinois in-laws). (Jacobs, Notebook 126, p. 97).

Trade was also an important survival mechanism, and closely allied to intermarriage. Salmon and salmon eggs, acorns, pine nuts, camas, smelt, mussels, furs and deer hides, dentalium and other shells, basketry and cordage materials, and obsidian were all items that could be traded between tribes.

Food was probably the most important item of trade, perhaps to provide some variety in a diet that was often dominated by a few species. As Silver has detailed:

When visiting a different district, people took food typical of their own area to their host and brought home food typical of the host's area. For example, Klamath River people took pine nuts and salmon to the Scott and Shasta Valleys and to Oregon; they brought back antelope meat from Shasta Valley and varieties of bulbs from Oregon and Scott Valley. (Silver, 1978, p. 213)

The Takelma often visited the village of Talsalsan at the falls of the Illinois during early spring when the Rogue was in flood stage, so they could obtain salmon. At this site, fishing was possible at all but the highest water levels. (Harrington, Reel 28). The Illinois people in turn traded with the Tolowa for smelt and mussels (Harrington).

Another important item of trade was acorn flour. This processed material was traded from interior to coastal peoples, and from the Shasta Valley, where it was

more easily obtained, into the Rogue Valley, where acorn crop failures sometimes occurred. In return, Rogue Valley tribes traded camas, which is more abundant in the Rogue than Shasta Valley. (Dixon, 1907, p. 426)

Trading networks may have been at their zenith at the time of white contact. At 35JA42 on the upper Applegate River, archaeologist David Brauner noted the following in regards to the end of the Late Prehistoric era:

The Upper Applegate River folk became more cosmopolitan and began importing outside finished goods as well as lithic material. They continued manufacturing most of their lithic tools in a traditional manner but began importing such items as arrows or at least projectile points. Desert side-notched points were imported from the east, Gunther-barbed points from the main stem of the Rogue River, and concave base points from the lower reaches of the Rogue River. What caused this move away from isolation is unknown. (Brauner, 1983, p. 89)

Trading networks between tribes that might have been created by the intermarriage of upper class individuals were seriously impacted by the effects of diseases introduced by Euro-American visitors. Many researchers have documented the widespread decline in aboriginal populations between 1780 and 1830 as the result of epidemics. (Draper, 1988; Winthrop, 1993)

In summary, the Applegate and Illinois peoples had a wide range of resources available within their respective territories. They also had the opportunity to trade for foods they craved or to supplement their diet during times of crop or fish run failures in their own territories. Privation may have been a part of the seasonal round, but outright starvation was very rarely a factor.

The relationship of the people and the resources they relied upon for subsistence transcended the concern of avoiding starvation, however. There existed an integration of the practical necessity of utilizing resources with the recognition that those resources were spiritual entities that needed to be honored before they could be consumed. Because of this concern, ceremonies and rituals were a vital part of all harvesting and gathering activities.

Chapter 5: Land Use Management Overview

It has been typical of Euro-Americans in the past to assume that Native American hunting and gathering societies had very little direct control of or impact upon the territories they occupied. It was this basic premise dating back to earliest colonial times, that helped lead to the removal of Indian tribes to reservations and white settlement to make the land more productive.

Even anthropologists and archaeologists accepted this premise until recently. As Henry Lewis has noted:

The claim that foragers consciously managed the distribution and relative abundance of plants and animals runs counter to the basics of anthropological assumptions about the limited effectiveness and restricted scope of so-called primitive technologies. Until most recently, the argument that foragers actually manipulated environmental processes has been especially difficult for prehistorians to accept given the maxim that hunter-gatherers, having only the simplest of tools, could not influence the availability and increase the productivity of natural resources. (Lewis, 1990, p. 81)

A reexamination of the literature, coupled with more careful interviews with Native informants, has turned up a wealth of data about intensive management techniques employed by indigenous peoples. The most powerful of all control methods was the use of fire.

A review of data related to tribes in and adjacent to the Rogue River basin reveals the importance of fire to the people. Reasons for the use of fire included game drives, maintaining wildlife habitat, procurement of tarweed and grass seeds, acorn gathering and oak grove management, hazel gathering and management, improving the quality of basketry materials, root and berry propagation, extraction of sugar pine sap and seeds, insect collection, tobacco cultivation, warfare, communication, and ceremonial purposes.

HUNTING

The Takelma set forest fires in the mountains to drive deer into brush fences where they could be taken in snares. This probably took place during the late

summer or fall (Sapir, 1907a, p. 260) The Pit River people set a circular area of a thousand acres or more afire in September or October to drive deer toward the center where hunters waited. This was done every two or three years so pine needles could accumulate on the forest floor again. (Merriam, Reel 130) The Shasta also set circular fires in the fall after the oak leaves had begun to fall to drive deer to hunters concealed in the brush. (Dixon, 1907, p. 431) The Klamath Indians set fires in the mountains east of present-day Medford in the fall to drive deer to waiting hunters. (Harrington, Reel 28) Among the Upper Coquille, fire was used to drive deer into snares set along trails. (Jacobs, Notebook 121) The Coos set forest fires in the mountains every year in June or July to keep the hillsides free of underbrush for the next year's hunting. (Jacobs, Notebook 92, p. 66)

According to Robert Kentta, cultural representative of the Confederated Tribes of Siletz, many tribal elders remember stories about hillsides being set on fire to drive deer. (Kentta, personal communication, 1995) It seems likely that the Applegate people, who hunted in the uplands each fall, would have used this technique to obtain deer.

MAINTAINING WILDLIFE HABITAT

The Karok set fire to hillsides annually to help the growth of grasses upon which deer fed. (Gifford, Notebook 174; Kroeber and Gifford, 1949, p. 51) The Yurok, Tututni, Karok, and Tolowa set fire to small prairies within forested zones fairly often to keep them free of brush and trees, and to concentrate game there so they would be easier to hunt. (Gould, 1993, p. 103) The Tolowa burned off hillsides in the late spring, when the ferns were old and dry, to improve areas for hunting and control growth of brush. (Drucker, 1937, p. 232) Takelma/Athapascan descendents within the Siletz tribe also remember setting hillsides on fire to maintain deer habitat. (Kentta, 1995, personal communication)

Small, localized fires were probably set for this purpose in the upper elevation areas of the Applegate River drainage, the lower slopes of Grayback Mountain, and the eastern side of the Kalmiopsis. Such fires can be of tremendous benefit in increasing the carrying capacity for deer herds. In an experiment that was carried out in an area of dense, unburned chaparral, the deer count rose from 30 to 131 per square mile after burning. (Heizer and Elsasser, 1980, p. 73)

PROCUREMENT OF TARWEED AND GRASS SEEDS

The Takelma gathered tarweed seeds each year after the stalks had been burned. (Sapir, 1907a, p. 259) In 1841, the members of the U.S. Exploring Expedition observed Indians burning the prairies around Ashland, probably to obtain either tarweed or grass seeds. (Boyd, 1986, p. 73) The Shasta practiced field burning to promote better wild seed crops. (Silver, 1978, p. 217) Cow Creek women set the prairies on fire every summer so that the seeds would be easier to gather. (Riddle, 1953, p. 46) The Bald Hills at the edge of Karok and Hupa territory, were burned each summer when the tarweed plants were still green but the seeds were ripe. (Schenck and Gifford, 1952, p. 390) The Yurok also participated in burning the Bald Hills for tarweed seeds in the summer. (Kroeber, 1976, p. 100) The Upper Coquille set fire to prairies in midsummer to aid in gathering tarweed and sunflower seeds; young, unmarried men would set fire to the fields at night with pitch torches. (Jacobs, Notebook 104, p. 101)

Ethnographer John Harrington recorded the use of tarweed seeds by the inhabitants of the Applegate Valley. The presence of this plant in large quantities has been well-documented. (LaLande, 1995) Burning of the valley floor and hillsides would have been an annual occurrence in this area.

Grass seeds were also collected for use by native peoples of the Rogue Valley (Anonymous, Notebook 135) Eld and Emmons of the U.S. Exploring Expedition observed that the Takelmas and the Umpquas burned off the valley floor every year to promote grass growth. The Karok burned rice grass patches at upper elevations to ensure continued crops. (Harrington, 1932, p. 75) This was probably done in the Applegate and Illinois Valleys as well because grass seeds were an important resource.

ACORN GATHERING AND MAINTAINING OAK GROVES

The Takelma burned the hillsides of the Rogue Valley to make it easier to gather fallen acorns, and to maintain stands of grass (Walling, 1884, p. 334) The Karok set fire to grass under tanoak groves to remove competing vegetation, acorn parasites, and to roast the acorns for use. (Harrington, 1932, pp. 63-65) Karok women also reported that trees were better producers if they were scorched each year. (McCarthy, 1993, pp. 221-223) The Tolowa set fire to the grass around oak groves in the fall after they were finished picking acorns. This was done to reduce underbrush and grass. (Gould, 1975, p. 156)

Burning of vegetation around and under oak groves was critical for their

continued existence. As noted by archaeologist Ken Wilson for an oak grove along the upper Smith River, "the use of fire helped to maintain the Oregon oak vegetation association and prevented culmination of the climax vegetation association most common in this region – Douglas-fir forests." (Wilson, 1993, pp. 12-13)

Acorns have been documented as an important food resource for both the Applegate and Illinois peoples. Burning of vegetation around oak groves on the valley floor and hillsides and south-facing slopes at higher elevations would likely have been an annual event in these areas.

HAZEL NUT GATHERING

The Karok burned hazel patches every year so that nut production the following year would be better. (Schenck and Gifford, 1952, p. 386) The Tututni headmen burned hazel patches every midsummer so that the nuts would drop off and be roasted by the fire. (DuBois, Notebook 6) The Coquille burned some hazel patches annually to collect the roasted nuts, and some patches every five years to promote better production. (Jacobs, Notebook 104; Harrington, Reel 26)

Hazel nuts were used by both the Applegate and Illinois peoples. Most of the hazel patches would have been at higher elevations, so this is where such burning would have taken place, probably in midsummer when the nuts are ripe.

IMPROVING QUALITY OF BASKETRY MATERIALS

The Shasta gathered hazel from areas that had been burned to remove the growth of fir and hemlock. (James, 1903, p. 97) The Karok burned patches of hazel, iris, ceonothus, and beargrass in midsummer annually or bi-annually to obtain the best basketry materials. (Harrington, 1932, pp. 63-65; Schenck and Gifford, 1952, p. 386)) Burning of beargrass usually took place on ridgetops at elevations of two-to-four-thousand feet, while hazel was collected from midslope areas. (Fields, 1985, p. 51; Bright, 1957, p. 293) The Yurok burned hazel flats bi-annually in late summer or early fall to promote the growth of straight shoots and to keep competing vegetation from shading out the hazel. (O'Neale, 1932, p. 15) The Tolowa burned brush under redwood groves to improve the quality and collectability of ferns, hazel, and spruce roots used in basketry. (Gould, 1993, p. 99)

Descendents of Takelma/Athapascan people remember stories their elders told of burning hillsides to grow straight hazel shoots for basketry. This burning was done on an annual, bi-annual, or periodic basis. (Kentta, Personal communication, 1995) Given the importance of beargrass as a material used for making snare rope and an item of trade with the adjacent Takelma, it seems likely that areas in the Applegate uplands were regularly burned to maintain the quality of this material.

ROOT PROPAGATION

Takelma/Applegate informants remember that camas meadows were burned on a regular basis to remove competing vegetation. (Kentta, Personal communication, 1995) This practice has been documented for other tribes in the northwest. For tribes in the Willamette Valley, George Colvocoresses wrote that fire was necessary "for the purpose of procuring a certain species of root," and John Minto, an early settler, observed that "fire was the agency used by the Calapooia tribes to hold their camas grounds for game and (waterfowl)..." (Boyd, 1986, p. 79) According to Boyd, "by removing competing woody species, regular burning also favors the growth of a number of wild roots eaten by the Kalapuyas. These include the lilaceous species camas and wild onion as well as the tuber of the lupine and the rhizome of bracken fern (Boyd, 1986, p. 79). By burning root-collecting areas each year, the Miwok of Central California were able to increase the size of the bulbs, the ashes apparently acting as a fertilizer. (Anderson, 1993, p. 169)

This practice was highly likely to have been employed in both the Applegate and Illinois Rivers, given the importance of roots in the diet. Roots were collected in a wide variety of habitats throughout the spring, summer, and fall, and burning after harvest was a probable part of this cycle.

BERRY PROPAGATION

The Upper Coquille burned berry collecting areas each fall so the berries would grow abundantly the following year. (Jacobs, Notebook 104). This practice would have been especially important for trailing blackberries, which are quickly crowded out by competing vegetation. Huckleberry thickets were burned by the Karok so they would "grow up good." (Harrington, 1932, p. 63) The Applegate and Illinois peoples craved berries as a source of sugar to mix with other foods, so areas at upper elevations where various species of berries grew best were probably managed by fire.

SUGAR PINE SAP AND SEED COLLECTING

The Takelma burned the bases of sugar pine trees in the fall to obtain the sap, which was used as a source of sugar. (Boyd, 1986, p. 73) When the Tututni were gathering sugar pine cones in the fall, they built a fire to burn the pitch from the cones, and to cause the cones to open so seeds could be collected. (DuBois, Notebook 6) Pine seeds were an important part of the diet of Applegate/Illinois peoples and would have been collected using similar methods.

INSECT GATHERING

The Takelma set fire to grassy fields in the summer and collected the scorched grasshoppers and white larvae of yellowjackets. (Sapir, 1907a, p. 260) The Shasta also set fire to grassfields each summer to collect "locusts," which were then dried, pounded, and mixed with grass seeds for eating. (Holt, 1946, p. 309) Some of the other tribes in the region, such as the Karok, disdained the eating of insects, but it is probable that all groups used them if other foods were not available. Grassfields on the valley floors of the Applegate and Illinois Rivers were likely set on fire every summer for this purpose.

SNAKE CONTROL

The Karok set fire to hillsides around their villages every summer to drive rattlesnakes away. (Harrington, 1932, pp. 63-65). Snakes probably moved down closer to the river in the summer to take advantage of cooler temperatures. Snakes were undoubtedly a problem for residents of the Applegate and Illinois Valleys as well, and they could have used fire as a way to control them.

TOBACCO CULTIVATION

The Galice burned brush patches in preparation for the planting of tobacco seeds. (Goddard, Notebook 2) This practice was also utilized by the Takelma (Sapir, 1907a, p. 259; Orton, Notebook 135), and the Shasta. (Silver, 1978, p. 217) The Karok burned areas upslope from villages where there was an abundance of logs to create an ash bed for planting tobacco seeds. This was done in the summer

under tanoak groves at the foot of a ridge. (Harrington, 1932, pp. 63-65, 75-76) The Tolowa also burned off clumps of brush before planting tobacco seeds there. (Drucker, 1937, p. 239)

Small patches of brush or windfalls were set on fire by the Takelma/Applegate people to propagate tobacco. (Kentta, 1995) This was a very localized form of burning that usually took place at lower elevations.

WARFARE

During the Rogue Indian war, the Takelma sometimes set fires to slow pursuit by the volunteers and to obliterate their trail. (Walling, 1884, p. 219) They also used the fires as cover to fire arrows at their pursuers. (Oregon Statesman, 1855) It is likely that this was an ancient practice employed when superior forces were encountered. The Illinois and Applegate people were often subject to raids by Shasta and Klamath war parties (Jacobs) and likely set fires occasionally to harass their enemies. This type of fire would have been the least controlled of any described, since it was employed under emergency conditions.

COMMUNICATION

The Galice would set fires on mountain peaks at the head of Galice Creek to warn of approaching enemies. (Harrington, Reel 28) The Takelma set signal fires in the mountains south of Ashland at the approach of explorers in 1846 (Thornton, 1846, p. 196) The Tolowa used fires to signal for assistance in crossing Lake Earl. (Waterman, 1921, p. 58) Harrison Rogers observed the Tututni Indians setting "signal fires" on the north side of the river at the approach of the Jedediah Smith expedition in 1827. (Rogers, 1918, p. 263)

Signal fires were also used by the Applegate people. One story told by Hoxie Simmons describes a young hunter, who had intermarried with the Illinois tribe, setting signal fires to alert his kinsmen whenever he was successful in killing game in the Grayback Mountain area. (Jacobs, Notebook 126)

CEREMONY AND MYTH

The Karok set fire to the brush on Mt. Offield each August during World Renewal ceremonies to ensure that married people would not die. This was done because "the mountain is conceived of as a woman 'ixhareya,' whose hair must be singed annually lest there be many widows in the world." (Gifford,

Notebook 174) Another possible reason for the ceremonial burning of Mt. Offield each year "was to drive away sickness and ensure an abundance of vegetable foods and salmon." (Kroeber and Gifford, 1949, p. 51). Fires were also set on a mountain at Panamenik near Orleans for ceremonial purposes. (Gifford, Notebook 174) The Yurok set fire to hillsides opposite Kepel, a shallow riffle on the Klamath River, each year when they were rebuilding their fish weirs. This was done to alert upstream peoples that the weir was now in operation (Kroeber, 1976, p. 445) and possibly to attract salmon upriver to the weir. The Tututni burned off the hills at the mouth of the Rogue River each spring and fall to invite salmon to enter the river. (Hubbard, 1861)

Ceremonial burning of mountain peaks may have occurred in Applegate/Illinois territory as well. Near the Illinois River, mountain spirits lived at the summits of Aldauyakwadis and Alsawentadis, and at Aldankoloida near the town of Jacksonville, according to informants for Edward Sapir. Medicinal plants used to cure fevers were gathered on the slopes of Alsawentadis. (Sapir, 1907b, p. 45) It seems possible that these peaks, whose actual location cannot be determined, were ceremonially burned with various purposes in mind.

Fire also plays a role in the tribal mythology of the region. The Yurok told a story about thunder being responsible for creating prairies along ridgetops. (Kroeber, 1976, p. 445) Because of the great productivity of these prairies created by natural forces, they were compared mythologically with the ocean, the primary source of food for coastal peoples. (Kroeber, 1976, p. 465) "Thunder" also plays a part in Applegate mythology, but it is not clear if he is associated with the creation of prairies. (Harrington, Reel 28)

CAREFUL USE OF FIRE

From a review of the literature, it is clear that burning was an important part of land management practices by the peoples of the region. However, it was employed under very controlled conditions. That is not to say that fires did not occasionally escape and cause unanticipated problems, but the intent clearly was to use fire as a management tool under limited settings.

The importance of carefully controlled fires was revealed by a Karok informant of John Harrington, who stated:

Some kinds of trees are better when it is burned off; they come up better ones again. But some kinds of trees when it is burned off disappear,

another never comes up again. The manzanita, another one does not come up, when it is burned off. An old tree bears way better, too. And the tan oak is not good when it is burned off, the tree dies. When they are burning, they are careful lest the trees burn. (Harrington 1932, p. 65)

Low intensity fires were especially critical to avoid destroying oak trees, which are sensitive to extreme heat, but benefit from cool burns. (McCarthy, 1993, p. 224)

Writing about the Kalapuya of the Willamette Valley, early settler Lewis Judson noted:

Fir groves had been found necessary by the Indians to induce deer and other wild game to stay in the valley. The groves were undisturbed by fire...The Indians burned right up to imaginary lines, but never was the fire allowed to go past or get out of hand. So some authority existed among them because biennially the prairies were burned. (Boag, 1992, p. 14)

The Upper Coquille set fire to tarweed patches only at night, and were careful to observe which way the wind was blowing (Jacobs, Notebook 104). As Coquille Thompson noted, "The Indians would burn only an oat-patch and would not let fire spread." (Harrington, Reel 25)

Fire was such an important but respected force to the Karok that certain individuals specialized in the setting of fires, analogous to fire management officers in today's federal agencies. A Karok informant told Edward Gifford:

When setting a fire, the fire setters said formula for a big fire, yet one which would do no harm. Then the formulist blows in all four directions to keep fire from spreading. The formulist is a fire setter who knows the proper medicine. (Gifford, Notebook 174)

One of the biggest reasons for controlling the effects of fire was that Indian villages were often located in heavy cover. Kalapuya winter villages were "located among willow, maple, and cottonwood thickets that bordered large streams such as the Calapooia." (Boag, 1992, p. 16) George Riddle, in describing the camp of Chief Miwaletau along the banks of Cow Creek said, "the camp was enclosed with willows, leaving an opening for entrance." (Riddle, 1953, p. 47) Joaquin Miller encountered an Indian camp "in a vine-maple thicket, on the bend of a small stream..." (Miller, 1873, p. 22) Shasta informants from the upper Klamath River said that old women were sent out each morning "about the village looking through the surrounding brush to see if any war party lay in ambush." (Holt, 1946, p. 339) James Cardwell came upon an Indian village at the

mouth of the Applegate River in 1850 and all the Indians fled except the chief. When Cardwell proved to be friendly, the chief "seemed to be high pleased, and called all the village to come in, and it seemed that the surrounding woods was alive with Indians." (Cardwell, 1879, p. 4)

DESIRED CONDITION OF THE ENVIRONMENT

Hoxie Simmons, a Galice Creek Indian with a step-father from the Applegate River, stated "the Indians used to say it was such a pretty place." (Harrington, Reel 28) What exactly he meant by this statement is unclear, but there are some indications of what Native Americans might have desired in the landscape they lived in.

Frank Drew, a Coos Indian, described the hunting territory of his tribe as a "fine and beautiful open country, just a few scattered trees." (Jacobs, Notebook 92). A Chetco informant recently complained "that in-between zone has kind of disappeared, where it's like a prairie. A lot of species would grow in those places, like hazel nuts, mushrooms, the old blackberries, camas, and so forth." (Lieberman, 1990, p. 91)

The type of environment most favored by native peoples appears to have been one that was fairly open, but with a high degree of diversity. This type of environment could be achieved by the use of limited controlled burns to effect specific changes on the landscape. As Henry Lewis has observed:

Large-scale burning would have reduced the complex of ecotones and, consequently, the total amount of plant and animal production. The natural pattern of fires, because of their relative infrequency and the greater intervening buildup of fuels, would select for much larger and older stands of fire climax succession. The very 'spottiness' and much higher frequency of very localized Indian burning seem to have effected a much more complex overall ecosystemic pattern than would have been the case with only natural fires. (Lewis, 1993, p. 114)

Other researchers have also noted the limited but highly purposeful nature of Indian burning. Lowell Bean and Harry Lawton have written that:

Such an impact need not have been massively widespread to have substantially improved the subsistence level of native populations in the coastal valleys. The primary effect of burning would be to greatly increase both plant and animal resources near villages, where hunting and gathering could be better organized and more efficiently concentrated over

a smaller area, thus resulting in increased leisure for other pursuits. (Bean and Lawton, 1993, p. 47)

This pattern has been further substantiated by Archaeologist Linda Lux:

The extent to which specific areas were affected by Native Americans burning forest lands probably did vary considerably. Induced fire would have been more frequent in locales close to human settlement and in areas they used more intensely for resource procurement -- in general, more common at lower elevations, decreasing with a rise in elevation. (Lux, 1995)

Maintaining a diversity of habitats appears to have been of primary concern in this process. Lewis notes:

As a consequence of living in a variety of zones, Indians were able to exploit the ecotones, the transitions or 'edges,' between forest and brush, between brush and woodland, between woodland and grass. As we know, it is a general principle of ecology that it is the ecotone areas in which the density and variety of life are the greatest....Even though the overall environment already provided two and often more natural ecotones, the Indian was able to create a variety of local ecotones within vegetational zones. At the same time, even where natural ecotones already existed -- e.g., between woodland, grass and chaparral zones -- aboriginal burning pushed back the upper zones of brush or trees to favor a more productive cover of mixed trees, grass and shrubs. (Lewis, 1993, p. 113)

For the Applegate and Illinois Valleys, the primary ecotone is the border between the Interior Valley Zone and the Mixed Conifer Zone. (Nicholls, 1983, p. 20) This would have been the edge between the oak-pine woodland and the denser mixed conifer forest on upper slopes. It would have been this zone where the greatest diversity of animals such as deer, and plants, such as oaks, grasses, and lilies, would occur. Seasonal habitation sites in this region are usually found along the boundaries of these zones. (Nicholls, 1983, p. 64; Mack, 1990, p. 15; Wilson, 1993, pp. 12-13)

By setting fire to hillsides above their villages, the Applegate and Illinois peoples could have maintained a much wider oak-pine forest than would exist naturally. Fire would enter the coniferous zone above valley slopes, but would only burn the edges, maintaining the chaparral understory in an ideal state as browse for deer and elk.

Smaller openings throughout the mixed-conifer forest and upper elevations along major ridgelines would have been kept open through regular burning as

well. This would have prevented the encroachment of chaparral and conifers, protecting such important species as oak, hazel and beargrass.

The overall effect of such management would have been a highly diverse landscape. Although first-hand descriptions of such a landscape are not available for this area, there are some excellent descriptions of similar areas in southwestern Oregon.

One of the first Euro-Americans to observe the diversity of the southern Oregon landscape was Robert Haswell, a sailor who was with Captain Robert Gray in 1788 when he sailed along the Oregon coast before discovering the mouth of the Columbia River. Haswell wrote about the area east of the mouth of the Rogue:

This Country must be thickly inhabited by the many fires that we saw in the night and culloms of smoak we would see in the day time but I think they can derive but little of there subsistence from the sea but to compenciate for this the land was beautifully diversified with forists and green verdent launs which must give shelter and forage to vast numbers of wild beasts... (Haswell, 1788)

This diversity was further documented by Reverend Gustavus Hines during his soul-saving expedition to the Umpqua Valley in 1841. In describing the landscape, he found that "an agreeable variety of hills, plains, and groves of pine, fir and oak, constituted scenery of the most picturesque beauty, and the eye was never weary in gazing upon the ever varying picture." (Hines, 1850, p. 117)

David Douglas, a botanist who traveled with the McLeod expedition to the Umpqua Valley in 1826, also was favorably impressed with the nature of the landscape: "On reaching the summit of the last hill the desired sight of the Umpqua River presented itself to our view, flowing through a variable and highly decorated country-mountains, woods, and plains." (Douglas, 1826, p. 223)

In his explorations in 1856, Dr. John Evans found a similar environment between the drainages of the Sixes River and South Fork of the Coquille:

Timothy (wild?) is very abundant in this and other prairies passed through, and is from three to five feet high; other grasses filling up the prairie and so dense as to render walking difficult is from two to two and a half feet, this is a fair example of the luxuriant growth of grasses; not only in the chain of prairies through which the trail passes, but on the ridges and intervening slopes between them. The climate is delightfully cool and bracing. The woods are filled with elk, deer, and black bear, and there is not want for meat. (Evans, 1856, p. 3)

The closest description available for the Applegate and Illinois drainages is from the journal of Philip Leget Edwards, who participated in a cattle drive along the Oregon-California trail with Ewing Young in 1837. His descriptions of crossing the Siskiyou Mountains between the Klamath and Rogue Rivers provides some glimpses of what must have been a fairly diverse landscape:

Had much difficulty in ascending the brushy hill...we now had much difficulty in driving through the dense wood. Down the brushy hill for about a mile. We then gained a prairie and as there was a gentle declivity nearby for all the afternoon we traveled without much further difficulty. (Edwards, 1837, p. 41)

From the above descriptions, an analysis of the varied types of burning employed by the Indians of the region, and an examination of the broad-based subsistence practices of the people, it now seems clear that very active manipulation of the environment was taking place. Although burning was highly localized, it did have an appreciable effect on the appearance and productivity of the overall landscape.

OTHER TYPES OF MANAGEMENT

While fire was the major tool employed by Native Americans to exert some control over their environment, there were a number of less obvious methods that also proved effective. They included pruning and tending of plants useful in basketry, cultivation and planting of root crops, and perhaps the planting of seeds to promote the growth of various plants, possibly including oaks.

The relationship between women and the plants they gathered for basketry materials was an especially important one. Basket-making was both a useful craft and an art form that had been developed to a high degree by the people of southern Oregon and northwest California. To some degree, a woman's skill in basket-making established her status in the village. Plants important in basketry were treated with a great deal of respect because:

When a Karok woman went out to collect pine roots, hazel stems, and bear-lily roots for her baskets, she moved in an animate and indeed passionate world. She gathered her basket materials from people, from a woman and her children who had once been dreadfully poor. By plucking roots and stems she was not harming these people but rather honoring them, transforming them into beautiful baskets that would be displayed during ceremonies, "sitting in glory before the rich people." The woman

was thus helping the roots and stems fulfill their destiny. Her relationship with the pine tree, hazel bush, and bear-lily was one of partnership, friendship, even equality; after all, she and pine tree were both women, and could thereby understand and help each other very well. (Fields, 1985, p. 33)

The harvest of root crops was likewise performed with care to ensure the continued productivity of the bed. John Harrington's Karok informant, when describing the harvest of brodiaea or camas, observed:

But they knew indeed that where they dig cacomites all the time, with their digging sticks, many of them grow up, the following year many grow up where they dig them. They claim that by digging Indian potatoes, more grow up the next year again. There are tiny ones growing under the ground, close to the Indian potatoes. They also knew that it was good to drag a bush around after sowing. And they also knew that it is good to pull out the weeds. Root and all they pull them out, so they will not grow up again, and by doing this the ground is made softer. (Harrington, 1932, p. 73)

Through harvesting of root crops, more were actually produced the following year. Digging also loosened the soil. Weeds were carefully removed from the plot, and the surface was smoothed with a bush after digging took place. Anthropologist Kat Anderson has documented the beneficial effects of root gathering by noting that:

Many plants, for example, store nutrients in underground vegetative reproductive parts that comprised an important element in the native diet. The selective harvesting of larger bulbs, corms, and tubers for food may have had the practical effect of "thinning" the resource; the digging stick that was employed aerated the soil, separated and dispersed the smaller bulbs or corms, and activated their growth, thus essentially increasing the size of the tract and its potential productivity. (Anderson, 1993, p. 20)

This selective harvesting has been documented for the Yurok, Hupa, and Tolowa, who "still harvest the bulbs of Lilium spp. and selectively harvest the biggest bulbs, replanting the small bulbs for later harvest." (Heffner, 1984)

Several myths were used to instruct young girls in the proper techniques of harvest. The Yurok told a myth about a young girl who was warned not to dig roots in the middle of a field, but only along the edge. She disobeyed, and dug up a baby that she had to carry home. The objective of this myth was apparently to maintain a reserve area so that root tracts would not be over harvested. (Kroeber, 1976, pp. 55-56)

Another myth about Root Baby was told by both the Tolowa and Yurok. A young girl was warned never to dig up any roots with double stalks, but she disregarded the warning and again brought a young baby home, much to her embarrassment. The objective of this myth was to warn diggers not to disturb clumps of roots, thereby damaging the plants for future harvest. (Goddard, Notebook 7)

Planting roots or the seeds of desirable root species has also been documented, at least in a mythological sense. A Tolowa story recounted:

At the end of a year, this married girl came back to visit her relatives. She had a baby boy. The people down south had given her lots of Indian-potatoes. She ate these Indian-potatoes, and as she ate, she dropped small pieces. That is why Indian-potatoes grow here even yet. (Waterman, 1921, p. 67)

The practicality of this story is supported by anthropologist Helen McCarthy, who suggests that soaproot was spread by planting either corms or seeds. (McCarthy, 1993, p. 217) Soaproot (*Chlorogalum* spp.) was used as a food by tribes living along portions of the lower Rogue River. (DuBois, Notebook 6)

The Karok also told stories about mythological figures spreading tanoaks across the landscape by planting or eating acorns. (Harrington, 1932, p. 67) McCarthy discounts this possibility by stating:

It is suggested that the characteristics of late maturity and unpredictable yield strongly diminish the probability that the planting of oaks could ever have been a systematic strategy employed by indigenous California people, although there may well have been other -- as yet poorly understood -- biological factors that prevented the predictable and successful planting of oaks. (McCarthy, 1993, p. 217)

However, other kinds of seeds may have been planted with greater success. Anthropologist Silver has written that the Shasta planted grass seeds of desirable species to increase the harvest. (Silver, 1978, p. 219) One Yurok myth recounts how a young man always went to hunt, but saw no deer. He traveled far down river, and found a ceonothus bush that deer had been eating. He brought seeds home and planted them, and then was able to hunt deer in his homeland. (Kroeber, 1976, p. 199)

The Applegate and Illinois people probably utilized the same techniques for root propagation as nearby tribes. Beds would have been cultivated through the use of digging sticks, weeded, and reserve areas left. Burning was done on a

regular basis to remove competing vegetation and to provide fertilizer for the plants. Bulbs were sometimes transplanted, and seeds were spread with the hope of generating new crops.

Beargrass would have also been carefully nurtured, given its importance in making cordage and as a trade item with the Takelma. Through bi-annual burning and careful removal of desirable stems, this plant was managed for maximum production.

CONSERVATION MEASURES

Conservation measures are not well-documented for tribes in southern Oregon and northern California. With the seasonal abundance of most resources and the relatively small population which depended on them, such measures may not have been necessary. There are some indications of potential conservation measures, however.

For example, the Shasta never set up their deer fences until after the mating season was over in late November, probably as a conservation measure. (Holt, 1946, p. 310) Most deer and elk hunting seems to have taken place in the summer and early fall, before the mating season. Animals were usually not hunted in the spring, as Ogden noted among the Cow Creek Indians. (LaLande, 1987, p. 88) This may have been a conscious effort not to affect animals during the season when young were born.

Conservation measures associated with fish are more definitive. As Coquille Thompson said, "they wanted fat fish for drying -- then when they got what they need, they let fish alone." (Jacobs, Notebook 116)

Writing about Yurok fish weirs on the lower Klamath River, Lucy Thompson said:

In these traps, there get to be a mass of salmon, so full that they make the whole structure of the fish dam quiver and tremble with their weight, by holding the water from passing through the lattice-work freely. After all have taken what they want of the salmon, which must be done in the early part of the day, Lock (the dam formulist) or Lock-nee (his assistant) opens the upper gates of the traps and lets the salmon pass on up the river, and at the same time great numbers are passing through the open gap left on the south side of the river. This is done so the Hoopas on up the Trinity River have a chance at the salmon catching. But they keep a close watch to see that there are enough left to effect the spawning, by which the supply is kept up for the following year. (Thompson, 1916, pp. 135-136)

Another method of control was provided by rituals associated with fishing. Most of the tribes in this region had a first salmon ceremony, which usually lasted ten days. During this time, no one was allowed to fish.

First-salmon rituals may have served a distinct conservational or management purpose. In allowing the salmon to run freely during the initial period of ritual restriction (the duration and timing of which was controlled by the formulist, and generally appears to have lasted from several days to two weeks), riverine tribes maintained a productive inventory of spawning salmon each spring, which ensure successful reproduction and return of the king salmon runs in following years.....there is no evidence that native populations ever seriously overfished the salmon runs. (Swezey and Heizer, 1993, p. 324)

Conservation measures were probably also utilized by the Applegate and Illinois peoples, even though no direct documentation exists. There would have been a conscious recognition that taking more of any resource than was needed for the welfare of the group would affect the productivity of that resource in the future.

Use of Fire by Tribe

Tribe	Environmental Zone	Season	Interval	Purpose	Perpetrator	Source
Galice	Upper Elevation	N/D	N/D	Signal Fire/Warfare	Men	Jacobs
Galice	Lower Elevation	N/D	Annual	Growing Tobacco	Men	Jacobs
Takelma/Athapascan	Lower Elevation	N/D	Annual to Periodic	Maintenance of Camas Meadows	N/D	Kentta
Takelma/Athapascan	Hillsides	N/D	Annual to Periodic	Hunting	N/D	Kentta
Takelma/Athapascan	Lower to Upper Elev.	N/D	Annual to Periodic	Basketry Materials/Hazel	N/D	Kentta
Takelma/Athapascan	Lower Elevation	N/D	Annual	Growing Tobacco	N/D	Kentta
Applegate	Upper Elevation	Summer/Fall	Annual	Signal for Help	Men	Jacobs
Takelma	Hillsides	N/D	Annual	Remove Obstructions to Seed & Acorn Gathering	N/D	Walling
Takelma	Lower Elevation	Spring?	Annual	Burning Base of Sugar Pine Tree to Obtain Sap	N/D	Eld
Takelma	Lower Elevation	Fall	Annual	Maintain Prairies/Gather Seed	Women	Peale, Eld
Takelma	Upper Elevation	Fall	N/D	Signal Fire/Warfare	Men	Thornton
Takelma	Lower to Upper Ele.	Summer	N/D	Obliterate Trail to Avoid Pursuit by Enemies; As Cover During Raids	Men	Walling
Takelma	Lower Elevation	Summer	Annual	Gathering Sunflower & Tarweed Seed	N/D	Sapir
Takelma	Lower Elevation	N/D	Annual	Growing Tobacco	Men	Sapir, Orton
Takelma	Upper Elevation	Summer/Fall	Annual	Driving Deer into Traps	Men	Sapir
Takelma	Lower Elevation	Summer	Annual	Collecting Grasshoppers & Yellowjackets	N/D	Sapir
Pit River	Upper Elevation	Sept./Oct.	2 to 3 years	Driving Deer to Hunters	Men	Merriam
Shasta	Hillsides	November	Annual	Driving Deer To Hunters	N/D	Holt, Dixon
Shasta	Lower Elevation	Summer	Annual	Collecting Grasshoppers	N/D	Holt
Shasta	Lower Elevation	N/D	Annual	Better Wild Seed & Tobacco Crops	N/D	Silver
Shasta	Lower to Upper Elev.	N/D	N/D	Basketry Material/Hazel	N/D	James

Use of Fire by Tribe

Tribe	Environmental Zone	Season	Interval	Purpose	Perpetrator	Source
Klamath/Pit	Upper Elevation	Summer/Fall	N/D	Driving Deer to Hunters	N/D	Harrington
Umpqua/Kalapuya	Lower Elevation	Summer	Annual	Gathering Tarweed Seeds	Women	Riddle
Umpqua/Kalapuya	Lower Elevation	September	Annual	Maintain Prairies, Grasslands	N/D	Eld, Emmons
Umpqua/Kalapuya	Upper Elevation	September	N/D	Harass Invaders	Men	Wilkes
Karok	Upper Elevation	N/D	N/D	Promoting Huckleberries	N/D	Harrington
Karok	Lower to Upper Elev.	N/D	Bi-Annually	Basketry Materials, Hazel Deerbrush (Ceonothus)	N/D	Harrington, Schenck & Gifford, Bright
Karok	Upper Elevation	July	Annual	Basketry Material, Beargrass	N/D	Harrington, Schenck & Gifford, Fields
Karok	Upper Elevation	N/D	N/D	Propagate Wild Rice Plants (Grasses)	N/D	Harrington
Karok	Hillsides, Lower Elev.	Fall	Annual	Keep Tan Oak Stands Clean, Gather Tan Oak Acorns, Remove Tan Oak Parasites, Roast Acorns on Ground	N/D	Harrington, Schenck & Gifford
Karok	Mid Elevation	Summer	Annual	Growing Tobacco	Men	Harrington
Karok	Lower Elevation	Summer	Annual	Drive Away Rattlesnakes	N/D	Harrington
Karok	Lower to Upper Elev.	July/August	Annual	Propagate Hazel, Iris, Beargrass	Male Fire Specialist	Gifford
Karok	Upper Elevation (Mt. Offield)	August	Annual	Ceremonial Purposes (Prevent Death of Married People)	Male Fire Specialist	Gifford
Karok	Upper Elevation	Summer	Annual	Propagate Deer Through Range Improv.	Men	Gifford
Karok	Lower Elevation	Summer	Annual	Gather Tarweed Seeds	N/D	Schenck & Gifford
Yurok	Lower to Upper Elev.	Late Summer to Early Fall	Bi-Annual	Basketry Material, Hazel	N/D	O'Neale
Yurok	Lower Elevation	Late Summer to Early Fall	"Often"	Maintain Prairies for Deer & Elk	Men	Gould

Use of Fire by Tribe

Tribe	Environmental Zone	Season	Interval	Purpose	Perpetrator	Source
Yurok	Lower Elevation	Summer	Annual	Gather & Propagate Tarweed Ceremonial (Attract Salmon Upriver) Kepel Fish Weir	N/D	Kroeber
Yurok	Lower Elevation	Summer	Annual		Male Fire Specialist	Kroeber
Tolowa	Mid Elevation	Late Spring	Annual	Maintain Prairies for Hunting	N/D	Drucker
Tolowa	Low Elevation	Summer	Annual	Propagate Tobacco	Men	Drucker
Tolowa	Low Elevation	Summer	Annual	Burn Under Redwoods to Promote Growth of Basketry Materials, Fern Spruce Root, Hazel	N/D	Gould
Tolowa	Low Elevation	Fall	Annual	Remove Underbrush & Grass from Oak Groves; Cause Acorns to Drop, Kill Parasites	N/D	Gould, Driver
Tolowa	Low Elevation	N/D	N/D	Signal Fire. Help in Crossing Lake	N/D	Waterman
Tututni	Lower Elevation	Spring, Fall	Annual	Ceremonial (Attracting Salmon to River)	N/D	Hubbard
Tututni	Lower to Upper Elev.	Mid Summer	Annual	Promote Grass Growth to Attract Game	N/D	DuBois
Tututni	Lower to Upper Elev.	Mid Summer	Annual	Burn Hazel Patches to Collect Roasted Nuts	N/D	DuBois
Tututni	Upper Elevation	Fall	Annual	Burn Pitch from Sugar Pinecones; Cause Cones to Open for Seed Gathering	N/D	DuBois
Upper Coquille	Lower Elevation	August	Five-year intervals	Propagate Hazel Patches	N/D	Harrington
Upper Coquille	Lower Elevation	Mid Summer	Annual	Collect Tarweed Seeds, Sunflower Seeds	Young, Unmarried Men	Jacobs, Harrington
Upper Coquille	Lower Elevation	Mid Summer	Annual	Collect Hazelnuts	Young, Unmarried Men	Jacobs, Harrington
Upper Coquille	Upper Elevation	Fall	Annual	Maintain Berry Patches	Men	Jacobs
Upper Coquille	Upper Elevation	Fall	Semi-Annually	Remove Brush from Hunting Places	Men	Jacobs
Upper Coquille	Upper Elevation	Summer/Fall	Annual	Drive Deer into Traps	Men	Jacobs
Coos	Upper Elevation	June/July	Annual	Remove Underbrush from Hunting Places	Men	Jacobs

Chapter 6: Native Environment

The following section attempts to reconstruct the prehistoric environments of the Applegate and Illinois Rivers. Although it relies heavily upon interpretation of observations made by Euro-Americans who arrived in the area in the 1820s, the objective is to “view” the landscape before their arrival. The first portion of the chapter describes the vegetation communities of the region, including riparian zones, valley floors, valley slopes and foothills, mid-elevation zones, and upper elevation zones. Each zone is analyzed by first discussing historic descriptions of the Applegate and Illinois drainages, and then using comparative data from adjacent regions to fill in gaps in the record. The second part of the chapter provides data on the animal and fish populations that might have been available in the region.

VEGETATION COMMUNITIES

RIPARIAN ZONES

The Takelma referred to the Applegate River as “Beaver place.” (Sapir, 1907a, p. 256) John Harrington’s informants added to this description by describing the area around the mouth of the Applegate River as “swampland” and said that Hudson’s Bay Company trappers came here first to trap beaver. (Harrington, Reel 28) Such descriptions suggest a lush and wide riparian zone with an abundance of willow, ash and cottonwood.

James Cardwell, a prospector who traveled up the Applegate in search of gold in 1851, found “dense willow thickets,” “thick brush,” and “surrounding woods” at the mouth of the river. (Cardwell, 1879, p. 4) This description seems consistent with a dense riparian zone of conifers and hardwoods along the lower Applegate River.

Smaller tributaries of the lower Applegate River were also bordered by a lush growth of hardwoods. Daniel Giles, who operated a store at Ruch in 1853, described the vegetation along Forest Creek as “woods,” “brush and timber” and

"clumps of willows," and "oak trees." (Giles, 1946, p. 265) "Timber" most likely refers to conifer species rather than hardwoods. Another glimpse of vegetation patterns is provided by the letter of C.S. Drew, who was with a group of volunteers pursuing Indians in 1856 and was ambushed by Indians hiding in willows along Poor Man's Creek. (Drew, 1856)

Glimpses of riparian vegetation along the Illinois River are equally fragmentary. Captain A.J. Smith led a party of soldiers down the Illinois River between Kerby and Agness in 1856 and found "an abundance of game and water at intervals from three to ten miles." (A.J. Smith, 1856) Game was probably abundant around prairies, so this reference may mean that the river corridor was heavily vegetated for most of its length.

Miners at Althouse Creek signed a petition in 1856 complaining about the presence of Indians in the woods surrounding their community. (Miner's Petition at Althouse, 1856) Based on the present climax vegetation of the area, the woods may have consisted of a ponderosa pine forest with an understory of manzanita. (Franklin and Dyrness, 1973)

In 1855, Captain S. A. Frye described an encounter with Indians who hid in a large thicket of willows along Deer Creek. (Capt. S.A. Frye to Col. John E. Ross, Oct. 23, 1855) Alex Watts, a volunteer in the Rogue Indian War, also mentions extensive willow thickets of up to one-quarter mile in extent along Deer Creek as well as thick underbrush along the creek. (Watts, Grants Pass Daily Courier, 1923)

Better descriptions of riparian vegetation are available for the Rogue River, since it was the major travel corridor through this region, and was used throughout the historic era, while the Applegate and Illinois Rivers were infrequently visited by Euro-Americans until the early 1850s.

Peter Skene Ogden, a Hudson's Bay Company trapper who led an expedition into the Rogue Valley in 1827, described the Rogue River below the confluence of Bear Creek as being "well-wooded with Poplar Aspine and Willows." (LaLande, 1987, p. 72) Somewhere near Grants Pass, he described the riparian vegetation as "woody, Oaks and Pines of different kinds and a few Cedar Trees." (LaLande, 1987, p. 82) He also observed near Gold Hill that the south-facing side of the Rogue contained different vegetation than the north-facing side: "The Country on the opposite side is also less woody and hilly and Grass more abundant." (LaLande, 1987, p. 80) This description of the difference between north and south-facing areas is supported by a number of other descriptions throughout the historic era.

Another Hudson's Bay Company trapper, John Work, proceeded along the Rogue River on his way back from California in 1832. He described passing through "points of woods" with openings along the river below present-day Grants Pass. (Work, 1832)

Philip Edwards, herding cattle with the Ewing Young expedition in 1837, described the area between the river and hillsides near Gold Hill as "brushy" and the north-facing hillside as "covered with wood." (Walling, 1884, p. 186) However, he also mentioned an isolated grove of timber along the river surrounded by open ground into which a party of Indians took refuge.

A number of descriptions of riparian vegetation are provided by the journals of men traveling through the Rogue Valley with the U. S. Exploring Expedition in 1841. According to Charles Wilkes, the banks of the river near Grave Creek "are low and overgrown with bushes for some distance from the stream." (Wilkes, 1845, p. 122) William Brackenridge, botanist on the expedition, also found the banks "low and bushy near Gold Hill." This brush extended for over one quarter mile wide along the bank. (Brackenridge, 1931, p. 63)

In 1846, James Clyman provided one of the best descriptions available on the riparian vegetation of the Rogue River when he wrote "so far the valley of this stream is thickly covered in pine, cedar, and oak." He also mentioned the presence of sugar pine along the river in the vicinity of present-day Grants Pass. (Clyman, 1846)

Lindsay Applegate, a member of the 1848 expedition to blaze a wagon trail from the Willamette and Rogue Valleys to California, said of the area around Gold Hill, "the Indians in large numbers came out of the thickets on the opposite side." (Walling, 1884, p. 304)

S.H. Taylor, an early settler along Bear Creek, wrote in 1853 that "the poplar and poorer species of elm flourish along streams." (Taylor, 1921, OHQ) John Beeson, who settled at the confluence of Bear Creek and Wagner Creek in 1853, also wrote about the "thick brush that fringed the creek." (Beeson, 1857, p. 84)

The riparian zone along the Rogue near Agness was glowingly described by Dr. Lorenzo Hubbard in 1853 as "shaded by the flowering maple, myrtle, manzanita and mountain laurel. The honeysuckle and woodbine ornament the trees, while vines and flowers everywhere beautify the ground." (Hubbard, 1861)

Numerous descriptions of riparian zones along the Rogue River are available from the 1852-1856 period, when the Indian Wars raged. Volunteers crept through heavy chaparral along the Rogue near Table Rock to attack several Indian villages in January of 1852. (Walling, 1884, p. 203; Beeson, 1857, p. 53)

In August of 1853, a party of volunteers led by Joe Lane was attacked by Indians along Evans Creek. The Indians were hidden within a "fringe of willow" and retreated to a position in "the brush and amid fallen trees" when pursued. The following day, the Indians were found "encamped in a thick wood filled with underbrush and apparently impenetrable to horses." (Walling, 1884, p. 223) In 1854, Indians attacked two men near the mouth of the Applegate River. One was

killed, but the other was able to take refuge in a "thicket" and escape. (Walling, 1884, p. 229) Further downstream, in 1856, Joe Lane and a party of volunteers encountered Indians along Grave or Galice Creek, and they were able to escape in the "heavy chaparral." (Walling, 1884)

A number of descriptions are available of the Rogue River below Galice Creek during the Rogue River Indian War. In 1853, Captain A.J. Smith brought a company of dragoons upriver from Gold Beach to Table Rock "through devious trails, over fallen trees and through the almost impenetrable wildwood tangles along Rogue River." (Walling, 1884) William Lewis wrote to John Ross in 1855 that his volunteer company had been camped below the mouth of Galice Creek, and that the slope behind their camp was "covered with dense groves of fir and thickets of hazel." (Lewis, 1855)

Whiskey Creek was the scene of a battle between Indians and volunteers in November 1855. "The Indians within the dense cover of the trees along the south bank began firing, and the whites hurriedly left the bar and sought shelter in the brush." (Walling, 1884) Further downstream in the same month, Indians at Black Bar were on the south side of the river "covered with fir timber and brush so thick that we could not see them." The volunteers were on the north side, which was open except for a "few scattering trees." (Robbins, OHQ) In April of 1856, General Lamerick and his forces attacked an Indian village at "a bar of the river overgrown with willows." (Bancroft, 1886, p. 402)

The Applegate and Illinois River corridors probably had many of the same characteristics as the main Rogue drainage. Conifers were an important part of this zone, consisting of ponderosa pine along the Applegate River and the Upper Illinois, and Douglas-fir for the lower Illinois. North-facing riparian zones were definitely denser than south-facing areas. A brushy understory was typical of most areas, and dense thickets of willows were often found at the very edge of the rivers. Downed logs were also very common within this zone.

VALLEY FLOORS

As discussed previously, very few references exist for the vegetation of the Applegate and Illinois Valleys before 1856, because this area was visited infrequently by Euro-Americans before the discovery of gold in 1850. Many travelers provided descriptions about the adjacent Rogue Valley, however.

Daniel Giles, who managed a general store near present-day Ruch in 1853, provides the best glimpse of what the valley floor of the Applegate River might have looked like at the time of Euro-American contact. On a trip from Jacksonville to the Applegate River, he described the vegetation as "pine timber

and thick underbrush," but also "pretty open." (Giles, 1946, p. 266) A relatively open cover of ponderosa pine with an understory of manzanita is felt to be the climax vegetation of the Illinois Valley. (Franklin and Dyrness, 1973) Giles also "crossed a deep ravine that was full of brush" on the valley floor near present-day Ruch. (Giles, 1946, p. 266)

Two Athapascan names for the Illinois Valley relate to the abundance of camas found there. (Waterman, 1921, p. 21; Jacobs, Notebook 126) Camas grows in open meadows that are water-saturated for significant portions of the year. Such conditions would be fostered by annual burning of the valley floor to remove competing vegetation.

The first Euro-American description of the adjacent Rogue Valley is provided by Peter Skene Ogden, who in March of 1827 described the south end of the valley near present-day Ashland as containing oaks and pines. (LaLande, 1987, p. 60) This same area was also viewed by members of the U.S. Exploring Expedition in 1841, who provided differing opinions about the vegetation. Titian Ramsay Peale observed an Indian woman setting fire to the "prairie and mountain ravines" while Henry Eld apparently observed the same Indian woman "setting fire to the woods" and found traveling somewhat difficult in "the gullys where it was burning." (Boyd, 1986, p. 73) He was perhaps referring to a growth of Oregon white oak along the moister ravines, while the flat areas of the valley were open and covered with grass.

Peale also provided observations of several other portions of the Rogue River Valley. Downstream from Grants Pass, the valley was covered with "burnt woods and small patches of prairie," while further upstream near present-day Valley-of-the-Rogue State Park, he observed a broad prairie with scattered woods consisting of two species of oaks and sugar pine. (Peale, 1841)

After leaving the Rogue River near the mouth of Bear Creek and heading south, he described the landscape as "a rolling prairie which is bounded by low hills, resembling the scenery of the Willamette Valley." (Wilkes, 1841, p. 125) In 1846, Lindsay Applegate described the same area, when he wrote, "it seemed like a great meadow, interspersed with the groves of oaks which appeared like vast orchards." (Walling, 1884, p. 304)

The valley floor near Table Rock was described in 1853 as "thinly covered with majestic old pines and rugged oaks, with here and there a clump of green oak bushes." (Walling, 1884, p. 22)

Two descriptions provided by participants in the Rogue Indian War are also of interest in interpreting the vegetation patterns of the valley floor. In 1853, E. Steele described pursuing an Indian band along Bear Creek and having "an open plain to cross before passing into a thicket." (Steele, 1873, p. 5) Miles Alcorn wrote to Col. J. Ross in 1855, complaining about the Indians along Antelope Creek

being "inaccessible to us on account of the undergrowth and a deep canyon." (Alcorn, 1855)

The floor of the Rogue Valley at the time of white contact appears to have been largely grassland with widely dispersed groves of oaks and pines, and with brush-filled ravines in some areas. Oaks and pines would have been fairly abundant in moist areas, and almost absent in dry places with a southern exposure. This pattern was most likely the result of annual burning of the valley floor by Indians procuring tarweed and insects.

In the Applegate and Illinois Valleys, a less-pronounced version of this pattern was probably visible. The floors of both valleys were likely covered with scattered ponderosa pine, interspersed with open prairies and groves of Oregon white oak. Annual burning to obtain tarweed seeds and insects and to maintain root-gathering areas probably kept chaparral from creeping down onto the valley floor to any great extent.

VALLEY SLOPES

There are no known early historic descriptions of the slopes immediately adjacent to the valleys of the Applegate and Illinois Rivers. Numerous descriptions do exist for the adjacent Rogue Valley, and those will be reviewed to provide some insights into what might have been present in the study area.

Peter Skene Ogden, while traveling along the north bank of the Rogue River near Gold Hill in 1827, remarked that "the Country on the opposite side is also less woody and hilly and grass more abundant." (LaLande, 1987, p. 80) This pattern of south-facing slopes that are drier and covered with grass while north-facing slopes are wetter and covered with forests is dominant in the descriptions of Rogue Valley foothills.

In the same location in 1837, Philip Edwards describes a "stony and brushy pass between the river on our right, and a mountain covered with wood on our left..." (Walling, 1884, p. 198) James Clyman described it again in 1846, when he recorded: "These hills rise in a succession of rounded knolls one above another, generally covered with grass." (Clyman, 1846)

Members of the U.S. Exploring Expedition recorded several observations of the hills surrounding the Rogue Valley. Charles Wilkes's subordinates noted that the woods on the north side of the Rogue River, near Grave Creek, were not as thick as those at higher elevations, and that sugar pine were more common than in the forests they had been passing through between the Umpqua and the Rogue. (Wilkes, 1845, p. 123) Expedition member William Brackenridge observed that the foothills on both sides of the Rogue River near Gold Hill were "thinly

covered with pine trees." At the confluence of Bear Creek with the Rogue River, he wrote that "the country around is hilly with numerous oaks and *Pinus Lambertiana* (sugar pine) growing on them." For the area between Grants Pass and Grave Creek, he recorded that the countryside was similar to the area around Gold Hill, with the exception that oaks were more abundant. (Brackenridge, 1841, p. 63)

James Clyman provided a detailed description of the vegetation north of the confluence of Grave Creek with the Rogue River in 1846, including that the mountains were "dry, parched and covered with scrubby pine and several kinds of evergreen shrubbery, some of a beautiful appearance and would grace a walk in any city." (Clyman, 1846)

S. H. Taylor observed the pronounced difference between north- and south-facing slopes in view of Bear Creek: "On the southern slopes of the mountains, grass, much of it clover, takes the place of timber, while the northern slopes are covered with pine, (mainly pitch pine) fir and yellow cedar...." (Taylor, 1853, p. 151) He further stated that chaparral formed the vegetation of upper valley slopes. (Taylor, 1853, p. 156)

The character of vegetation on the upper slopes of the Rogue Valley was aptly described by Indian Agent Samuel Culver in 1855 when he complained to Joel Palmer, "The country is composed of narrow valleys and mountains covered with timber, and an undergrowth so dense they (the Indians) can conceal themselves within a few yards of persons passing or pursuing...." (O'Donnell, 1991, p. 224)

Slopes of the valley further to the west appear to have been more lushly vegetated. According to William Lewis, writing about a volunteer army camp at the mouth of Galice Creek in 1855, "the mountain was covered with dense groves of *Quercus* and thickets of hazel." (Lewis, 1855) The mountains around Battle Bar were described as "densely timbered with manzanita, live-oak, chinquapin and chaparral, with occasional bald, grassy hillsides..." (Bancroft, 1886, p. 402)

Based on data from the Rogue River Valley, north-facing slopes of the Applegate and Illinois Valleys were probably covered with an open stand of ponderosa and sugar pines and occasional Douglas-fir. South-facing slopes were covered with grass except along ravines where oaks and chaparral occurred along with scattered ponderosa pine. Exposure to intense summer heat was probably largely responsible for this pattern, but annual burning of valley floors and slopes by the Da-ku-be-te-de and the Gu-sla-dada kept chaparral and Douglas-fir from becoming established to any great extent.

MID-ELEVATION FORESTS

Detailed descriptions of Applegate and Illinois mid-elevation forests are largely absent from available references, but excellent descriptions are available for forests immediately to the north of the Rogue River and extending towards the Umpqua River.

The only early historic written observations of the study area were made during, or later in regards to, the Rogue Indian War. William Martin wrote a letter to General Drew in the spring of 1856 describing the pursuit of a band of Indians "on a tributary of Applegate in a brushy deep and steep canyon" and of later discovering their camp "on the steep mountain side of the canyon of heavy timber." (Drew, 1856) This was in the vicinity of Yale Creek. Another group of volunteers, in pursuit of a band of Indians along Murphy Creek, was forced to dismount and follow the Indians on foot through the timber. (Beeson, 1857, p. 75) Tipsu Tyee, a Shasta chief, was said to live in "a brushy kingdom in the hills." (Walling, 1884, p. 211) These descriptions are consistent with the model proposed by LaLande of a mature coniferous forest at mid-elevations on the Applegate. (LaLande, 1995, p. 63)

Further to the west, the area around Deer Creek was the center of conflicts between whites and Indians during the war. Volunteers led by Captain O'Neil and Major Bruce encountered Indians on the east slopes of Eight Dollar Mountain in the spring of 1856, and they became "so scattered around in the brush that it was almost impossible to find him." (Letter to the Oregon Sentinel, 1856) Walling's description of this battle concluded:

A hundred or more of the readiest fighters ever known among the Indians of this continent held with determination the hill and the thick woods and successfully barred the way. (Walling, 1884, p. 265)

A further description of this zone includes the following about the pursuit of a band of Indians who had stolen some mules from the Hunter brothers: "The thieves were followed for three days, over rough mountains, across creeks and through jungles and at last traced to an Indian Village on Illinois River." (Walling, 1884, p. 265) Joel Palmer described the mountains around the Illinois Valley covered with "a growth of scrubby pine and a variety of underbrush." (Palmer, 1854) All of these descriptions are consistent with a forest of knobcone pine and Jeffrey pine on the serpentine soils of Eight Dollar Mountain, and of ponderosa pine in areas of better soils.

Descriptions of another battle fought in November of 1855 at "Hungry Hill," near Wolf Creek, provide glimpses of what early vegetation patterns were like in mid-elevation zones north of the Rogue River. John Ross, in a letter to Charles Drew, wrote of the battle: "It was on the summit of a high mountain, the south side being bald with some underbrush. The north side of the mountain being heavy timber and thick underbrush in which the Indians fell back." (Ross, 1856) Harvey Robbins, who participated in the same battle, said it was on a "high mountain, which was covered with timber and a thick growth of chaparral and manzanita brush." (Robbins, 1855)

Walling said of this area a few years later:

The mountains thereabout presented almost insuperable obstacles to the transportation of troops and supplies by reason of their steepness, the number of deep gorges which intersect them, and the dense forests by which their sides are clothed. Underbrush of the densest kind abounds... (Walling, 1884, p. 255)

He further wrote that it was "a land of canyons, narrow valleys, steep mountain sides and thick woods." (Walling, 1884, p. 250) General George Crook also described it as "a thick, bushy country...." (Crook, 1960, p. 29)

Earlier descriptions by Peter Skene Ogden and William Brackenridge serve to confirm the nature of the landscape around Wolf Creek. In 1827, Ogden found it to be "a most hilly and woody country" while Brackenridge described the area as "well-wooded, with tracts of prairies between." (LaLande, 1987, p. 87; Brackenridge, 1931, p. 62)

Vegetation patterns of mid-elevation mountains between Wolf Creek and Canyonville were described in great detail in the journals of the men participating in the United States Exploring Expedition of 1841. Titian Ramsay Peale reported the mountains of this region as "very steep and covered with spruce and lambert (sugar) pine trees, with a thick growth of arbutum (madrone) and dogwood," and two days later as "round hills covered by () and long pacific pines, yew, spruce, cedar, and arbutum trees, with a thick undergrowth" and "crossing a mountain covered with thick brush..." (Peale, 1841)

Charles Wilkes described the following features about the same area:

The path was quite narrow, and lined with dense underbrush....On the top was a small grassy plain....The whole range is thickly wooded, with a variety of trees, among which are the *Pinus Lambertiana* (the first time it has been met with it), Oaks, *Arbutus*, *Prunus*, *Cornus*, Yew, Dogwood, Hazel, *Spiraea*, and *Castanea*. (Wilkes, 1845)

Expedition botanist William Brackenridge observed the same vegetation in his journal, which appears to have been copied by Wilkes. (Brackenridge, 1931, pp. 61-62)

The Applegate brothers also found these mountains to be extremely brushy and covered with a dense forest in 1846. Lindsay Applegate, after exploring the canyon south of Canyonville where Interstate Highway 5 is located today, wrote that it was "filled with a thick growth of scrubby trees and underbrush requiring much labor to cut away." (Bancroft, 1886, p. 545)

These descriptions seem consistent with that of a fairly uniform mature coniferous forest with a brushy understory at mid-elevations in southwestern Oregon. North-facing slopes were heavily timbered, while south-facing slopes were covered with chaparral and oak, but with pine present as well. Small prairies were present in scattered locations, but most of this zone was vegetated. Native American use was probably limited as well, and natural fires caused by lightning at ten to twenty year intervals were of greater significance than were deliberately-set fires.

UPPER ELEVATION FORESTS

Descriptions of upper elevation forests in the Applegate drainage are almost non-existent, except for the afore-mentioned citation by Walling that Tipsu Tyee, a Shasta chief, was said to live in "a brushy kingdom" somewhere near the headwaters of the Applegate River. One general ethnographic description of the area is found in the notebooks of Melville Jacobs, who interviewed Hoxie Simmons several times between 1935 and 1939. Simmons told Jacobs about a young man who had been taken as a slave by the Klamaths, but who escaped and attempted to return to his people along a trail that followed the Siskiyou Summit from east to west. He eventually reached the Red Buttes area, where his people always hunted elk, and was able to find his way home. His clothes were completely worn out by all the brush he had to make his way through. (Jacobs, Notebook 3)

Several well-detailed descriptions are present in the historic record of vegetation along the Oregon-California trail that passed over the Siskiyou Mountains a few miles east of the Applegate drainage. Philip Edwards described the trail in this area:

Brushy and difficult. Had much difficulty in ascending the brushy hill....we now had much difficulty in driving through the dense wood.

Down the brushy hill for about a mile, we then gained a prairie and as there was a gentle declivity nearby for all the afternoon we traveled without much further difficulty. (Edwards, 1837, p. 41)

Members of the U.S. Exploring Expedition in 1841 described the ridges of this region as "covered with red cedar and buckthorn timber" and as "densely covered with brushwood." (Peale, Brackenridge)

James Clyman, a mountain man and explorer who traveled down the Oregon-California Trail in 1845 and back to Oregon in 1846, provided the best description of this area when he wrote:

Followed around the rough brush and up a few miles and again descended to a small prairie, where we now encamped, having traveled 15 miles of unaccountable difficulty. Now faced a high steep mountain covered with brush and logs, fir and cedar timber...the mountains, steep, rugged and brushy...descended the mountains, not quite as high as the first, but very difficult on account of the logs and undergrowth...some parts of these mountains have beautiful groves of pine, fir and cedar but apparently too remote to be useful.....at the bottom of which opens a small valley of handsome prairie.....we ascended a mountain of no great elevation, but very brushy. (Clyman, 1845)

Lindsay Applegate confirmed the presence of timber stands in this area in 1846 when he observed, "we moved on down through the heavy forests of pine, fir, and cedar, and encamped early in the evening, in a little valley, now known as Round Prairie." (Walling, 1884, p. 305).

This landscape appears to have been extremely diverse, with prairies, brushfields, downed logs, and open stands of pine, fir, and cedar. Such a landscape is typical of areas that have been manipulated through Native American burning. Two resources which benefitted from this manipulation were beargrass and herds of big game.

The mountains to the north and west of the Illinois River were well-described by several individuals just before and during the course of the Rogue River Indian war. L.L. Williams, who participated with William T'Vault in the ill-fated attempt to blaze a trail from Port Orford to Jacksonville in 1851, wrote that "the mountains generally appeared to be heavily timbered, but occasionally a bald hill or a high rock pinnacle might be seen shooting up tower-like towards the sky..." (Williams, 1851, p. 3)

Captain Edward Ord, on an expedition to attack Indians at the mouth of the Illinois River in 1856, described the present Kalmiopsis Wilderness area as "mostly timbered." (Ord, 1856, p. 13) General George Crook, pursuing Indians in

the area of Lawson Butte, noted that "the country was brushy." (Crook, 1961, p. 33) William Tichenor, who contracted with the government in 1858 to round up Tututni Indians in the present Kalmiopsis Wilderness area, said "they began to steal away their families there and to secret them in the forests high in the mountains." (Tichenor, 1883, p. 84) On a later trip into the Kalmiopsis area at the head of the Winchuck River, he followed an Indian trail to the top of a ridge "and got on top of the mountain and it was flat, grassy land...." (Tichenor, 1883, p. 105)

Upper elevation zones in the Applegate and Illinois drainages appear to have been covered with a mature forest of fir, pine, and cedar. Much of it probably had an open understory, with brushfields located on south-facing slopes. Lightning-caused fires are infrequent in this zone, so the frequent descriptions of prairies can probably be attributed to Native American burning practices.

FISH AND WILDLIFE POPULATIONS

Large herds of deer and elk existed in this country in the time before and during white contact. The Applegate people specialized in hunting these animals, perfecting the use of brush fences and snares to take large quantities of deer in the fall, and the driving of herds of elk into ravines, where they could be killed with arrows or spears. Hoxie Simmons remembered that many of both species were killed each fall in the Applegate uplands. (Jacobs, Notebook 3)

Peter Skene Ogden noted the abundant presence of deer and elk in his 1827 travels through the Rogue and Umpqua Valleys. His first observation was made near present-day Ashland, where he wrote: "The natives inform us that deer are abundant in the hills and mountains...from their being all well clad in leather I can well believe them..." (LaLande, 1987, p. 60) Most explorers found deer and elk to be more abundant in the mountains, perhaps because the valleys were burned on an annual basis and little browse was available.

After reaching the confluence of Bear Creek with the Rogue River on February 15, Ogden stated in his journal that "we saw two small herds of white tail deer." (LaLande, 1987, p. 67) This species of deer usually lives along river bottoms in heavy cover, typical of what the Rogue River's original riparian vegetation might have been.

Ogden recorded on March 7 that the area between Bear Creek and Evans Creek was "well stock'd with black tail deer and no doubt in the mountains red deer." (LaLande, 1987, p. 82) The reference to "red deer" is to elk, the term most Europeans used for this species. The absence of elk in river valleys may have been the result of intense pressure from native hunters.

Another observation was made on March 15 near Jumpoff Joe Creek, where the country "was woody and well stock'd in red and black tail deer." (LaLande, 1987, p. 86) Populations of both species were probably higher in the uplands, which contained more cover and diversity than the river valleys and was further away from Native settlements.

In the fall of 1841, Titian Ramsay Peale noted the presence of large herds of elk in the burned woods of the Umpqua mountains, and along the Rogue River near Grants Pass. He traveled "over burned woods and small patches of prairie abounding in Blacktail deer." (Peale, 1841) Much of the burning that he witnessed may have been associated with Native American range management.

Passing through the Rogue Valley in the spring of 1846, James Clyman stated that "the nations of this valley seem to have a hard way of living, there being no game and few roots..." (Clyman, 1846) Although it seems contradictory that he saw no game in the same area in which Peale and Ogden saw so many, it may be due to the movement of deer into the valley during the fall to take advantage of the white oak crop of acorns, and winter movement into the forested uplands. Hoxie Simmons also noted the movement of deer from the Applegate uplands into the river valley in the fall, perhaps for the same reason. (Jacobs, Notebook 3)

Reverend Gustavus Hines remarked on the abundance of elk in the Umpqua Valleys in 1850, concluding that "the elk abound in this country, and afford a fruitful source whence the Indians derive a subsistence." He also noted "the land on the hills, and in many of the valleys, being covered with a spontaneous growth of the most nutritious grass." (Hines, 1850, p. 112) Annual burning of valley floors by the Umpquas for the collection of grass, sunflower, and tarweed seeds probably accounted for the existence of this "spontaneous" growth of grass and the absence of competing brush or conifers.

The association of grass and an abundance of game animals was also made by two early visitors to the South Fork of the Coquille River. Dr. John Evans wrote glowingly about the prairies in this vicinity:

Timothy (wild) is very abundant in this and other prairies passed through, and is from three to five feet high; other grasses filling up the prairie and so dense as to render walking difficult is from two to two and a half feet....The woods are filled with elk, deer and black bear, and there is not want for meat. (Evans, 1856, p. 3)

Dr. Henry Hermann provided the following description of the hills along the South Fork of the Coquille:

Denuded of timber by forest fires, and they were called prairies. They afforded a heavy growth of grass, which was green and thrifty, every month of the year. Deer and elk were roaming over these hills in large bands... (Hermann, 1859)

The Upper Coquille Indians were likely responsible for these prairies, because they burned the valley annually to collect tarweed seed and to promote the growth of grass for better deer and elk hunting. (Jacobs, Notebook 104)

William Wells, a reporter for Harper's Monthly, visited southwestern Oregon in 1856 and told his Eastern readers:

The world offers no better hunting-grounds than these wild woods of the north. Here are found a variety of deer, and the brown and black bear....The stately elk, with such antlers as the hunters of the eastern states have no conception of, runs in bands of hundreds in the interior... (Wells, 1856, p. 600)

Captain A.J. Smith, U.S. Army, also found deer and elk in abundance along the Illinois River in 1856. Leading a group of soldiers down river from Kerby towards present-day Agness, he "found quite a good trail with an abundance of game and water at intervals from three to ten miles." (A. J. Smith, 1856) He probably was referring to prairies scattered along the river, where game would have been concentrated. Such areas were probably maintained through periodic burning by the Gu-sla-dada.

Wolves were also plentiful, judging from historic and ethnographic accounts. More than 50 of Ogden's horses were run off by wolves while he was traveling up the Applegate Valley. (LaLande, 1987, p. 108) Wells observed that "the black, gray, and white wolf" were all found in the forests of southwestern Oregon. (Wells, 1856, p. 600) The Galice Creek people regarded wolves as friends and allies of men, and told several myths about this relationship. (Drucker, 1937, p. 284; Waterman, 1921)

Bear populations were also bountiful throughout southwestern Oregon. Peter Skene Ogden wrote that his trappers had seen seven bears along Cow Creek, and that "from the number of tracks I have lately seen I believe them to be numerous in this quarter; it is a fine country for them, Acorns being most abundant and Roots also." (LaLande, 1987, p. 97) Although Ogden does not say so, it is probable that at least some of these animals were grizzlies.

Hoxie Simmons said "there were lots of grizzlies at Rogue River and from there south..." (Harrington, Reel 28) He also remembered that:

It is an old Indian saying that if an Indian kills 10 grizzlies then a grizzly is certain to kill the Indian. The only exception to this saying is John Adams' father, who at Rogue River killed 40 grizzlies with bow and arrow. (Harrington, Reel 28)

This must have been unusual, since the title of one Applegate myth was "Grizzly bear ate up one young man." (Jacobs, Notebook 126)

Beaver were probably abundant before the advent of the fur trade. The Takelma word for the Applegate River is "Beaver place." (Sapir, 1907a, p. 256) The swampy bottoms along the lower Applegate and upstream and downstream from its confluence with the Rogue attracted French-Canadian trappers working for the Hudson's Bay Company at an early date. (Harrington, Reel 28) Ogden found no such abundance of beaver along the Applegate or Rogue, however, when he wrote:

I now feel more than ever anxious to leave this country being now more than ever firmly of opinion it is not a Beaver one nor was it ever intended it should be one. (LaLande, 1987, p. 108)

The Takelma did use beaver hides for arrow quivers and caps (LaLande, 1987, p. 60) and probably for other items of clothing as well.

One animal that Ogden did find to be plentiful was the raccoon. He observed that "raccoons are certainly numerous in this Country...scarcely a day passes but some are taken in the traps." (LaLande, 1987, p. 61) The presence of a well-wooded riparian zone along the Rogue River would have been a favorable habitat for this species.

Jackrabbits were also plentiful in the Rogue Valley, and probably in the Applegate Valley as well. Charles Wilkes's party observed in 1841:

A species of rabbit or hare was seen in great numbers on the high prairie; their large ears had somewhat the appearance of wings. The Indian mode of capturing them is by constructing a small enclosure of brush, open on one side, and having a small hole through the opposite side, into which they are driven. (Wilkes, 1841, p. 125)

This species would have flourished on the open floors of valleys, and likely benefitted from the annual field burning practiced by the Takelma and Da-ku-be-te-de.

The only reference to squirrels comes from Dr. Lorenzo Hubbard, who wrote that the banks of the Rogue River near present-day Agness contained:

A number of acres of alluvial soil, shaded by the flowering maple, myrtle, manzanita, and mountain laurel. The honeysuckle and woodbine ornament the trees, while vines and flowers everywhere beautify the ground. The deer and the hare feed in security in this sequestered spot, and the fox squirrels sport in great numbers, unmolested in the branches of the myrtle. (Hubbard, 1861)

The fox or silver gray squirrels were probably present in prolific numbers throughout the oak woodlands of this region, which were expanded considerably by Indian burning.

Salmon, steelhead, trout, and eels were all quite abundant in various portions of the Rogue River and its tributaries. Peter Skene Ogden wrote of the upper Rogue River near Bear Creek in February of 1827 that "dead salmon are most numerous in all the small rivers and the natives are busily employed in collecting them no doubt for food..." (LaLande, 1987, p. 67) In 1841, Wilkes's subordinates observed Indians spearing salmon from canoes along the Rogue upstream from Grave Creek and described it as:

A beautiful stream, upwards of one hundred yards in width, with a rapid current, flowing over a gravelly bottom at a rate of three miles an hour; it abounds in fish, on which the Indians principally subsist... (Wilkes, 1841, p. 122)

John Beeson also noted the abundance of fish in the upper Rogue in 1853 when he wrote about the varieties of food available to the Takelma, including "swarms of mountain trout and salmon, which in some seasons, abound in almost every creek." (Beeson, 1857, p 25) Another reference to trout is provided by Daniel Giles, who explored the Illinois Valley in 1853 and described Deer Creek as "a fine clear running stream well stocked with mountain trout." (Giles, 1946, p. 256)

Visitors to the lower Rogue River were also favorably impressed with the abundance of salmon. Describing subsistence practices of the Tututni, Dr. Lorenzo Hubbard recorded:

Fishing is a favorite employment, and they are more expert in this art than any other, particularly salmon fishing. The streams abound with salmon, and in the season, vast numbers of these fish are taken and preserved for use during the months that none are caught. (Hubbard, 1861)

Dr. Rodney Glisan, a surgeon stationed at Fort Orford during the mid 1850s, said of the Tututnis:

Their staple article of food is the salmon, which are as plentiful in the Oregon rivers as herring and shad in the Potomac; Rogue River especially abounds in them...One haul with a seine at the mouth of the river, when the tide is setting in, is sufficient to last twelve hundred Indians a fortnight. (Glisan, 1874, p. 249)

Ethnographic accounts also provide some clues about the historic fish runs on the Rogue River. Takelma informant Frances Johnson told John Harrington that her father once caught 300 salmon in one night at the falls on Grave Creek. (Harrington, Reel 28)

There was also some variation in species availability on various tributaries of the Rogue, judging from remarks made by informants Hoxie Simmons and Frances Johnson. Simmons recounted to Melville Jacobs:

The Gu-sla-dada were the people at the head of the Illinois River...The Gu-sla-dada had a type of very large chinook salmon which turned and ran up the Illinois River but did not go further up the Rogue River. (Jacobs, Notebook 128)

Johnson remembered that a "short and chunky" salmon entered the Rogue when leaves began to come out on the trees, and the coho salmon, or "hookbills," appeared in the upper Rogue in early September. She also observed the presence of large numbers of steelhead in the Applegate River. (Harrington, Reel 28)

Adjacent rivers also abounded in anadromous fish runs. George Riddle said of Cow Creek, a tributary of the Umpqua:

The silver salmon came in such multitudes in the fall runs that they were easily taken at the falls of Cow Creek...When the fall rains came sufficient to raise the river two or three feet, the great run of salmon would come day and night. Crowding up under the falls hundred of them being in sight at one time. (Riddle, 1953, p. 44)

Eels were another important fish resource to the peoples of the Rogue Basin. Wolverton Orton informed John Harrington that "my father said that when they had the run of eels in Illinois River, which was in June or July, Indians made fence and dipped eels out with dipnet." (Harrington, Reel 25) Eels were taken in such large quantities at Two Mile Riffle, above Agness, that Orton said "when the eels were being caught up at the place upstream of Shasta Costa, they said the blood of eels is flowing, meaning the river had turned into eel blood

when they were cleaning eels." (Harrington, Reel 26)

Eels apparently did not go much further upstream than the area around Blossom Bar, however. Frances Johnson felt that no eels were present on the upper river, and that her people had never fished for them. (Harrington, Reel 28)

In summary, there may have been some differences in the fish runs on the Illinois and Applegate Rivers that affected native populations. The Illinois had a run of very large salmon that would have been prized for food. The most distinctive feature of the Applegate was the abundance of steelhead, which are small, and migrate during the winter, when the river would have been high and fishing difficult. They also were not particularly prized as food, perhaps because of their lack of body fat as compared with salmon. Coquille Thompson said of the Upper Coquille: "Steelhead come in Christmas. They don't dry like chinook and silverside -- they're not going to keep fish much longer. They go back home before steelhead come." (Jacobs, Notebook 116)

Eels were also available on the Illinois but not on the Applegate River. This was an important food resource that was dried and used throughout the winter, so its absence on the Applegate could have had some impact on carrying capacity.

CONCLUSIONS

Vegetation Communities

- **Riparian Zones.** Conifers were an important part of the riparian zones along the Applegate and Illinois Rivers and their tributaries. These consisted of Ponderosa pine along the Applegate River and the upper Illinois, and Douglas-fir for the lower Illinois. North-facing riparian zones were much more dense than south-facing areas. A brushy understory was typical. Dense thickets of willows were often found at the very edge of the rivers. Downed logs were common.
- **Valley Floors.** The floors of both the Applegate and Illinois Valleys were covered with scattered ponderosa pine, interspersed with open prairies and groves of Oregon white oak. Annual burning to obtain tarweed seeds and insects and to maintain root-gathering areas probably kept chaparral from creeping down onto the valley floor.
- **Valley Slopes.** North-facing slopes of the Applegate and Illinois Valleys were covered with an open stand of ponderosa and sugar pines and an occasional

Douglas-fir. South-facing slopes were covered with grass, except along ravines where oaks, chaparral and scattered ponderosa pine occurred.

- **Mid-elevation forests.** The mid-elevation zone was covered with a fairly uniform, mature coniferous forest with a brushy understory. North-facing slopes were heavily timbered. South-facing slopes were covered with chaparral and oak. Small prairies were present in scattered locations, but most of this zone was vegetated. Native American use was limited, and natural fires caused by lightning at ten-to-twenty-year intervals were of greater significance than deliberately-set fires.

- **Upper Elevation Forests.** Upper elevation zones in the Applegate and Illinois drainages were covered with a mature forest of fir, pine and cedar. Much of it probably had an open understory, with brushfields located on south-facing slopes. The presence of a fair number of prairies in this zone during historic times can probably be attributed to Native American burning, since lightning-caused fires are infrequent at upper elevations. This was perhaps the most diverse of all the environmental zones, with prairies, brushfields, downed logs and open stands of pine, fir and cedar. Many plant and animal resources flourished because of the diversity, including root crops, herds of big game, and plants used for basketry.

Fish and Wildlife Populations

- **Deer, elk and bear.** Deer, elk and bear populations were much higher before or at the time of white contact, as were the wolves who preyed upon them. Much of this can be attributed to the positive effects of Native American burning practices, which provided for a highly diverse landscape with many ecotones.

- **Beaver.** Beaver existed in large numbers along the Applegate River before the arrival of whites. The Illinois may not have supported appreciable populations of this species. Other mammals such as raccoons probably thrived in the well-wooded riparian zones along both streams.

- **Rabbits and squirrels.** Rabbit and squirrel populations may have been considerable in both the Illinois and Applegate valleys. Jack rabbits, described as being abundant in the Rogue Valley, would also have flourished on the open floors of valleys kept that way through annual burning by Native Americans. Silver gray squirrel numbers would also have benefitted from the widespread presence of oak woodlands, enhanced by deliberately set-fires.

- **Aquatic species.** Salmon and steelhead populations were extremely high in both drainages. Salmon were, perhaps, more abundant in the Illinois River and steelhead more abundant in the Applegate River. One notable difference was the presence of large populations of lamprey eels in the Illinois River contrasted with their absence in the Applegate River.

Vegetative Cover

Riparian Zones

<u>Location</u>	<u>Description</u>	<u>Source</u>
Applegate		
Forest Creek	Brush and timber	Giles
Forest Creek	Clump of willows	Giles
Forest Creek	Oak trees	Giles
Mouth of Applegate River	Heavy growth of willows; dense willow thicket; thick brush, surrounding woods	Cardwell
Between Jacksonville & Ruch		
Mouth of Applegate River	Willows	C.S. Drew
Applegate River	Swamp land, beaver place	Harrington
Illinois River		
Deer Creek	Willows	S.A. Frye
Deer Creek	Thicket, 1/4 mile of brush, thick underbrush	Alex Watts
Illinois below Selma	Abundance of game and water at intervals from 3 to 10 miles	A.J. Smith
Rogue Valley		
River near Upper Table Rock	Surrounding chaparral	Beeson
Below Grants Pass	Points of woods	Work
Gold Hill	Brushy pass, small grove	Edwards
Galice or Grave Creek	Dense chaparral	Lane
Upper Bear Creek Valley	Brush	Walling
Evans Creek	Fringe of willows, brush amid fallen trees, Bulrushes, thick wood filled with underbrush	Walling
Near Mouth of Applegate	Thicket	Walling
Gold Hill	Thickets	Applegate
Mouth of Bear Creek-Rogue	Well-wooded with poplar, aspen & willow	Ogden
Evans Creek - Grants Pass	Well wooded, woody, oaks & pines of different kinds & a few cedar trees	Ogden
Grave Creek -- Grants Pass	Thickly covered with pine, cedar & oak	Clyman
General Rogue Valley	Tree-fringed water courses	Walling
Near Grave Creek	Banks overgrown with bushes	Wilkes
Bear Creek-Wagoner Creek	Thick brush that fringed creek	Beeson
Gold Hill	Banks generally low & brushy	Brackenridge
Gold Hill	Bush for 1/4 mile on both sides road	Brackenridge
Bear Creek	The poplar & poorer species of elm flourish along streams	S.H. Taylor
Middle Rogue		
General	Over fallen trees and through the almost impenetrable wildwood tangles along Rogue River	Walling, A.J. Smith
Whiskey Creek		
Winkle Bar - Battle Bar	Dense cover of trees along South Bank, brush	Walling
	Narrow strip of bottomland covered with rank grass and brambly shrubs; bar of river overgrown with willows	Bancroft

Riparian Zones

<u>Location</u>	<u>Description</u>	<u>Source</u>
Middle Rogue Agness	Alluvial soil, shaded by flowering maple, myrtle, manzanita & mt. laurel. Honey suckle and woodbine ornament trees while vines and flowers everywhere beautify the ground	Hubbard
Agness	Thicket, thick timber	Glisan

Valley Floor

<u>Location</u>	<u>Description</u>	<u>Source</u>
Applegate		
Ruch	Pine timber & thick underbrush	Giles
Forest Creek	Pretty open, woods	Giles
Ruch	Ravine full of brush	Giles
Illinois		
Illinois Valley	Lots of camas	Harrington, Waterman
Althouse Creek	Woods	Miner's Petition
Rogue Valley		
Upper Table Rock	Thick shrubbery	Walling
Table Rock	Thickly covered with majestic old pines & rugged oaks	Walling
Table Rock	Brush	Walling
Lower Table Rock - Ashland	Great meadow, interspersed with the groves of oaks which appear like vast orchards	Applegate
Near Ashland	Oak & pine	Ogden
Grave Creek	Prairie	Peale
Below Grants Pass	Small patches of prairie	Peale
Valley of the Rogue	Woods here consist of () and a long, broad prairie between 2 species of oak, 1 Lambert pine	Peale
Lower Table Rock	Brush	Peale
Lower Bear Creek	Open plain to cross before passing into thicket	Steele
General Rogue Valley	Grassy plains	Walling
Bear Creek	Rolling prairie, resembling scenery of Willamette Valley	Wilkes
General Rogue Valley	Level part of the valley adjoining river is generally prairie land, with occasional scattered Black pine and Black and White Oak of stunted growth	Annual Report Chief Engineers
Edge of Agate Desert	Inaccessible to us on account of undergrowth and a deep canyon	Miles Alcorn
Near Ashland	Passing through wood	Eld
Near Ashland	Prairie	Peale

Valley Foothills

<u>Location</u>	<u>Description</u>	<u>Source</u>
Rogue Valley		
Gold Hill	Mountain covered with wood	Edwards
Gold Hill	Country on opposite side is also less woody and hilly and grass more abundant	Ogden
Merlin	Wood of different kinds and the white pine of an extraordinary size	Ogden
Near Grave Creek	Mountains dry, parched & covered with scrubby pine and several kinds of evergreen shrubbery	J. Clyman
Grave Creek - Grants Pass Trail - Prospect	Hills covered with grass	J. Clyman
General Rogue Valley	Brush	Steele
General Rogue Valley	Wooded Slopes	Walling
Near Grave Creek	Mountains covered with timber & an underbrush so dense they can conceal themselves	Culver
Near Grave Creek	Wood was not as thick, Pinus Lamertiana more common	Wilkes
Bear Creek Confluence with Rogue	Country around is hilly with numerous oaks & Pinus Lamertiana growing on them	Brackenridge
Gold Hill	Thinly covered with pine trees	Brackenridge
Grants Pass-Grave Creek	Country similar with perhaps larger quantity of oaks	Brackenridge
Bear Creek - Southern Rogue Valley	Chaparral, the crookedest, ugliest, & most obstinate bush you ever saw, forms the upland undergrowth	S.H. Taylor
Bear Creek Valley	On Southern slopes, grass, much of it clover, takes place of timber, while northern slopes are covered with pine, mostly pitch pine, fir and yellow cedar	S.H. Taylor
Middle Rogue		
Galice Creek	Mountain covered with dense groves of fir and thickets of hazel	W. B. Lewis
Winkle Bar-Battle Bar	Densely timbered with manzanita, Live oak, chinquapin & chaparral with occasional bald, grassy hillsides	Bancroft
Black Bar	Side Indians on covered with fir timber & brush so thick we could not see them; Side we were on open with exception of few scattering trees	Robbins
Winkle Bar-Battle Bar	Dense growth of fir on opposite side	Kelsey

Mid-Elevation Forest

<u>Location</u>	<u>Description</u>	<u>Source</u>
Applegate		
Yale Creek	Brushy deep and steep canyon, of heavy timber	Wm. Martin
Murphy Creek	Brush	Oregon Sentinel
Murphy Creek	Timber	Beeson

Illinois River

Slopes of Eight Dollar Mountain	Brush	Oregon Sentinel
Slopes above Deer Creek	Growth of scrubby pine & variety of underbrush	Palmer
Slopes west of Deer Creek	Jungles	Walling
Slopes of Eight Dollar Mountain	Thick woods	Walling

Mts. North Side of Rogue River

West of Hungry Hill Prospect	Thick, brushy country Brush	Crook Beeson
Hungry Hill Region	Thick woods	Walling
West of Hungry Hill	Dense forests, underbrush of densest kind	Walling
Hungry Hill	South side bald with some underbrush; north side heavy timber & thick underbrush	J.E. Ross
Hungry Hill	Covered with timber & thick growth of chaparral and manzanita brush	Robbins
Wolf Creek	Most hilly and woody country	Ogden
Mts. NW of Evans Creek	Brushy, enemy encamped in thick wood filled with underbrush	Walling
Mts. North of Grave Creek	Well-wooded with tracts of prairie between	Brackenridge

Mts. Between Rogue & Klamath Basins

Mts. north of Happy Camp	Woods much more open, a variety of timber; firs and pine being intermixed with various species of oaks, chestnuts, bay, madrona, great variety of oaks	McKee
--------------------------	---	-------

Umpqua Mts.

Canyonville to Wolf Creek	Covered with spruce & Lambert pine, with thick growth of arbutam, dogwood	Peale
Mts. between Canyonville and Wolf Creek	Hills covered with pines, yew, spruce, cedar & arbutus trees, with a thick undergrowth	Peale
Mts. between Canyonville and Wolf Creek	Wooded ridges, chaparral, thick growth of scrubby trees and underbrush	Applegate
Mts. between Canyonville and Wolf Creek	Dense underbrush, on top was a small, grassy plain, whole range is thickly wooded with a variety of trees, among which are Pinus Lamertiana, oaks, arbutus, prunus, cornus yew, dogwood, hazel, spirea and castanea	Wilkes
Mts. between Canyonville and Wolf Creek	Whole range densely wooded, with the following trees & shrubs: Pinus Lamertiana, Pinus sp., Pinus Ponderosa, Guercus Andromeda, Arbutus, Baurhamia, Gaultheria Shallon, prunus, cornus, mahonia, yews, dogwood, hazel, spirea castanea	Brackenridge

Upper-Elevation Forest

<u>Location</u>	<u>Description</u>	<u>Source</u>
Applegate		
Upper Applegate-Wagner Butte	Brushy Kingdom	Walling
Red Buttes	Brush	Jacobs
Illinois River		
Eastern Crest of Kalmiopsis	Flat, grassy land	Tichenor
Pearsoll Peak	Mostly timbered	Ord
Mts. N. of Illinois	Heavily timbered, occasional bald hill	Williams
Lawson Butte	Brushy	Crook
Pearsall Peak	Forest high in mountains	Tichenor
Mts. Between Illinois & Applegate	Covered with oak and chaparral	Sapir
Oregon Mt.	All brush	Harrington
Siskiyou Summits between	Sides covered with gigantic firs & chaparral	Anonymous
Applegate & Klamath		
Siskiyou Summit	Ridges covered with red cedar and buckthorn timber	Peale
Siskiyou Summit	High steep mountain covered with brush and logs, fir and cedar timber; brushy; some parts of these mountains have beautiful groves of pine, fir & cedar; at the bottom of which opens a small valley of handsome prairie	Clyman
Siskiyou Summit	Road brushy, brushy hill, dense wood, prairie	Edwards
Siskiyou Summit	Heavy forest of pine, fir & cedar	Applegate
Siskiyou Summit	Densely covered with brushwood	Brackenridge

Chapter 7: Recommendations

The following recommendations are made a part of this report to guide future study efforts and further test theories advanced in this document.

- 1. Location and testing of late Prehistoric sites.** More comprehensive surveys are needed to determine the location and distribution of late sites, which have been neglected in the search for earlier sites. Identification of late sites is critical for determining population levels prior to Euro-American arrival, which may have been much higher than historic and ethnographic data would suggest.
- 2. Floral and faunal analysis of deposits from late prehistoric sites.** Many unanswered questions remain about subsistence practices of Applegate and Illinois peoples. Floral and faunal analysis can help to determine types of species utilized and season of procurement. It can also help in efforts to reconstruct the environment at the time of habitation. An effort needs to be made to locate rock shelters, which have the best preservation of this data, or sites in moist environments, such as springs.
- 3. Obsidian sourcing.** Obsidian and other exotic materials found in late prehistoric and proto-historic sites need to be subjected to sourcing to determine probable origins. This can assist in testing the hypothesis that trade networks were an important part of subsistence strategies before the arrival of Euro-Americans.
- 4. Site/Vegetation associations.** Researchers have suggested that a definite pattern exists of sites occurring in association with oak groves. This needs to be substantiated through a deliberate regional sampling project, including testing of discovered sites to determine chronology.
- 5. Vegetation/Population associations.** Analysis of vegetation around identified areas of prehistoric population distribution is recommended. Most researchers feel that manipulation of the environment took place to a greater degree near villages. This may be a testable hypothesis. Some types of vegetation, such as canyon live oak, may still be present in forested areas and serve to mark environments that were once more open.

6. **Experimental fire studies.** Through the landscape experiments being conducted by the Takelma Inter-tribal project, studies could be initiated to determine the specific impacts of localized fires in different environmental zones. Techniques could be devised so that some portions of the environment could be returned to their original condition before Euro-American arrival. Project leader Dennis Martinez is already well under way in this effort.

Bibliography

- Agee, James. 1981. "Fire Effects on Pacific Northwest Forests: Flora, Fuels and Fauna." Paper presented at the Northwest Forest Fire Council, Portland, OR.
- Aikens, C. Melvin. 1993. Archaeology of Oregon. USDI. Bureau of Land Management, Portland, OR.
- Alcorn, Miles. 1855. Letter to J.E. Ross, MS, Bancroft Library, Berkeley, CA.
- Anderson, Kat. 1993. "Native Californians as Ancient and Contemporary Cultivators." Before the Wilderness. Ballena Press, Menlo Park, CA.
- Anonymous. 1856. Letter to Editor of the Oregon Sentinel, MS, Bancroft Library, Berkeley, CA.
- Anonymous. 1856. Petition from Miners at Althouse, MS, Bancroft Library, Berkeley, CA.
- Anonymous. 1856. "A True Portrait of the Miner," Siskiyou Pioneer, Siskiyou County Historical Society, Vol. 5, Union Printing Office, Yreka, CA.
- Anonymous. 1882. Article in the Port Orford Post, March 30, 1882.
- Anonymous. 1899. "The Ghost of Enchanted Prairie." Oregon Native Son, Vol. 1, No. 5.
- Anonymous. ND. Upper Takelma Field Notes, from Molly Orton and Elizabeth Harney. Notebook No. 135. Department and Museum of Anthropology, University of California, Manuscript University Archives, Bancroft Library, Berkeley.
- Applegate, Lindsay. 1921. "Notes and Reminiscences of Laying Out and Establishing the Old Emigrant Road into Southern Oregon in the Year 1846." Oregon Historical Quarterly, Vol. 22, No. 1, pp. 12-45.
- Atwood, Kay. 1978. Illahee. Kay Atwood, Ashland, OR.
- Atwood, Kay and Lang, Frank. 1995. Environmental History of the Evens Creek Watershed. Medford: USDI, Bureau of Land Management.
- Atzet, Thomas and Martin, Robert. 1991. "Natural Disturbance Regimes in the Klamath Province." Proceedings of the Symposium on Biodiversity of Northwestern California, October 28-30, 1991, Santa Rosa, CA.
- Atzet, Thomas and Wheeler, David L. 1982. Historical and Ecological Perspectives on Fire Activity in the Klamath Geological Province of the Rogue River and Siskiyou National Forests. (Publication R-6-Range-10) USDA Forest Service, Pacific Northwest Region, Portland, OR.
- Bancroft, Hubert H. 1883. The Works of Hubert Howe Bancroft: The Native Races. Vol. I. A.L. Bancroft and Company, San Francisco, CA.
- Bancroft, Hubert Howe. 1886. The History of Oregon. 2 vols. The History Company, San Francisco, CA.
- Baumhoff, Martin A. 1963. Ecological Determinants of Aboriginal California Populations. University of California Publications in American Archaeology and Ethnology. 49 (2): pp. 155-236. Berkeley, CA.

Bibliography

- Baumhoff, Martin. 1978. "Environmental Background" in Handbook of North American Indians. Vol. 8, California. Edited by Robert Heizer. Smithsonian Institution, Washington, D.C.
- Bean, Lowell and Lawton, Harry. 1993. "Some Explanations for the Rise of Cultural Complexity in Native California with Comments on Proto-Agriculture and Agriculture." Before the Wilderness. Ballena Press, Menlo Park, CA.
- Beeson, John. 1858. A Plea for the Indians, with Facts and Features of the Late War in Oregon. John Beeson. New York, N.Y.
- Berremen, Joel. 1937. "Tribal Distribution in Oregon." Memoirs of the American Anthropological Association, No. 47. Menasha, WI.
- Biswell, H.H. 1967. "The Use of Fire in Wildland Management in California." Natural Resources: Quality and Quantity. SV Ciriacy-Wantrup and J.J. Parson, eds. pp. 71-86. University of California Press, Berkeley, CA.
- Blackburn, Thomas C. and Anderson, Kat. 1993. "Environmental Management by Native Californians," Before the Wilderness. Ballena Press, Menlo Park, CA.
- Boag, Peter G. 1992. Environment and Experience: Settlement Culture in Nineteenth Century Oregon. University of California Press, Berkeley, CA.
- Booth, Percy. 1970. Valley of the Rogues. Josephine County Historical Society, Grants Pass, OR.
- Boyd, Robert T. 1986. "Strategies of Indian Burning in the Willamette Valley." Canadian Journal of Anthropology, 5: (Fall): pp. 65-86.
- Brackenridge, W.D. 1931. The Brackenridge Journal for the Oregon Country. Edited by O.B. Sperlin. University of Washington Press, Seattle, WA.
- Brauner, David R. and Labow, Clayton. 1983. The Reevaluation of Cultural Resources Within the Applegate Lake Project Area. Jackson County, Oregon; Phase III: Data Recovery at 35JA42. Report on file at the Department of Anthropology, Oregon State University, Corvallis, OR.
- Bright, William. 1978. Handbook of North American Indians. Vol 8. California. Edited by Robert Heizer. Smithsonian Institution, Washington, D.C.
- Buchanon, Robert. 1856. Letter Report on Rogue River Campaign April 1, 1856. National Archives, Washington, D.C.
- Cardwell, James A. 1879. Emigrant Company. MS P-A 15, Bancroft Library, Berkeley, CA.
- Carloni, Ken. 1995. Paper presented at the 1995 State of Jefferson Conference.
- Casey, Silas. 1851. Letter Report to Colonel S. Hooker. October 24, 1851. National Archives, Washington, D.C.

Bibliography

- Casey, Silas. 1851. Silas Casey Report to Colonel S. Hooker. November 24, 1851. National Archives, Washington, D.C.
- Chartkoff, Joseph L. and Chartkoff, Kerry L. 1975. "Late Period Settlement of the Middle Klamath River of Northwest California". American Antiquity 40(2), pp. 172-179.
- Chartkoff, Joseph L. 1989. "Exchange, Subsistence and Sedentism Along the Middle Klamath River." Research in Economic Anthropology II. Edited by B. Isaac. pp 285-363. JAI Press, Greenwich, CT.
- Clark, S. A. 1905. Pioneer Days of Oregon History, Vol. 1. Portland, OR.
- Clyman, James. 1846. Diary of James Clyman. MS CE-98, Bancroft Library, Berkeley, CA.
- Connolly, Thomas; Benjamin, Jane; O'Neill, Brian, and Jenkins, Dennis. 1994. Archaeological Investigations at Two Sites on the Upper Rogue River (35JA189 and 35JA190) Southwest Oregon, University of Oregon Anthropological Papers 48, Eugene, OR.
- Cram, Thomas Jefferson. 1855. Topographical Memoir of Department of the Pacific. U.S. Congress, House Executive Document No. 114, 35 Cong., 2 sessions. RG 77: Records of the Office of the Chief of Engineers, National Archives, Washington, D.C.
- Crook, George. 1960. General George Crook: His Autobiography. Martin Schmitt, ed. University of Oklahoma Press, Norman, OK.
- Culver, Samuel. 1855. Letter from Samuel Culver to Joel Palmer. July 20, 1855. 33rd Cong., 2nd Session, p. 292, National Archives, Washington, D.C.
- Curtis, Edward. 1924. The North American Indian, 13. pp. 3-112. Plimpton Press, Norwood, MA.
- Davies, K.G. ed. 1961. Peter Skene Ogden's Snake Country Journal. 1826-1827, Vol. 23. Hudson's Bay Record Society Publications, London, England.
- Detling, Leroy E. 1961. "The Chaparral Formation of Southwestern Oregon, with Consideration of Its Postglacial History." Ecology, Vol. 42, No. 2.
- Detling, L.E. 1962. "Historical Background of the Flora of the Pacific Northwest." University of Oregon Museum of Natural History Bulletin, 13: 1-57.
- Dixon, Roland B. 1907. The Shasta (Bulletin #17) American Museum of Natural History, N.Y.
- Dodge, Orvil O. 1898. Pioneer History of Coos and Curry Counties, Oregon. Capitol Printing Co., Salem, OR.
- Douglas, David. 1959. Journal Kept by David Douglas During his Travels in North America. 1823-1827. Antiquarian Press, Ltd., New York, N.Y.
- Draper, John A. 1988. "A Proposed Model of Late Prehistoric Settlement Systems on the Southern Northwest Coast, Coos and Curry Counties, Oregon." Ph.D. Dissertation, Washington State University, Pullman, WA.

Bibliography

- Drew, C. S. 1856. Letter, MS, Bancroft Library, Berkeley, CA.
- Driver, Harold E. 1939. "Culture Element Distributions X: Northwest California." University of California Anthropological Records 1(6): 297-433.
- Drucker, Philip. 1937. "The Tolowa and Their Southwest Oregon Kin." University of California Publications in American Archeology and Ethnology. Vol 36, pp 219-299.
- DuBois, Cora A. 1934. Ethnological Document No. 6. Department and Museum of Anthropology, University of California. Manuscripts in University Archives, Bancroft Library, Berkeley, CA.
- Edwards, Philip Leget. 1932. The Diary of Philip Leget Edwards: The Great Cattle Drive from California to Oregon in 1837. MS P-A 78, Bancroft Library, Berkeley, CA.
- Elliott, Thomas C. Captain Robert Gray's First Visit to Oregon. Oregon Historical Quarterly, Vol. p. 162.
- Evans, John. 1856. Diary. Smithsonian Archives, Smithsonian Institution, Washington, D.C.
- Farris, Glenn. 1993. "Quality Food: The Quest for Pinenuts in Northern California." Before the Wilderness. Ballena Press, Menlo Park, CA.
- Fields, V.M. 1985. The Hover Collection of Karok Baskets. Clarke Memorial Museum, Eureka, CA.
- Frachtenberg, Leo J. 1915. "Shasta and Athapascan Myths" from Oregon. Journal of American Folklore. Vol. 28, pp 224-242.
- Franklin, Jerry F. and Dyrness, C. T. 1973. Natural Vegetation of Oregon and Washington, Portland, OR: Pacific Northwest Forest Range and Experiment Station, U.S. Forest Service. General Technical Report PNW-8.
- Frye, S.A. 1855. Letter to Col. John E. Ross. MS, Bancroft Library, Berkeley, CA.
- Gifford, Edward W. 1939a. Karok Field Notes. Pt. 1 (Ethnological Document No. 174) Department and Museum of Anthropology, University of California Bancroft Library, Berkeley, CA.
- Giles, Daniel. 1946. Autobiography of Daniel Giles. Coos County Historical Society, North Bend, OR.
- Glisan, Rodney. 1874. A Journal of Army Life. A.L. Bancroft & Co., San Francisco, CA.
- Goddard, Pliny Earl. n.d. Galice/Applegate Ethnographic Notes, 1904. Box 104 of the Melville Jacobs Collection. Archives of the University of Washington, Seattle, WA.
- Goddard, Pliny Earl. n.d. Tolowa Texts and Tales (Ethnological Document No. 7) Department and Museum of Anthropology, University of California. Manuscripts in University Archives, Bancroft Library, Berkeley, CA.
- Gould, Richard A. 1975. "Ecology and Adaptive Response Among the Tolowa Indians of Northwest California." Journal of California Anthropology 2 (2): pp. 148-170.

Bibliography

- Gray, Dennis. 1985. "The Takelma and Their Athapascan Kin: An Ethnographic Synthesis of Southwestern Oregon." Master's Thesis on file at Oregon State University, Corvallis, OR.
- Hall, Betty. 1990. "Faces of the Shasta People: Who We Were and Who We Are -- The Shasta Nation." Living with the Land, Southern Oregon Historical Society, Medford, OR.
- Hannon, Nan and Olmo, Richard K., editors. 1990. Living with the Land: The Indians of Southwest Oregon. Proceedings of the 1989 Symposium on the Prehistory of Southwest Oregon, Southern Oregon Historical Society, Medford, OR.
- Hannon, Nan. 1990. Letter to Richard Hanes, September 23, 1990.
- Harrington, John P. 1932. Tobacco Among the Karok Indians of California. Bureau of American Ethnology Bulletin No. 94. Smithsonian Institution, Washington, D.C.
- Harrington, John P. 1981. The Papers of John Peabody Harrington in the National Anthropological Archives of the Smithsonian Institution, 1907-1957. (On microfilm). Krause International Publications, Millwood, N.Y.
- Hastings, Lansford W. 1932. The Emigrants' Guide to Oregon and California. Princeton University Press, Princeton, N.J.
- Heffner, Kathy. 1984. Following the Smoke. Contemporary Plant Procurement by the Indians of Northwest California. Sixes River National Forest, Eureka, CA.
- Heizer, R.F. and Elsasser, A.B. 1980. "The Natural World of the California Indians." California Natural History Guide No. 46, University of California Press, Berkeley, CA.
- Hewes, Gordon W. 1947. "Aboriginal Use of Fishery Resources in Northwestern North America" Ph. D. Dissertation, Anthropology Department, University of California, Berkeley, CA.
- Hines, Gustavus. 1850. History of the Oregon Missions. George H. Derby and Co., Buffalo, N.Y.
- Holt, Catherine. 1946. Shasta Ethnography. University of California Anthropological Records. Vol. 3, No. 4, pp. 298-349.
- Hubbard Lorenzo. 1861. MS, University of California Bancroft Library, Berkeley, CA.
- Hughes, Richard. 1990. "The Gold Hill Site: Evidence of a Prehistoric Socioceremonial System in Southwestern Oregon." Living With the Land, Southern Oregon Historical Society, Medford, OR.
- Jacobs, Elizabeth. 1935. Upper Coquille Ethnologic Notes. Notebooks 71, 104, 116, 119, 120, 121. Jacobs Collection. Archives of the University of Washington, Seattle, WA
- Jacobs, Melville. 1932. Coos Ethnologic Notes, Notebook 92, Box 56, of the Jacobs Collection. Archives of the University of Washington, Seattle, WA.
- Jacobs, Melville. n.d. Galice Creek Field Notes of Melville Jacobs. Box 104 Number 1693-71-13 of the Melville Jacobs Collection. Archives of the University of Washington, Seattle, WA.

Bibliography

- Jacobs, Melville. n.d. Field Notes Collected from Ida Mecum. Manuscript on file at the University of Oregon, Eugene, OR.
- Jones, Sgt. (EOC Ord) 1856. "Soldiering in Oregon." Harper's Magazine.
- Kentta, Robert. 1995. Personal Communication.
- Kelly, Robert. 1991. Sedentism, Sociopolitical Inequality, and Resource Fluctuations in Between Bands and States. Edited by Susan Gregg. Center for Archaeological Investigations Occasional Paper No. 9.
- Kroeber, Alfred L. 1925. Handbook of the Indians of California. Bureau of American Ethnology Bulletin 78.
- Kroeber, Alfred L. and Gifford, Edward. 1949. World Renewal: A Cult System of Native Northwest California. University of California Anthropological Records 13 (1): 1-155.
- Kroeber, Alfred L. and Barrett, Samuel A. 1960. "Fishing Among the Indians of Northwestern California." University of California Anthropological Records, No. 21 (1): pp. 1-210.
- Kroeber, Alfred L. 1975. Yurok Myths. University of California Press, Berkeley and Los Angeles, CA.
- Kroeber, Alfred L. and Gifford, Edward. 1980. Karok Myths. University of California Press, Berkeley, CA.
- LaLande, Jeffrey. 1980. Prehistory and History of the Rogue River National Forest: A Cultural Resources Overview. USDA Forest Service, Medford, OR.
- LaLande, Jeffrey. 1987. First Over the Siskiyou: Peter Skene Ogden's 1826-1827 Journey Through the Oregon-California Borderlands. Oregon Historical Society Press, Portland, OR.
- LaLande, Jeffrey. 1990. "The Indians of Southwestern Oregon: An Ethnohistorical Review." Living with the Land. Southern Oregon Historical Society, Medford, OR.
- LaLande, Jeffrey. 1991. "The Indians of Southwestern Oregon: An Ethnohistorical Review." Anthropology Northwest: No. 6. Oregon State University Department of Anthropology, Corvallis, OR.
- LaLande, Jeffrey. 1995. An Environmental History of the Little Applegate River Watershed. USDA Forest Service, Medford, OR.
- Landrum, Francis S. 1971. "A Major Monument: the Oregon-California Boundary." Oregon Historical Quarterly, Vol. 72, Oregon Historical Society Press, Portland, OR.
- Leiberg, John B. 1900. "The Cascade Range and Ashland Forest Reserves and Adjacent Regions." Extract from the 21st annual report of the U.S. Geological Survey, 1899-1900; Part V, Forest Reserves. Government Printing Office, Washington, D.C.
- Lewis, Henry T. 1973. Pattern of Indian Burning in California: Ecology and Ethnohistory. Ballena Anthropological Papers, Vol. 1. Ballena Press, Ramona, CA.
- Lewis, Henry T. 1990. "Reconstructing Patterns of Indian Burning in Southwestern Oregon." Living with the Land: The Indians of Southwest Oregon. Southern Oregon Historical Society, Medford, OR.

Bibliography

- Lewis, William B. 1855. Letter from William Lewis to John E. Ross November 21, 1855. MS, Bancroft Library, Berkeley, CA.
- Liberman, Kenneth. 1990. "The Native Environment: Contemporary Perspectives of Southwestern Oregon's Native Americans." Living with the Land. Southern Oregon Historical Society, Medford, OR.
- Little Applegate River Watershed Analysis. 1995. USDA and USDI, Medford, OR.
- Loud, Llewellyn L. 1918. Ethnography and Archaeology of the Wiyot Territory. University of California Publications in American Archaeology and Ethnology 14 (3).
- Lux, Linda. n.d. A History of Human Influences in California's Wildland Ecosystem. Draft R5 EM Guidebook.
- McCarthy, Helen. 1993. "Managing Oaks and the Acorn Crop." Before the Wilderness. Ballena Press, Menlo Park, CA.
- MacCleary, Doug. 1994. Understanding the Role That Humans Have Played in Shaping America's Forest and Grassland Landscapes. Evergreen, August, pp. 11-19.
- Mack, Joanne. 1990. "Archaeology of the Upper Klamath River." Living with the Land. Southern Oregon Historical Society, Medford, OR.
- Mack, Joanne M. 1991. Upper Klamath River Canyon Prehistory. In Klamath River Canyon Prehistory and Ethnology, by J.M. Mack and others. U.S. Bureau of Land Management Cultural Resource Series No. 8, Portland, OR.
- Mack, Joanne. 1995. "The Prehistory of the Upper Klamath River: What Happens After A.D. 900." Paper presented at the 1995 Society of California meetings.
- Maloney, Alice Bay. 1944. "Fur Brigade to Bonaventura: John Work's California Expedition of 1832-'33 for the Hudson's Bay Company." California Historical Society Quarterly, Vol. 23, No. 2, pp. 123-146.
- Martin, William. 1856. Letter from William Martin to General Drew, June 8, 1856. MS, Bancroft Library, Berkeley, CA.
- Martinez, Dennis. 1993. "Back to the Future." Paper presented at the Watershed Perspective on Native Plants Conference, Olympia, WA.
- Martinez, Dennis. 1994. "Takelma Intertribal Projects Update," November, 1994. Applegate Partnership Newsletter.
- Martinez, Dennis. 1993. Managing a Precarious Balance: Wilderness Versus Sustainable Forestry. Winds of Change: American Indian Education and Opportunity, Summer, pp 23-28.
- Merriam, C. Hart. n.d. Miscellaneous Field Notes transferred to microfilm., Bancroft Library, Berkeley, CA.

Bibliography

- Miller, Jay and Seaburg, William. 1990. Athapascans of Southwestern Oregon. Handbook of North American Indians. Vol. 7, Northwest Coast, edited by Wayne Suttles. Smithsonian Institution, Washington, D.C.
- Miller Joaquin. 1873. Life Among the Modocs: Unwritten History. R. Bentley and Son, London, England.
- Morris, William M. 1934. "Forest Fires in Oregon and Washington." Oregon Historical Quarterly, Vol. 35.
- Nesmith, James. "A Reminiscence of the Indian War, 1853." Oregon Historical Quarterly, Vol. 7.
- Nicholls, Lou Ann; Brauner, David and Smith, Shelly. 1983. Archeological Test Excavations of Ten Upland Sites on the Applegate Ranger District. Department of Anthropology, Oregon State University, Corvallis, OR.
- Nilsson, Elena and Kelly, Michael. 1991. Prehistory of the Upper Rogue River Region: Archaeological Inventory and Evaluation Within the Elk Creek Lake and Lost Creek Lake Project Areas, Jackson County, Southwest Oregon. By Mountain Anthropological Research, Chico, CA for the U.S. Army Corps of Engineers, Portland District, Portland, OR.
- O'Donnell, Terence. 1991. An Arrow in the Earth. Oregon Historical Society Press, Portland, OR.
- Olmo, Richard. 1990. "Small Streams, Great Expectations." Living with the Land, Southern Oregon Historical Society, Medford, OR.
- O'Neale, L.M. 1932. Yurok-Karok Basket Weavers. University of California Publications in American Archaeology and Ethnology 32(1): 1-184.
- Ord, E.O.C. 1970. Ord's Diary in Curry County, Oregon, 1856. H.J. Newhouse, Gold Beach, OR.
- Palmer, Joel. 1853. Letter from Superintendent Joel Palmer to George Manypenny, Commissioner of Indian Affairs, October 8, 1853. National Archives, Washington, D.C.
- Palmer, Joel. 1854. Annual Report of the Superintendent of Indian Affairs. National Archives, Washington, D.C.
- Poesch, Jessie. 1961. "Titian Ramsay Peale and His Journals of the Wilkes Expedition." American Philosophical Society Memoirs, Vol. 52, Philadelphia, PA.
- Parrish, Josiah L. 1854. An Early Report of Southwestern Oregon Indians to House of Representatives 33rd Congress, 2nd Session. National Archives, Washington, D.C.
- Pettigrew, Richard. 1990. "New Pathways for Research in Southwest Oregon Archaeology." Living With the Land, edited by Nan Hannon and Richard Olmo. Southern Oregon Historical Society, Medford, OR.
- Pfeiffer, Ida. 1856. A Lady's Second Journey Round the World. Harper & Bros, New York, NY.
- Powers, Stephen. 1877. Tribes of California Contributions to North American Ethnology 3. U.S. Geographical and Geological Survey of the Rocky Mountain Region., Washington, D.C.

Bibliography

- Riegel, Gregg; Smith, Bradley, and Franklin, Jerry. 1993. "Foothill Oak Woodlands of the Interior Valleys of Southwestern Oregon." Northwest Science, Vol. 66, No. 2.
- Reinhart, Herman Francis. 1962. The Golden Frontier: The Recollections of Herman Francis Reinhart, 1851-1869. Doyce B. Nunis, ed. University of Texas Press, Austin, TX.
- Riddle, George W. 1953. Early Days in Oregon: A History of the Riddle Valley. Riddle Parent-Teachers' Association, Riddle, OR.
- Robbins, Harvey. "Journal of Rogue River War, 1855." Oregon Historical Society Quarterly, Vol. 34.
- Rogers, Harrison. 1918. Second Journal of Harrison G. Rogers. Ashley-Smith Explorations and the Discovery of a Central Route to the Pacific, 1822-1829, ed. by Harrison Clifford Dale. The Arthur H. Clarke Co., Cleveland, OH.
- Ross, John. 1856. Letter from John E. Ross to Charlie Drew. MS, Bancroft Library, Berkeley, CA.
- Sapir, Edward. 1907a. "Notes on the Takelma Indians of Southwestern Oregon." American Anthropologist, New Series, Vol. 9, No. 2, pp. 251-275.
- Sapir, Edward. 1907b. "Religious Ideas of the Takelma Indians of Southwestern Oregon." Journal of American Folklore, Vol. 20, pp. 33-49.
- Schenck, Sara M. and Gifford, Edward. 1952. Karok Ethnobotany. University of California Anthropological Records 13 (6) pp. 377-392, Berkeley, CA.
- Schoolcraft, Henry R. 1851-1857. Historical and Statistical Information Respecting the History, Condition and Prospects of the Indian Tribes of the United States. 6 Vols. Lippincott, Grambo, Philadelphia, PA.
- Silver, Shirley. 1978. "Shastan People." Handbook of North American Indians, Vol. 8, California. pp 211-224. Smithsonian Institution, Washington, D.C.
- Smith, A.J. 1856. Letter from A.J. Smith to General W.J. Chambers, April 8, 1856. National Archives, Washington, D.C.
- Smith, A.J. 1856. Letter Report from A.J. Smith on Battle of Big Bend. National Archives, Washington, D.C.
- Sobel, Elizabeth. 1995. "Myth, Ritual and Resource Stress Among the Klamath and Modoc." Paper presented at the 1995 Society of California Archaeology meetings.
- Steele, E. 1873. "Personal Experiences with the Indians of Northern California and Southern Oregon Since 1850." Manuscript on file, Bancroft Library, Berkeley, CA.
- Suttles, Wayne. 1971. "Coping With Abundance: Subsistence on the Northwest Coast." Man the Hunter, pp. 56-68, ed. Richard B. Lee and Irvin Devore.

Bibliography

- Swezey, Sean L. and Heizer, Robert F. 1993. "Ritual Management of Salmonid Fish Resources in California." Before the Wilderness, Blackburn and Anderson, eds., Ballena Press, Menlo Park, CA
- Taylor, S.H. 1921. "Oregon Bound 1853." Oregon Historical Quarterly, Vol. 22, No. 2.
- Thomas, Jack Ward. 1994. Statement of Dr. Jack Ward Thomas, Chief of the U.S. Forest Service, before the Subcommittee on Agricultural Research, Conservation, Forestry and General Legislation, U.S. Senate, August 29, 1994, Washington, D.C.
- Thompson, Lucy. 1916. To the American Indian. Eureka, CA.
- Tichenor, William. 1878. Among the Oregon Indians. MS P-A 84, Bancroft Library, Berkeley, CA.
- Todt, Donn L. 1990. "Clues to Past Environments: Relict and Disjunct Plant Distributions Along the California-Oregon Border." Living with the Land: The Indians of Southwest Oregon, edited by Nan Hannon and Richard Olmo, pp. 71-79. Proceedings of the 1989 Symposium on the Prehistory of Southwest Oregon, Southern Oregon Historical Society, Medford, OR.
- U.S. Corps of Engineers, 1879, Annual Report of the Chief Engineer to the Secretary of War for the Year 1879, Part II. pp. 1860. Government Printing Office, Washington, D.C.
- Victor, Frances Fuller. 1894. The Early Indian Wars of Oregon. State Printer, Salem, OR.
- Walling, A.G. 1884. History of Southern Oregon, Comprising Jackson, Josephine, Douglas, Curry and Coos Counties. A.G. Walling, Portland, OR.
- Waring, R.H. 1969. "Forest Plants of the Eastern Siskiyou: Their Environmental and Vegetational Distribution." Northwest Science, Vol. 43, No. 1.
- Waterman, T. T. 1920. "Yurok Geography," University of California Publications in American Archaeology and Ethnology. University of California Press, Berkeley, CA.
- Waterman, T.T. 1921. The Athapascan Indians of Southwestern Oregon and Northwestern California. Notebook on File, Bancroft Library, Berkeley, CA.
- Watts, Alex. 1923. Story of Alex Watts, cited in the Grants Pass Daily Courier, April 3, 1935.
- Wells, William V. 1856. "Wild Life in Oregon." Harper's New Monthly Magazine, Vol. 13, pp. 588-608.
- Whittaker, R.H. 1960. "Vegetation of the Siskiyou Mountains, Oregon and California." Ecological Monographs, Vol. 30, No. 3.
- Wilkes, Charles. 1845. Narrative of the United States Exploring Expedition During the Years 1838, 1839, 1840, 1841, 1842. Lea and Blanchard, Philadelphia, PA.
- Williams, Lorin L. 1878. First Settlements in Southwestern Oregon. T'Vault's Expedition. MS P-A 77, Bancroft Library, Berkeley, CA.

Bibliography

- Wilson, Ken. 1993. National Register nomination for Pappas Flat, Six Rivers National Forest, USDA, Eureka, CA.
- Winthrop, Kathryn R. 1993. "Prehistoric Settlement Patterns in Southwest Oregon." Ph.D. dissertation. Department of Anthropology, University of Oregon, Eugene, OR.
- Wright, Ben. 1855. Letter from Ben Wright, Special Sub-Indian Agent, to Joel Palmer, Superintendent in Indian Affairs. December 3, 1855. Port Orford, OR.
- Zowada, Larry. 1993. Sterling Creek Drainage -- Buncom Project Area. USDI, Bureau of Land Management, Medford, OR.
- Zyback, Bob. 1988. "The Great Fires of the Oregon Coast Range. 1770-1933." Manuscript on File with College of Forestry, Oregon State University, Corvallis, OR.
- Zyback, Bob. 1994. "Voices in the Forest: An Interview with Bob Zyback." Evergreen, March/April, pp. 7-22.

Index to the Appendix

I. Appendix I - Cultural Overview, including subsistence	
	<u>Pages</u>
Language	1-2
Specific village locations	2-5
Population estimates	5-7
Population of adjacent tribes	7-8
House and sweatlodge construction	8
Ceremonials	8-14
Girls' puberty dance	8-10
Wealth display dance	11-12
Hunting and fishing rituals	12-14
Subsistence practices	
Hunting	14-20
Animal populations	
Deer and elk	20
Water-dwelling small mammals	20
Upland dwelling small mammals	20
Large carnivores	21
Waterfowl	21
Fishing	21-26
Fish conservation	27
Eels	27-28
Gathering	29-42
Acorns	29
White oak	29-30
Black oak	30-31
Tanoak	31
Sadler oak	31-32
Hazel	32
Myrtle	32-33
Chinquapin	33
Madrone	33-34
Manzanita	34-35
Tarweed	35-36
Grass seed	36
Sunflower	36
Sugar pine	36-38
Camas	38-39
Other roots	39-41
Shoots	41-42
Berries and fruits	42

I. Appendix I - Cultural Overview, including subsistence (continued)

	<u>Pages</u>
Basketry and technology	42-45
Relative importance of resources	45-49
Seasonal round	50-52
Variability of the resource base	52-53
Periodic scarcity	54-56
Intermarriage/trade to avoid starvation	57-63
Marriage	57-58
Trade	58-62
Warfare	62-63

II. Appendix II - Land management overview, including use of fire

Applegate/Illinois	1
Rogue	1-2
Shasta	3-4
Umpqua/Kalapuya	4-5
Karok	5-8
Yurok	9-10
Tolowa	10-11
Tututni	11-12
Coquille	12-13
Coos	13
Native American concern over use of fire	14-15
Limited effects of burning on the landscape	15-18
Desired condition of environment	19-24
Other types of management or control	24-26
Limited use of the landscape	26-27

III. Appendix III - Native environment, including historic references

Valley Floor/Riparian Vegetation	
Applegate Valley	1-3
Illinois Valley	3-4
Upper Rogue Valley	4-10
Rogue & Illinois Rivers below Galice Creek	11-12
Klamath River/Scott Valley	12-13
South Fork Coquille River	13-14
Cow Creek/Umpqua Valley	14-17
Upland Vegetation	
Applegate Mountains	17-18
Illinois Mountains	18-20
North Rogue Mountains	20-22
Siskiyou/Klamath Mountains	22-25
Umpqua Mountains	25-27
Lower Rogue - western mountains	27-31

Appendix I

Cultural Overview, including subsistence

APPLEGATE/ILLINOIS TRIBES AND VILLAGES

LANGUAGE

1. "The environment of the Takelma, taken in connection with their language and the location of their villages, deserves careful study, as it seems to point to a remarkable condition of affairs. It is probable that the Takelma were once the occupants of a territory larger than that just described, and that later on there was an invasion by the Athapascans, who established villages on all sides of them, and imposed Athapaskan names on the Takelma villages, though they never succeeded in forcing the Takelma to abandon their language." John Harrington Field Notes, Reel 27, Frame 27
2. "Wholly within the Lower Takelman territory were two isolated Athapaskan bands who probably deserve classification as a single tribe. They were the Galice Creek band, designated by Dorsey as Taltuctuntude, and the Applegate band, designated as Da-ku-be-te-de. The two bands were not contiguous in territory, but they spoke the same dialect, which was quite distinct from other groups. Their actual relationship to each other is not known, but their linguistic similarity may indicate that it was close. The Handbook conjectures that they were intruders among the Takelmas." Joel Berreman in *Tribal Distribution in Oregon*, 1937, p. 29
3. "The other substantive territorial boundary issue resulting from the analysis and synthesis of material from the ethnographic accounts is this researcher's hypothesis that Lowland Takelma territory did not extend south of the Rogue River to the crest of the Siskiyou between the mouths of the Applegate and Illinois Rivers. Thus the Applegate and Galice Athapascans should no longer be viewed as isolated linguistic groups surrounded by the Takelma, but can, in fact, be seen as the eastern-most extension of Athapaskan-speaking people, whose combined territories extended from the Pacific Ocean to the upper Applegate River drainage." Dennis Gray in *The Takelma and Their Southwest Oregon Kin*, 1985, p. 119
4. "The tribe immediately east of the Cheet on the Oregon side of the California-Oregon border is called Ka-ka-sha. Another name Chee-ne also is given. The Ka-ka-sha live near Waldo on the north side of the Siskiyou Mountains and speak a language widely different from that of the Hah-wun-kwut. They are said to be lighter in color than coast Indians." C. Hart Merriam, Reel 114, Bancroft Library Manuscripts Collection
5. "The Shasta occupy an extensive area of Northern California, overlapping into Southern Oregon where they extended from Applegate River on the west, easterly beyond Medford and Ashland to the Cascades, and southerly over the Siskiyou into California." C. Hart Merriam, Reel 130, Bancroft Library Manuscripts Collection
6. "Galice and Applegate is pretty near the same only the voice is different and a few things are called wholly different." John Harrington Field Notes, Reel 28, Frame 160
7. "Mrs. Spencer Scott, living half way between Logsden and Siletz Agency, 80 years old in 1933, is a full blooded Applegate Indian and is last one living. She talks Applegate language, which is pretty near the Galice Creek Indian language." Harrington, Reel 28

8. "By accepting the thesis of Takelma nuclear territory essentially north of the Rogue River between the Applegate and Illinois Valleys, the territorial positions of the Applegate River and Galice Creek Athapascan cultures become more easily determined. Instead of isolated linguistic groups surrounded by an alien tongue, there would have existed Athapascan nuclear territories centered in prominent drainages, with intervening Athapascan peripheral exploitation zones." Gray, 1985, p. 46
9. "Of the three significant tributary drainages south of the Rogue and west of Bear Creek (i.e., the Applegate River, Galice Creek and the Illinois River), each was reported ethnographically to be inhabited by Athapascan speakers. The intervening territory is steep mountainous terrain suitable for seasonal resource exploitation, but not likely as an area for semi-permanent settlement." Gray, 1985, p. 40
10. "Hoxie says Crescent City, Chetco, Upper Coqwel, and taking in Hoxie's mother's people, is one language with dialects." John Harrington, Reel 28
11. "The Gu-sla-dada were the people at the head of the Illinois River. John Poncy was the last one of these people at Siletz. These people talked a dialect intelligible to Galice-Applegate. Thus, the Illinois, Galice, and Applegate formed one dialect group. The Gu-sla-dada had a type of very large chinook salmon which turned and ran up the Illinois River but did not go farther up the Rogue River." Notebook 128, p. 94, Melville Jacobs Collection, University of Washington
12. "All of the groups appearing in this work are Athapascan with the exception of the Takelma, whose idiom occupies an anomalous position, being recognized on the Powell map as a separate linguistic stock. The exact location of the frontier between the Takelma and the other groups, particularly the Chasta Costa, is a matter that has been somewhat mooted. The two principal commentators are J.O. Dorsey and E. Sapir. The matter is rehearsed rather carefully (though far from clearly) in a paper by the latter author.
"The difficulty over which these authorities labor consists in the fact that J.O. Dorsey happened to record Athapascan names for the Takelma villages. Dorsey explains this occurrence by devising a theory that certain Athapascan groups invaded the territory of the Takelma, and imposed a series of names in an Athapascan tongue on the enemy settlements. Sapir, on the other hand, feels sure that Dorsey is wrong; that the latter's Athapascan informants merely clothed the names in an Athapascan garment, in place of giving them properly. Meanwhile, it is a positive fact that every group in this part of the world has a series of names in their own tongue, for all the towns and other important places, in the territory of each of their neighbors, and so the difficulty disappears." Waterman, 1921, pp. 11-12

SPECIFIC VILLAGE LOCATIONS

1. "There were only 2 tribes up the Illinois River." Wolverton Orton, Informant for John Harrington, Reel 26, Frame 856
2. "...Hu-de-dut, the village of Evans Bill's mother, was at the forks of Rogue River and Applegate Creek, but Applegate Creek was claimed by an Athapascan people, the Da-ku-be-te-de." John Harrington, Reel 26, Frame 713
3. "According to E-ne-a-ti, a Tutu, the Chasta Costa territory began at the junction of a stream called E-ne-ti, with Rogue River. What stream is called Eneti is uncertain. The Illinois River is too far west, and Applegate Creek can hardly be intended, unless, as I suspect, Ta-Tci-qwut-tun; should be on the north side of Rogue River with the other Chasta Costa people; for Hudedut, a Takelma village, was located at the mouth of Applegate Creek." John Harrington, Reel 26, Frame 813

4. "Name of a place quite a ways up the Illinois River, Wolverton heard that this is the farthest village of Wolverton's language up the Illinois River—beyond there was a different language (which Lucy takes to be the Happy Camp language)" Wolverton Orton and Lucy Smith, Informants for John Harrington, Reel 26, Frame 859
5. "Tatmelmal—An Indian town a little below where the ferry boat crossed the mouth of Applegate Creek. Salwaxkan is where the ferryboat crosses Applegate Creek and Tatmelmal is field where Indians had village below (Illinoisward) of Salwaxkan...Tatmelmal is an Indian winter town, a little below mouth of Applegate Creek on the bank of Rogue River. There is swamp land there. Informant's mother said the French folks come to Rogue River first to catch beaver." John Harrington, Reel 28
6. "Ta-tmelmah--Place a little below mouth of Applegate Creek. Itwaipa—Informant's mother's father's place. Lots of steelhead there." John Harrington, Reel 28
7. "We reach Applegate River. She forgets the big hill SW of confluence of Rogue River and Applegate River, but knows that Salwaxkan is away from bank of Rogue River, Salwaxkan is the little flat, and says that Talkwa-lk is on south bank of Rogue River in front of Salwaxkan. She heard her mother talking about Salwaxkan in connection with the Illinois Road." John Harrington, Reel 28
8. "Yukhyakhwan is where catch lots of deer. All full of snares, tied shoulder blades together. A field there. Lots of Salt there. Altakanxita Mountain is by this lick...Yukhyakhwan—Salt deposit up Grave Creek...Yukyakhwan—A place where there is a salt deposit. Used to have many deer nooses there with dry deer shoulder blades hanging on the ropes, ropes supported by poles. The shoulder blades rattle and then they know they caught a deer." John Harrington, Reel 28
9. "Ti-wi-kh—The waterfall in Illinois River, at the place called Talsalsan. Only mama went there with her brother to buy dry salmon, in the springtime. Informant has never been there. George Baker says this is surely the Anderson place waterfall on Illinois River where Indians used to catch salmon....Talsalsan is upriver, Hathkapusu Ta is downriver, not very far downriver from Talsalsan." John Harrington, Reel 28
10. "Ti-wi-kh—The waterfall at the place called Talsalsan. Ta-kelma Indians used to go there to gamble and play shinny. Hatkapisu-ta is down the Illinois River from Talsalsan...Talsalsan—Illinois River. Talsalsan is a falls in Illinois River. Once Francis' mother went down there and buy dried salmon from the Indians who (lived) down there. No ferry there. Rogue River water in winter was high and no falls and no good for salmon fishing, so went to buy salmon there.... Talsalsan—Name of a place way down Illinois. Frances' mother saw a shinney game there, it is by a big fall." John Harrington, Reel 28
11. "Alti-wi—That was where they caught lots of fish in wintertime (i.e. October). Thinks it is not very far down creek from Takts-asin. Informant went down there when a little girl. Remembers hearing that chinook salmon never get up Grave Creek as far as Alti-wi." John Harrington, Reel 28
12. "The Gu-sla-dada were the people at the head of the Illinois River. John Poncy was the last one of these people at Siletz. These people talked a dialect intelligible to Galice-Applegate. Thus, the Illinois, Galice, and Applegate formed one dialect group. The Gu-sla-dada had a type of very large chinook salmon which turned and ran up the Illinois River but did not go farther up the Rogue River." Notebook 128, p. 94, Melville Jacobs Collection, University of Washington
13. "An Indian village (probably inhabited by Da-ku-be-te-de) is reported for the mouth of the Little Applegate during the early 1850s, with a smaller occupation site reported for near the mouth of

Sterling Creek. These and other winter habitation sites were probably occupied off and on throughout the 1695-1855 period. Port, relying on long-time residents' recollections, documents the importance of salmon to the villagers at the mouth of the river; fish-drying racks were prominent in this site when prospectors first visited the area in the 1850s. The natives probably took quantities of fish from both the main Applegate and the Little Applegate." Port, 1945, p. 5, as cited by LaLande in An Environmental History of the Little Applegate River Watershed, 1995, p. 17

14. "This feeling was heightened by the news of an engagement, the first of the war, between a party of whites under Lieutenant Burrell B. Griffin, of Miller's company, and a party of Indians under the redoubtable Old John. This fight occurred on the twelfth of August, on Applegate creek, near the mouth of Williams' creek (subsequently so named). The lieutenant, with some twenty men, had reached the main Applegate, at the mouth of Little Applegate, and proceeding thence to Sterling creek, destroyed an Indian village." Walling, 1884, p. 216
15. "Tipsu Tyee, whose home was in the mountains between Applegate and Bear creeks, used frequently to be seen in Jacksonville." Walling, 1884, p. 211
16. "Site 35JA42 is situated in the NW 1/4 of the NW 1/4 of Section 30, Township 40S, Range 3W, adjacent to the northern boundary of the Applegate Lake Project area. The site parallels the eastern bank of the Applegate River for approximately 150 meters at the mouth of Brushy Gulch." David Brauner in The Reevaluation of Cultural Resources Within the Applegate Lake Project Area, 1983, p. 5
17. "Some miners from Sailor Diggings attacked a rancheria on Illinois River or Deer creek, as the accounts go, and killed two of the seven male Indians present." Walling, 1884, p. 228
18. "This fight occurred on the twenty-first of January, the locality being Murphy's creek, tributary to the Applegate." Walling, 1884, p. 260
19. "Permanent winter villages were generally located in the lower elevation river and creek valleys, either at or near the confluence of two streams, or near sites of economic importance such as early spring vegetable sources or traditional fishing spots." Gray, 1985, p. 75
20. "I next visited the Etch-ka-tau-wah, or Applegate Creek and the Hay-qye-i-hoo-tooks, or Illinois Creek Bands, usually called the Chasta Creek Bands of Rogue River." Joel Palmer's Annual Report, September 11, 1854
21. "When the Indian on the opposite shore on horseback saw that we were intending to cross, he immediately galloped off up the Applegate. All hands over and packed up and went up Applegate a short distance and came to quite a large Indian village." Cardwell Manuscript, 1879
22. "A lot of people were right at that place at the mouth of the (Applegate) River. That is where they were dip-netting salmon. They lived there at that time (in a summer camp.) Now that is where they (the Shastas) shot he (at a formulist-shaman) who was seated in an open place that had a fire in the middle, all surrounded by a brush fence." Notebook 126, p. 3, Melville Jacobs Collection, University of Washington
23. "Illinois River Place Names—40. Place near the mouth of Lawson Creek ('prairie'); 41. Flat at the mouth of Indigo Creek ('alder place'); 43. A flat in a great curve of the river ('Kamass much place'). Places not definitely located ('hulled hazel-nuts'), a large, flat prairie along the course of Illinois River." Waterman, 1921, pp. 21-22

24. "You are a great chief...So am I. This is my country; I was in it when those large trees were very small, not higher than my head. My heart is sick with fighting, but I want to live in my country. If the white people are willing, I will go back to Deer Creek and live among them as I used to do. They can visit my camp, and I will visit theirs; but I will not lay down my arms and go with you on the reserve. I will fight." Chief John to Robert Buchanon, May 22, 1856, as reported in Victor, 1894, p. 407
25. "A few miles downstream from Gold Hill are the Ritsch and Marthaller sites. These are neighboring and undoubtedly related occupations on either side of Applegate Creek at the point where it joins the Rogue River. Willow-leaf points and many contracting-stem, small side-notched, and Gunther Island points suggest that Marthaller may have overlapped to some degree with the early occupation at Gold Hill, and to a great degree with its later phase. Human burials and a dense occupational zone suggest the pattern of a stable village with associated cemetery. The Ritsch Site was dominated by small concave base and Gunther Island points, and apparently lacked a significant earlier component. Two house floors show this to have been a residential site, but no cemetery was discovered. Conceivably the neighboring Ritsch and Marthaller communities shared a single burial ground. Radiocarbon dates from the Ritsch Site of 1470, 1400, 1150, and 460 BP place it firmly in late prehistoric time." Melvin Aikens in *Archaeology of Oregon*, 1993, pp. 242-243
26. "...Daniel Giles recalls that the Da-ku-be-te-de chief, "Old John," lived near the confluence of the Little Applegate River with the main stream "in an Indian hut made of boards." Daniel Giles, cited by LaLande in *Living With The Land*, 1990, p. 105

POPULATION ESTIMATES

1. "The men's sweathouse was a semi-subterranean house. Slats were put over a hole, and then covered with dirt. It was made in various sizes—some for a community of 20, some for 10, and some for only 5. There was a smokehole at the entrance. No one went in when they built the fire, only when the coals were glowing. No water was thrown on the coals. They had a dry sweat only: just cooking coals. They slept in there all night on fir bough beds." Notebook 130, p. 46, Melville Jacobs Collection, University of Washington
2. "Applegate and other villages consisted of only from two to ten houses. There were probably only three Applegate villages. There was only one Galice village, on both sides of Rogue River. On Illinois River, there was a village at the mouth, and another three or four miles upriver. Way up the Illinois River were two more villages which were deserted, the survivors joining in with the Galice people. Probably this total dialect area was less than ten villages." Notebook 130, p. 18, Melville Jacobs Collection, University of Washington
3. "According to tradition, many years ago they were far more numerous than at the present time, wars and disease having in some instances destroyed whole tribes. The marks of old towns and large settlements everywhere found, now entirely deserted, are strong evidence of the truth of their traditions." Dr. Lorenzo Hubbard Manuscript, 1861, Bancroft Library Manuscripts Collection
4. "The number of Indians in this district is not large. It is as follows...Tyee John's Band—18 Men, 26 Women and 19 Children, Limpy and George's Band—30 Men, 28 Women, and 23 Children...The foregoing are the bands with whom the Treaty was made on the 10th September last at Table Rock (1853). The number of these bands have diminished since that time, not less than twenty five per cent.
"The other bands in this district, and not included in that purchase, are as follows: Elijah's Band—32 Men, 34 Women, and 28 Children. Those known as the Ancient Applegate's number 10 Men, 15

Women, and 17 Children. Taylor's Band and those at Jump Off Joe--14 Men, 27 Women, and 19 Children, Illinois--16 Men, 14 Women, and 17 Children." Samuel Culver report to Joel Palmer, July 20, 1855, 33 Congress, 2nd session.

5. "In 1854 a census was taken of the entire inhabitants of the upper portion of Rogue River valley, from which the following figures are extracted. The Indians were in this enumeration divided into two classes--those who accepted the provisions of the Lane treaty of 1853, and the outside or non-reservation Indians. Of the former the Table Rock band numbered seventy-six persons; John's band, fifty-three; the combined people of George and Limpy, eighty-one; making a total of 307 Indians of both sexes and all ages, gathered upon the reservation at Table Rock. Of these, 108 were men. The non-treaty Indians comprised Elijah's band of ninety-four; the 'Old Applegates' (probably Tepsu Tyee's people), numbering thirty-nine; Taylor's band and the Indians of Jump-off-Joe creek, sixty strong; and forty-seven remaining on the Illinois river; total, 240; of whom seventy-two were men. Thus the total Indian population of the upper portion of the Rogue river country was 547 -- a number that will seem disproportionately small to those who are in any degree familiar with the history of their actions." Walling, 1884, p. 191
6. "The ethnographic record makes a contribution towards understanding this variability in settlement patterns. It was reported that in the Athapascan-controlled territory, population density was fairly low. There were few villages, perhaps only three in the entire Applegate Valley, and the community size ranged from between two and ten structures." Gray, 1985, p. 121
7. "Prior to the introduction of diseases and subsequent population decimation, the late prehistoric settlement system postulated in this study is characterized by the following elements: 1. Significantly higher population densities than that documented historically; 2. An essentially linear settlement pattern; 3. Low residential mobility and 4. Repeated occupation and multiple uses of productive site locations that provided access to a variety of resources." Draper, 1988, pp. V-V1
8. "15 of us volunteer to go down Grave Creek to the mouth, thence down Rogue River to where the pack trail strikes the river, which is 6 miles of a deep canyon, and entirely impassable for anything else but a foot man and so near impassable for them that i never want to try it again. Where the trail strikes the river there is an Indian ranch or village of about 25 huts, which we burnt." Robbins, 1855, p. 352
9. "Here, near the present site of Gold Hill, Ogden saw a large village 'containing six large Houses' on the opposite (north or west) bank. This would have been the Takelma settlement of 'Dilomi,' reported by later sources to have been "an unusually large village." LaLande, 1987, p. 79
10. "They have native physicians among them. Their remedies are simple and few in number. The root of a parasitic fern, found growing in the tops of the fir trees (coll que na shut) is the principal remedy. The plant, in small doses, is expectorant and diuretic, hence it is used to relieve difficulties of the lungs and kidneys; and in large doses it becomes sedative and an emmenagogue; hence it relieves fevers, and is useful in uterine diseases, and produces abortions. The squaws use the root extensively for this last mentioned purpose." Dr. Lorenzo Hubbard, 1861, Bancroft Library Manuscripts Collection
11. "There are house pits along the river bank south of Ti'lo-mi-kh falls." "Twenty-one house pits along south bank of Rogue River at Ti'lo-mi-kh." John Harrington Field Notes, Reel 28, Frames 785, 809, 676, 680, 798
12. "However, villages could be very small. An example would be the four house pits excavated at site 35JA42 which were arranged in a linear configuration, paralleling the bank of the Applegate

River. Brauner concluded that only a single house at any one time was built and occupied; therefore, the population of this "village" would have been limited to the number of persons who could have resided in one structure, probably one extended family." Gray, 1985, p. 109

13. "According to the homestead model, many or most housepit sites over the past several thousand years were single-family settlements comprised of one to four houses, dispersed fairly evenly over the landscape in tributary valleys. Larger villages with multiple houses existed on large streams where salmon could be relied upon as a staple. Both kinds of settlements depended on the same major food resources, salmon, acorns and deer, but the homesteads relied more heavily on acorns and deer, which are more evenly distributed and less spatially concentrated than salmon. Thus, the resource distribution largely determined the settlement distribution. The model therefore suggests that major fluctuations in the availability of a key resource such as salmon should have had consequences for settlement distribution." Pettigrew in Living With The Land, 1990, p. 66

POPULATION OF ADJACENT TRIBES

1. "Villages built in the manner as the Indians of the Coast with Cedar Plank sufficiently large to contain from 20 to 30 Families and on every point where it was possible to reach the River did they see Villages." Peter Skene Ogden, 1827
2. "A word as to the size of the Yurok tribe. Henry Ormond, chief clerk of the Hupa reservation told me that in 1870, he descended the Lower Klamath from Waitspek down in a canoe-forty miles-and carefully counted all the Indians living along its banks. He found the number to be 2,700, which would be at the rate of 67 1/2 inhabitants to the square mile, along the river. This does not include the Yurok living immediately on the coast. It must be borne in mind that there are no wild oats growing along the Klamath, and few acorns, and that the Yurok are timid and infrequent hunters. Furthermore, before the whites had come among them, bringing their corruptions and their maladies, the Indians were probably twice as numerous as at present, or at the rate of 135 to the riparian square mile." Powers, 1877, p. 59
3. "Another measure of environmental productivity and the Indians' ability to utilize the available plants and animals is the density of population. By way of example, let us take tribal densities per square mile of territory in a west-to-east line running from the Yurok on the northwestern coast past the riverine Hupa and Karok, whose tribal lands adjoined on the east, and proceed further east to the Pit Rivers and the Modoc, who lived in the high, semi-desert plateau beyond the range of salmon and oaks. The figures are Yurok, 4.66 persons per square mile; Hupa, 5.20; Karok, 2.42; Achomawi, 0.70; Atsugewi, 0.30; and Modoc, 0.30. Such population densities directly reflect the productiveness of the land in terms of available food resources. The richer the land, the more people, and vice versa." Heizer and Elsasser, 1980, p. 27
4. "The population of the Karok did not exceed 2,000 at the time of discovery, and would unquestionably be put at about 1,500 were it not for the considerable number of survivors.....The number of houses noted by the expedition of 1851 is a better index; 37 in and below the Panamienik district, 69 in the region of the mouth of the Salmon, total 106 for nearly two-thirds of the stock. The maximum number of houses that can be attributed to the Karok is therefore 200; and at the inhabitant ratio of 7 1/2 determined for the Yurok, the population of the stock would be 1,500. This figure seems the most likely; yet, even if it be stretched somewhat, it is clear that the Karok were less numerous than the Yurok, but outnumbered the Hupa." Kroeber, 1925, p. 101
5. "When we started back, we took one prisoner up to the top of the mountain where we thought ourselves safe and then sent them aback, and we returned by the way of Klamath River to Yreka, passing through great numbers of Indians but without any trouble." Steele Manuscript, 1850, p. 6

6. "The numbers of the Shasta were sparse. A Government field census in 1851 yielded 24 towns on the Klamath, 7 on the Scott, and 19 on the Shasta River, or 50 settlements of an estimated average population of 60. This figure is too high, however, since many villages comprised only two or three houses. Even the populous Yurok averaged only 45 souls to a town. If we allow the Shasta 40, their total is 2,000. If this figure is posited for the California Shasta alone, exclusive of those on Rogue River, it is likely to be a full allowance." Kroeber, 1925, p. 287
7. "The Indians of northwestern California were able to live in permanent villages year round because of the richness and variety of plant and animal resources in the area. More than a hundred Karok villages were located on the river or at the mouth of the numerous creeks emptying into the Klamath, the main highway through the area and the source of a primary food staple, ama 'salmon,' as well as other fish and eels." Fields, 1985, p. 14
8. "Smith River is not nearly so large a stream as the Klamath, and is not of anything like similar importance ethnographically. For example, there were 44 native towns on the Klamath, and only three on Smith River. It seems like the supply of fish available on Smith River was not large enough to subsist a numerous population. As a matter of fact, the important Tolowa villages were all on the coast, where the people lived on the products of the sea." Waterman, 1921, p. 122

HOUSE AND SWEATLODGE CONSTRUCTION

1. "The typical Takelma house of split sugar-pine boards was not square, but longer than wide, the floor, which was nothing more than the earth stamped smooth, being from a foot and half to two feet below the surface of the ground. At the four corners of the rectangular depression were set upright posts, to which, on top, were lashed with hazel fiber four connecting cross-beams. The house wall was a neatly fitting series of boards, placed vertically, reaching from the top cross-beams to the floor. Above the top framework was raised a ridge-pole supported (though this point remains somewhat obscure) on two uprights forked at the upper extremity. The wili helam, or "house boards," were then filled in from the top beam to the sides of the house. The door was not round, as was often the case farther to the north, but rectangular, and composed of two or three pieces of lumber put together. As the doorway was raised about three feet from the earth's surface, it was necessary to build up against the "house wall" an approach of earth to admit of entrance. Having crawled into the doorway, into which the door fitted by some sort of slide device, one reached the floor of the house by descending the ladder (gakan), consisting of a pole provided with notches for steps and extending from the doorway to the fireplace. This was in the center of the room, and the smoke-hole, which was here not identical, as in certain California underground sweat-houses, with the door, was provided for by an opening in the roof at a distance of from six to seven feet from the floor. The beds consisted simply of mats of cat-tail rushes spread out on the ground about the fireplace, though it would seem that unmarried girls slept on raised wooden boards or platforms. Such was the winter house. In summer the Indians dwelt in a brush shelter (gwas wili) built about a central fire. The poorer people, it should also be noted, had to content themselves with a house constructed of pine bark instead of lumber." Sapir, 1907a, p. 262-263

CEREMONIALS

GIRL'S PUBERTY DANCE

1. "Mae-ddus (girl with 1st monthly) dance, 2 or 3 or 4 girls with men between them. The girls with bead-dresses on and a full house audience seated on the floor of the Indian house. Pretty often negotiations for buying a dancing girl are made at such dance—10 nights they dance, not eating

much, and sleeping daytimes..... About the 6th or 7th night men start to dance with flicker-headaddresses and every woman puts on beads—they always hold such a dance in wintertime or springtime.” Coquille Thompson, Informant for John Harrington, Reel 25

2. “....They fed her only 2 times in 10 nights’ dance. She has to stand it, that’s all. Feed her acorn soup, salmon. They don’t let any Indian man (in), not even a boy baby when they feed her. The whole house is just trimmed like an xmas tree. At the close, they make the girl go swimming 10 times.” Jenny Scott, Informant for John Harrington, Reel 26, Frame 1032
3. “Galice used to have a ‘dance for girls,’ by which statement Goodard appears to indicate a girl’s puberty ceremonial.” Pliny Goddard, Notebook 2, Galice Creek, Melville Jacobs Collection, University of Washington
4. “A round dance, with dancers in a circle holding hands, alternating men and women, is danced five to ten nights after a girl’s first menstrual period, and also danced other times for fun.” Notebook 126, p. 27, Melville Jacobs Collection, University of Washington
5. “There was a dance to celebrate a girl’s first menses. Men and women formed a circle around a fire outdoors. The girl seems to have been inside the circle, covered with robes. At some time in the proceedings, she danced herself, while the rest of the people watched. She danced back and forth, facing the east. She wore a visor of blue-jay tail feathers, and used a deer-hoof rattle. A scratching stick of bone was fastened to her wrist. She was permitted to sleep but little; “she might dream something bad, and poison the people.” Just before dawn she bathed, and was allowed a few hours sleep, with a basket hopper over her head. Afterward, she carried wood for the dance fire of that night. For the five days of the rite, she was given only dried food, and not much of that. The ritual was repeated for each of her first five periods. Thereafter an old woman painted the girl’s face, cut her hair in bangs across her forehead, and recited a formula over her. For this the old woman was given the clothes, etc., which the girl had used.” Drucker, 1937, p. 296
6. “Of the dances just mentioned, perhaps the most important socially was the menstrual dance. At the time of the first courses, which ordinarily occurred at the age of thirteen, the girl’s father invited his neighbors to a great feast for the space of five days, or rather nights (five was the mythical and ceremonial number of the Takelma). During this period the girl was not permitted to eat anything till midday, when an old woman came to her and directed her to run five times around two trees. After this she was allowed to eat, but forced to abstain from food again from about 4 o’clock in the afternoon to noon of the next day. As regards personal appearance, she had her bangs of hair cut off and painted herself with one red and four black stripes on each cheek. During these five days she was subject, of course, to a number of taboos. She was not permitted, for instance, to look at the sky or to gaze freely about her, and to insure this a string of the bluejay’s tail feathers tied on close together was put about the forehead of the girl and tied to the hair in back, an arrangement that effectually screened from her view everything about her. During this time also she was obliged to sleep with her head in a bon, a funnel-shaped basket such as was used in the pounding of acorns, the declared purpose being to prevent her from dreaming of the dead, a bad omen. During each of the five nights the menstrual round-dance and songs were performed. A circle was formed of alternating men and women with interlocked hands, while in the center stood the young girl (or rather young woman now), arrayed in all her finery of hair, nose, neck, ear, and waist ornaments. The outer circle danced and sang around her, all following the song of the leader.” Sapir, 1907a, p. 274
7. “Girl’s puberty dance—Men and women alternate, form circle. Dance first one way then reverse. Then stop and sing. Danced outside, fire in center. Ground cleaned off beforehand. Danced 5 nights; not all night. Used deer hoof rattle during dance. The girl uses the rattle. Just dance danced round dance little while, then stopped. Girl and another dance. Some old women sit by fire and sing. She

dances facing east, back and forth (doesn't turn around). Has to keep awake, might dream bad and poison people. She wore jay-tail visor. Used scratching stick of bone, since fingers would make sores. Tied to wrist, decorated.

"In daytime, packed wood for her dance fire, so she wouldn't get lazy. Swim before daylight, sleeps little while in morning, with head resting in hopper mortar. Couldn't eat fresh meat, just a little water and dried grub. Some old person had to talk over first.

"The first five menses observed. The old woman paints three red streaks on each cheek. Cut hair in bangs across forehead. She gives away her clothes to women who help." Molly Orton, Informant, Notebook 135, Bancroft Library Manuscripts Collection

8. "First menses – Confined for 10 days in house behind a tule mat which is suspended from wall above girl's bed and stretched out tent-like. During this time does not go to the river to bathe. The tule cover is hung with richly decorated women's dresses and strings of dentalia 'that makes style.' Around the neck is hung a miniature basket. On her wrist is hung a scratcher made of the ridge of abalone shell near the core of the animal, which clamps on rocks. Emphasis was that the girl stayed in the dark during those 10 days. Light would injure her eyes. During that time the body is painted solidly in red pigment, but not the limbs. If she left the house, she wore a deerskin thrown over her head and was forced to look only at the ground. Must not see the sun. No drinking tube. Drank out of a small dipper of basketry used by her alone.

"During confinement, she ate only twice. Was allowed salmon and acorns, but they had to be dried. No fresh foods. She ate early in morning, before daylight. The mother cooks for the girl and keeps her food and food containers separate. Cooks for her separately, but over family fire.

"On last day of confinement, has to rise before daylight and run to river and jump in. This is repeated ten times; the girl runs back and forth without stopping. Should she not get to swim before daylight, she has to wait till the next morning, and go without food for that day. She runs alone, and no one sees her. On the end of her confinement, her trunk is slashed all over to make the blood run. This is done by some other relative than the mother. This will help her menstruate soon again so that she will be through with the observances. When she is through running, the girl is fed. The above rites are repeated at the second and third menses, after which girl considered woman.

"When in confinement, basketry plate covered with earth on which some coals are placed is put by her bed. An aromatic root is burned in the coals while she eats. She also uses yellowhammer feathers as nose ornament.

"During periods between confinement, she must eat in the house and not elsewhere. She continues to eat apart and uses separate utensils, and must be cooked for separately. Father would have no luck hunting during this time.

"When girl goes to swim after 10 day confinement, she holds her hands behind her back and squats up and down in and out of water. Black pigment which has been prepared ahead of time placed on girl just before she eats during the whole three month period of observations. A small black cross is made above and below the elbow joint on the inside of the arms and three small vertical stripes are made on the nose, one on each nostril and one down bridge. When she is confined, these are wiped off after eating. When she is at liberty, she goes to wash after eating. During periods of liberty, she dresses in all her finery before each of the two daily meals, and takes it off after eating. When she comes back from her tenfold run after confinement, she puts on her buckskin dress, all her necklaces, paints her face, puts on earrings, and inserts a yellowhammer tail feather in nose.

"When informant's older sister first had her monthlies, they dressed her up in lots of beads. Somebody out of envy made poison against her, and she died. When they buried her, they put all her beads on her. Her father felt so bad he had her buried right in front of the house door.

"At adolescence, the hair is cut in bangs over the forehead and to the ear tips on the side. When girl is through with 3 month observance, may join in 10 day dance until she marries." Cora DuBois in Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection

WEALTH DISPLAY DANCE

1. "The Tu-Tu-Tun had lots of money. The big chief of Tutu spread out all his finery. Another chief asked what for. You should put on a dance, dancing 10 days. He invited the Yu-qi people, and the upriver people to attend, sending messengers. They mocked elk, deer, birds when they danced. They had yellowhammer red-feather-headaddresses, and regalia fixed up with woodpecker scarlets. When they were done, all this wealth was gathered up and put away again. The name of the big chief of the Tutu was (). He had 5 daughters. The Tutu chiefs took turns each year in putting on those big dances in xmas month." Coquille Thompson, Informant for John Harrington, Reel 26, Frame 688
2. "There was a wealth-display performance, said to have been staged either in winter or summer, which, making due allowance for the poverty in terms of token wealth of the people, was much the same as that of the rest of the groups." Drucker, 1937, p. 284
3. "Ten night dance (nar yelth shri)—Held in chief's house at Tu-tu-tun. Was held in winter. Danced with sexes alternating. Women wear all their wealth. Have long chains of dentalia hung around their necks. Danced all night until dawn when a feast was held.
"This dance was to make people forget they had lost their relatives. Those who had been bereaved during the year were paid before the dance was held. A general collection was taken to pay them. The bereaved then gave their permission to hold the dance. No definite sum was required as payment
"Dancers, alternating sexes in back rows, are ranged in height, tallest in center. On either end is a cluster of men dancers who also sing. One dance called Tcana sut naxa (is a man who jumps up and down and runs back and forth in front of back line). This back line consists of 20 unmarried girls and boys. The men hold their arms flexed upwards at the elbows and the girls hold their partners on either side by the wrists. 'They love one another that way.' When the front man tires he withdraws to either one of the two side clusters. As he withdraws, the audience shouts, 'he he he shasen a set; he he.....,' dance some more. Then they shouted, 'I wish you may make a lot of money.' After the jumper withdraws, one or two girls may step out from line and dance up and down with a side shuffle, her face to the audience. If two girls dance, they cross each other. When girl is through, audience shouts its approval by 'I wish that someone may buy you for a lot of money.'
"After this another jumper may come out from the clusters at the sides. No married woman dances. The clusters at each end of the row of unmarried people consist of married men. The jumper is also a married man. The girl who dances up and down the length of the line is called Natitd. Young men may also step forward and dance before the line. They were also wished a marriage. There was always one man who bossed the dance. Was apparently the man who called it. He sat in the corner next to door and did not dance.
"Jumper wears a skin forehead band with abalone sewn on it. He carried an otter skin quiver filled with arrows. He held it with both hands against his chest. He jumped back and forth any old way.
"Girls wear their buckskin dresses ornamented with shells and dentalia necklaces. Men are laden with dentalium necklaces. Both sexes paint their face with diagonal, horizontal or vertical stripes down the cheeks with red or white pigment. Don't make many or broad stripes. 'They must use just a little paint, not too much.' Some men don't paint at all.
"This dance was a consolation for the loss of relatives. "It helped them forget." It is given only once a year, but every year, in winter. Sometimes people would cry because their dead relatives used to dance at this dance.
"Jumper makes everybody laugh. He does not say anything, but they laugh at the way he dances. He has deer horns fastened on any old basket hat which he ties on under chin. Dances with it.
"Boards laid on ordinary earth floor for dancers to dance on. These dances were given in chief's house at Tu-tu-tun, and he was the one who called them.
"Informant doesn't know about masks. Jumpers may be one or two in number at a time. They always

wear deer horns and may also wear a deer skin over their shoulders. The jumper mocks the deer at play, they make believe they are the deer playing. He tells the audience to watch him closely and learn how deer play, those who don't know how to hunt in the mountains. The people all laugh as dancer walks on hands and feet. Jumper then turns using the deer disguise.

"Obsidian blades (tcunte) – Informant's father owned two. Danced with them in display at 10 day dance. They were 8" long, 2-2 1/2" wide, and about as thick as ones finger. Double edges, shiny black obsidian most valuable." Cora DuBois in Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection

4. "To judge from the results of this analysis, it now seems clear that at least during late prehistoric times when the Gold Hill site was most intensively occupied-peoples in southwestern Oregon were every bit as 'complex' (from a socio-ceremonial standpoint) as the inhabitants of Northwestern California." Richard Hughes in Living With The Land, 1990, p. 54

HUNTING AND FISHING RITUALS

- 1 "Galice threw bones of deer 'away back in the brush somewhere where a woman would not step over them.' If a woman stepped over deer bones, the deer in the woods would get wild." Pliny Goddard, Notebook 2, Galice Creek, Melville Jacobs Collection, University of Washington
- 2 "Galice threw salmon blood into the stream--they never left it 'any place.' They always threw the slime or skin of a salmon into the stream, but only at nighttime." Pliny Goddard, Notebook 2, Galice Creek, Melville Jacobs Collection, University of Washington
3. "There is a salmon formulist." Notebook 128, p. 81, Melville Jacobs Collection, University of Washington
4. "At a place now called Rocky Point, the people assembled in summer for salmon fishing. This was big-time, like Fourth of July. This was the time salmon have sore backs." A dance similar to the Athabascan wealth-display performance was often performed. An old man trained for some days, then, with a dipnet, caught the first salmon of the season in a large pool below a waterfall. He dressed and cooked the fish, and told the story of the origin of the fishing place.
"The first owner of the place (Evening Star) challenged all who came there to a wrestling match, and killed them. He allowed no one to fish. At last someone (Swallow) managed to vanquish him, 'and gave the salmon to be free to all the people.'
"The ritual was performed to make salmon safe for people to eat. This was said to have been the only place in the region where a first-salmon rite was performed." Drucker, 1937, p. 296
5. "A first-salmon ceremony, consisting of the recitation of a formula and the ceremonial feeding of each of the spectators by the priest, was reported." Drucker, 1937, p. 284
6. "Mrs. Johnson did not speak of regular periodic ceremonies, except in case of the first appearance in the spring of salmon and acorns. These latter ceremonies were tabooed to the women, so that it was not possible to procure any account of the proceedings; they were referred to as 'blessings,' and evidently had as their object the bringing about of a big run of salmon and an abundant crop of acorns by means of prayer to the 'deities' or 'spirits' involved." Sapir, 1907b, p. 33
7. "Informant's father as chief of Tu-tu-tun had to catch the first salmon of the spring run. Before he brought it in the dwelling, he wound shredded willow bark around his forehead, neck, and waist. Everyone in the village had to taste a little piece of the first fish, and after that anyone could go out and fish. That keeps people from getting sick with the new salmon. She denied that old

salmon were then thrown away. Same ceremony for eels." Cora DuBois in Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection

8. "After a man had been hunting and fishing, when it was time to eat, he might call all the men together and say 'let us eat.' The man's wife cooked, but no women joined in the feast, just men and boys. It seems to have been a spontaneous gesture of hospitality to the males of the community. There seems to have been no stated times for such invitations, nor any regulations concerning it. It might last from the first meal of the day to sundown and seems to have been a period of gluttony." Cora DuBois in Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection
9. "Here it may be well to state, a custom among all of those upper country Indians which not being generally understood by our people, has led to such difficulty. It is at the commencement of the fishing season, and at its close they held what is called a fish dance in which they paint and go through all the performances of their dances. At the opening and closing of war, they also hold a harvest dance when the fruits and nuts get ripe, but this is of a more quiet character, more resembling their sick dance when they try to cure their sick by the influence of the combined mesmerism of a circle of Indians in which they are in many instances very successful." Steele Manuscript, 1850, p. 6
10. "When first fish caught, ceremony held. Weirs were placed on riffles each spring in anticipation of fish. On first day, 5-10 caught and then no more caught until all these are eaten. Women cooked these fish inside the house. The fish cleaned with a musselshell knife. All partook of the first fish caught. If a person is in mourning, they cannot eat the fish until the formulist has acted. The bones are always thrown back in the water. This feast usually held in biggest house in village, all get little piece from the shaman." Coquille Thompson, Informant for Elizabeth Jacobs, Notebook 120, Melville Jacobs Collection, University of Washington
11. "When first chinooks come in they have big fence at lower mouth of Coquille, people come up. They catch maybe 5 or 10-no fish down below so they come and dance. 1, 2, or 3 nites, when get enough to eat, go back to pack fresh fish." Coquille Thompson, Informant for Elizabeth Jacobs, Notebook 104, Melville Jacobs Collection, University of Washington
12. "They have to pack fish-cut it good and thin-smoke it good. Not throw bones on ground-take them back to river. Old people were strict on eels and fish. They were packed in basket. You have to cut one way for smokehouse – if no smokehouse, you have to cut in three pieces. Turn it over twice a day. Fish won't dry without smoke. They dried fish heads to keep for hard times. Last year, I had to pack for Nellie. Fish go back home-even bones go back, they come alive when they hit saltwater." Coquille Thompson, Informant for Elizabeth Jacobs, Notebook 116, Melville Jacobs Collection, University of Washington
13. "First-salmon rite (salmon go out to catch).—Annually; to make 'new' foods (especially salmon) plentiful and fit to eat. Held at beginning spring salmon-run at Wanaxuctun, near Yokokut; abbreviated forms at other places.
"Sacred sweat house (sweat house, he understands) associated with rite. This was 'Salmon's home.' Rebuilt with much ceremony when Yotokut last moved; parts not called by usual terms: ridgepole was "Salmon's backbone;" roof boards, 'Salmon's ribs;' front wall, 'Salmon's head,' etc. No one dared enter without proper formula; nor run past it, nor walk by eating. Visitors warned of taboos. Sweat house inhabited by great number of snakes, some double-headed. Building had weather power; piece of wood from it put in water caused continuous rain till removed. For rite, priest entered sacred sweat house, 'praying' (reciting formulas), fasting 5 days. Then went to spear one or more salmon, while wife prepared other foods. (While pounding acorn meal, she might not pause even to change grip on pestle.) Priest's wife or daughter, in dance dress, carried fish from canoe to site of rite. According to some accounts, rite performed at spot near riverbank; others say in priest's house. Priest built fire, cut up and broiled salmon. When cooked, it was placed on basketry

tray, with all other kinds of food (acorns, edible roots, berries, etc., those not ripe represented by leaves); long formula, describing origin of world and of foods, of Salmon's journey from home in south northward to Smith River, up Smith River, mentioning all place names passed; several hours required for recital. He brought all the salmon up the river. Sometimes he 'pray' so hard the sweat poured off him. It sounded fine.' At conclusion, priest chewed up some angelica root, mixed it with piece of cooked salmon and rolled into ball. 'Marked' spectators with pinch of mixture down each arm, each leg, up back over the head, reciting short formula for their health; what remained was popped into person's mouth. Each, as he was 'marked,' ran to river, dived in, spat out mixture under water. When came up, clapped hands, shouted 'for long life.' Sexes bathed in different places. When all had bathed, priest divided up rest of food, to be eaten there, or taken home for kin unable to attend. Only adults allowed to attend. After this, everyone could catch and eat salmon; 'he opened the season.' Priest not paid for services. Priest, and formula, together with marking of angelica root, called tcamai ileri. Priest hired to perform same rite (perhaps abbreviated) as mourner's purification; dried salmon if no fresh." Drucker, 1937, p. 261

14. "Several accounts of the annual first-salmon rite were obtained from Tututun informants. None are complete, and details vary, though the general outlines are the same:
"version 1—First spring Chinook brought to priest, cleaned, broiled (outdoors?), placed on tray with other food, formula recited over. Priest put bit in everyone's mouth, saying 'I pray (that) the Creator give you (plenty) salmon to eat.' All bathed.
"version 2—Youth sent to spear first spring salmon; girl, in finery, met him on river bank, cleaned fish, carried it to sukala me(said to be a place near upriver tututun). Priest made fire; cooked, recited formula over, distributed fish. Only adult males might eat. Priest trained before rite.
"version 3—Priest himself had to catch first salmon. Before he brought it into his house he wound shredded willow bark around his head, neck, and waist. Everyone in the village had to taste a bit of the fish 'that kept people from getting sick on the new salmon.' Afterward anyone could go out to fish. They had to do the same for the first eels each year." Drucker, 1937, p. 276
15. "The only novel feature was one connected with the use of bear meat. It is said that when a bear was killed, a feast had to be given. All the meat was cooked at once, and had to be eaten then and there. It must never be dried. The skull was not saved, however, and the hide was dressed for use as a robe, etc. This is the only inkling of anything resembling the widespread 'bear ceremonialism' to appear among these Athapascan groups." Drucker, 1937, p. 281

SUBSISTENCE PRACTICES

HUNTING

1. "Long ago, a young Applegate Creek Indian man knew how to hunt well. 'Lots of camas' people (Illinois Creek Indians) were his brothers-in-law there. Therefore he went back and forth (between his Applegate home and his Illinois in-laws). Whenever he went from the Applegate people in the direction of the 'lots of camas' people (in order to have deer or elk) he told his own people, 'Whenever you see smoke, come to there. I will have built a fire (there). You may come for the meat for as many (deer or elk) as I have killed'" Hoxie Simmons, Informant for Melville Jacobs, Notebook 126, p. 97, University of Washington Manuscripts Collection
2. "Long ago Applegate River people went hunting (in a bunch) to the big mountains (up Applegate River). Lots of people went, women and children too. They were going to hunt deer and elk. They were going to dry it all, to eat it in the winter. They all got there and killed a lot of elk." Hoxie Simmons, informant for Melville Jacobs, Notebook 2, p. 65, University of Washington Manuscripts Collection

3. "The Applegate people stayed at the foot of the mountains in early autumn. That is the time when they snare very fat deer, because they are going to dry meat—The Applegate people stay (in a camp) at the foot of the mountains in the early autumn (September, leaves begin to yellow and fall.) The deer are very fat and that's the time that they snare them (in a rope snare) because they are going to dry meat. They make a corral (a brush fence). The deer (have a) trail leading on in the middle (of a brush fence corral that is made around the deer trail.) In the autumn the deer travel from the sunrise direction towards this way. Always (every year in September) that's the way they do it (catch deer wholesale for the purposes of drying) so that they may eat it in the wintertime. The bones (with meat adhering) are the only (part) they eat (then, at that time. They also make soup of it then.) The meat (most of the meat) they dry (smoke dry). They trap a lot of deer. They go there in the morning when not quite daylight and hit all sorts of things (to make noises to chase the deer all around the corral). The deer all run and each one gets caught, one here one there (in another snare)." Hoxie Simmons, Informant for Melville Jacobs, Notebook 2, p. 65, University of Washington Manuscripts Collection

4. "A young person (man) was lazy. He wanted to sleep (and then) he became rich—There was a person (from) the Rogue River. Lots of people were living there. (There were) lots of houses. The people were there in the autumn for trapping deer. The deer's trail was there in the autumn. Deer were very fat at that time. They snared the deer with snare-traps. They shut them in with brush fences for quite a distance around (about a mile in circumference; made only by men—no women and children). At openings there were snares. They made about 20 snares. The deer traveled all night long. They came from (towards) the head of the land. (The deer came from east to west, but went back east in October). Long ago deer used to travel in the autumn back from the east in (towards) our country. That's why the people used to set snares for them then. Very early at first (3 a.m.), a little before daylight, they all went there (to the snare circle built around the east-to-west deer trails). Then they'd hit everything (sticks, i.e., to make any kind of noise). The deer trails got full of deer. They leaped into the snares. Every Indian brought in deer in the morning. (when caught in a snare the deer was killed by stabbing in the neck with a 'sharp bone,' probably a leg bone of an elk, sharpened." Hoxie Simmons, informant for Melville Jacobs, Notebook 3, p. 43, University of Washington Manuscripts Collection

5. "The Galice had fishing site rites which passed from father to son or brother, as among Hupa Indians. No hunting areas were claimed in this way. A man could hunt anywhere, with bow and arrow. The Galice did not claim rites in acorn grounds. Galice hunters set 'Indian rope' in deer or elk trails, and made a brush fence to guide such game. Then the hunters ran deer and elk, with the aid of hunting dogs, into such enclosures. The latter were 'private Grounds' said Goddard, vaguely." Pliny Goddard in Notebook 2, Galice Creek Materials in the Melville Jacobs Collection, University of Washington

6. "One way to get power is to dig a place in the gravel of a stream and lay there in the water, naked (nearly submerged with only the neck out of water) for an hour or so in the evening. A man does this twice each night (warming himself between sessions at the fire) for ten nights. For ten nights he fasts, bathes in cold water, and makes snare ropes. He rolls rope as he warms himself. In the daytime, he gathers the grass for the rope. With this rope, he makes snares with which he successfully pursues game because he has 'trained' for it and perhaps because 'something' has taken pity upon him. Thus he becomes rich." Sally Snyder, material extracted from Melville Jacobs Galice Creek Notebooks, Notebook 128, p. 47, University of Washington Manuscripts Collection

7. "Ashland People—string made of some kind of fiber, drawn with shell scraper. Fence made, with gaps, with noose—lots men go drive deer in. Some stay close to snares to kill when caught. Sometimes used dogs to drive. Rabbits also driven into fence with snares (Table Rock people did this—not Mt. people)." Molly Orton, Informant. Notebook 135, Bancroft Library Manuscripts.

8. "Husband usually accompanied wife when root-digging, etc. He hunted squirrels on the sidehills and watched to see that nobody bothered. Took good care of girls." Molly Orton, informant. Notebook 135, Bancroft Library Manuscripts Collection
9. "Brush is not burned to drive game. Ground burned over to produce a better crop of grass to attract wild game. Done at times hazel nuts are burned over." Cora DuBois, Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection
10. "Communal Hunt--Before setting out men must abstain from intercourse. They sit up all night either at home in the sweathouse or in the mountains 'singing and making medicine.' They must not sleep. If they get sleepy, they jump in the creek. In the morning they hunt fasting, do not eat until after they return.
"Women are taken on communal hunts so they can dry the meat. Can't go during menses, man won't go without his wife.
"During singing at night, they burn an aromatic root(Angelica) and wish for luck in killing deer. Also make the inevitable wish for wealth." Cora DuBois, Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection
11. "Deer and elk taken in pits, 5 feet deep, covered with brush. Pits visited every few days. Sometimes as many as 7 or 8 pits in a row on a elk trail, 200-300 yards apart." Cora DuBois, Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection
12. "I ask Thompson if he ever heard of deer-decoy-headress, Thompson answers that the Head of Coquille people never had this, but that he heard said that the Jacksonville, Takelma people, and down that way, in the times when they still used bow and arrows only, used a buck's head with deer's forelegs hitched to Indian's thighs, wearer stooping over on all fours and raising head in imitation of deer, thus getting close to deer and maybe shooting several all at once." Coquille Thompson, Informant for John Harrington, Reel 25, Frame 774
13. "I ask him if he ever saw Indian dogs. Ears stood up. The Indian dogs I saw were elk dogs. These dogs did not bother deer. A man would stay by the elk fresh track and dog would go along the track alone. Elk was lying down up on ridge, and got up slowly as dog approached. The elks tried to go, but the dog wouldn't let them. The dog would bite them behind and make the elks turn and wheel, trying to fight the dog. Hunter meanwhile approached and shot. As elk fell, the dog at once bit the elks in the throat and thus killed the elk. The Indian then butchered the elk, giving the dog the blood and some meat and grease. He cut the limbs off of a little fir tree, and hung the carcass on that little fir tree. He and the dog returned home. He announced that the following morning several would come and bring back the elk. And they did. The dog went out too, keeping behind the man. All returned home at the village 2 pm. Dog came back and lay down. He had helped kill the elk. That was an Indian elk-dog, he wouldn't bother a 2 or 3 day old elk track. And he wouldn't bother a deer track--it had to be elk." Coquille Thompson, Informant for John Harrington, Reel 25, Frame 616.
14. "The round Mt. at the head of the Applegate River is the Applegate Indians' hunting ground....There were two lakes on that big round mountain at the head of the Applegate River: one was called Thunder Lake, a small lake, like a hole with a rim around it. This is possibly the witch lake that Joseph tells him about....The Indians had just one ridge that ran down in descending from that big high round mountain and Indians packing deer or elk trots all the way down that ridge back to his home on Applegate River...They got deer or elk whenever they wanted one by going up to that mountain, sometimes had causes to stay around up there many days..." John Harrington, Reel 28 *According to LaLande, probably the area around Squaw Creek and Carberry Creek

15. "Deer's head prepared from deer's head after the horns had become hardened, after the velvet has disappeared, fat deer, fed up on acorns...And where a deer trail crossed a creek the Indians put a rope snare. These were the two ways they had of getting deers." John Harrington, Reel 28
16. "Yukyakhwan is where catch lots of deer all full of snares, tied shoulder blades together. A field there. Lots of salt there. Altakanxita Mountain is by this lick." John Harrington, Reel 28
17. "Meat, grease and blood obtained when butchering elk is sometimes packed into a deer paunch. The whole thing is cooked by covering it with hot ashes. When half done it is taken out and turned at the fire like a barbeque. Then it is sliced open and eaten." Notebook 128, p. 46, Melville Jacobs Collection, University of Washington
18. "In May, June, and July, deer were hunted with bow and arrow. The hunters were disguised with deer-head disguises, trying to shoot at the neck or heart. Elk were never hunted with such disguises, elk herds were driven into a pass or gully and shot there with bow and arrow, in early August. Elk were not gotten with rope snares." Notebook 128, p. 42, Melville Jacobs Collection, University of Washington
19. "A deer head was used for a hunting disguise when hunting deer at close range. It had to be on the side where the hunters would not be scented. It was not used for elk, which were gotten in a canyon or ravine, in a bunch, easily." Notebook 126, p. 102, Melville Jacobs Collection, University of Washington
20. "Rope for deer snares was of white grass, split and wet and covered with ashes. Then it was split and rolled on the thigh. This was called snare rope, for marten, fisher, mink, coon, otter, and the biggest rope was used for deer. They started in middle August and snared. They also snared in September for meat to smoke. Snares were put in openings in the brush fence. Hunters scared deer in by hitting sticks and making noises, towards 3 AM. They hit sticks and so scared the deer into the snare places." Notebook 128, p. 42, Melville Jacobs Collection, University of Washington
21. "Deer were often hunted by groups of men with the help of dogs. A deer fence was constructed with a small gate opening, above which was strung a bunch of shoulder-blades. To these bones was attached a rope, at the other end of which, away from the wind, a few men watched for the coming of the deer. These had been driven ever since before daybreak in the direction of the deer fence by the dogs, and by men shouting 'Wa wa wa!' After a certain number of deer had been thus forced into the enclosure, the shoulder-blades were violently rattled by the men in wait, which so frightened the animals that they ran into the finely spun semicircular traps of keda grass set for them. Entangled in these, they were easily clubbed to death. Such deer fences were usually built in the neighborhood of creeks or salt licks, and sometimes as many as one hundred and fifty of these rope-traps (tsuk) were set. Not infrequently mountain forests were set afire to facilitate the driving of the deer. A choice portion of the deer-meat was considered the fat (yamx), which was often eaten raw and played with by the children. Similarly to the method adopted for storing away cooked camass, hard dough-like cakes of fat were put away for use in the winter." Sapir, 1907a, p. 260
22. "Today we saw the first antelopes and succeeded in killing one from a herd of five. There were plenty, and we saw numerous places constructed for catching them, consisting of long leaders constructed of thorny brush with opening left where snares were set." Titian Ramsay Peale, September 25, 1841
23. "In a deer drive, the whole tribe encircles a considerable district." (note that he also observed that deer fences were much longer than antelope fences.) Titian Ramsay Peale, September 25, 1841
24. "The elk and deer are mostly captured by driving them into traps and pits. The pits are dug on

trails leading from one mountain ridge to another, and are ten or twelve feet deep, and three wide. A narrow pass is selected on the ridge, and the elk and deer are driven from their pastures by the Indians, and in endeavoring to escape their pursuers, find themselves suddenly brought up, or rather down, in the bottom of the pit." Dr. Lorenzo Hubbard Manuscript, 1861, Bancroft Library Manuscripts Collection

25. "Shan has seen deer fence over Scott Valley. Has never seen any among Karok, but says they had them. Built on hillside, especially near salt lick. Built on two sides of deer trail about 25 feet in all, so as to force deer to use trail. Snare hanging in air, with end attached to stake in ground. It was like a lasso. It caught deer around neck, or one arm and neck (i.e., one leg through the noose). When deer jumps, the noose tightens. The end of rope is fastened to the stake. The noose is held in position by attachment to brush of fence opening. The lower edge of noose is about one foot above ground. If space is small, fence is straight from side to side with opening in middle. If large space, converging fence usually of brush, with one or two firm ones at end to hold horizontal poles laid inside the brush so as to be more or less concealed. Height about four feet. Deer could jump over if scared, but when just walking it follows trail. No trigger arrangement in snare. Both deer and elk snared with fence." Gifford in Karok Field Notes, Notebook 174, 1940, Bancroft Library Manuscripts Collection
26. "A species of rabbit or hare was seen in great numbers on the high prairie; their large ears had somewhat the appearance of wings. The Indian mode of capturing them is by constructing a small enclosure of brush, open on one side, and having a small hole through the opposite side, into which they are driven." Wilkes, 1845, p. 125
27. "Nature seems to have furnished the Indians with a great variety of foods such as game, fish, Kamas, acorns, seeds of various kinds. The deer was the principal game, which, before they had guns, were taken with snares. To capture a deer in this manner they must have ropes and good ones. These were made from a fibre taken from a plant—a kind of flag—growing in the mountains. From each edge of the long flat leaves of the flag a fine thread of fibre was obtained by the squaws, stripping it with their thumb nails. This was a slow process and would require the labor of one squaw a year to make a rope five-eighths of an inch thick and fifteen feet long, but the rope was a good one and highly prized by its owner. In order to snare a deer miles of brush fences were made across the heads of canyons. The ropes were set at openings where experience had taught the Indians that the deer would likely go. Then a great drive was organized with Indians strung along the sides of the canyon. Those making the drive, with dogs, making a great racket crying 'ahootch, ahootch', and those stationed on the ridges were making the same sound, while their wolf dogs kept up their howling. All the noise was made to direct the deer to where the ropes were located. I never participated in one of these drives, but I have seen their fences and the manner of making the drives was explained to me by the Indian boys. They also set their snare ropes around salt licks and watering places. I remember at one time a great antlered buck came across the field with a rope around his neck with a piece of root on the end. The deer in plunging through the brush at the river's edge entangled the rope and being in swimming water was unable to pull loose. An Indian soon came running on the track and was greatly pleased at the capture of the buck and recovery of his valuable snare rope." Riddle in Early Days in Oregon, 1953, pp. 43-44
28. "Both the black and the grizzly bear were hunted. For the former, men had to sweat for five days before starting out on the hunt, using fir-twigs on the coals, to give the body an aromatic odor. After this preparation, the hunters would go to the bear's den, talk to the bear for some time, and beg him to come out and be killed. In the case of grizzlies, the hunters had to dance the war-dance before starting out, just as if they were to hunt a human enemy. Reaching the den, a number of short, sharp stakes were driven into the ground in front of the opening, and then, as the bear came out and was engaged in tearing down and clearing out of the way this obstruction, he was shot under the neck." Dixon, 1907, p. 432

29. "Both black and grizzly bears were hunted in their dens. Hunters sweated for five days in preparation for the the black-bear hunt, and upon arrival at the den they talked to the bear, begging him to come out and be killed. 'In the case of grizzlies, the hunters had to dance the war dance before starting out, just as if they were to hunt a human enemy. Reaching the den, a number of short, sharp stakes were driven into the ground in front of the opening, and then, as the bear came out and was engaged in tearing down and clearing out of the way this obstruction, he was shot under the neck.' These stakes were held at the top by the men, this being made possible by the fact that the grizzly pulls things toward himself rather than pushing them down. Sometimes a man to show bravery would grab the dying grizzly by the ears and rub his head against the bear's forehead. 'The biggest man is scared of a grizzly. He will cry and tremble. Anyone who has had trouble with a grizzly will just bawl and cry. If you just hear one, it scares you to death. You may not know you are shaking until you light your pipe and your hand will just be shaking. Nothing else has that power.'" Holt, 1946, p. 311
30. "Another method of hunting black and brown bears was as follows: When people went gathering pine nuts in the fall the bears were also feeding on the nuts. They treed the bears with dogs and shot them. If the bear was too high up to be shot, a man talked to it, telling it to come closer. 'A bear will do what you tell him.' One who came upon a previously unknown bear den placed bark or branches before the opening, telling the bear not to touch them. Then he told the village of his discovery and the bear was still there when they went for it next morning. Should the wife of one of the bear-hunting party be near the menstrual period, the bear would not come out, but would have to be smoked out. Bear hunting was dangerous for a man whose wife was menstruating, for the bear would surely attack him." Holt, 1946, p. 311
31. "A man would crawl into a sleeping beaver's hole, slip a rope around his feet and drag him out. The tail was eaten. It was put in a split stick tied at the top, set in front of the fire and turned round and round until cooked." Holt, 1946, p. 311
32. "Minks were snared and otters shot. The otter meat was floated downriver to the coast on a big piece of bark. It was told, 'You go back to your country now,' and something further forgotten by informant." Holt, 1946, p. 311
33. "Contrary to Dixon, the Shasta did not eat mountain lion and wildcat, those animals being used only for their fur. Such meat and that of other animals not eaten, such as mink and the body part of the beaver, were never thrown on the ground, however, but were put away somewhere in a tree." Holt, 1946, p. 311
34. "Middle Summer-July, start to hunt, that time deer and elk fat-hunt clear through August. Those two months they hunt steady. They went on mountain. Everyone went. Fixed little grass house-strung up long poles for drying. If they kill lots of elk-it takes lots of work. Of course old folks stay home and they pack meat home to them. Kids can help carry. 10-12 year old boys and girls all pack." Coquille Thompson, Informant for Elizabeth Jacobs, Notebook 116, University of Washington Manuscripts Collection
35. "Their aforementioned appetite for beaver led the Indians of the Rogue River Valley to devise a number of means to capture the beasts. Ogden, writing in February, 1827 near the present site of Talent, relates that his trappers complained that the Shasta and Takelma broke apart lodges and killed the beaver with arrows and spears; later he comments that an average of six out of ten hides taken by his men contained arrow barbs and many had old wounds. Ogden also notes the use of fire to destroy lodges and kill the animals, as well as the setting of snares and wooden traps '...they sett them in the Beaver paths near the waters edge but I am not of opinion they can take many...otherwise--they must be near the spot at the time or (the beaver) will soon cut his way through...'" LaLande, 1991, p. 18

36. "Like hunters elsewhere in western North America, Rogue River Valley Indians evidently took advantage of the pronghorn antelope's innate curiosity. In his narrative on southwestern Oregon, Wilkes documents the following method: "The Indians take this animal by exciting its curiosity: for this purpose they conceal themselves in a bush near its feeding-grounds, and making a rustling noise, soon attract its attention, when it is led to advance towards the place of concealment, until the arrow pierces it." LaLande, 1991, p. 20
37. "The great Shasta plains were anciently the most famous hunting-grounds in Northern California, abounding in elk, deer, antelope, and wild sheep, which grazed on the alfalfa, and other grasses produced there. The possession of these made the Shastika the envy of surrounding tribes, and to retain them cost their owners many a bloody fight." Powers, 1877, p. 245

ANIMAL POPULATIONS

DEER AND ELK

1. "We traveled over a fine level country and on reaching this River we saw two small Herds of White tail Deer." Peter Skene Ogden, February 15, 1827
2. "The natives inform us that Deer are abundant in the hills and Mountains...from their being all well clad in Leather I can well believe them..." Peter Skene Ogden, February 10, 1827
3. "Woody, Oaks and Pines of different kinds and a few cedar Trees well stock'd with Black Tail Deer and no doubt in the Mountains Red Deer..." Peter Skene Ogden, March 7, 1827
4. "Distance 9 miles, Country woody and well stock'd in Red and Black tail deer..." Peter Skene Ogden, March 15, 1827
5. The world offers no better hunting-grounds than these wild woods of the north. Here are found a variety of deer, and the brown and black bear (the grizzly is not seen north of the California line). The stately elk, with such antlers as the hunters of the Eastern States have no conception of, runs in bands of hundreds in the interior; the black, grey, and white wold, and the numberless little delicately furred creatures who are made to contribute their soft coverings to the rich robes now so fashionable in the Northern United States, are all found in this region." Wells, 1856, p. 600

WATER DWELLING SMALL MAMMALS

1. February 11—"Raccoons are certainly numerous in this Country...scarcely a day passes but some are taken in the traps." Peter Skene Ogden, 1827, as cited by LaLande in First Over The Siskiyou, 1987, p. 61*BEAR CREEK VALLEY

UPLAND DWELLING SMALL MAMMALS

1. "Rope for deer snares was of white grass, split and wet and covered with ashes. Then it was split and rolled on the thigh. This was called snare rope, for marten, fisher, mink, coon, otter, and the biggest rope was used for deer." Notebook 128, p. 42, Melville Jacobs Collection, University of Washington

LARGE CARNIVORES

1. "An interesting set of beliefs, unique among these Athapascans, were those directed toward wolves. These animals were regarded as friends and allies of men. Like men, they would take revenge if one of their number was slain, either by killing the guilty human (or a relative) or by stealing a child from the village. In the latter event, the child would replace the lost member of the pack and after a time would lose all desire to return to human society." Drucker, 1937, p. 284
2. "Finally giving up on his tenacious search for a new route, Ogden wrote disparagingly of the Applegate Valley and returned north. However, nearly fifty of the brigade's horses were run off by wolves, stalling the group's return to the Rogue for an additional two days." LaLande in First Over The Siskiyou, 1987, p. 108
3. "March 26 This Stream (Cow Creek) has been examined almost from end to end and with the exception of those taken by us in the upper part has yielded nothing...Trappers report they saw seven Bears from the number of tracks I have lately seen I believe them to be numerous in this quarter, it is a fine Country for them Acorns being most abundant and roots also." Peter Skene Ogden, 1827
4. "Grizzly Bear Ate Up One Young Man." Notebook 126, p. 97, Melville Jacobs Collection, University of Washington
5. "Big-bear. There were lots of grizzlies at Rogue River and from there south, but there were no grizzlies at Siletz..."Hoxie Simmons, Informant for John Harrington, Reel 28, Frame 197
6. "The grizzly stands up on his hind legs when he comes across you. He does this because he wants you to run, and as you run he jumps on you and you have no chance. But a brave Indian does not start to run, he arrows the grizzly as he stands erect in the collarbone region, or if the Indian cannot do this, then slantingly into the grizzly's small floating ribs." Hoxie Simmons, Informant for John Harrington, Reel 28, Frame 199
7. "It is an old Indian saying that if an Indian kills 10 grizzlies than a grizzly is certain to kill the Indian. The only exception to this saying is John Adams' father, who at Rogue River killed 40 grizzlies with bow and arrow. One of these grizzlies he shot from across the Rogue River with bow and arrow." Hoxie Simmons, Informant for John Harrington, Reel 28, Frame 200

WATERFOWL

1. "...numerous Flocks of Wild Fowl consisting of Grey and White Geese Bustards and Swans pass'd by bending their course to the westward." Peter Skene Ogden, February 19, 1827

FISHING

SALMON

1. "A lot of people were right at that place at the mouth of the (Applegate) River. That is where they were dipnetting salmon. They lived there at that time (in a summer camp). Now that is where they (the Shastas) shot he (at a formulist-shaman) who was seated in an open place that had a fire in the middle, all surrounded by a brush fence." Hoxie Simmons, informant for Melville Jacobs, Notebook 126, p. 3, University of Washington Manuscripts Collection

2. "Galice used a fish basket to catch salmon. They made a fish dam." Pliny Goddard, Notebook 2 of Galice Creek Materials in the Melville Jacobs Collection, University of Washington
3. "The Gu-Sla-Dada were the people at the head of the Illinois River. John Poncy was the last one of these people at Siletz. These people talked a dialect intelligible to Galice-Applegate. Thus, the Illinois, Galice, and Applegate formed one dialect group. The Gu-Sla-Dada had a type of very large chinook salmon which turned and ran up the the Illinois River but did not go further up the Rogue River." Sally Snyder, material extracted from Melville Jacobs' Galice Creek Notebooks, Notebook 128, p. 94, University of Washington Manuscripts Collection
4. "A basket is made to catch salmon. It is 8 by 4 feet, and from 12-16" high (cylindrical basketry trap). " Sally Snyder, material extracted from Melville Jacobs' Galice Creek Notebooks, Notebook 128, p. 7, University of Washington Manuscripts Collection
5. "Fish traps were built across river for dip-net fishing." Sally Snyder, material extracted from Melville Jacobs' Galice Creek Notebooks, Notebook 127, p. 97, University of Washington Manuscripts Collection
6. "For fishing salmon at the river, a shed is built at an eddy. The shed consists of fir boughs laid on two poles. The purpose of the structure is to cast a shadow over the water so that the fish may be seen. Men sit there to spear salmon.
"After salmon was speared, it was clubbed in head." Sally Snyder, material extracted from Melville Jacobs' Galice Creek Notebooks, Notebook 127, p. 87, University of Washington Manuscripts Collection
7. "Fall salmon were dried for the winter." Sally Snyder, material extracted from Melville Jacobs' Galice Creek Notebooks, Notebook 126, p. 103, University of Washington Manuscripts Collection
8. "Salmon were dipnetted at falls." Sally Snyder, material extracted from Melville Jacobs' Galice Creek Notebooks, Notebook 126, p. 94, University of Washington Manuscripts Collection
9. "There is a salmon formulist." Sally Snyder, material extracted from Melville Jacobs' Galice Creek Notebooks, Notebook 128, p. 81, University of Washington Manuscripts Collection
10. "Tcupun-Basket trap for salmon. No eels at Table Rock." Molly Orton, informant. Notebook 135, Bancroft Library Manuscripts Collection
11. "Built weirs of brush with basket trap at openings. Salmon speared and seined. Salmon Spearing--Go at night in canoe. Women hold pitch torch so men can spear. Spear from canoe. Does not know of spearing platform. No salmon houses. All spearing done from canoes. No private fishing grounds known. Probably correlated with absence of salmon platform and huts. Salmon Gill Net--The bottom of the net is weighted down with sinkers placed 2 feet apart. Floats for the top of net consist of narrow pierced boards. Each end of the seine is attached to a pole. One is planted near shore, the other diagonally downstream. Fish are directed diagonally upstream by the net and finally are caught in the mesh. Men then go out in canoes, pull up the net, and force the fish out, tail first. This method used especially for spring salmon." Cora DuBois, Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection
12. "Weirs--Drove sticks into bottom of stream with rocks and wove in brush. This was men's work. Fish Traps (Narrate)--Large ones used for spring and fall salmon, smaller ones for trout. Made from hazel of open work twining. Willow also used. Is flat trapezoid which is bent into position by three stakes. Weirs built to mouth of trap. Made by men." Cora DuBois, Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection.

13. "Net twine made of iris fibers. Temele. Fiber extracted by splitting leaf with teeth. Fibers spun by rolling on thigh. Gathering Iris, spinning, and net making all men's work. Informant didn't know how nets were made because work was carried out in sweathouse from which women and children barred. Also men forbade children to come near them when making nets because that would frighten away salmon." Cora DuBois, Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection.
14. "Villagers usually fished in front of their own lands, but were free to fish where they wished and to go to the mouth of the river. The river was also a free highway for all to travel. People might complain if a stranger fished too much in front of village." Cora DuBois, Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection
15. "Rotten salmon and spawned out salmon much esteemed by some. Eat dead fish found on shore. Will sometimes boil into soup." Cora DuBois, Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection
16. "Informant's father, as chief of Tu-Tu-Tun, had to catch the first salmon of the spring run. Before he brought it in the dwelling, he wound shredded willow bark around his forehead, neck and waist. Everyone in the village had to taste a little piece of the first fish, and after that anyone could go out and fish. That keeps people from getting sick with the new salmon. She denied that old salmon were then thrown away. ...Same ceremony for eels." Cora DuBois, Tututni Field Notes, 1934, Notebook 6. Bancroft Library Manuscripts Collection
17. "When the river rises high, an old man will try to keep it from going any higher by putting a stick at the edge of the water thrust into the bank. He hides it so no one knows about it. He talks to the stick, sings all night, makes medicine to make the river go down. He keeps what he says a secret. He will teach it to you if you pay for it. You have to buy his words. Then both can use it. Usually sell to someone outside of your own village. Men and women both use the same formulae. Informant never bought formulae." Cora DuBois, Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection.
18. "This is the name of a stone used for driving stakes into the river as a salmon-weir. One Indian holds the sticks while the other does the pounding. It takes one day to drive the stakes in a row crossing the stream." Coquille Thompson, Informant for John Harrington, Reel 25, Frame 804
19. "A blind hut over the water of the river inside of which a man sits to spear salmons, from inside this one can see fishes plain in the water, but if you spear at a fish and miss it, that fish will not come back in under the (blind) any more." Coquille Thompson, Informant for John Harrington, Reel 25, Frame 808
20. "At night only, poles several feet long were tied at both ends to overhanging willows or the like so that the pole floated transverse to the current and from the pole hung several yard-long strings each with a baited hook. Trout would bite these hooks and would stay on the hook perhaps all night till the pole was taken up in the morning maybe with several trouts caught. If these were used in the daytime, the bait would be nibbled off by tiny fish near the bottom." Coquille Thompson, Informant for John Harrington, Reel 25, Frame 805
21. "Yuls--Steelhead. When I ask what she calls steelhead, says at once Yuls. Used to be lots of these at Applegate." John Harrington, Reel 28
22. "Salmon was speared at spawning season, at a spawning riffle over gravel, in late April or May. A pole with a detachable spearhead was used." Notebook 127, p. 45, Melville Jacobs Collection, University of Washington

23. "In times of summer low water, the people often went down to the river near Table Rock to fish. The salmon seem to have been of poor quality, rather badly battered by the time they had made their way up the river, but were no less appreciated. They were taken with two-pronged harpoons, on riffles and plunge nets in the rapids. Some had become so decrepit they could be seized and tossed out on the bank with the bare hands. The informant knew nothing of fish poison (but a half-breed at Big Bend, about the western limit of the Takelma on Rogue River, volunteered a good description of the use of soaproot for this purpose). The salmon were split and dried by the women. Sometimes the meat was pulverized for storage." Drucker, 1937, p. 294
24. "Fishing is a favorite employment, and they are more expert in this art than any other, particularly salmon fishing. The streams abound with salmon, and in the season, vast numbers of these fish are taken and preserved for use during the months that none are caught. They are taken in various ways. The dam is more frequently resorted to. A curiously wrought dam, made of willow boughs nicely woven and supported by stakes, is thrown across the stream at the head of a rapid, so as to prevent the fish from ascending; at the distance of every 15-20 feet, niches are made in the dam some four or five feet wide, and as many deep, into which the fish collect in attempting to pass the rapid. The Indians place themselves below the dam, some with nets, some with spears, and others with clubs, and slaughter the fish in vast numbers, while the squaws are ready to catch them up when disabled, and put them in canoes. The salmon are dressed by splitting them open on the back and taking out the bone, and then dried and smoked—cords of fish are in this way preserved for winters' use." Lorenzo Hubbard Manuscript, 1861, Bancroft Library Manuscripts Collection
25. "Spearing by torchlight is an amusement, as well as an employment frequently resorted to in the proper season, and when the weather is favorable; a dark still night is most favorable for the object. A wide and shallow place in the river is selected, the Indians in their canoes, spear and torch in hand, take their positions for fish, as regular as a company of New Hampshire militia fall into line at a general training day.
 "Not long since I witnessed a scene of this kind in a small bay at the mouth of Rogue River. The night was exceedingly dark, a heavy fog having settled over the valley. Some 20 or more canoes were in requisition, each canoe was rowed by a young squaw, while another held the torchlight directly behind the head of Neptune, who stood statue-like, in nature's garb, on the prow, with uplifted spear, ready to send death through the first unlucky fin-back which should chance to make his appearance. The canoes all move in the direction indicated by the master of ceremonies; sometimes they skim over the water with great rapidity, then again they move noiselessly through it. When a fish is struck, the light is at once lowered, and amid cheers and laughter the struggling fish is secured in the canoes. The fishing party usually arrange themselves in line on one side of the river, then at the word from the chief they move across the river, or up and down as he may direct; sometimes they go far up the stream, form in line across it, and float gently down with the current, again they deploy column, and form on both sides of the stream, passing each other in the centre, spearing as they go, and as they are about breaking up, they pass with rapidity in every direction, and if they have been successful, the air resounds with their merriment. The scene is beautiful and imposing. The torches, which burn with a brilliant light, display all the manoeuvring of the parties to great advantage, the herculean statue standing on the prow in bold relief, a perfect model of grace in form and attitude, the sylph-like forms of the fairy nymphs who move the 'fire-fly boat' and the moving orbs of fire, surrounded by more than darkness—the effect can better be imagined than described." Dr. Lorenzo Hubbard Manuscript, 1861, Bancroft Library Manuscripts Collection
26. "Salmon spearing—Go at night in canoe. Women hold pitch torch so men can spear. Spear from canoe. Does not know of spearing platform. No salmon houses. All spearing done from canoes. No private fishing grounds known. Probably correlated with absence of salmon platform and huts." Cora DuBois in Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection

27. "Fish trap (narate)—Large ones used for spring and fall salmon. Smaller ones for trout. Made from hazel of open work twining. Willow also used. Is flat trapezoid which is bent into position by three stakes. Weirs built to mouth of trap. Made by men." Cora DuBois in Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection
28. "Potsa—Pulverized salmon flour, partly cooked, sun-dried on tule mats, pounded, stored in tule basket, covered with leaves for storage." Molly Orton, Informant, Notebook 135, Bancroft Library Manuscripts Collection
29. "Salmon eggs dried. Table Rock people traded salmon and salmon eggs to mountain people for deer and deerskins." Molly Orton, Informant, Notebook 135, Bancroft Library Manuscripts Collection
30. "In summer, when water low at Table Rock, speared salmon in shallows—lots of people went there. First salmon caught with dipnet near Rocky Point, at big hole by waterfall. Salmon had to be eaten right there, not taken home, or they would stop running. Priest told: 'The first person owned this place, wrestled and killed everyone who came to eat Salmon. Swallow came along and killed him, then everyone could eat salmon. Evening Star was the first owner and swallow defeated him.' The priest prayed before all the people. Then could eat in safety. Tsum-lu-hoyalti—pray for salmon. Has to train, sweat, gash arms and legs so he pray good. The first salmon cooked over fire. No dance. The salmon priest position was hereditary. Table Rock only place in area this observed." Molly Orton, Informant, Notebook 135, Bancroft Library Manuscripts Collection
31. "The 26th, they passed along the banks of the Rogues' River, which runs on in a westerly direction; upon it, the Indians were seen spearing salmon from their canoes." Wilkes, 1845, p. 123
32. "The Indians' manner of fishing was more simple than snaring deer. The silver salmon came in such multitudes in the fall runs that they were easily taken at the falls of Cow Creek. Dams of sticks were made across the small channels through the rocks and traps with hazel rods, woven together with withes forming a basket about ten feet long and about three feet in diameter at the upper or open end and coming to a point at the closed or lower end. This trap was fastened in the rapid water in the narrow channel with twisted hazel withes fastened to the poles of the dam. The salmon in great numbers would pass up by the side of the trap and, failing to go above the dam, would be carried back into the open end of the trap and the weight of the water would hold them. The Indians would work two such traps and when the river began to raise in the fall they would take several hundred of a night. When the fall rains came sufficient to raise the river two or three feet, the great run of salmon would come day and night. Crowding up under the falls hundreds of them being in sight at one time." Riddle in Early Days in Oregon, 1953, p. 44
33. "Salmon were caught by weirs, by nets, and by a sort of driving. The fish weir or dam was constructed always in a shallow, gravelly spot. A row of stakes was driven slanting slightly down-stream; the stakes being set pretty close together. At water-level, a horizontal pole was tied firmly to the stakes with withes, being placed on the up-stream side. This horizontal pole was then guyed at either end, upstream to the shore, by long grape-vines. Brush was then laid on the stakes on the up-stream side, and weighted with stones at the bottom. Here and there openings were left, and in these, long willow fish-traps were placed. Sometimes, where a stream was very swift, cribs weighted with stones were built on the down-stream side, in the centre, for additional support. Large dams of this character were few in number, there having been it is said, but three on the Klamath River, within Shasta territory. One of these was at the mouth of Shasta River, one at Scott River, and one at Happy Camp. Each belonged to one or two men. Any one, however, could come and spear fish at such a dam, and the owners were obliged to give to any one who asked for them as many fish as he could carry." Dixon, 1907, p. 428

34. "The net used mainly be the Shasta was a very ingenious one, and was much used also by the other Indians of this whole region, and it is still used to-day. A point in the river is first selected, where there is a strong eddy, in which the salmon are likely to rest as they ascend the stream. A platform is then built out from the bank, raised about a metre from the water-level....The salmon, as they enter the net, disturb or shake these strings; and the fisherman (holding the end at s), feeling this, instantly draws up the net, the mouth of which automatically closes by the weight of the net and fish therein contained. The affair being lifted out on the platform, the fish are then killed with a club. Formerly, when a new platform of this sort was used for the first time, some ipos-root was pounded fine and thrown into the river; but except for this, there were no ceremonies." Dixon, 1907, p. 430
35. "Among the Shasta in Oregon, a different mode of catching salmon was in vogue, successful only where a stream was shallow, and not too rapid. Several rude rafts were constructed of logs, and on these a number of women placed themselves, and floated down-stream, thrashing the water violently all the time with branches. This proceeding frightened the fish, who turned and ran down-stream to where the men stood shoulder to shoulder in a line across the whole width of the river. As the fish came down, they were speared. All fish caught in this manner had to be eaten on the spot that same day. If any were kept, or carried home, it would immediately rain violently." Dixon, 1907, p. 430
36. "Frances Johnson stated that once her father caught 300 salmon in one night at the falls on Grave Creek. This reference to night fishing correlates with an account of spearing fish on the Rogue at night by the light of torches. According to this account, which was taken from a manuscript entitled *The Shasta and Their Neighbors* (Bancroft 1883), fish were driven into ponds created by temporary dams; the trapped fish were then speared at night by the light of fires built around the edge of the pond." Gray, 1985, p. 63
37. "Fishing Season (September, October)--They had fishing camps. Everybody went for that. Got in own house. Fish come upriver-everybody got own boat. Over deep water lay brush, and sit in boat, or on shore near deep hole, and spear--"chinook they like best." They're fat, they come that time. They fished about two months-as long as fish is fat. They wanted fat fish for drying-then when they got what they need-they let fish alone.
"Chinooks come first, then silversides. Now that time hard work begins. Use dipnet when they first come in. But not everyone had net-they had to use spear. Keep on all day long spearing. Didn't spear silversides, used big salmon net for them. They set it-one man helped by wife set net, they had to watch it-they tied a string that made a noise as soon as fish got in-they go get it-put it in boat-they worked all night. They don't care for silversides. They get them up at head of river, near falls. They wanted to get the fish before it lost its eggs. They needed salmon eggs more than anything. They put loose eggs in great big basket-hung it up above smoke with ropes. It stink when getting fixed. But in spring, they boiled dry salmon heads, take one half cup full of rotten salmon eggs, put in soup, Oh! it come just like milk, tastes good. That's in spring.
"Steelhead come in Christmas-they don't dry like chinook and silverside-they're not going to keep fish much longer. They go back home before steelhead come." Coquille Thompson, Informant for Elizabeth Jacobs, Notebook 116, p. 93, University of Washington Manuscripts Collection
38. February 15--"At this season dead Salmon are most numerous in all the Small Rivers and the Natives are busily employed in collecting them no doubt for food...the Indians even go so far as to select them in a putrid state giving them the preference...what a depraved taste..." Peter Skene Ogden, 1827, as cited by LaLande in *First Over The Siskiyou*, 1987, p. 68
39. "Their staple article of food is the salmon, which are as plentiful in the Oregon rivers as herring and shad in the Potomac; Rogue River especially abounds in them.....One haul with a seine at the mouth of the river, when the tide is setting in, is sufficient to last twelve hundred Indians a fortnight." Glisan, 1874, p. 248

FISHERIES CONSERVATION

1. "Similar dams to this exist on the Klamath, a few miles below the forks, and about fifteen above this one; and there is another upon the Trinity, thirteen or fourteen miles from its mouth. They form a frequent course of quarrel among the bands inhabiting different parts of the rivers. Some understanding, however, seems to exist as to opening portions of them at times, to allow the passage of fish for the supply of those above." Journal of Col. McKee, edited by George Gibbs in Schoolcraft, 1853, vol. 3
2. "In these traps, there get to be a mass of salmon, so full that they make the whole structure of the fish dam quiver and tremble with their weight, by holding the water from passing through the lattice-work freely. After all have taken what they want of the salmon, which must be done in the early part of the day, Lock (the dam formulist) or Lock-nee (his assistant) opens the upper gates of the traps and lets the salmon pass on up the river, and at the same time great numbers are passing through the open gap left on the south side of the river. This is done so the Hoopas on up the Trinity River have a chance at the salmon catching. But they keep a close watch to see that there are enough left to effect the spawning, by which the supply is kept up for the following year." Lucy Thompson, 1916, pp. 135-136
3. "By overtly (also, it seems, covertly) regulating the beginning of the salmon fishing season, first-salmon rituals may have served a distinct conservational or management purpose. In allowing the salmon to run freely during the initial period of ritual restriction (the duration and timing of which was controlled by the formulist, and generally appears to have lasted from several days to two weeks), riverine tribes maintained a productive inventory of spawning salmon each spring, which ensure successful reproduction and return of the king salmon runs in following years.....The opening and/or purposeful dismantling of weirs built and operated under ritual supervision along the Klamath also allowed the summer run to proceed to upstream tribes (and eventually the spawning grounds), this run being of major importance for winter storage. Potential inter-group conflict stemming from over-use or blockage of the salmon run by downstream tribes was thus prevented. The maintenance and conservation of the salmon subsistence base on a year to year basis was perhaps the most important function of the first-salmon observance, and there is no evidence that native populations ever seriously overfished the salmon runs." Sean Swezey and Robert Heizer in Before the Wilderness, 1993, p. 324

EELS

1. "Sometimes the Indians put a plank across a canoe and put a thick layer of sand on top of this plank and then build a fire on top of this, and this attracts eels--this is for night-eel fishing. Sometimes salmon come and we can hear the salmon making a noise as he swiftly flips through the riffle toward the canoe, but we have no way of killing salmon when they come. Nigteels come silently through the riffles.
We catch the eels by snagging them with an iron hook, filed, a pitchfork tooth is fine for this. Pole 10 feet long. This hook is primarily an eel hook, but sometimes we snag a steelhead. The iron hook is first lashed and then the wrapping is treated with melted fir-pitch from marble-like exudations. The nigteels will dodge your shadow on sight of the pole or its shadow. Nigteels come in upriver from the ocean in April (if weather is good) and May." Coquille Thompson, Informant for John Harrington, Reel 25, Frame 1054
2. "...My father said that when they had the run of eels in Illinois River, which was in June or July, Indians made fence and dipped eels out with dipnet." Wolverton Orton, Informant for John Harrington, Reel 25, Frame 1020

3. "When the eels were being caught up at the place upstream of Chasta Costa, they said of that 'The blood (of eels) is flowing,' meaning the Rogue River had turned into (eel) blood (when they were cleaning eels)." Wolverton Orton, Informant for John Harrington, Reel 26, Frame 830
4. "It is solid rock and a little riffle, and just above there is deep water, and from above they drive salmon down into a (salmon-catching basket) and the weir. The name of the place was Ni-Il-itun. At this same dam they caught both salmons and eels. They removed eels with dipnets. The Indians drag a rope held at both ends down the river to make the big chinook salmons go into the trap." Wolverton Orton, Informant for John Harrington, Reel 26, Frame 825
5. "My father was a good-sized boy and dragged the rope downriver twice. It was funny, he said, but the salmons never rose but escaped by moving downstream, along the bottom." Wolverton Orton, Informant for John Harrington, Reel 26, Frame 826
6. "Na-Rut-La-Tun—a kind of waterfall that consists of a dam of solid rock that runs way across the Rogue River. Mother used to go down there from Big Bend when she lived at Big Bend, about seven miles from Big Bend down there, to get eels. Means place that water comes down over-like somebody spills water." Lucy Smith, Informant for John Harrington, Reel 26, Frame 697 *TWO MILE RIFFLE
7. "The Indians here used to peel willows (get by stripping upwards) and from that get the white bark and braid a stout rope of this, 3 strands. They tie a big anchor-rock to one end of this, 2 feet long rock, and put that rock in the river above the riffle, then let the canoe slowly drift downstream till it comes to the end of the rope, rope is 50 ft. long, and that puts the canoe in midstream on the riffle, and the Indians hook the eels with a stick with a hook on one end attached with pitch, you have for night a fire on top of a layer of sand on the canoe to entice eels at night, eels come until daylight. Then for 2 or 3 nights you cannot go eeling again for you have to take care of the eels you have gathered. And men sleep in daytime. Lots of pitchwood and rotten wood for fires on boat in early times. When get finished, man pulls in the 50 ft. rope hand over hand, pulling the canoe as he does up to above the riffle." Coquille Thompson, Informant for John Harrington, Reel 25, Frame 812
8. "Xtan—eel. No eels live in Rogue River they never ate eels till she came here to Siletz." John Harrington, Reel 28
9. "Eels—Two weirs are built with their opening facing downstream. White stones are laid on the floor of the stream at the opening. A platform is built on the edge of one of the weirs. A canoe is drawn up alongside on the downstream side. On the platform are laid stones as hearths. A fire of pitchwood is kept burning there. The eels as they pass through the weir and over the white stones are hooked out by a man on the platform. The hook is made of a deer rib. The hook passes around the body of the eel and with one sweeping movement is hooked out of the water and into the canoe. The weirs are built on riffles. Two men fish, one hooks and one tends the fire." Cora DuBois in Tututni Field Notes, 1934, Notebook 6, Bancroft Library Manuscripts Collection

GATHERING

ACORNS

1. "The acorns of most of the species of oaks growing in the region were eaten. Some were, however, much preferred to others, the order of preference being blake oak (*Quercus californica* Cooper), white oak (*Quercus Garryana* Dougl.), and live-oak (*Quercus chrysolepis* Liebm.). The acorns of the tanoak (*Quercus densiflora* Hook. and Arn.), growing only in quantity further down the Klamath River than the section occupied by the Shasta, were, however, by many considered superior to any of the local species." Dixon, 1907, p. 423

WHITE OAK

1. "The white oak acorn was used as food, but I do not think relished, and perhaps only used to appease hunger. The acorns were pounded in a mortar, the hulls separated, and meat pounded into a meal. It was then spread out on clean sand and water poured over to take out the bitter taste. It was then boiled in a mush or porridge." Riddle in Early Days in Oregon, 1953, p. 45
2. "White Oak (Sachen) and Scrub Oak (Sachtlae) were the only two types used. Are gathered when wind has blown and they had dropped off themselves. Gathered in baskets. Are cracked either with teeth or with a rock. Young people join in. To make meal use pestle and hopper on flat rock base. Steadied hopper by seating self on ground and placing calves of legs on edge of basket. Acorns were main vegetable food. Cooked by hot rock method. Large watertight cooking baskets, smaller ones for serving individuals. Acorn bread made when food is to be taken for a journey. Meal still damp from leaching is patted into small cakes and laid to roast on ashes. Bread not made in pit oven.
"After gathering acorns, they are shelled as above, then laid on old openwork burden basket which has been cut in half. Are laid in rafters to dry. When dry are put unpounded in the large food storage baskets at the rear of the house. Meal is pounded only as needed. Pounded in hopper. Then leached in sand pit on riverbank. Hole hollowed out, sand patted down firmly, meal poured in. First cold water is poured over meal, then a little warm water. Meal is tasted to see if bitterness has been removed. If still bitter, continue to rinse until sweet. Then wait until dry and begin to crack. Layers of meal are then picked up, carefully rinsed in a container of water to free of sand and then placed in third container.
"To cook, a large watertight twined basket is used. Enough meal is placed in the basket, which is then filled with water. Small flat rocks are then dropped in and the mixture is stirred constantly with a paddle to keep basket from burning. Enough is cooked at one time to last for three or four meals. The leftover is eaten cold. When it molds 'it tastes awful good.'
"Some acorns are stored slightly moist so they will mold in storage baskets. Others, completely dry, are stored so they won't mold. The two may be mixed when eaten. Half green acorns are stored with an aromatic grass which imparts a special flavor." Cora DuBois in Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection
3. "Acorns are gathered in mts. during the day. Climb trees and shake branches. Sit up better part of night shelling them. Young men and women help. Shell them with teeth. At Yukwitz, said acorns were shelled and buried in ground close to fire of dwelling. Left there for five days and were sweet. This not done at Tu-Tu-Tun." Cora DuBois in Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection

4. "Ca-cta-Valley Oak." John Harrington, Reel 28
5. "His tail and his fins are the last grub eaten with acorns when other food is gone." John Harrington, Reel 28
6. "The acorns of the white oak were prepared and cooked in the same manner as those of the black oak; but they made a more slimy, glutinous mixture, which was not as well-liked. Live-oak acorns were prepared by being buried whole in the mud for some weeks, till they turned black. They were then dug up, cracked, and boiled whole, without being made into meal. They were also sometimes roasted in the ashes without any preliminary burying or boiling." Dixon, 1907, p. 426
7. "Quercus garryana, Oregon Oak, Karok axaweiip; the acorns, axawham. The acorns of this species do not have as good a flavor as those of the favorite Tan Oak but are eaten when the latter fail. They are hard to pound into meal." Sara Schenck and E.W. Gifford in Karok Ethnobotany, 1952, p. 382
8. "The principal oaks are listed below and their desirability rating as taken from Bumhoff is given. A rating of 1 indicates a preferred species and the rating goes up to 3 for an undesirable species. Tan oak-1.0, Black oak-1.5, Oregon oak-2.0. These ratings are of some importance because in many areas people would travel a long way to a single tree of a preferred species while ignoring nearby groves of an undesirable species. The less desirable species should be classed as secondary staples." Baumhoff in Handbook of North American Indians, 1978, p. 16

BLACK OAK

1. "Acorn meal leached in sandy depression. Acorn flour stored for winter, mixed with cold water when used." Molly Orton, Informant. Notebook 135, Bancroft Library Manuscripts Collection
2. "The staple food of the Takelma is probably to be considered the acorn (yana), of which there were recognized several varieties, the black acorn (yana yahal) being considered the chief. The first acorns appeared in the early spring, at which time they were gathered and prepared by the women, who, however, were not permitted to partake of them until the men had performed a formulaic ceremony and themselves eaten; only then, and after the vessels had been washed anew, could the women also take part in the first eating. The method of preparation was essentially the same as that employed by the Hupa and the Maidu. A hole about an inch in depth was cut into the ground so as to hold firmly the pes, a flat rock on which the acorns were pounded. After these were shelled they were mashed fine by means of the selek, a stone implement, used for the purpose, of two to three feet in length, or else by the shorter t'elma, of about a foot and a half in length. The acorns were prevented from spilling off the flat rock by a funnel-shaped basket, or hopper, wider at the top and entirely open at the bottom, known as a bon. In the degas, a shallow circular basket-pan, the meal was sifted and was then placed on carefully washed sand, seething water being applied to extract the elements which impart the bitter taste of the acorn. The acorn dough (xnik) thus obtained was boiled in a basket-bucket (kel mehelt) constructed of hazel shoots and split roots, the usual Pacific coast method of applying hot stones into the basket being employed. The final result was a sort of mush that here, as farther south in California, formed the most typical article of food." Sapir, 1907a, p. 258
3. "Where the acorns were plenty, the dough, after cleaning, was often dried, and in that form traded to other villages where the acorn-crop was not so plentiful. It is said that this dried acorn-paste formed a considerable article of trade with the Rogue River people in Oregon." Dixon, 1907, p. 426

4. "The acorn of the Black Oak is only occasionally gathered when there is a shortage of Tan Oak acorns, the preferred acorns. The acorns of the Black Oak have a very distinctly different taste than the readily available Tan Oak acorns. The Karok consider the Black Oak acorn as a ceremonial food. The Yurok will bury them in a wet, muddy area for quite sometime and when the acorns are prepared they taste like Limburger Cheese. All groups say they pick between 1-3 gunny sackfuls a year." Kathy Heffner in Following The Smoke, 1984, p. 41
5. "Of the several vegetable foods known to have been gathered and utilized, Sapir put acorns at the top of the list. Several varieties indigenous to the area were collected, although the black acorn was the favored species. Acorns were gathered and prepared for consumption in the early spring. The broad river valleys, low surrounding hills and the southern aspect of higher elevations would have been the principal locations for this resource." Gray, 1985, p. 56

TANOAK

1. "The canyon live oak was another type, a little more difficult to gather, but also low in tannic acid content. The tanbark oak was still another low-growing source of acorns. Every available basket, container, and storage area was filled to overflowing during the fall harvest season." Booth in Valley of the Rogues, 1971, p. 56
2. "I'xkareya were the beings before they became trees, (and) rocks. The (White Oak and Live Oak) laughed at Tanbark (Oak) and Black Oak, (but they retorted), 'As long as people live, they will always have us first, and you-they won't think much about you.' And that is why, when people are together, they always have (tanbark) acorn soup, and the next they use is black oak." Mary Ike, Karok Informant for Kroeber and Gifford, 1980, p. 261
3. "Tan Oak acorns are collected for subsistence and ceremonial use. They are gathered in late Fall. The oaks growing in the high mountains are preferred because the acorns have a lot more meat. The Yurok collects from 3-5 gunny sackfuls a year, the Tolowa 1-3 sackfuls; the Hupa 3-5 sackfuls; and the Karok 2-4 sackfuls. When acorns are not good the Yurok and Tolowa gather the smaller acorn of the Scrub Oak." Kathy Haffner in Following The Smoke, 1984, p. 58
4. "Tan Oak. This is the most important of the acorn foods...The following process is used in the preparation of any acorn, but those of the tanoak are most used because they are the most plentiful and best liked." Sara Schenck and E.W. Gifford in Karok Ethnobotany, 1952, p. 382
5. "Taprivna, special name for tanoak acorns after a fire has burnt the leaves off the ground. They are good eating, are kind of sour. A piece of dried salmon and a few of these acorns taste pretty good. They wait till these acorns have fallen from the trees and then set fire to the leaves and it roasts them thus." John Harrington, Reel 6

SADLER OAK

1. "The most desirable acorns came from the Sadler oak, sometimes known as the sweet oak. This scrubby, low growth oak, normally under eight feet in height, was found throughout the Siskiyou and Coast ranges. It was usually a dependable and heavy producer of nuts and its acorns were mild in their content of bitter, tannic acid, compared to the more widespread black oak. The nuts could be combed directly from the shrubs or gathered from the ground as they fell. When they dropped in a natural manner they were immediately gathered, for if they weathered on the ground for a short time, the bitterness was less objectionable and the deer, bear, squirrels and other animals found them to their liking." Booth in Valley of the Rogues, 1971, p. 56

2. "Quercus sadleriana, Deer Oak, Karok yawish, the name of both tree and acorn. This species, a small tree-bush, grows on mountain slopes. A United States Forest ranger told us that the acorns are so sweet they can be eaten as picked. The acorns look and taste like those of Quercus garryana. The Karok do not grind these into flour, but shell and parch them in a flat basket with coals and eat them without further preparation. Acorns prepared in this way are called tamiuru." Sara Schenck and E.W. Gifford in Karok Ethnobotany, 1952, p. 382

HAZEL

1. "Hazel Nuts (Suthxale)—In about the middle of the summer, the headman of the village had to burn off the brush. All the hazel nuts fell off and the people went out to pick them up. The nuts are roasted by the burning of the brush. They are whipped with a stick in the basket in which they have been collected. This husks them. The nuts are then picked out by hand. They are then ready to eat. They are cracked as they are consumed. Are considered simply something to nibble on. Can be eaten between meals and at any time." Cora DuBois in Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection
2. "Hazel nuts. Picked in September. You can hear afar the hitting in thrashing it. Nobody stays home in wild oat harvest or hazel nut harvest. They dry hazel nuts well so no bugs in it." Coquille Thompson, Informant for John Harrington, Reel 25, Frame 180
3. "Woodrat. In their home they store dried hazel nuts, berries. Indians sometimes used to rob these rat nests. They have been people once." Coquille Thompson, Informant for John Harrington, Reel 25, Frame 623
4. "...While we were enjoying it, our neophytes prepared supper for themselves, and it was not a little interesting, to one who was not familiar with such scenes, to see them prepare their food. Their supper consisted of fresh salmon, and a species of hazel-nut, which is found in the country in great abundance. Having made a suitable fire, they commenced the operation of cooking their salmon....Stones were then provided for the purpose of cracking nuts, and all being seated on the ground, the eating process commenced. The extreme novelty of their appearance, the nut cracking, the general merriment, the apparent jokes, ready repartees, and burst of laughter, were sufficient to have excited the risibilities of even a Roman Catholic priest, however phlegmatic." Gustavus Hines in A Voyage Round The World, 1850, p. 102

MYRTLE

1. "Myrtle (Tasen)— Berries roasted in ashes, the shells cracked and kernel eaten. Cannot eat raw. Are rich and strong in flavor. Are never pounded or stored" Cora DuBois in Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection
2. "Pepperwood fruits are collected from ground, the pulp is peeled off with fingernails. Then the nuts are roasted in coals or hot ashes with coals heaped over in sandy depression. Stirred with any kind of stick while cooking. Cracked by hitting or pressing each individual nut on a stone. Not hard to crush. No hammerstone used. Gathered in October. Denuded of pulp and dried in sun before storage. Must be stored in dry place, as do not taste good if they get damp-bitter. Stored in old large acorn cooking basket which has outlived original usefulness." Gifford in Karok Field Notes, Notebook 174, 1940, Bancroft Library Manuscripts Collection.

3. "Our Indian folks eat 1/2 myrtle nuts and 1/2 acorns, cooked together, and good. Myrtle nuts are oily--the 2 mixed together have an awful good taste to it." Lucy Smith, Informant to John Harrington, Reel 25, Frame 996
4. "Myrtlewood--It has very bitter nuts, which were earthoven and eaten with fish eggs." Ada and Miller Collins, Informants for John Harrington, Reel 25, Frame 191
5. "Myrtlewood is nothing but pepperwood and grows all the way from Coos County down to south of Eureka. Up the rivers there is lots of it. The Indians used to eat the nuts, they would bury them to get the bitter out of them." Johnie Woodruff, Informant for John Harrington, Reel 25, Frame 189
6. "...Had some nuts of *Corylus*, roots of *Phalangium Quamash*, and preparation of meal made from the seeds of a *Syngenesia* already in my possession, with the nuts of my smelling-tree, which are roasted in the embers previous to use....Measured several trees 2 1/2 feet diameter and 60 to 70 feet high: a decoction of the leaves and tender shoots is used by them and is by no means an unpalatable beverage." Douglas, 1827, p. 225
7. "The Karok collect the nuts from the California Bay Laurel to parch and then eat. They often will eat them with acorn soup or mush. The branches and leaves are used in various medicinal remedies." Kathy Haffner in Following The Smoke, 1984, p. 67
8. "*Umbellularia californica*, California Laurel, Karok pahip; the nut, pah. The nuts are picked up off the ground, hulled, and stored in big baskets. They are parched in the ashes of a fire, stirred around, cracked open, and eaten, often with acorn soup." Sara Schenck and E.W. Gifford in Karok Ethnobotany, 1952, p. 383
9. "Didn't use much acorns around here--mostly roots, myrtle nuts (hulled, dried, baked in ashes when wanted.) Stored things in baskets, etc." Ida Mecum, Coquille Informant for Melville Jacobs, University of Oregon Manuscripts Collection

CHINQUAPIN

1. "The nut of the Chinquapin is gathered whenever it is found. It is collected late in the fall. The nut is eaten for food. It is usually not stored or dried but eaten soon after it is picked because there is never enough found to store." Kathy Haffner in Following The Smoke, 1984, p. 51
2. "Giant Chinquapin--The nuts are gathered and eaten like hazel nuts. They are cracked with the teeth. If there are enough, they are stored in big baskets; otherwise they are eaten when found." Sara Schenck and E.W. Gifford in Karok Ethnobotany, 1952, p. 383

MADRONE

1. "Ts-asap--A tree, red colored tree, berries like grapes, ripe in fall. Flat leaves 4" long. Red bark. Not very tall, grow in mountains. Thinks this is the red leaves Mrs. Baker was calling our attention to near Wolf Creek (which we decided was dogwood). Red berries, cut in the fall." John Harrington, Reel 28
2. "Parching--An unidentified red berry which grows near the coast is parched with coals in an open twine plate basket. Shaken rapidly to prevent burning basket. Berries are thus warmed." Cora DuBois in Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection

3. "The Karok gather the berries in the fall by shaking the tree or climbing up and shaking the branches. They store away the berries in storage baskets after steaming them. A little water is put in an acorn-cooking basket and heated with hot stones. Then they fill the basket with madrona berries and put madrona leaves on top. After the berries are thoroughly steamed, they are dried on basket platters and stored. The prepared berries are called shivirawapu. They are soaked in warm water before eating, and sometimes they are mixed with pounded manzanita berries." Sara Schenck and E.W. Gifford in Karok Ethnobotany, 1952, p. 387

MANZANITA

1. "Manzanita—It grows on the beach some places. And some grows out toward the hills. They mash its berries. Its berries are yellow. Mother said it is awful nice with dried salmon eggs." Lucy Smith, Informant for John Harrington, Reel 25, Frame 207
2. "Sukrivishkaruhan was the principal ixkareya. He said if (whether) there would be lots of acorns, etc. The name means (is from) sukriv (woven bag for men) and iskuruhan (to carry). Some years he predicted famine: no acorns, no fish, no manzanita berries; and sure enough it was so." Mary Ike, Informant for A.L. Kroeber and E.W. Gifford in Karok Myths, 1980, p. 145
3. "P-ens—A kind of squirrel that lives in trees, big tail, long tail, used to tie tail and use it for eating manzanita cider with-so good." John Harrington, Reel 28
4. "Tkall—A kind of pine, hook with a long pole and roast in pits. Mix the nuts with manzanita flour." John Harrington, Reel 28
5. "A favorite food was the manzanita berry (loxom). These were pounded into a flour (pabap), mixed with sugar-pine nuts(tgal), and put away for future use; they were consumed with water. A peculiar implement used for the eating of manzanita was the bushy tail of a squirrel tied with sinew for the space of about a finger's length to a stick about six inches long." Sapir, 1907a, p. 258
6. "Manzanita berries pounded up, dried in sun and with hot rocks on tule mats. Then water poured over to make cider." Molly Orton, Informant, Notebook 135, Bancroft Library Manuscripts Collection
7. "Berries and fruits were in abundance. Manzanita-berries (*Arctostaphylos Manzanita* Parry) grew in great quantities, and were used to make the well-known 'manzanita-cider.'" Dixon, 1907, p. 424
8. "Manzanita-berries were crushed, and used to make manzanita-cider in a manner similar to that described among the Maidu. The winnowed meal was also mixed with the acorn-meal in making a special variety of acorn-soup." Dixon, 1907, p. 426
9. "A cache of white-leaved manzanita nutlets was located in the northwest corner of the house. All the nutlets had been charred. Associated with the cache were several hundred charred deer mouse feces. The nutlets had apparently been cached by a mouse and, when the house burned, so did the mice's larder. Manzanita berries were a food item in the Applegate River drainage utilized by humans. Several charred nutlets were recovered from the House 3 and House 2 hearths. The mice may well have been raiding stored food stuffs in the house. This would explain the lack of variety in the mouse cache in House 3. Charred acorns were also identified on the western floor area of House 3 and in the hearth." David Brauner in The Reevaluation of Cultural Resources Within the Applegate Lake Project Area, 1983, pp. 69-70

10. "The most abundant taxon present in the samples was manzanita nutlets. This material was found at all sites except 35JA27A. Pine nutshell was found in the samples obtained from five sites. Small quantities of acorn nutshell were identified from four sites, although acorns are thought to have been the most important Takelma plant resource." Nilsson and Kelly, 1991, Vol. 2, F-1

TARWEED

1. "He describes wild-oats. It required 4 or 5 Indians to start the fire—they start the fire all around, and this just opened the seeds, did not burn the seeds. The next day about noon they got ready to gather those oats. They had a paddle like a canoe paddle 15" long and they knock the oats into the basket. The baskets were shallow.
"About 5 pm they quit, pack it home, and put the oats on an elkskin blanket. Store and eat later....After Xmas, they start in on Indian-oats, mash them. You have to burn vine maple wood to get lots of charcoal and then singe the oats with these burning coals and then later pound the oats in mortar with tall pestle." Coquille Thompson, Informant for John Harrington, Reel 25, Frame 180
2. "Indian-oats. They burn a patch of wild-oats to gather the seeds—the seeds do not burn. These oat patches belonged to tribe or village—a stranger would not touch them. The burned 'meat' was black." Coquille Thompson, Informant for John Harrington, Reel 25, Frame 249
3. "Ttl-oh-t-ay—Tarweed. A black 3-cornered seed like a turnip seed. Inside is white, rich, of it they make a soup—fine with venison. Have a light breakfast and have been tramping all day, and in evening time you come along, and tastes awful good, hungry." John Harrington, Reel 28
4. "In a similar way were collected the seeds of the yellow-flowered tarweed (kox), the stalks of which plant were first burnt down to remove the pitchy substance they contained. These seeds were parched and ground before consumption." Sapir, 1907a, p. 259
5. "Seeds—a small short seed beater used to sweep seeds into a small close twine burden basket. Seeds are pounded like acorns, then moistened and eaten raw. Seeds gathered were tarweed." Cora DuBois in Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection
6. "Tuci—Grass seeds gathered with basket and seed-beater, basket made of buckskin. Parched over coals, pounded up, seed beater used for sunflower seeds also. Napt—Another kind of seed gathered in the fall." Molly Orton, Informant, Notebook 135, Bancroft Library Manuscripts Collection
7. "During the summer months the squaws would gather various kinds of seeds of which the tar weed seed was the most prized. The tar weed was a plant about thirty inches high and was very abundant on the bench lands of the valley, and was a great nuisance at maturity. It would be covered with globules of clear tarry substance that would coat the head and legs of stock as if they had been coated with tar. When the seed were ripe the country was burned off. This left the plant standing with the tar burned off and the seeds left in the pods. Immediately after the fire there would be an army of squaws armed with an implement made of twigs shaped like a tennis racket. With their basket swung in front they would beat the seeds from the pods into the basket. This seed gathering would only last a few days and every squaw in the tribe seemed to be doing her level best to make all the noise she could, beating her racket against the top of her basket. All seeds were ground into meal with a mortar and pestle. The mortar was formed by forming a round hollow in the face of flat boulders, over which was placed a basket with a hole in the bottom to fit the depression in the rock, forming a kind of hopper to hold the seeds, then with a stone fashioned about two inches in diameter at lower end and tapering to the other end to a size easily grasped with the hand the operator would sit upon the ground with the mortar between her knees

and would pound the seeds, using the pestle which was usually about ten inches long, and weighing about five or six pounds, with one hand and stirring the seeds with the other, often changing hands using right or left hand for pounding or stirring the seeds with equal skill." Riddle in Early Days in Oregon, 1953, p. 46

8. "At the time of wild oat harvest, the thud of pounding in Indian mills was heard in almost every house." Coquille Thompson, Informant for John Harrington, Reel 25, Frame 711

GRASS SEEDS

1. "Bromus hordeaceus, Karok ikravapu, 'pounded.' This is a food grain that 'has always grown here.' It is gathered about the first of July. A special tightly woven burden basket is held somewhat sidewise and under the grass, and the grass heads are struck toward the basket with a stick. The grain is then put in a tight shallow winnowing basket with coals of black oak bark and is shaken around to parch. Then the chaff is winnowed away, the basket being tipped slightly and struck on the bottom with a stick. This parching is all the cooking this grain requires. It is then pounded on a hoppers mortar. The meal is mixed with water into a gruel and eaten without further cooking. Bromus rigidus is gathered and prepared like the preceding species." Sara Schenck and E.W. Gifford in Karok Ethnobotany, 1952, p. 380
2. "Elymus glaucus, Western Rye Grass, Karok purukuri. This yields edible seeds, which are parched in a basket with hot coals and pounded into flour. The flour is mixed with water and eaten as a paste. It is also used as 'medicine' to settle quarrels between families or individuals. This medicine can be made only once, but it works." Sara Schenck and E.W. Gifford in Karok Ethnobotany, 1952, p. 381

SUNFLOWER

1. "Among these was the lamx, the seed apparently of a species of sunflower. When the plants were dry the seeds were beaten out by a stick used for the purpose into a funnel-shaped deer-skin pouch with the mouth wider than the bottom. When the lamx was young and tender, the stalk also was eaten." Sapir, 1907a, p. 259
2. "Nams--Sunflower seeds. Parched on tray over coals with a winnowing tray." Molly Orton, Informant, Notebook 135, Bancroft Library Manuscripts Collection

SUGAR PINE

1. "The Indians used to grind together salmon, pinenuts, and other nuts. Nattlex, is just like corn, a foot long, they grow on a kind of tree called Naltsuh. The Indians made a ladder and had a 10 ft. long hook. The burrs hang down, man walks up ladder and then up limb and breaks the cones off easily with hook, they break off easy when fresh, they drop to ground, and then man descends all covered with pitch and rests up. They gather these early in the morning, when calm, for a big wind coming might fell these cones. Even before the man has descended, women have made a fire and roasted the burrs.
"The man has to go to a danger place, high up, and lots of pitch, and when ripe get before there might come a big wind, for in a big wind they drop off. Lots of these grew down California way and Indians would have a few brought them as a delicacy." Wolverton Orton, Informant for John Harrington, Reel 25, Frame 247

2. "Tkall--A kind of pine, hook with a long pole and roast in pits. Mix the nuts with manzanita flour." John Harrington, Reel 28
3. "Yal--White fir, a tall tree. Has big tassels that hang down. None of this tree grows at Siletz. Has tassels 6" long, they peel off the outer bark and eat the meat--bark. George, learning her description, says she means white pine, eat bark in the spring. It looks like fir. Lots grew around Grants Pass." John Harrington, Reel 28
4. "Long (tall) white pines. These have a long tassel for a burr. Peel 'em off bark and eat the bark, it is sweet, men folks, when they hunt do this." John Harrington, Reel 28
5. "Pine-nuts from the digger-pine (*Pinus Sabiniana* Dougl.), the sugar-pine (*Pinus Lambertiana* Dougl.), and the yellow pine (*Pinus ponderosa* Dougl.), were always in demand and hazel-nuts (*Corylus rostrata* Ait., var. *californica* A. D. C.) were gathered in considerable quantities in the mountains." Dixon, 1907, p. 423
6. "The gum of the milkweed (*Asclepias cordifolia* Benth.) was chewed, and the thin inner bark of the yellow pine was scraped off with bone scrapers, and eaten in the spring. The sugar from the sugar-pine was also sparingly eaten." Dixon, 1907, p. 424
7. "Sugar-pine nuts were steamed in an earthen oven. This was made by digging a hole, building a fire in it and heating stones. The fire was then raked out, some of the hot stones put in, and the nuts, wrapped in leaves, were laid thereon. Water was then poured in, more hot stones placed on top, and finally earth laid over the whole, which was allowed to steam for several hours. The nuts were then dried, and stored for use. When wanted, they were pounded fine, winnowed, and made into small cakes. Powdered pine-nuts prepared in this manner were also often mixed with the powdered salmon." Dixon, 1907, pp. 426-427
8. "The high fat content found in *Pinus sabiniana* and *Pinus lambertiana* seeds is primarily of the polyunsaturated variety. The great reliance placed upon salmon in northern California may have fostered a need for fat to accompany the lean salmon. Mark N. Cohen, for example, has suggested that this combination was an important transition food in the shift from big-game hunting to a more mixed meat-vegetable subsistence: ...the fish-nut combination which replaced or increasingly supplemented large mammals in the prehistoric diet of so many regions is an attempt to duplicate the dietary contribution of these animals once the latter were exhausted, extinct, or simply too scarce to provide a reliable food supply for a growing population." Farris in Before the Wilderness, 1993, p. 232
9. "The Sugar Pine has several functions. The nuts are gathered and stored for food, they are also used in various native crafts, and in various ceremonial regalia. The root of the Sugar Pine is dug and used in basketry." Kathy Haffner in Following The Smoke, 1984, p. 62
10. "*Pinus lambertiana*, Sugar Pine, Karok oskiip; the nut, ous. Sugar pines were formerly more abundant than they are now. This is one of the trees--cedar is another--that are used for building sweathouses, the fallen trunks being made into planks. In the World Renewal ceremony sugar pine wood is not used for firewood by the priest, because the Karok associate it with cemeteries, where it is presumably used for boards or posts.
 "The pitch of the tree is used as an adhesive. The coagulated sap or 'sugar' is gathered from hollow trees and eaten without preparation or mixing with other foods.
 "The chief value of the tree to the Karok, however, is its nuts, which are used for food. The places where the sugar pines grow are owned by individuals. When it is time to gather the cones, each owner invites his family and friends to come with him, and then, when the cones are gathered, they are divided equally among the relatives and guests. Tanuaxanuwa, 'Let's go and bite the

nuts,' is the Karok phrase for the expedition to gather sugar pine nuts. They make a hook, wurannaru, of a long pole of fir with a stick tied on it at an acute angle with hazel withes. The climber hooks this on the first limb of a sugar pine tree, and with this help climbs up the tree. Then he hooks another limb if necessary and thus climbs as high as he wishes. With a smaller hooked stick called teita he hooks a branch near a cone and shakes it until the cone falls. In the meantime, the others on the ground are 'making medicine' and singing, 'Cut it off, Beaver, cut it off!' Or they sing, 'Cut it off, Pitchy-hands (gray squirrel), cut it off!' The climber has made his medicine (sung the charm) while climbing the tree.

"After the cones have been shaken from the tree and picked up, they are set up on end along both sides of a big stick, and a fire is built over them. When it has cooled, the cones are beaten with a stick until soft. They are then split in two and the seeds caught in a basket. The nuts that do not shake out are carefully picked out. They are then carried home and are ready to be eaten without further process. They can be stored for the winter.

"The gathering party is usually gone from its village about a week, as sugar pines grow at some distance from the river and at higher elevations." Sara Schenck and E.W. Gifford, 1952, p. 378

CAMAS

1. "Kuus-tlaa-tunuu--Illinois Valley Tribe, means lots of camas, kuus, camas." John Harrington, Reel 28
2. "Tapuxtan is a little flat on the north side of Rogue River. Dug camass on Tapuxtan flat." John Harrington, Reel 28
3. "The Frenchmen came to Tatmelm town and no one was home there, all were out picking camass." John Harrington, Reel 28
4. "Latsupkh--A place south of Rogue River across from Table Rock. Lots of neykh (camass resembling carrots, no color) grow there. But P-ulm is kind of camass that are real red." John Harrington, Reel 28
5. "Teme-hawan--Big place just south of Grants Pass where Indians used to dig camass. Has never been there but her mother talked about it. Teme-hawan--Big place south of Grants Pass where Indians used to dig camass every spring." John Harrington, Reel 28
6. "A second important vegetable food was the camass root (dip). The root was dug by means of the tgapxiut, or horned xiu stick, it being the sharp-pointed, peeled-off stick of hard-wood bush known as xiu and neatly fitting at the upper end into a deer's horn to serve as the handle. The roots were prepared for use as follows: A pit was dug into the earth and filled with alder bushes which, when fired, served to heat the stones above. On top of these hot stones were placed the roots themselves, a layer of alder bark intervening between the two.. The whole was covered with earth and left to roast. The succeeding day, if the roots were not yet well cooked, a fire was again built, and so on until the roots were thoroughly roasted, in which condition they were called hix. They were often mashed into a dough, and, made into the form of a big pan (xlepx), kept for winter use." Sapir, 1907a, p. 258
7. "March 30 ...Since I have been here I have observed the Natives from the dawn of the day until late in the evening employed in digging Roots and the greater part of the night is spent in pounding and preparing their food nor do they appear to collect more than a sufficiency in one days labour than one meal." Peter Skene Ogden, 1827 *note similarity with Agent Culver's 1854 Annual Report

8. "The Indians used to mash camas and make it into a loaf like a loaf of bread called Wistae. Not very big. Made of finely pounded-up camas. When they eat this, they slice it with a knife as one does bread. When this loaf is all sliced up ready to eat they call it by the special name of hammi." Coquille Thompson, Informant for John Harrington, Reel 25, Frame 702

OTHER ROOTS

1. "Balsamina, or Oregon Sun flower, which the Indians eat in a dry state....Balsamina sp: the roots of which have a good deal the taste of Liquorice. The Indians also use it in sweetening their Cammus roots." The Brackenridge Journal For The Oregon Country, 1931, p. 67
2. "Soap Root--Roots eaten. Roasted in pit like all other tubers. Other tubers not identified were Gus, Guste, Teagaitci, Sultcu, Tctli." Cora DuBois in Tututni Field Notes, 1934, Notebook 6, Bancroft Library Manuscripts Collection.
3. "Soaproot--Both large and small kinds of soaproot are roasted and eaten by the people. The bulbs of the large kind are put into an earthen oven and deeply covered with maple leaves and earth and allowed to cook overnight. Then they are good to eat." C. Hart Merriam, Reel 130, Bancroft Library Manuscripts Collection.
4. "We used to dig white clover roots in the Chetco River bar and earthoven them." Johnny Woodruff, Informant for John Harrington, Reel 26, Frame 661
5. "The nations of this valley seem to have a hard way of living, there being no game and few roots, and when the Oak fail to bear, they live on clover not unlike the pigs or domestic animals, but when the oak bear acorns, they are plentifully supplied for the time being." James Clyman Diary, June 11, 1826, Bancroft Library Manuscripts Collection.
6. "Indian carrots, grows 2 1/2 feet high, white flower, each stalk has two little carrots at the base. The Indians eat them raw all the time, they never cook them." Lucy Smith and Coquille Thompson, Informants for John Harrington, Reel 25, Frame 1029
7. "Tc-ap-aakw-uo, Chuchupate--chew the dried roots all day. He saw woman chew angelica up and then rub the chewings on the cortex of a child's head." John Harrington, Reel 28
8. "Tc-u-kha-ao--Resemble carrots, wild carrots, have white flowers and have a seed that looks like a parsnip seed. Oh, they are sweet. They dug them with a digging stick." John Harrington, Reel 28
9. "Tik'alawikh, also Tik'alswyaks: 'Jacksonville, from the word k'alaw, a kind of sweet white root with a white flower.' Molly says that Indians when at Jacksonville lived at Kanaka flats, somewhere on west edge of Jacksonville." John Harrington, Reel 28, Frame 811, 753, 767
10. "Tik'alawikl: 'A place name maybe somewhere near Table Rock.' Molly Orton says she doesn't know where, but it adjoins Lats'upkh and Sa'thkawkh east of Table Rock. Derived from Kalaw, a kind of camas that looks like a button in the ground." John Harrington, Reel 28, Frame 479, 518
11. "Lathpaltha': A place this side of Medicine Rock. Between Grave Creek and Medicine Rock. From thpal, a yard high plant, eat roots like carrots." John Harrington, Reel 28, Frame 600
12. "P'ulm: A kind of camas that are real red. Indian carrots." John Harrington, Reel 28, Frame 517, 808
13. "Watc--Grass of some sort in mountains. Has kernels like rice inside, grows near springs, pull up roots." Molly Orton, Informant, Notebook 135, Bancroft Library Manuscripts Collection

14. "Roots-wild parsnip (qamq) cooked in basket with hot stones. Watc cooked same way." Molly Orton, Informant, Notebook 135, Bancroft Library Manuscripts Collection
15. "The 'soap tart', a large bulb with layers of course fibre all through, was treated in the same manner as the Kamass, but was poor food." Riddle in Early Days in Oregon, 1953, p. 45
16. "Roots and bulbs seem to have formed a rather smaller portion of the food-supply here than in the central part of the State, although camass (*Camassia esculenta* Lindl.) and 'ipos' (*Calochortus* sp.) with one or two other roots and bulbs, were eaten to a considerable extent." Dixon, 1907, p. 424
17. "Ipos (*Calochortus* sp.) seems to have been greatly relished. The bulbs were husked by trampling in a shallow place in the creek, so the husks would float away. They were then dried in the sun on hard, swept ground, winnowed, and packed away in baskets. Or they might be eaten fresh. Usually eaten whole, they were sometimes pounded and eaten dry as a powder with the manzanita cider. Or, pounded slightly, a thin, grainy sort of mush was made of them, 'something like rice cooked with a good deal of water.' A favorite method seems to have been to mix dried ipos with serviceberries; this was offered to a guest upon his arrival, so that he might have something to eat at once while the hostess was cooking a meal for him. Or, if one wished to visit a neighbor and to give him ipos, one mixed it with serviceberries. In the spring and early summer the lower Klamath Shasta dug ipos in their own territory, but later in the summer they went to the Shasta Valley or farther up the river beyond Hornbrook. They would visit someone there and then all went camping in the mountains, the men hunting and the women digging ipos. Visitors from the upper Klamath or the Shasta Valley to the lower Klamath Shasta brought ipos bulbs to their hosts." Holt, 1946, p. 308
18. "Red bells (*Fritillaria recurva*) were called chwahu, and the bulbs, boiled or roasted in ashes, were eaten, as were also bulbs of the brodiaea and tiger lily. Another bulb, 'the shape of an onion,' came from Oregon and from Scott Valley. These bulbs were buried with hot rocks and cooked all night. They were then pounded and molded into a large block 'like cheese.' This 'cut just like fruit cake' and was very sweet." Holt, 1946, p. 308
19. "The Indians gathered a great variety of roots, berries and seeds which they made use of for food. The principal root used was the camas, great quantities of which were collected and dried during summer and stored for the coming winter's provision. This is a bulbous root much like an onion, and is familiar to nearly every old resident of Oregon. Another root called kice or kace was held in high esteem; it was bulbous, about an inch long, of a bitterish taste like ginseng. The ip-ar, e-pua, or e-par root was a prominent article of diet and grew abundantly upon the banks of the Rogue and other rivers." Walling, 1884, p. 180
20. "The bulb of the Tiger Lily is gathered in August and used as a vegetable. All groups, except the Karok, identified bulbs as a yearly pursuit. There are several other lily bulbs gathered. The Regal Lily has a big bulb that is harvested in August and baked. Only the big bulbs are taken of any lily; the small bulbs are replanted for later harvest." Kathy Haffner in Following The Smoke, 1984, p. 52
21. "The bulb of the Brodiaea is gathered and baked as a potato, hence its common name of Indian potato. It is gathered in August. All groups, except the Karok, identified that they still yearly gather the Indian potato." Kathy Haffner in Following The Smoke, 1984, p. 53
22. "*Lilium pardalinum*, Tiger Lily, Karok matayish, 'mountain tayish.' This is the most highly regarded of the bulbs. Mary Ike likes it very much. It is dug in the fall and cooked in the earth oven like other bulbs." Sara Schenck and E.W. Gifford in Karok Ethnobotany, 1952, p. 381

23. "The final plant food to consider here is the root of the epos or yampa. This is a plant of the genus *Perideridia*, usually *P. gairdneri* in California. Across much of Northern California and the Pacific Northwest, *P. gairdneri*, *P. oregana*, *P. bolanderi*, *P. parishii*, and *P. kelloggii* were used as food. The tuberous roots were eaten raw or cooked, and when boiled, assumed a nonbitter flavor similar to that of a carrot. The raw tubers had an aromatic nutty taste." Martin Baumhoff in Handbook of North American Indians, 1978, p. 17
24. "After this they roasted the acorns in the hot ashes, and ate with a long, thin grass root by way of dessert. These last were not only raw but unwashed, with the earth still sticking about them; but they had an extremely delicate taste, and were so soft, that they could be mashed with the tongue." Ida Pfeiffer in A Lady's Second Journey Round the World, 1856, p. 90
25. "A flat about 25 acres in extent, lying beside the river, 'Indian potato plants scattered about in it.' In September, people used to come from all the villages and camp here, to gather edible bulbs." Waterman, 1921, p. 45
26. "A place where the river makes a sharp turn around a point of land, opposite the mouth of Coon Creek, 'Indian-potato-place below.' The Indian-potatoes referred to here have large bulbs (larger than a dollar) and white flowers. The leaves grow flat on the ground, with a sprout in the middle." Waterman, 1921, p. 48

SHOOTS

1. "Chewing gum is also made of the juice of a 4 ft. high red-flowered plant. In May, in early summer time is the only time they gathered that kind, they do not gather at any other time, pretty near every woman, man, and child chewing at that time, you just break that bush at various places and when you come back to the place your broke it a few moments later, a milky juice has exuded, which you put in your mouth and chew, from one place may be sufficient but usually from several places." Coquille Thompson, Informant for John Harrington, Reel 25, Frame 134
2. "Name of a kind of plant with yellow flowers, the stalks of which were eaten raw. He speaks of it as a kind of Indian oats, but then talks of eating the stems raw." Coquille Thompson, Informant for John Harrington, Reel 25, Frame 1020
3. "A wild sunflower, grows 4 feet high, used to grow where 'Indian oats' patches grew. Indian oats and sunflowers would be burnt together. The Indians would burn only an oat-patch and would not let fire spread. Then the next day they would gather the seeds up." Coquille Thompson, Informant for John Harrington, Reel 25, Frame 248
4. "(In the mountain prairies burned annually by the Indians grew and was gathered) especially a species of sunflower, probably *Wyethia longicaulis*." Loud, 1918, p. 230
5. "Yutl-oot-ts-ay-ee--Sunflower, used to peel and eat the tender stalk." John Harrington, Reel 28
6. "The stem of a large inedible root was eaten in the springtime (the root was used on the face when mourning and for treatment of catarrh)." Notebook 130, p. 10, Melville Jacobs Collection, University of Washington
7. "A type of wild radish the green of which was eaten was gathered in early spring, about March. The roots were not eaten." Notebook 127, p. 7, Melville Jacobs Collection
8. "Wild parsnips." John Harrington, Reel 28, Frame 759

9. "Among the greens eaten by the Shasta, wild parsley and a certain other plant were steamed and dried, then folded and packed away in this form. When wanted for use these dried greens were pounded and eaten with acorns or soup made of deer hoofs, or were dissolved in hot water and eaten with fish. The stems of 'bear paws' and of another plant were peeled and the inside eaten raw, and wild celery was also eaten raw. These were not eaten at meals, however. The Gamutwa also had wild rhubarb, which they ate with fish." Holt, 1946, p. 309
10. "In the spring season they gather the stalks of the wild sunflower and wild celery and eat them with avidity." J. L. Parrish, 1854

BERRIES AND FRUITS

1. "I saw choke-cherries growing by Corvallis. They were dry, pretty near choked me when I started to eat some. But old Mukla (George Harney language man) just crunched them down." Coquille Thompson, Informant for John Harrington, Reel 25, 149
2. "Pi-ikh--Wild plums. There were two kinds, red and white. They were large and sweet. Called apples by the same word." John Harrington, Reel 28
3. "Blackberries (*Rubus vitifolius* C. and S.), service-berries (*Amelanchier pallida* Greene), elderberries (*Sambucus glauca* Nutt.) gooseberries (*Ribes* sp.), thimbleberries (*Rubus glaucifolius* Greene), choke-cherries (*Prunus demissa* Walpers), the fruit of the sumach (*Rhus trilobata* Nutt., var. *quinata* Jepson), and a number of other fruits and berries as yet unidentified, were eaten either fresh or dried." Dixon, 1907, p. 424
4. "There was apparently an abundant supply of berries and fruits, which were eaten either dried or fresh. Wild currants (*mu'kururu*) and berries of the spider bush (*horaihihu*; *Osmaronia cerasiformis*) were eaten raw. Blackberries, elderberries, wild grapes, and chokecherries when dried were boiled and eaten with parched, powdered grass seeds. Serviceberries were dried and eaten either dry or soaked in water. Blackberries were also eaten fresh, and elderberries were cooked fresh and eaten. Berries of the madrona were eaten fresh and sometimes dried. The latter were soaked before eating. Thimbleberries and gooseberries were eaten only fresh. The fruit of the sumac was dried and pounded, and sweetened with the winnowed meal of manzanita berries. This manzanita meal was also mixed with acorn meal to make a variety of acorn soup and was used for sweetening cooked elderberries and plums. Manzanita cider was also made of the crushed berries, as among the Maidu and others." Holt, 1946, p. 308
5. "There were several varieties of grass seeds, the huckle-berry, black-berry, salmon-berry, squaw-berry, manzanita-berry and perhaps others, which entered into the diet of the Indian generally, or as governed by the locality in which they grew." Walling, 1884, p. 180 *note reference in Beeson to Indians picking huckleberries north of the Rogue, perhaps near Prospect.
6. "On arriving at the coast we found the Indians living in three small villages, the larger being on the south, and the other two on the north side of the river. The whole number, as near as we could ascertain, amounted to about two hundred men, women, and children, about one-third of whom were absent in the mountains, for the purpose of gathering berries." Hines, 1850, p. 104

BASKETRY AND TECHNOLOGY

1. "Tak-welsaman--Hungry Hill, way down Cow Creek. Meaning on top of roots. K-wels--roots of Yal tree used for basketry." John Harrington, Reel 28
2. "Xiw--Mountain Mahogany-make digging sticks of it." John Harrington, Reel 28

3. "Pack baskets were made of hazel." Notebook 129, p. 53, Melville Jacobs Collection, University of Washington
4. "The Be-tdan is a bottomless acorn nut-dry berry-camas mashing basket, made of tightly woven spruce roots." Notebook 129, p. 54, Melville Jacobs Collection, University of Washington
5. "Mattresses were made of cattails—one thickness." Notebook 129, p. 47, Melville Jacobs Collection, University of Washington
6. "Alke-takh: 'She says positively that Wagner Mountain is Alke-tekh, could see it from Table Rock.' She now denies that Wagner Mountain is 'Alke-takh, it therefore must be the Siskiyou range south of Ashland you go on highway across these mountains to Yreka. From ke-th, meaning 'white grass eighteen inches long that grows on the range.' Says 'Alke-takh is off to the S.W. of where Dead Indian road leaves Pacific highway, and hidden by the ridge that runs south from Ashland-it had snowy peaks.'" John Harrington, Reel 28, Frames 730, 728, 753, 810, 792
7. "Hazel—Gathered in spring when limbs started sprouting. Peels easily then. Peeled with teeth. Dried in sun. Then bundled and wrapped spirally to keep straight. Stored for winter." Cora DuBois in Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection
8. "Spruce roots—Dug with digging stick. Was hard work. Tried to pull out as long roots as possible. Roast roots in ashes to make them soft. Do it before bark has time to dry. Peel and split it with teeth, scrape with mussel shell and then split again. Scraping done in water. May peel by scraping root through a split stick." Cora DuBois in Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection
9. "Mountain grass—Pull it up in spring while still young. Gather only central stalk of a bunch. Use the middle-sized ones, neither smallest or coarsest. Dry in sun. Twist to soften. Bundled and stored." Cora DuBois in Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection
10. "Maple bark skirt. Inner bark of maple is gathered early in spring. Is shredded. Bunches of the bark are hung over a belt made of the same material. Belt is made by rolling fiber on thigh. Then two rows of twining are run around the top of the skirt. The skirt completely covers the wearer, front and back. It hangs to middle of lower leg. The long strings which form the belt are tied together and there is some overlap. This skirt is called maple apron, used for common wear." Cora DuBois in Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection
11. "Basket caps made of xerophyllum, gotten in nearby mountains by Happy Camp people. Table Rock people used rushes for caps." Molly Orton, Informant, Notebook 135, Bancroft Library Manuscripts Collection
12. "Owing to the rapids and swift current of the Klamath, and the impermanent nature of the other streams (which often nearly dry up in the summer) the Shasta made little in the way of canoes. Occasionally they obtained them from the Karok or Yurok, but they rarely made them themselves. When made, they were dug out from sugar-pine logs, as a rule, and were crude imitations of the well-known, square-ended type characteristic of the lower river." Dixon, 1907, p. 396
13. "Cord and rope were made from the wild hemp (*Apocynum* sp.) and from a variety of grass as yet undetermined." Dixon 1907, p. 398

14. "The materials formerly used for basketry by the Shasta were various. For the ribs, or radial elements, they generally used the hazel (*Corylus californica*) or the willow (*Salix* sp.), whose roots, as well as whose twigs, were employed, the former, it is said, much more than the latter. The roots were always used to make the outer ring on the bottom of the basket. The twining-element was almost exclusively the root of the yellow pine (*Pinus ponderosa* Dougl.). The root was cut or dug up in pieces thirty centimetres or more in length, and from five to ten centimetres in diameter. These pieces were first baked and then steamed, after which they were carefully split into thin sheets from four to six centimetres wide. In this form they were preserved, and, when wanted for use, were again boiled and steamed, and split into finer strips. The strips thus prepared were dyed black (by an infusion of acorn-shells) or red (with alder-bark). In the latter case, the bark was chewed by the women, who meanwhile passed the strip of pine-root back and forth through her mouth. This twining-element was overlaid, in caps and in the finer sorts of basketry, with basket-grass (*Xerophyllum tenax* Nutt.) or with the black, shining stem of the maidenhair-fern (*Adiantum pedatum* L.)." Dixon, 1907, p. 399
15. "The walls of the excavation were next covered by slabs of cedar-bark set vertically on edge all around the sides, and reaching from the ground to the side-poles. Finally the roof was put on, consisting of cedar or sugar-pine boards (split out with wedges) running from the side-poles to the two ridge-poles." Dixon, 1907, p. 417
16. "Sudatories proper were small affairs, roughly hemispherical in form, built of willow poles planted in the ground, bent over, and tied. Yellow-pine bark slabs were set up on edge outside, forming walls, and the remainder of the structure was covered over with skins." Dixon, 1907, p. 420
17. "String for fish nets was made from *Apocynum*, which grows by the river, but deer-snare rope of iris from the hills. For stripping the fibers women tied a little piece of shell on the back of the thumb, but men usually used the thumbnail. Cordage was rolled on the front of the thigh, the worker dipping his fingers in a basket of water to keep the fibers damp. Cordage was manufactured chiefly by old men and women, but only men made the deer-snare rope. Cord for fish nets was two-strand, for deer snares three-strand." Holt, 1946, p. 303
18. "The digging stick was of mountain mahogany (because this is hard), about 3 feet long and pointed at both ends, sharpened on a rough rock." Holt, 1946, p. 303
19. "The Hupa use the root of the Ponderosa Pine in basketry. After digging the root, it would be cut and pounded, then baked, skinned and split. It is used in making the big baskets and acorn cooking baskets." Kathy Haffner in Following The Smoke, 1984, p. 56
20. "The Hupa use the buds, leaves, and bark of the Incense Cedar for several medicinal uses ranging from lung congestion to coughs to kidney problems. The leaves are also used ceremonially when burned for the dance regalia. The wood was historically used to build structures and today is being used to rebuild these same structures. The wood is also fashioned into boxes to store ceremonial regalia because the strong scent keeps bugs away." Kathy Haffner in Following The Smoke, 1984, p. 57
21. "*Pinus ponderosa*, Yellow Pine, Karok sarum. The pale brown root fibers are an important element in baskets, especially cups and acorn baskets. O'Neale describes the preparation of the roots. Straight unbranched roots are preferred, gathered after the tree has bloomed so they are tough enough. Roots should not be dug until they are long enough to extend beyond the radius of the lower branches. They are dug with a digging stick, sharpened and hardened in fire, and are cut with elk horn wedge and stone maul. The roots are taken home and cut into pieces as long as possible. Then the woman digs a pit in which she builds a fire. She cleans the roots and lays them all parallel. She covers them with

earth and on top she builds a fire, which is maintained for as long as two days. Then she tests the roots to see if they are cooked sufficiently. If light in color, they are done. She splits the cooked roots into four pieces. Those that are not to be used at once are dried and put away; those intended for immediate use are split into smaller strips by deer-bone awl and scraped with mussel shell to render them soft and pliable." Sara Schenck and E.W. Gifford in Karok Ethnobotany, 1952, p. 378

22. "Very little data associated with the superstructure remained in House 1. Charred fragments of wood and bark were scattered across the floor which may have been associated with the superstructure. The wood and bark fragments were identified by Shelley Smith, an ethnobotanist at Oregon State University. The wood fragments were predominantly Douglas fir. Incense cedar and ponderosa pine wood were also present. Bark fragments were incense cedar and ponderosa pine. Pine bark as a house covering in the region is documented by Leonhardy (1967) at the Irongate site." David Brauner in The Reevaluation of Cultural Resources Within the Applegate Lake Project Area, 1983, p. 21
23. "The wall planks were set up to 30 cm in width and averaged about 6 cm in thickness. Most of the planks were incense cedar with bark remaining on one side. Two planks were Douglas fir with the bark remaining on one side. The bark side of the planks faced outside. Two small vertical posts were also preserved. One post was situated near the southern end of the east wall. The other post was centrally positioned along the west wall. Both posts were Douglas fir." David Brauner in The Reevaluation of Cultural Resources Within the Applegate Lake Project Area, 1983, p. 56
24. "Frances Johnson referred to Wagner butte as 'Shasta Land' and Molly Orton stated that '...they got Indian bullets and basketry grass at 'alke takh' (i.e., Wagner Butte area). Everyone owned that mountain." Harrington, 1981, p. 647

RELATIVE IMPORTANCE OF RESOURCES

1. "They raise no grain, rarely dig roots, but subsist chiefly on meat, acorn bread, nuts, and fish." Joaquin Miller in Life Among The Modocs, 1873, p. 239
2. "Those of them not living immediately on the coast subsist in part upon elk, bear and deer." Rodney Glisan in Journal of Army Life, 1856, p. 249
3. "Paavahayeccip, the 'best food,' and by this they mean the staple food, is acorn soup and salmon. Next after these in importance, the informants mention, with pleasure at the thought, pufitic, deer meat. Green, berries, Indian potatoes, nuts, and different kinds of game furnished a delicious diet." John Harrington in Tobacco Among The Karok, 1932, p. 5
4. "Ritualistic ceremonies were held to celebrate the annual renewal of the two prime subsistence resources of the Takelma, the acorn and salmon." Gray in The Takelma and Their Southwest Oregon Kin, 1985, p. 85
5. "Cultural practices evident in Athapascan but absent in Lowland Takelma settlements include: a more pronounced reliance upon upland game..." Gray in The Takelma and Their Southwest Oregon Kin, 1985, p. 119
6. "The dietary proclivities of the Applegate peoples have been expanded and clarified by the ethnographic synthesis. Faunal remains recovered from the excavation of site 35JA42, reflect a dependence upon upland game, primarily deer, and a notable absence of fish bone or tools associated with fishing activities. The information recorded by Harrington and Jacobs match very well with the conclusions drawn from site 35JA42, and document the efforts of the Applegate folks

to undertake large-scale efforts to secure a quantity of deer and elk, which were smoke dried and stored for winter use. Fishing was of secondary importance, and most likely was pursued seasonally and downriver from the excavated site (i.e., at the mouth of the Applegate River)." Gray in The Takelma and Their Southwest Oregon Kin, 1985, pp. 123-124

7. "Here it may be well to state, a custom among all of those upper country Indians which not being generally understood by our people, has led to such difficulty. It is at the commencement of the fishing season, and at its close they held what is called a fish dance in which they paint and go through all the performances of their dances. At the opening and closing of war, they also hold a harvest dance when the fruits and nuts get ripe, but this is of a more quiet character, more resembling their sick dance when they try to cure their sick by the influence of the combined mesmerism of a circle of Indians in which they are in many instances very successful." E. Steele Manuscript, 1850, p. 5
8. "In the afternoon they entered on the plains of Rogues' or Tootootutna's River, and encamped on its banks. This is a beautiful stream, upwards of one hundred yards in width, with a rapid current, flowing over a gravelly bottom at a rate of three miles an hour; it abounds in fish, on which the Indians principally subsist...." Wilkes, 1845; p. 122
9. September 23 "These Indians are known by the name of Rascals....They were armed with bows and arrows(with flint points) with which they kill Elks and Deer, etc., which abound in the mountains, but their principal food, to judge by the signs must be berries and roots. They appear to be scattered in small family parties over the country and have no houses, tents or permanent residence, their only shelter being made of grass thatched on hoops about four feet high, and only capable of holding 4-5 persons sitting—or prostrate." Peale, 1961, p. 190 as cited by Boyd in Strategies of Indian Burning in Willamette Valley, 1986, p. 73
10. "The nations of this valley seem to have a hard way of living, there being no game and few roots, and when the oak fail to bear, they live on clover not unlike the pigs or domestic animals, but when the oak bear acorns, they are plentifully supplied for the time being." James Clyman Diary, June 1846, Bancroft Library Manuscripts Collection
11. "But it should be remembered that they were obliged to take whatever they could lay their hands on, for present subsistence. The necessity of mutual protection required them to keep in company, so that they could not disperse themselves to fish, hunt, and gather seeds and roots, widely enough to obtain the necessary supplies." John Beeson in A Plea for the Indians, 1857, p. 57
12. "When first visited, in 1849 and 1850, it was found occupied by numerous small bands of Indians, united under one general Confederacy. These tribes were said to possess intellect and physical strength equal, if not superior, to any on the continent. They had abundance of food, in a great variety of berries and nutritious roots, which are found indigenous, on all the bottom lands, and are propagated without culture; and to these were added the swarms of mountain trout and salmon which, in some seasons, abound in almost every creek." John Beeson in A Plea For the Indians, 1857, p. 25
13. "The fish-nut combination which replaced or increasingly supplemented large mammals in the prehistoric diet of so many regions is an attempt to duplicate the dietary contribution of these animals once the latter were exhausted, extinct, or simply too scarce to provide a reliable food supply for a growing population." Cohen, 1977, p. 193 as cited by Glenn Farris in Before The Wilderness, 1993, p. 232

14. "In the extreme south, the Yurok and the Tolowa proportions of gathering/hunting/fishing are 40/10/50 per cent and 40/20/40 per cent, respectively. This is an area where acorns were used and naturally the proportion for gathering is greater." Suttles in Coping With Abundance in Man the Hunter, 1971, p. 61
15. "They get (tired) during end of that season when they come down to camp on gravel bar. Hazel nuts, acorns, everything comes at once. Lots of work." Coquille Thompson, informant for Elizabeth Jacobs, Notebook 116, p. 96, University of Washington Manuscripts Collection
16. "One soon is forcibly impressed by the basic importance of salmon and acorns. Next were marine products, smelt, mollusks, and so forth." Philip Drucker in The Tolowa and Their Southwest Oregon Kin, 1937, p. 231
17. "So far as our knowledge serves us, the subsistence pattern of the coastal town of the Lower Rogue River division differed in no way from that of the Tolowa. Proceeding upstream, expectably enough, such marine products as surf fish, mollusks, sea-lion flesh, etc., were replaced by the flesh of land animals, especially deer. It is said that even at Tututun, five or six miles above the river mouth, only a few men knew the practical and ritual procedure necessary for venturing 'outside' in a canoe. Salmon and acorns were the mainstay, venison and camas took second place." Philip Drucker in The Tolowa and Their Southwest Oregon Kin, 1937, p. 271
18. "Among devices of the food quest, the double-foreshafted salmon harpoon, and perhaps fish poisoning, and a long, narrow-frame plunge net of north central Californian type were reported. The deer-head disguise was used for stalking, and small game was widely hunted. The importance of such articles as pine nuts, 'grass' seeds, etc., in the dietary was perhaps environmentally conditioned." Philip Drucker in The Tolowa and Their Southwest Oregon Kin, 1937, p. 283
19. "I continued there and some of the Indians would come into the fort occasionally and some of their families were made permanent at the fort but the larger number of them were engaged in gathering their acorns which is their chief article of food, they making their bread from them." William Tichenor Manuscript, 1883, pp. 83-84
20. "The Indians of this district have been engaged in gathering acorns for winter use which is their custom every year at this season and acorns being more (plenty) than usual has also had its effect towards bothering and keeping up the excitement among the whites. It has also added to their suspicions in regard to the Indians having a desire to join the hostile forces. But they are now (daily) returning to their winter quarters and are well supplied with provision I think sufficient for the winter." Letter from Ben Wright to Joel Palmer, December 3, 1855
21. "While not fully substantiated, it is likely that many if not all of these resources were employed for subsistence. This suggests that to a degree, site assemblages reflect the use of a wide range of resources available in the area. Notably absent is evidence of riverine resources, either in the form of faunal remains or fishing implements, although two specimens of bone representing the Salmonidae family were recovered during previous investigations at 35JA100." Elena Nilsson in Prehistory of the Upper Rogue River Region: Archaeological Inventory and Evaluation Within the Elk Creek Lake and Lost Creek Lake Project Areas, Jackson County, Southwest Oregon, 1991, p. 381
22. "For example, the large percentage of deer bone in the faunal collections from all the sites indicate its importance in the subsistence pattern of the inhabitants of the canyon throughout time." Joanne Mack in Klamath River Canyon Prehistory and Ethnology, 1991, p. 6

23. "These facts, along with the high frequency counts of deer bone in all the sites, strongly suggested deer served as a very important part of the diet of the inhabitants of the canyon." Joanne Mack in Klamath River Canyon Prehistory and Ethnology, 1991, p. 32
24. "Equal importance seemed to be given to the gathering of plants, and the hunting of mammals and fishing. This was quite clear from the archaeological remains of the Late Prehistoric Period, but there was also evidence of the importance of all these resources during at least the latter part of the Archaic Period." Joanne Mack in Klamath River Canyon Prehistory and Ethnology, 1991, p. 35
25. "The faunal remains indicated the importance of elk and deer; while the groundstone tools and some floral remains indicated the importance of plant foods. The importance of fish was assumed, though there is no direct evidence." Joanne Mack in Klamath River Canyon Prehistory and Ethnology, 1991, p. 67 *referring to Elk Creek
26. "The traditional subsistence base was diverse, including numerous vegetal resources as well as wild game. However, the bi-annual salmon runs were the major economic focus, and fishing made an essential contribution to the Shasta diet." Joanne Mack in Klamath River Canyon Prehistory and Ethnology, 1991, p. A-14
27. "Although his data indicated that acorns and large mammals provided food resources of almost the same volume as fish (by which he meant salmon), he concluded that fish alone functioned as the controlling factor on Karok population size and distribution. Our study suggests, however, that Baumhoff's data that plant and land mammal resources were nearly as abundant as fish resources are in error. Our general finding was that although the Karok area had high species diversity, most species useful to man had relative low populations." Chartkoff and Chartkoff in Middle Klamath Settlement in American Antiquity, 1975, p. 173
28. "The elaborate Karok fishing technology combined with the simple equipment for hunting land animals emphasizes the significance of salmon to the Karok economy." Chartkoff and Chartkoff in Middle Klamath Settlement in American Antiquity, 1975, p. 174
29. "The Upper Coquille, Upper Umpqua, and Chasta Costa Athabaskans, dwelling away from the coast, were perhaps nearly as dependent upon hunting as on fishing. Salmon and steelhead were available, but in reduced numbers; there was no spring run on the Upper Coquille. Even less given to fishing were the smaller inland groups like the Galice Creek and Applegate Creek Athabaskans, and the little-known Takelma and Latgawa. Fish poisons were used by the people of Galice Creek, and perhaps by the Takelma, which suggests this practice may be an old and rather widely dispersed trait, which, being inapplicable (or unnecessary) in salmon fishing, tended to disappear entirely wherever salmon fishing became an intensive occupation, especially under the influence of the northern coastal cultures." Hewes in Aboriginal Use of Fishery Resources in Northwestern North America, 1947, p. 89
30. "Estimated Per Capita consumption of salmon by S.W. Oregon Athapascans was 300 pounds." Hewes in Aboriginal Use of Fishery Resources in Northwestern North America, 1947, p. 228
31. "A single night's vigil sometimes produced a hundred salmon, it is stated—a winter's supply, as the Yurok say." A.L. Kroeber in Handbook of the Indians of California, 1925, p. 85
32. December 11 & 12 "The Indians brought us some fresh trout of small size, but not unpalatable, their dried fish of which also they brought us some, is very indifferently cured without taste of a bad quality: in this respect, they fare better than their friends in the lower part of the river. The former having the advantage of vegetable productions growing abundantly in their neighborhoods a luxury to Indian palate that the later seldom enjoys as none grows within their reach.

"These people seemingly never molest those animals, I presume others either judging from appearances they never kill an animal and depend solely on the produce of the water for subsistence, with roots that grow spontaneously in the vicinity, the same observation is applicable to the natives on the great river, who never trouble themselves about furs, and have little or no intercourse with strangers." Alexander McLeod, 1827, p. 197

33. "Nature seems to have furnished the Indians with a great variety of foods such as game fish, Kamas, acorns, seeds of various kinds. The deer was the principal game, which, before they had guns, were taken with snares." George Riddle in Early Days In Oregon, 1953, p. 43
34. "The food of the Indians consists of Deer, Elk, and Bear meat, with fish of several kinds, principally salmon, and a great variety of roots. They cannot supply themselves by the chase for want of ammunition, as there is a Territorial statute prohibiting the sale of it to them, and were it otherwise it would not be prudent to give them much at this time. They take more or less salmon during five months in the year. Formerly they subsisted in the main upon Roots, of which there was a great variety and quantity, each kind had its locality and time of ripening, or becoming fit for use. But the whites have nearly destroyed this kind of food by plowing the ground and crowding the Indians from localities where it could once be procured. They did not find these roots upon any one tract of country, but there would be an abundance in one locality one month, and of another variety at another place during the ensuing. The settlers have interfered by the cultivation of the soil in the valleys with the obtaining of this species of food to such an extent, that while they can get plenty during certain seasons of the year, they will at other times be in a starving condition." Samuel Culver report to Joel Palmer, July 20, 1855, 33 Congress, 2nd session.
35. "From the variety of techniques employed by the Takelma it is evident that fishing was a valued and vital occupation, one in which a great deal of time, energy and ingenuity were expended." Gray, 1985, p. 63
36. "The dietary proclivities of the Applegate peoples have been expanded and clarified by the ethnographic synthesis. Faunal remains recovered from the excavation of site 35JA42, reflect a dependence upon upland game, primarily deer, and a notable absence of fish bone or tools associated with fishing activities. The information recorded by Harrington and Jacobs match very well, with the conclusions drawn from site 35JA42, and document the efforts of the Applegate folks to undertake large-scale efforts to secure a quantity of deer and elk, which were smoke dried and stored for winter use. Fishing was of secondary importance, and most likely was pursued seasonally and downriver for the excavated site (i.e., at the mouth of the Applegate River)." Gray, 1985, pp. 123-124
37. "In common with other hunting-fishing/gathering groups of the Pacific Northwest and California, the Takelma depended upon a few abundant seasonal food sources, primarily acorns and salmon." Gray, 1985, p. 76
38. "Cultural practices evident in Athapascan but absent in Lowland Takelma settlements include: a more pronounced reliance upon upland game; the use of a 'dry' sweat-house; the existence of a wealth-display ceremony; and the use of a ceremonial drum. Although the example of dietary preferences between the groups may reflect environmental conditions, not cultural patterning, the other examples of cultural differences may be evident in the archaeological record." Gray, 1985, p. 119
39. "While not fully substantiated, it is likely that many if not all of these resources were employed for subsistence. This suggests that to a degree, site assemblages reflect the use of a wide range of resources available in the area." Nilsson and Kelly, 1991, p. 381

SEASONAL ROUND

1. "The larger tribes divide themselves up into small bands during the fishing and hunting seasons, and scatter over a large section of country, each party bringing in the products of their labor when the season closes. The reunion is always celebrated by dances and games." Lorenzo Hubbard, 1861, Bancroft Library Manuscripts Collection
2. "These Indians are known by the name of 'Rascals'...They were armed with bows and arrows (with flint points) with which they kill Elks and Deer, etc., which abound in the mountains, but their principal food, to judge by the signs must be berries and roots. They appear to be scattered in small family parties over the country and have no houses, tents or permanent residence,, their only shelter being made of grass thatched on hoops about four feet high, and only capable of holding 4-5 persons sitting—or prostrate." Peale, 1961, p. 190 as cited by Boyd in Strategies of Indian Burning in Willamette Valley, 1986, p. 72
3. "Summer house-no house, just camped, made brush shelters. Had no sweathouses for summer camps. Summertime was for visiting." Molly Orton, Informant. Notebook 135, Bancroft Library Manuscripts Collection
4. "The ethnographic evidence, such as the joint Klamath-Shasta fishing camp mentioned by Spier (1930), supports a scenario of families coming to well-known fishing spots to catch and presumably to process fish before bringing it back to their villages. This scenario is also supported by the presence of fishing equipment such as barbs, gigs and net sinkers within village sites located both on the first terraces and on the higher terraces and ridges.
"There may in fact be some functional differences between sites within the canyon, but there is no evidence to support differences in subsistence activities of the village sites. One might expect temporary hunting camps and root gathering, seed gathering and acorn gathering camps within the Upper Klamath River Canyon in locations where these resources might be particularly abundant during certain times of the year." Joanne Mack in Klamath River Canyon Prehistory and Ethnology, 1991, p. 45
5. "At this time the most likely settlement pattern during the Late Prehistoric Period for the inhabitants of Upper Klamath River Canyon is year round living in pithouse villages. Temporary camps associated with resource acquisition activities were in the surrounding uplands. Such sites should be located in areas which give, as nearly as possible, direct access to a particular resource, and they would not be expected to contain the complete inventory of artifacts and faunal remains found at the village sites. Fishing camps and fish processing areas probably exist near the villages, close to the river's edge. It is possible such fish processing areas may be found in the middens directly associated with house pits or in nearby midden areas." Joanne Mack in Klamath River Canyon Prehistory and Ethnology, 1991, p. 49
6. "The Indians of northwestern California were able to live in permanent villages year round because of the richness and variety of plant and animal resources in the area. More than a hundred Karok villages were located on the river or at the mouth of the numerous creeks emptying into the Klamath, the main highway through the area and the source of a primary food staple, ama or salmon, as well as other fish and eels. Salmon and the acorns of the tanbark oak played central roles in the pre-contact food economy and were also featured in myth and ritual. Each family owned the rights to specific fishing, hunting, and gathering locations which were transmitted from generation to generation." The Hover Collection of Karok Baskets, 1985, p. 14
7. "Villages were located on the river or on tributary streams; the mountain country on each side was visited for hunting, gathering, and ceremonial activities (Kroeber 1925:100). Those elements of the natural environment that were most important to the Karok were the river, up which the salmon

swam each year; the fir forests on the mountain slopes, in which game could be hunted; and the oak groves, visited annually for the acorn harvest." William Bright in Karok in Handbook of North American Indians, 1978, p. 180

8. "The umma was occupied only in winter. It was abandoned in the summer months for brush shelters, which were roofed with poles and brush and built near the stream in the shade (described however by Dixon as roofless and built in the mountains). Several families might live in one of these, all cooking at the common fire in the center. There was an outlet for each family, making it unnecessary in going and coming to pass between anyone and the fire, this being very ill-mannered. The winter house was near by, a little higher up, and could be resorted to in case of heavy showers. They moved into these brush shelters in the spring when the willows, or other growth along the stream, had leaved out and a certain species of yellow-breasted bird (long-tailed chat?) had returned, and lived in them through the summer salmon season. During the acorn season, they lived in single-family bark houses higher up on the hills. These houses were shaped like the umma but were not so high and had no excavation. Still later in the fall, when far in the Siskiyou for the fall hunt, they camped in the open." Holt in Shasta Ethnography, 1946, pp. 307-308
9. "The type of activity changed with the season. In summer the people lived in brush houses by the river and almost their entire attention was turned to fishing and its attendant activities. In early fall when acorns were ripe, they moved up on the hills among the oaks, leaving a few old people in the village, put up their bark houses, and set about gathering the year's supply of acorns. While the women gathered acorns the men hunted deer, singly at this time, with bow and arrow. Then they came down and late in the fall went high up in the Siskiyou for the last big fall deer hunt. It was at this time they had the big drive, encircling the deer with fire. This was a busy time, occupied entirely with hunting and cutting up and drying the meat. When the people were ready to return to the villages, the meat was divided, everyone getting about the same amount. If a man who had much did not divide with those who had less, he was generally disliked and looked down upon. After this hunt, the acorns, left stored where they had been gathered among the oaks, were brought in by the people, who hurried to get them in before the storm. This was a busy season for the women, hulling and drying acorns, but the men did only a little fishing and hunting of small things such as squirrels, etc. At this season the deer were mating and nobody hunted them. The people gathered wood, shelled acorns, and generally prepared for winter. At the onset of the first snowstorm all prepared their snowshoes, which they took with them in winter wherever they went, even though just to the neighbors. After the storm settled, there came the hunt in the snow, as described above, and in early spring came the hunting at the deer lick." Holt in Shasta Ethnography, 1946, p. 312
10. "Although few ethnohistorical accounts address the topic directly, taken together they support the ethnographic portrait of the Indians' 'annual round,' with semi-permanent winter villages and dispersal of smaller family groups into the uplands during the warm months. A comprehensive comparison of the sources taking into consideration what season of the year each of them describes, certainly indicates support for this pattern.....While the specific location of small upland camps are not given, virtually all 'villages' are noted as being next to a permanent body of water." Jeff LaLande in Living With The Land, 1990, p. 106
11. "The distribution of winter villages reflects a riverine subsistence and settlement orientation. Villages appear to have been located with reference to water; availability of anadromous fish; flat, open terrain; and good acorn gathering areas. River terraces provided the optimum setting for these requirements." Elena Nilsson and Michael Kelly in Prehistory Of The Upper Rogue River Region, 1991, p. 19
12. "As our review of regional ethnographic patterns notes, the upper Rogue River basin was occupied (at least in ethnographic times) by groups practicing seasonal transhumance. Winter villages were

often located along streams or on alluvial terraces. Village placement was often predicated on proximity to important subsistence resource locations such as plant gathering areas or important fishing spots. With the arrival of spring and summer, groups moved to more temporary camps in the uplands and other resource locales. Fishing, as well as hunting and gathering were important subsistence pursuits. Several available species of anadromous fish provided a major resource, among which were trout and salmon which spawned in Elk Creek during the spring and fall. Deer and elk were the most important game animals. Both were taken year round, but were an important focus of resource procurement in the late fall and early winter when salmon and plant foods were not available. Small mammals were also eaten, but apparently were not a particular focus of exploitation. Among the primary plant resources were acorns, grass seeds, camas bulbs, and pine nuts. Acorns provided a major staple for all groups in this region. Black oak provided the favored acorn, though white oaks were also used." Elena Nilsson and Michael Kelly in Prehistory Of The Upper Rogue River Region, 1991, p. 58

13. "To divide the regional settlement patterns into a strictly seasonal model of winter-river valleys, summer-uplands, would be an over-simplification. Drucker noted that the upland Takelma assembled in the summer for salmon fishing at Rocky Point. Therefore the Upland Takelma would have been in their largest winter village during at least part of the summer. It is apparent that mobility to exploit a variety of resources, either in the uplands or in the river valleys, was more indicative of the summer settlement pattern, and that sedentary village life near the major drainages was characteristic of winter life." Dennis Gray in The Takelma and Their Southwest Oregon Kin, 1937, p. 76
14. "The mountains spoken of by informant where acorns gathered lay only some two miles upriver. They camped there by the side of the river and built brush houses if the weather was threatening." Cora DuBois in Tututni Field Notes, Notebook 6, 1934, Bancroft Library Manuscripts Collection
15. "They get (tired) during end of that season when they come down to camp on gravel bar (to fish for fall chinook). Hazel nuts, acorns, everything comes at once! Lots of work." Coquille Thompson, Informant for Elizabeth Jacobs, Notebook 116, p. 96, Melville Jacobs Collection, University of Washington
16. "Chartkoff (1989:288) suggests that along the middle Klamath River in northern California, sedentism developed only within the last millennium, and in many parts of the region 'did not develop at all.' He suggests that an important element of sedentary life in this region was the development of societies with social ranking, which permitted more efficient communal exploitation of resources such as anadromous fish, the organization of labor necessary for large-scale food processing and storage, and the formalization of trade relationships which facilitated intercommunity contacts." Connolly and Others, 1994, p. 168

VARIABILITY OF THE RESOURCE BASE

1. June 11, 1846 "The nations of this valley seem to have a hard way of living, there being no game and few roots, and when the oak fail to bear, they live on clover not unlike the pigs or domestic animals, but when the oak bear acorns, they are plentifully supplied for the time being." James Clyman Diary, 1846, Bancroft Library Manuscripts Collection
2. "The Indians of this district have been engaged in gathering acorns for winter use which is their custom every year at this season and acorns being more (plenty) than usual has also had its effect towards bothering and keeping up the excitement among the whites. It has also added to their

suspensions in regard to the Indians having a desire to join the hostile forces.

"But they are now (daily) returning to their winter quarters and are well supplied with provision I think sufficient for the winter." Letter from Ben Wright, Special Sub-Indian Agent, to Joel Palmer, Superintendent of Indian Affairs, December 3, 1855

3. "A species of oak tends to produce good crops in several-year cycles, bearing well once every two or three years in a specific region; a bumper crop may be followed by one to three years of light or even no crops. In other geographical areas, however, only one or two species may be available; this can lead to a situation in which potentially serious shortages can occur during a year of crop failure." Helen McCarthy in Before The Wilderness, 1993, p. 215
4. "The results of these researches indicate that both the prehistoric native inhabitants of this region, and contemporary non-native archaeologists, have had to accommodate themselves to the effects of the near-whimsical precipitation regime characteristic of the climate of the area. For the aborigines (probably ancestral Shasta) this meant having to adopt risk management strategies for resource procurement, specifically, arranging for substitutes or alternative sources for both salmon and acorns." Richard Olmo in Living With The Land, 1990, p. 7
5. "Informants have always agreed that there was never any famine in this area, although we know that (1) for 4-5 months of the year only a single staple, shellfish, was available in significant quantities, and (2) amounts of particular staples might vary greatly from one year to the next, something that was especially true of acorns, salmon, and smelt." Richard Gould in Ecology and Adaptive Response Among the Tolowa Indians of Northwestern California, 1975, p. 162
6. "While southwest Oregon has a diverse flora because of its transitional environment, most of these species are at the limits of their ranges, and far from the optimum conditions they require in order to reliably produce edible parts. Plants which are poor producers in this region include such potentially important species as California black oak, Klamath plum, hazel and serviceberry. We have modeled the distribution and abundance of plant resources under mesic and xeric conditions. One hypothesis we've advanced at recent conferences is that until the combination of mid-Holocene xeric conditions and widespread aboriginal burning created oak savannah, acorns would not have been an efficient resource to exploit, since oaks produce few or no acorns in a mixed forest setting." Nan Hannon, letter to Richard Hanes September 23, 1990
7. "Contrary to assertions by Drucker and Heizer (1967), there was considerable year-to-year fluctuations in various resources of the Northwest Coast, including salmon (Donald and Mitchell 1975; Ferguson 1983; Schalk 1981)." Robert Kelly in Between Bands and States, 1991, p. 146
8. "The hydraulic mining, erosion from the burns, and the natural flood cycle of 6. 5 years undoubtedly affected the fisheries of the Applegate River, for example." Larry Zowada in The Buncom Project, 1995
9. "In the Little Applegate watershed, although records may not be available to confirm the following supposition, severe erosive floods may have continued to occur with greater frequency than approximately once a decade." Jeff LaLande in An Environmental History of the Little Applegate River Watershed, 1995, p. 35
10. "The Klamath floods every year, but the magnitude of the flood is quite variable. In general, the magnitude of the flood varies inversely with time, so that the greater the flood, the rarer it is. Annual floods of 1-2 meters are the rule, but every few years a flood of 2-4 meters occurs. A flood of 4-5 meters is expected no more than once per decade, and flood of 6-8 meters may occur on the average of once per generation. Floods 8-10 meters high seems to happen no more than once per century." Chartkoff and Chartkoff, 1975, p. 177

PERIODIC SCARCITY

1. "In this paper I present the results of an analysis of Klamath and Modoc myths. A sample of myths was analyzed for representations of subsistence resource scarcity and human responses to this stress. The myths reflect scarcity as a relatively common theme and they affirm storage, diversification, mobility, and sharing as ideal responses. However, the myths most strongly affirm sharing, of both harvested resources and harvest sites, as the moral behavior that reduces resource stress. Moreover, the myths articulate with Klamath rituals that also encode the sharing response to scarcity. The content and context of myth and ritual suggest how these phenomena affect behavior and transmit information in a non-literate society. A comparison of these conclusions with information from traditional descriptive Klamath and Modoc ethnography indicates that myth, often overlooked by archaeologists concerned with ecological issues, is a form of ethnography that can offer valuable insights into traditional adaptations." Elizabeth Sobel, abstract of paper presented to the Society of California Archaeology, 1995
2. March 28: "This is certainly a fine Country--the soil is from the variety of flowers grass Clover and trees of all kinds very rich by culture no doubt would produce well. . . from the number of new graves I have seen lately I am of opinion starvation has been the cause of their (the Indians') death." Peter Skene Ogden, 1827, as cited in LaLande in First Over The Siskiyou, 1987, p. 101
3. "Ogden's comments on the 'starving' state of many of the Indians, for example, might stimulate archaeological inquiry into the broad question of contact period demographics and the carrying capacity of local food resources." LaLande in First Over The Siskiyou, 1987, p. 123
4. "They believe in a good and evil spirit. The former is called the great Ti-hee, and reigns in heaven. His wrath is signified by hard winters, scarcity of food, and epidemics. His satisfaction by a healthy season, mild winters, and an abundance of food." Rodney Glisan in Journal of Army Life, 1856, p. 241
5. "The animals were once people, but the ixkareya were the head of everything. When the Indians came, the ixkareya became rocks, trees, etc. At Forks of Salmon the ixkareya turned into wolves (ixhamnamich); that is why the Karok at Forks of Salmon are kind of mean people. Coyote and this Hawk were ixkareya. (The) ixkareya started here and turned into something; they did not go away across the ocean. Sukrivishkuruhan was (the) principal ixkareya. He said if (whether) there would be lots of acorns, etc. The name means (is from) sukriv (woven bag for men) (and) iskuruhan (to carry). Some years he predicted famine: no acorns, no fish, no manzanita berries; and sure enough it was so." Mary Ike, informant to A. L. Kroeber and E. W. Gifford in Karok Myths, 1980, p. 145
6. "The lean time of the year for most aboriginal Californians was the early spring, before plant growth began and before the start of the spring salmon run. It was then that the threat of starvation was most serious." Martin Baumhoff, 1963, p. 161 as cited by Lewis in Before The Wilderness, 1993, p. 93
7. "Coyote was tricked into believing that winter was past and summer had arrived, so he wanted to throw away all his dried fish, but his wife hid them. Coyote tried to catch eels, which only came in the summer, but he could not, and realized he had been fooled." Ferrand and Frachtenberg in Shasta and Athapascan Myths from Oregon, 1915, pp. 228-233
8. "Once Long Ago At Applegate River In Early Spring Everything Was All Gone. (Then) It Got To Be A Famine. (a recent happening in Applegate country shortly before 1855, perhaps 1830 or 1835. Told by Hoxie's stepfather to him.) Long ago lots of people lived in Applegate River (in one village there) Long ago they stored all the food away good in the summertime, all kinds of edibles.

One time in early spring (March) nearly everything was gone (used up). In the wintertime there had been a big snow, (lots of) ice. That's why in early spring (March) snow lay a long time; (it didn't melt). There was no way for them to dig anything that grew (and was edible). That was a time (when) salmon also was gone. The summer salmon (i. e. spring salmon) begin to run a little while later, the first part of summertime (at the 1st of June or so). Then famine began to spread all over; there was nothing to eat; the people all had no strength. The Shasta (near Yreka) people had bought one person's daughter not very long ago." (*thus the Applegate people were able to go to the Shasta and obtain food and avoid starvation). Melville Jacobs Collection, Notebook 5, p. 19, University of Washington Archives Collection

9. "February was a bad month when there was nothing to eat and no way to obtain foods. (snow)" Sally Snyder, material extracted from Notebook 126, p. 56. Melville Jacobs Collection, University of Washington
10. "When grass begins to grow--still raining, still too early to hunt or fish. No dances or gambling games. All quiet, not much grub now. Just what's left and it has to be taken care of. (note Coyote myth about throwing away all food because he thought salmon were coming, and they starved.)" Coquille Thompson, informant for Elizabeth Jacobs, Notebook 116, p. 92, University of Washington Manuscripts Collection
11. "The fact of shortages in the Tolowa area was not just recently discovered. Driver, in his element list for northwestern California, under 'Slaves' shows that 'starving person gives self for keep' was affirmed by his Tolowa informant, one of his two Karok informants, and both Yurok, while 'Girls traded for food in time of famine' was affirmed by the Tolowa and both Yurok." Driver, 1939, p. 357 cited by Suttles, 1973, p. 60
12. "About the year 1850 the Tolowa on Smith River experienced a shortage of food, and heard that an old woman at Rekwoi was boasting that her prayers had caused stormy weather, with the result that the people could not gather mussels, and that she had prevented whales from stranding on the beach." Edward Curtis in The North American Indian, 1924, p. 96
13. "Informants have always agreed that there was never any famine in this area, although we know that (1) for 4-5 months of the year only a single staple, shellfish, was available in significant quantities, and (2) amounts of particular staples might vary cogreatly from one year to the next, something that was especially true of acorns, salmon, and smelt." Richard Gouldin Ecology and Adaptive Response Among the Tolowa Indians of Northwestern California, 1975, p. 162
14. "The major ceremonies of the Yurok reveal the following qualities: 1. The motive is to renew or maintain the established world. This purpose included bountiful wild crops, abundance of salmon, and the prevention of famine, earthquakes, and flood." A. L. Kroeber in Handbook Of The Indians Of California, 1925, p. 53
15. February 27: "Heavy rain so that we were forced to remain in camp, three elk killed and the meat brought in, three Indians stopped with us, on their way down stream, with a cargo of camass, their chief subsistence at present, fish having long ago almost entirely failed in this river which made the majority of the Indians to resort to other places." Alexander McLeod, 1827, p. 211
16. "If there were lean times, they must have been in the late winter and early spring. Then the winter's supplies would be running low, the water too high for fishing, and the deer and elk beginning to move up into the higher country. Unlike the Yurok, who are said to lack even legendary references to famine, the Tolowa point out vaguely defined town sites (some are surely imaginary), deserted because 'all the people starved to death.'" Philip Drucker in The Tolowa and Their Southwest Oregon Kin, 1937, p. 232

17. March 18– “. . . One volunteered to accompany us and to guide us to the large River. . . miserable looking wretches. . . surprising to see them in this state being in a country abounding in deer. . . not one has even a Bow & Arrow to defend himself.” Peter Skene Ogden, 1827 as cited by LaLande in First Over the Siskiyou, 1987, p. 88
18. February 7– “they (Indians) are in a starving state subsisting entirely on Acorns. . we saw a number of Huts this day with all their little property in them. . . ” Peter Skene Ogden, 1827, as cited by LaLande in First Over The Siskiyou, 1987, p 46 *HORN BROOK, CALIFORNIA
19. “The coast Indians do not wander from their own valley, for there is no unoccupied room, and if a tribe does not confine its fishing to its own home, a fight is the consequence.” Ord, 1856, p. 525

USE OF TRADE AND INTERMARRIAGE TO AVOID STARVATION

MARRIAGE

1. "In cases where resources are spatially heterogeneous and populations are sedentary, access to another group must be maintained through marriage ties and/or other mechanisms, such as debt-producing ceremonies like the potlatch. . . . Consequently, access to another group is usually limited to a few individuals, who become the funnel or window through which the entire group has access to another group's resources. This differential access automatically initiates sociopolitical inequality, for the ranking individual must appear (and be) generous to his own people while manipulating them if he is to appear to another group to be capable of repaying his debts to that group." Robert Kelly in Between Bands and States, 1991, p. 152
2. "In sum, inequality must be seen as an adaptation to a particular set of conditions and not as the inevitable response of human nature to the accumulation of surplus. In many cases, the evolution of nonegalitarian hunter-gatherer societies involves responding to a situation in which residential mobility is not a viable response to local resource failure. This response, moreover, will differ depending on whether resource fluctuations are spatially homogenous or heterogeneous, and it will be affected by such variables as population density and degree of resource localization." Robert Kelly in Between Bands and States, 1991, p. 153
3. "Long ago, a young Applegate Creek Indian man knew how to hunt well. 'Lots of Camas' people (Illinois Creek Indians) were his brothers-in-law there. Therefore he went back and forth (between his Applegate home and his Illinois in-laws). Whenever he went from the Applegate people in the direction of the 'Lots of Camas' people (in order to hunt deer or elk) he told his own people, 'Whenever you see smoke come to there. I will have built a fire (there). You may come for the meat for as many (deer or elk) as I have killed.'" Hoxie Simmons, informant for Melville Jacobs, Notebook 126, p. 97, University of Washington Manuscripts Collection
4. "Long ago the Illinois people were very strong (lots and real fine fighters). Three of them were good brave warriors; two of them were brothers. They bought women in (from) the Applegates. The Applegate people also bought women from the Illinois people. Even though they were brothers-in-law, they made war on one another in between times (marriages). The Shastas were stout (fighting) people, they too fought with the Illinois people. (In one recent war), they (the Shastas) were retreating all the time (because the Illinois were such good fighters). "Hoxie Simmons, informant for Melville Jacobs, Notebook 5, p. 23, University of Washington Manuscripts Collection
5. "...The famine began to spread all over; there was nothing to eat; the people all had no strength. The Shasta (near Yreka) people had bought one person's daughter not very long ago..." Hoxie Simmons, Informant for Melville Jacobs, Notebook 5, p. 19, University of Washington Manuscripts Collection
6. "The Applegate Indians talked nearly like Goddard's Galice informant, Mr. Batiste. The did not live on Rogue River. Some spoke Shasta because they had Shasta wives." Pliny Goddard, Notebook 3, p. 5, University of Washington Manuscripts Collection
7. "Talsalsan, name of a place way down Illinois. Frances' mother saw a shinney game there, it is by a big fall. The Talsalmans' chief saw informant's mother with her brother and remarked:" That Takelma chief has a young wife. (He said) 'No, that is my sister,' and then at once the Talsalsana' chief wanted to buy my mother from her brother--and he was an old man already. That is the way Indians do." John Harrington Field Notes, Reel 28

8. "Taltustun—Name of Hoxie's mothers tribe. He goes on to say that the chief was a kind of short-stature man, and he was very friendly to the Shasta Costa people, the Shasta Costa people used to get wives up there all the time." John Harrington Field Notes, Reel 26, Frame 867
9. "The people from Ike's country married into the Rogue River Shasta Band. They married into the Klamath River Band. They married into the Scott Valley Band. They married into the Salmon River Band. They married into the New River Shasta Band. They married into the Sacramento and Squaw Creek Bands. They married into the Shasta Valley Band, and they married into Ike's Band." Betty Hall in Living With The Land, 1990, p. 138
10. "The hats of the women, however, were round basket-hats (yup) twined of a white grass. My informant claimed that the Takelma did not themselves make these hats but got them from the Shasta by the purchase of wives." Sapir, 1907a, p. 264
11. "Families liked to have girls because they get lots of money for them and they don't have to pay out money to buy brides. Fondness for girls evidenced by informant's father who had his eldest daughter buried just outside the dwelling rather than in nearby graveyard. Also informant proud of fact her father had four daughters and no sons when reached adulthood." Cora DuBois in Tututni Field Notes, 1934, Notebook 6, Bancroft Library Manuscripts Collection
12. "The result of a marriage was to establish a formal bond between the two families involved. In-laws were supposed to 'respect' and aid each other. The respect took the form of decorous speech and an exchange of gifts at visits; the aid, that of lending each other valuables for dances. This last was the reason why it behooved a rich-man to marry and to see that his sons married daughters of wealthy men. In-laws were also supposed to be good friends." Drucker, 1937, p. 247
13. "Was mark of distinction to pay extremely high price for bride; to obtain bride from great distance (i. e., from Oregon, Yurok, Karok, etc.); to have many wives; to exchange sisters, full payment accompanying each." Drucker, 1937, p. 247

TRADE

1. "Salmon eggs dried. Table Rock people traded salmon and salmon eggs to mountain people for deer and deerskins." Molly Orton, Informant. Notebook 135, Bancroft Library Manuscripts Collection
2. "Basket caps made of xerophyllum, gotten in nearby mountains by Happy Camp people. Table Rock people used rushes for caps." Molly Orton, Informant. Notebook 135, Bancroft Library Manuscripts Collection
3. "Spruce root basketry, use of hazel. . . Yreka Siwashes, Shasta, made hazel stick baskets." Molly Orton, informant, Notebook 135. Bancroft Library Manuscripts Collection
4. "The Lowland Takelma, who seem to have been dependent upon riverine resources, would often trade salmon for deer hides and meat with their Upland kin (Drucker, 1940, p. 294) Sapir noted that the trade relations between these groups were less than friendly, with the Upland Takelma at times raiding their brethren on the lower stretches of the Rogue for slaves and food, the slaves then being sold to the Klamaths to the east (Sapir 1907a, p. 252). When the water level of the Rogue was too high for salmon fishing and supplies of this staple were running low, the Takelma went to the Illinois Valley to a place named Talsalsan and purchased dry salmon from the Athapascan speakers there (Harrington 1981: 523, 525. One possible exchange commodity for this dry salmon could have been the brown salt obtained from Yukyakhwan. Salt was obtained at this location both for personal consumption and as a commercial item (Harrington 1981, p. 499). "Other articles received in trade by the Takelma were the basket hats worn by women, acquired

from the Shasta by the purchase of wives. (Sapir 1907a p. 264) Molly Orton claimed that a variety of baskets was bought from the Karok near Happy Camp, California, for "...they made the best ones." (Drucker 1940:295). Dennis Gray in The Takelma and Their Southwest Oregon Kin, 1985, p. 67

5. "The archaeological data recovered from site 35JA42 also establishes the existence of a far-flung trading network. At this proto-historic house-pit site on the upper Applegate River, a small assemblage of historic artifacts was recovered. It included glass beads, one complete and one fragmentary glass projectile point and a fragment of a brass hinge (Brauner 1983:87). As to their acquisition by the Applegate group, 'Whether the items were obtained directly from Europeans or were obtained through aboriginal trade networks is unknown.' (Brauner 1983:88) In addition to the historic artifacts, a variety of exotic projectile point forms also were recovered during the excavation. Point styles from the lower and middle stretches of the Rogue River, as well as small triangular side-notched points (imported from the east) were part of the lithic tool-kit of the proto-historic people on the Applegate River (Brauner 1983, p. 89). This use of possibly imported finished tools in the area had not been observed in earlier dated sites along the Applegate River and the reasons for this apparent shift to a more cosmopolitan outlook for the Applegate dwellers is, to date, unknown (Brauner 1983, p. 89)." Dennis Gray in The Takelma and Their Southwest Oregon Kin, 1985, p. 102
6. "When visiting a different district, people took food typical of their own area to their host and brought home food typical of the host's area. For example, Klamath River people took pine nuts and salmon to the Scott and Shasta valleys and to Oregon; they brought back antelope meat from Shasta Valley and varieties of bulbs from Oregon and Scott Valley.
"The California Shasta traded dried acorn paste with the Rogue River Athapascans for dentalia.
"The trade emphasis in California was with the Karok, Hupa, and Yurok from whom the Shasta received acorns, baskets, dentalia, haliotis and other shell in exchange for pine nuts, obsidian blades, juniper beads, and Wintu beads. Dixon (1907:427) asserts that salt was obtained chiefly from the tribes of the lower Klamath. . ." Silver in Shastan Peoples in Handbook of North American Indians, 1978, p. 213
7. "Inland, the Tolowa were separated by high ranges of mountains from the Takelma, with whom they had little contact, excepting occasional raids back and forth. Well-traveled trails led over the ridges to the upper portion of the Klamath River, inhabited by the Karok, with whom the Tolowa had constant dealings. " T. T. Waterman in The Athapascan Indians of Southwestern Oregon and Northwestern California, 1921, p. 13
8. "Fish-lines and nets were made of a fibre imported from the Karok region. It grows plentifully in the neighborhood of Happy Camp. It's known to the Tolowa as temel, to the Yurok as lul, and is not the iris. The Karok gathered the leaves of this plant, which grows on the hills, and made them into bunches for trade with the Tolowa. The last that my informant could remember buying cost 50 cents for five bunches." T. T. Waterman in The Athapascan Indians of Southwestern Oregon and Northwestern California, 1921, p. 118
9. "Where the acorns were plenty, the dough, after cleaning, was often dried, and in that form traded to other villages where the acorn-crop was not so plentiful. It is said that this dried acorn-paste formed a considerable article of trade with the Rogue River people in Oregon." Roland Dixon in The Shasta, 1907, p. 426
10. "These Indians keep up a regular intercourse with Rogues' river, whither it is probable many of them have recently gone." Journal of Col. McKee, ed. by George Gibbs in Schoolcraft, Vol 3, 1853, p. 157

11. "Our colleague Rich Olmo, the archaeologist at SOSOC, is working with ideas on reciprocal environments. He has developed pluvial-thermic quotients for particular areas in this region (the Umpqua Valley, the Rogue Valley, Shasta Valley, the Klamath Basin, etc.) and suggests that exchange is most likely to occur between cultures in environments which are not experiencing similar conditions. For example, ethnographic data suggest that there was little trade or intermarriage between the Klamath/Modoc peoples and the Rogue Valley peoples. Rich proposes that this is because these peoples' experienced stress or abundance at the same times. Exchange relationships between Shasta Valley and Rogue Valley peoples were stronger, perhaps because Shasta Valley experiences good rainfall while the Rogue Valley experiences drought, and vice-versa, encouraging exchange as a method of coping with environmental stress. Rich has developed some good computer models of these reciprocal climates." Letter from Nan Hannon to Richard Hanes, September 23, 1990
12. "Begun three years ago and based upon ongoing research in this area which covered the last twenty-three years, the Upper Klamath River Canyon Project's data points to change in the nature and intensity of human activity with the river's drainage. This portion of the Klamath River drainage has evidence of use for at least the last 10,000 years. However, the intensity of occupation increases most noticeably after A. D 900. This increase is best demonstrated by the number, complexity, and size of house pit villages along the river, which date between A. D. 900 and the mid 1800s. The ability of people to live in permanent villages within this area must have required flexible use of food resources to enable adaptation to the unpredictability of both the plant and animal resources of the area. It may also have required use of non-food resources for trade, specifically obsidian." Joanne Mack, Paper presented at the 1995 SCA Meetings.
13. "Several articles of prehistoric commerce are known. Obsidian (probably from Glass Mountain, east of Yreka) and pine nuts were traded by the the Shasta down the Klamath River and north across the Siskiyou (Dixon 1907:436, Kroeber 1925:287). From the Karok came a variety of products: abalone and olivella shells, basketry hats, tobacco seed, tanoak acorn paste and, perhaps, seaweed salt (Dixon 1907; 436; Sapir 1907a: 10, Kroeber 1925:287-293, Holt 1946:340; Bright 1972:7). The Takelma and Dakubetede were middlemen in the dentalium shell trade (Dixon 1907:396) and they many have dealt in camas bulbs and deer hides as well." Jeff LaLande in Cultural Resource Overview of the Rogue River National Forest, 1980, p. 19
14. "The role of the inhabitants of the Upper Klamath River drainage within exchange networks has also been considered (Mack 1983, Gehr 1986) and the cultural influences apparent within the area from adjacent regions (Mack 1983) It has been proposed that the Klamath River acted as a conduit for both trade items and cultural traits moving from the Klamath Basin in the east and northwest California/southwest Oregon in the west. However, cultural interrelationships also may have existed between the Upper Klamath River drainage and the upper Rogue River and the Middle Pit River resulting in north/south ties as well. This is particularly indicated by the distribution of Siskiyou Utility Ware" (Mack 1989a). Mack in Living With The Land, 1990, p. 17
15. "Two kinds of acorns as well as camas bulbs obtained from inland people, who were given dried salmon in exchange. Acorns were often already prepared when bought." Coquille Thompson, informant for Elizabeth Jacobs, Notebook 100, p. 56, University of Washington Manuscripts Collection
16. "Pelts are traded to other Indians for Indian money." Hoxie Simmons, Informant for Melville Jacobs, Notebook 128, p. 48, University of Washington Manuscripts Collection
17. "The waterfall in Illinois River, at the place called Talsalsan. Only mama went there with her brother to buy dry salmon, in the springtime. Informant has never been there. George Baker says this is surely the Anderson place waterfall on Illinois River where Indians used to catch salmon.

Wagon road goes from Selma to Anderson's place and 6 miles further, to Oak Flat and Panther Bar." John Harrington Field Notes, Reel 28

18. "Talsalsan-Illinois River. Talsalsan is a falls in Illinois River. Once Francis' mother went down there and bought dried salmon from the Indians who (lived) down there. No ferry there. Rogue River water in winter was high and no falls and no good for salmon fishing, so went to buy salmon there." John Harrington Field Notes, Reel 28
19. "Lamhikh--It is where California Indians come down all the time, maybe Illinois water went up there. California Indians traded mussels, etc. there." John Harrington Field Notes, Reel 28
20. "The Waldo people used to come over this way to trade for fish (for smelts, Lucy says." John Harrington Field Notes, Reel 27, Frame 1141
21. "There was considerable trade down the Klamath with the Karok, and possibly through their territory. Dentalia, salt or seaweed, baskets of all kinds, tan-oak acorns, and canoes were the articles that came to the Shasta. In return they gave obsidian, deerskins, and sugar-pine nuts. From the Wintun to the south the Shasta had less that they could get. They did, however, receive acorns, and gave for them the same goods which they traded to the Karok, plus some of the dentalia which they themselves purchased. There was considerable intercourse with their own kinsmen and the Athabascans on Rogue River. Oaks become scarce or cease near the northern line of California, and any surplus of acorn flour that the Shasta possessed found ready takers among these Oregonian people. In return a stream of dentalia--which came, of course, ultimately from the same source on the far northern coast as those which traveled up the Klamath--flowed up Rogue River into Shasta possession. With the Modoc and Klamath Lake peoples on the head waters of the Klamath the Shasta traded comparatively little." A. L. Kroeber in Handbook of Indians of California, 1925, p. 287
22. "Exotic projectile points were extremely rare in the late prehistoric tool assemblages in the upper Applegate River region. The entire tool kit could be characterized as 'provincial.' There was very little evidence for trade in finished goods although raw materials (lithics) were imported. Between the abandonment of sites 35JA49 and 35JA47 and the first occupation of site 35JA42, the upper Applegate River folk became more cosmopolitan and began importing outside finished goods as well as lithic material. They continued manufacturing most of their lithic tools in a traditional manner but began importing such items as arrows or at least projectile points. Desert side-notched points were imported from the east, Gunther barbed points from the main stem of the Rogue River, and concave base points from the lower reaches of the Rogue River. What caused this move away from isolation is unknown." David Brauner in The Reevaluation of Cultural Resources Within The Applegate Lake Project Area, 1983, p. 89
23. "Karok people regularly traveled down the Illinois Valley to villages on the Lower Rogue River. One man came over to visit during the winter, perhaps to attend a wealth display dance. He stayed until early spring, during the time when grouse begin to drum. Chief Shellhead warned him not to return home too early, because of heavy snows on the divide between the Illinois and the Klamath (Siskiyou Mountains) but he was impatient to go. Later they found him frozen to death." Robert Kentta, personal communication, May 20, 1995
24. "John Billings was forty-two, and Adeline about twenty-five as they prepared their children and accumulated necessary tools and supplies for a summer pack-train journey over ridges and along streams to settle the Rogue River canyon. Their route took them up Indian Creek from Happy Camp and along a ridge to Bolan Lake. After a short rest the group made its way through the Illinois Valley to O'Brien. Leaving, their route lay south and west around Oregon Mountain, and along a trail heading west to Packsaddle Mountain. Here they turned north, and crossed the

headwaters of the East Fork of the Winchuck River and climbed toward Long Ridge. After travelling the Long Ridge crest, they crossed High Prairie to Mineral Hill and Cedar Camp. Snow Camp lay ahead, and from Snow Camp the pack train headed for Wildhorse Prairie. From Wildhorse the pack train headed down the western drainage of Lawson Creek toward Pebble Hill and Oak Flat." Atwood, 1978, p. 23

25. "Looking up that trail, we could see solitary Upper Umpqua people coming down to the trail, also a lot of Upper Umpqua people coming over to fish in the Head of Coquille River or to attend a dance at this village. The Upper Umpqua people and this people were great friends, never had the slightest trouble, visited back and forth." Coquille Thompson, Informant for John Harrington, Reel 26, Frame 1253
26. "How-te-te-oh (Hudedut, Wowtetch)—Village of Takelma tribe at Rogue River Ferry, members of which were visiting Shasta Indians in Scott Valley in 1853" C. Hart Merriam, Reel 3, Bancroft Library Manuscripts Collection
27. "These Indians keep up a regular intercourse with Rogues' river, whither it is possible many of them have recently gone." Journal of Col. McKee, ed. by George Gibbs in Schoolcraft, 1853, vol. 3
28. "On the 27th, not knowing the feeling of the Indians, some fifteen men from this Creek went over to the main Indian encampment on the Klamath. Upon their arrival at the Indian Rancheria, they met with six of the Applegate Indians, a portion of the Rogue River Tribe, whose faces was well known by several of the white men." Martin Letter to General Drew, June 8, 1856

WARFARE

1. "A lot of people were right at that place at the mouth of the (Applegate) River. That is where they were dipnetting salmon. They lived there at that time (in a summer camp). Now that is where they (the Shastas) shot he (at a formulist-shaman) who was seated in an open place that had a fire in the middle, all surrounded by a brush fence." Notebook 126, p. 3, Melville Jacobs Collection, University of Washington
2. "Text about two Shasta Costa brothers who were brave warriors, had a Galice mother. Were attacked in sweathouse by the Tu-tu-tuns, but dug out back of sweathouse, and with big blades drove off the invaders. Wore elkhide armor. Each had five wives. Later this village traveled to Tu-tu-tun for a shinny game. While playing, the two were stabbed and killed. The rest of the village was able to retreat and by dodging arrows escape back upriver." Notebook 5, p. 23, Melville Jacobs Collection, University of Washington
3. "Long ago the Illinois people were very strong (lots and real fine fighters). Three of them were good brave warriors; two of them were brothers. They bought women in (from) the Applegates. The Applegate people also bought women from the Illinois people. Even though they were brothers-in-law, they made war on one another in between times (marriages). The Shastas were stout (fighting) people, they too fought with the Illinois people. (In one recent war) they (the Shastas) were retreating all the time (because the Illinois were such good fighters)." Notebook 5, p. 23, Melville Jacobs Collection, University of Washington
4. "Long ago, the water people, i. e. the Klamaths, came in to fight against the Applegate people. They got five slaves altogether. . . . A young man taken slave by the Klamaths escaped and returned home via a trail along a mountain ridge. . . I don't know how many days he was traveling. Then he recognized a big mountain where the Applegate people always hunted (elk). That's how he got back to his own country without trouble (his garments were worn out from the brush he had

to make his way through." Notebook 3, p. 61, Melville Jacobs Collection, University of Washington

5. "The Klamath used their Galice slaves (women) for root digging labor. At first the Klamath carefully watch the slaves, working along with them in the root patches. Later they relaxed their vigilance, and allowed the women to work alone. Consequently it was possible for the women to escape, although they were pursued by Klamath men." Notebook 128, p. 62, Melville Jacobs Collection, University of Washington
6. "About 1800 in Takelma territory, the Shasta raided the Rogue River people and took some of their young men and women away as slaves." Notebook 127, p. 77, Melville Jacobs Collection, University of Washington
7. "According to the best information obtainable, the Rogue River Indians (Athabascans) and the Shasta have long been enemies, and had contended since time immemorial for the Oregon area now claimed by the Shasta. At a period about a hundred years ago, as nearly as could be estimated, the Shasta declare that they finally drove the Rogue River people completely out of the territory in dispute, and that they were themselves in occupancy of it when the white trappers first penetrated the region. That the Rogue River Indians still claimed the area as theirs, however, is shown by the treaty of Sept. 10, 1853, by which they ceded this section and also a portion of what was, I believe, unquestionably Shasta territory lying within the State of California." Dixon, 1907, p. 387

Appendix II

Land Management Overview, including use of fire

APPLEGATE/ILLINOIS

1. "Yukyakhwan is where catch lots of deer -- all full of snares, tied shoulder blades together. A field there. Lots of salt there. 'Altakanxita Mt. is by this lick. If Indians see big fire on that mt, the Indians at various villages move--know war is coming. Man would also go as spy and hoot like an owl to spy on a village and make attack in the morning." Frances Johnson, Informant for John Harrington, Reel 28 *UPPER GALICE CREEK
2. "They burned off the brush and sowed tobacco seeds. They built a fence of brush (around such a field?). They did not use the wild plant." Pliny Goddard, Notebook 2 in Melville Jacobs Collection, University of Washington
3. "It is well known among the descendents of the Upper Rogue peoples that burning was a wide spread practice among our people. Maintenance of camas meadows, occasional hillsides for hunting, regrowth of certain plant materials--such as hazel switches for basket work, depended upon annual, bi-annual, rotational, or at least periodic cool burns to simply maintain openings and/or obtain desired types of revegetation. Setting a small brush patch, snag or windfall on fire in a small, localized area also was done for starting a tobacco patch. After burning the seeds were scattered in the burnt area." Robert Kentta, Cultural Resources Protection Specialist, Confederated Tribes of Siletz Indians of Oregon, personal communication, 1995
4. "Long ago, a young Applegate Creek Indian man knew how to hunt well. 'Lots of Camas' people (Illinois Creek Indians) were his brothers-in-law there. Therefore he went back and forth (between his Applegate home and his Illinois in-laws.) Whenever he went from the Applegate people in the direction of the 'Lots of Camas' people (in order to hunt deer or elk) he told his own people, "Whenever you see smoke come to there. I will have built a fire (there). You may come for the meat for as many (deer or elk) as I have killed." Hoxie Simmons, Informant for Melville Jacobs, Notebook 126, p. 97, University of Washington Manuscripts Collection

ROGUE

1. "The hill tops, now mainly covered by dense thickets of manzanita, madrona and evergreen brush, were then devoid of bushes and trees because of the Indian habit of burning over the surface in order to remove obstructions to their seed and acorn gathering. " Walling, 1884, p. 334
2. September 24 "...The country was mostly burned by Indians...We travelled seven hours and halted on Young's river in a burned prairie, little or no food for the horses. Along the creek were numerous signs of Indians, old camps etc. where we generally saw piles of Mussel (Unio & Anodon) shells which seemed to indicate that such formed a considerable portion of their food. Even snail shells,

- (*Heliz nuttallii*) were found in piles where they had been roasted..." Titian Ramsay Peale, 1961, p. 91 as cited in Boyd in Strategies of Indian Burning in Willamette Valley, 1986, p. 73
3. September 24 "...over burned woods and small patches of prairie, abounding in black tail Deer, the woods here consist of Lamberts." Titian Ramsay Peale, 1961, p. 191 as cited in Boyd in Strategies of Indian Burning in Willamette Valley, 1986, p. 73
 4. September 24 "We have today for the first time fell in with the sugar pine tree. this (illegible) matter oozes from the wood of the tree not the bark & forms in little lumps on the outside where the bark has been removed. this has quite a pleasant taste & much like manna...The indian manner of gathering it is to set fire to the tree and save the juice as it runs out. in this way they get it in large quantities." Eld as cited by Boyd in Strategies of Indian Burning in Willamette Valley, 1986, p. 73
 5. September 28 "On the flank of a hill stretching to E.S.E., in passing thro the woods we suddenly came on to an Indian woman who was blowing a brand to set fire to the woods probably, we stopped to speak to her, but she was sullen & dogged & made no reply. & we passed. " Eld as cited in Boyd in Strategies of Indian Burning in Willamette Valley, 1986, p. 73
 6. September 28 "...we found the woods on fire in several places & at times had some difficulty in passing some of the gullies where it was burning." Eld, as cited by Boyd in Strategies of Indian Burning in Willamette Valley, 1986, p. 73
 7. September 28 "...saw a squaw who was so busy setting fire to the prairie & mountain ravines that she seemed to disregard us. Her dress was a mantle of antelope or deer skin, and a cup shaped cap made of rushes. She had a large funnel-shaped basket which they all carry to collect roots and seeds in." Titian Ramsay Peale, as cited in Boyd in Strategies of Indian Burning in Willamette Valley, 1986, p. 73
 8. October 1 "The solumn night at length veiled all distant objects in darkness, when suddenly a signal-fire, probably kindled by some savage, who had just discovered our camp-fires, was seen to start up on the top of the mountains we had just crossed. Soon another and another answering fire blazed along the top of the mountain, and then continued to spread until the whole of the upper part of the ridge appeared to be one continued sheet of crackling flame and circling smoke. The latter rolled up in huge wreaths, that gradually grew less dense, and received and transmitted the light of the burning mountains, which gave to them a golden and crimson radiance, the splendor of which increased every moment." Thornton, 1846, Vol. 1, p. 196 as cited in Zyback in The Great Fires Of The Oregon Coast Range, 1988, p. 40
 9. "The timber for 8 or 9 miles was fired along the road, so that it was as light as day. The Indians were secreted behind the burning timber and occasionally discharged a shower of arrows." Oregon Statesman article of August 23, 1855 as cited by Morris in Forest Fires of Western Oregon and Western Washington, 1934, p. 323
 10. "The next morning the dead were buried with the honors of war. Scouts sent out reported that the Indians had retired a long distance into the mountains, setting fire to the woods in their rear, and almost obliterating their trail....Early on the following day (August 23), the line of march was taken up and the Indian trail was followed through a very difficult country, mountainous, precipitous, and brushy, where there was constant prospect of going astray as the trail left by the savages was very dim and nearly obliterated by fire." Walling, 1884, p. 219

11. "A number of varieties of seeds were in considerable use as food. Among these was the lamx, the seed apparently of a species of sunflower. When the plants were dry the seeds were beaten out by a stick used for the purpose into a funnel-shaped deer-skin pouch with the mouth wider than the bottom. When the lamx was young and tender, the stalk also was eaten. In a similar way were collected the seeds of the yellow-flowered tar-weed, the stalks of which plant were first burnt down to remove the pitchy substance they contained." Sapir in Notes On The Takelma Indians Of Southwestern Oregon, 1907a, p. 259
12. "The only plant cultivated before the coming of the whites was tobacco which was planted by the men on land from which the brush had been burnt away." Sapir in Notes On The Takelma Indians Of Southwestern Oregon, 1907, p. 259
13. "Tobacco—ground burned, planted, raked into ashes with bunch of brush." Molly Orton informant, Notebook 135, Bancroft Library Collection
14. "Such deer fences were usually built in the neighborhood of creeks or salt licks, and sometimes as many as one hundred and fifty of these rope-traps were set. Not infrequently mountain forests were set afire to facilitate the driving of deer." Sapir in Notes On The Takelma Indians Of Southwestern Oregon, 1907, p. 260
15. "Outside of such larger game as elk and deer the Indians were fond of grasshoppers, generally picked from a burnt-down field and cooked for food, and of the white larvae of the yellowjacket, the yellowjackets themselves being smoked out of their holes." Sapir in Notes On The Takelma Indians of Southwestern Oregon, 1907, p. 260
16. October 19 "Raw cold weather,—Pursued our journey down the river 9 miles,—The country here has been lately overrun by fire, it is difficult to find good grass for our horses..." Journal of John Work's California Expedition, 1833, p. 78

SHASTA

1. "Various methods were employed for hunting deer. Two sorts of deer drives were made in the fall. For one, brush fences, broken by a number of openings, were constructed. The deer were driven toward these fences, where they were caught in nooses concealed in the openings and then were clubbed or shot. This was the method of the Scott Valley Shasta, the Gamutwa, and a few villages on the south side of the lower (Shasta) part of the Klamath. The north side, where most of the villages were situated, was too open for such a method, which was only feasible in the more rugged country on the south side with its low brush which forced the deer to head into trails. These fences were set up after the mating season, about November, and were left until spring. The second method was used on the more open hills of the north side of the river, where the oak trees grew. When the oak leaves began to fall fires were set on the hills. The ends of the curved lines forming the circles of fire did not meet, and in this opening the women stood rattling deer-bones, while men concealed in the brush were ready to shoot the deer as they rushed out." Holt in Shasta Ethnography, 1946, p. 310
2. "In early fall when acorns were ripe, they moved up on the hills among the oaks, leaving a few old people in the village, put up their bark houses, and set about gathering the year's supply of acorns. While the women gathered acorns the men hunted deer, singly at this time, with bow and arrow. Then they came down and late in the fall went high up in the Siskiyou for the last big fall deer hunt. It was at this time they had the big drive, encircling the deer with fire." Holt in Shasta Ethnography, 1946, p. 312

3. "In former days, it was the custom to make a fall deer hunt in the White Horse Lake country in Sept. or Oct., when the deer were fat and the leaves dry. This hunt is called da-oo-te. It is made jointly by two closely related tribes, the Fall River A-Ju-Mah-We and the Big Valley At-Wum-We. Men with torches started together and ran in opposite directions, enclosing a very large circular area...a thousand acres or more. They set fires as they ran so that in a short time a huge circle of fire, spreading toward the center and constantly contracting, surrounded the deer and other animals. They were confused and blinded by the smoke and easily killed with bow and arrow. There was no escape.....After each hunt, two or three years were allowed to pass in order to give the pine needles time to accumulate before the next." C. Hart Merriam Field Notes, Reel 130, Bancroft Library Manuscripts Collection
4. "Deer were hunted in a variety of ways. In the autumn, deer-drives were made. These were of two sorts. In one case, fences of brush or ropes were stretched across the country, with openings left here and there. In these openings, strong nooses were set and concealed, the ends being tied to trees. The people then went out and beat up the country, driving the deer toward the fence, where they were caught in the nooses, and clubbed or shot. The other method could not be used until the oak-leaves began to fall. Men then went out and set fires in circles on the hills. The ends of the curved lines forming the circles of fire did not meet, and in this opening the women stood rattling deer-bones, while men concealed in the brush were ready to shoot the deer as they rushed out." Dixon in The Shasta, 1907, p. 431
5. "The Shasta Valley and Rogue River groups ate one kind of grasshoppers, a very large form (locusts?). They set fire to the grass, thus cooking the grasshoppers, which were then dried, pounded, and mixed with grass seeds for eating." Holt in Shasta Ethnography, 1946, p. 309
6. "Shasta land management involved burning for better wild seed and tobacco crops; the Shasta Valley Shasta also scattered wild seed to produce a better crop." Shirley Silver, p. 217, as cited in the Handbook of North American Indians, 1978, Vol. 8, California.
7. "The Shasta largely use sticks of hazel in making baskets. The sticks are gathered in great quantities, the best ones from ground denuded by fire of its natural growth of fir and hemlock..." James, 1903, p. 79 as cited in Lewis in Before The Wilderness, 1993, p. 97
8. "Ewksiwa's Klamath Lakes Indians very important (when we saw smoke east of Medford, we knew these Ewksiwa's were hunting deer in the mountains east of here, at the Mountains at Mt. Pitt vicinity & this side (west) of there. No mountains at Klamath Lake & came to these western mountains to kill deer. When we could see smoke Indians would explain to Molly that Elksiwa's were killing deer there." Molly Orton, informant for John Harrington Field Notes, Reel 28, Frame 430

UMPQUA/KALAPUYA

1. "At that time Cow Creek valley looked like a great wheat field. The Indians, according to their custom, had burned the grass during the summer, and early rains had caused a luxuriant crop of grass on which our immigrant cattle were fat by Christmas time." George Riddle in Early Days In Oregon, 1953, p. 37
2. "During the summer months the squaws would gather various kinds of seeds of which the tar weed seed was the most prized. The tar weed was a plant about thirty inches high and was very abundant on the bench lands of the valley, and was a great nuisance at maturity. It would be covered with globules of clear tarry substance that would coat the head and legs of stock as if they

had been coated with tar. When the seeds were ripe the country was burned off. This left the plant standing with the tar burned off and the seeds left in the pods. Immediately after the fire there would be an army of squaws armed with an implement made of twigs shaped like a tennis racket with their basket hung in front they would beat the seeds from the pods into the basket. This seed gathering would only last a few days and every squaw in the tribe seemed to be doing her level best to make all the noise she could, beating her racket against the top of her basket." George Riddle in Early Days in Oregon, 1953, p. 46

3. Sept. 17 "...Through valleys...principally oak trees with grass growing under them...The prairies mostly today are on fire, winding its course slowly with the wind across the plains and up the hills...our route lay directly through where it was burning but the grass is not thick enough to render it very dangerous, and we crossed without injury; it is well the grass is not more than it is or our route assumedly would be extremely perilous, it is probably owing to the fact that the prairies are burned every year that the grass is so thin." Eld, 1841 as cited in Boyd in Strategies of Indian Burning in Willamette Valley, 1986, p. 72
4. September 20 "...encamped near..the south fork of the Umpqua...headwaters & at the foot of the Umpqua mountains. Country burnt all round, having noticed that the Indians had taken particular care to destroy all the grass within the neighborhood of the previous camping places...I selected intermediate places.. where there was some food for the horses." Emmons, 1841 as cited in Boyd in Strategies of Indian Burning in Willamette Valley, 1986
5. "...The most difficult part of the day's journey was the ascent from this valley, to effect which they toiled for three hours. The woods had been lately on fire here, and many of the trees were still ignited. This fire had evidently been lighted by the Indians for the purpose of causing the trees to fall across the path; they had also tied some of the branches together, and interlocked others. Everything was charred, and the more annoying on that account, as our people were completely covered with charcoal dust.....In different directions, dense smoke was seen arising, denoting that these savages were on the watch for the party, and making signals to muster their forces for an attack, if a favorable opportunity should offer." Wilkes, 1845, p. 121
6. "In all the low valleys of the Umpqua there was very little undergrowth, the annual fires set by the Indians preventing the young growth of timber." Riddle, 1953, p. 51

KAROK

1. "How They Used to Set Fire To The Brush—Our people never used to plow, they never used to grub up the ground, they never used to sow anything, except tobacco. All that they used to do was to burn the brush at various places, so that some good things will grow up.
"That way the huckleberry bushes grow up good, the young huckleberry bushes, they call them iramxit. And the hazel bushes, when they burn them off for hazel sticks, they pick them two years, then they are good, good hazel sticks, they get so hard. And the bear lilies also they burn off, they pick them the next summer, in July; that is the time that they pick the bear lily.
"And the wild rice plants also they burn, so that the wild rice will grow up good. They burn it far up on the mountains.
"And sometimes they also burn where the tan oak trees are, lest it be brushy where they pick up acorns. They do not want it to burn too hard, they fear that the oak trees might burn.
"And sometimes they used to set fire there long ago where they saw lots of acorns on the ground, in a tanbark oak grove, they made roasted unshelled acorns. They do not set the fire for nothing, it is for something that they set the fire for.

"And where they are going to sow tobacco, too, they burn it, too. It is the best place if there are lots of logs there, for there are lots of ashes; where lots of logs burned there are lots of ashes. Ashes are good on the ground, where fir logs have burned, where pitchy stuff has burned. It is in summer when they set fire to the brush, at the time when everything is dry, that is the time that is good to set fire, in the fall before it starts in to rain. At different places up back of the people's rancherias they set the fires.

"Tobacco was all that one used to sow. First they set fire upslope, in the summertime, in the summertime they set fire there; they set fire to logs. They do not go by the moon when they burn it. They burn it any time, in the summer. When walking around upslope first they see a good place to plant a tobacco garden; when they see a good place, they burn the logs. Then too the rattlesnakes go upslope; they say that that also is what they set fire for, to kill snakes that way.

"Some kinds of trees are better when it is burned off; they come up better ones again. But some kinds of trees when it is burned off disappear, another never comes up again. The manzanita, another one does not come up, when it is burned off. An old tree bears way better, too. And the tan oak is not good when it is burned off, the tree dies. When they are burning, they are careful lest the trees burn." John Harrington in Tobacco Among the Karok Indians, 1932, pp. 63-65

2. "The kind of Place Chosen For Planting Tobacco Upslope—Where logs have been burned the best ones grow. They never sow it in an open place. Upslope under the trees is where they sow it.
"Where the tanbark oaks are, near the foot of a ridge, where there are dead trees. Not under the trees, but near the trees, where the sunshine hits them, that's the place that they plant it. They don't plant it in a brushy place. When the log has been burned, there the best ones grow, grow tall, the tobacco has wide leaves." Harrington in Tobacco Among the Karok, 1932, pp. 75-76
3. "The Karok habitually burned the brush with the idea that better growth resulted the following year. Hazel, Iris and Xerophyllum were burned off regularly to produce better growth. July and August were best months for burning off country. Firing of hazels was done after nuts gathered.
"When starting a fire, the fire setters said formula for a big fire, yet one which would do no harm. Then the formulist blows in all four directions to keep fire from spreading. The formulist is a fire setter who knows the proper medicine. All formulas begin with 'You are a long snake. Let's see you coil around 10 times. Let's see you run water in.' The snake referred to is water snake. The reference to 'run water in' refers to fire going out." Gifford, Karok Field Notes, Notebook 174, Bancroft Library Manuscripts Collection
4. "In collecting on Mt. Offield, hazel, wild celery, service berries, etc., they could not eat, drink, go to toilet, except on rotten log, until arriving at Turtle Lake about 1/2 way down Mt. Offield. They collected hazel nuts just below summit. They had to bathe in lake before eating or drinking. Lake about 2000 feet.
"Mt. Offield—The night that the priest stands up at Katamin, the brush on the mt. is fired by three men. The priest looked at the mt. all night. Now he has to look at the mt. in blackness, since this is done on dark of moon. Gekaxan is the name of these three assistants. They go without eating or drinking that day and cannot eat till next day. This did not cause forest fire because the burning was annual and burnt undergrowth only.
"Mt. Offield is not a widow. The brush is burned at Irihov to prevent people becoming widows and widowers—in other words, a prophylactic against death of married people. Iskareya who owned Katamin sweathouse, so ordained it. At Panamenik, fires were set on Bacon Flat on same side as Orleans. "The mt. is conceived of as a woman ixkareya, whose hair must be singed annually lest there be many widows in the world.
"When firing the brush on Mt. Offield in the early morning, one whose fire does not burn will die soon. The burning is to give the people longer lives and better luck. Gixahal is term for this burning, it applies to no other brush burning." Gifford, in Karok Field Notes, Notebook 174, Bancroft Library Manuscripts Collection

5. "Georgia attributes scarcity of deer now to non-burning of brush. She says that in olden days the burning of brush helped the growth of grass on which the deer fed. Now grass diminished, also deer." Georgia Orcutt, June 11, 1940, as quoted by Gifford in Karok Field Notes, Notebook 174, Bancroft Library Manuscripts Collection
6. "When Katamin pikiawish ends, fires are set to burn off brush off the mt. to clean off the mt. so it would be clean. No menstruant can go on mt. under penalty of short life. Rain also would follow. Sticks from mt. must not be used in basket or basket hat to be put in a grave. It would rain if this is done....no other holy mt. in this vicinity, but probably there are some elsewhere, Mary opines...wide brush areas on Offield Mt. are due to annual burning at Pikiawish, Mary says. All the small trees are killed." Mary Ike, as quoted by Gifford in Karok Field Notes, Notebook 174, Bancroft Library Manuscripts Collection
7. "The extensive brush areas on Mt. Offield are due to this annual burning at the pikiavish, Mary said; all the small fir trees were killed. She explained that the mountain is an immortal woman, whose 'hair' has to be singed so there will not be many widows and widowers in the world. The mountain, however, is not a widow. The brush burning was an act of prophylactic magic ordained by the immortal who owned the Katimin sacred sweathouse. Now that the Indians no longer burn fires on Mr. Offield and no longer perform the Deerskin Dance, food is scarce and they are dying off, Mary said." Kroeber and Gifford in World Renewal, 1949, p. 21
8. "The people feast as well as dance while the priest stands. If steelhead is not eaten this night, it will be taboo for another ten days. The ipnipavan goes back and forth all night to maintain the fire on the river bar Kashoknan. Before dawn of the eleventh day men who want to be lucky ignite fires on the slopes of Mt. Offield. A man whose fire does not burn will die soon. This burning (kixahan) is to give the people longer lives and better luck. The term applies to no other brush burning, the word is evidently a form of kixha, 'to burn hair,' and is symbolically used. Young boys throw stones and shoot at them." Kroeber and Gifford in World Renewal, 1949, p. 26
9. "The purpose of the pikiavish was to drive away sickness and to ensure an abundance of vegetable foods and salmon. The rite had nothing to do with deer. The burning off of the land plus the medicines made by hunters were what made the deer numerous." Kroeber and Gifford in World Renewal, 1949, p. 51
10. "The burning of the slopes of Offield Mountain has a parallel at Panamenik and in the hillside burning at Kepel, but the Karok and Yurok acts are symbolically different. At Katimin the burning of the brush and grass, symbolizing the singeing of a widow's hair, is a prophylactic act to prevent women being widowed during the ensuing year. The Kepel burning is said to be of 'salmon backbones.'" Kroeber and Gifford in World Renewal, 1949, p. 108
11. "Xerophyllum tenax, Elk Grass or Fire-lily, Karok panyura, 'wildgrass.' This is an important material in basket making. It is gathered in June and July in the mountains 'away from here' in areas which have been burned over by the Indians during the preceding year. It is gathered after the burning because then only new green leaves will be on the plant and it is more easily picked and worked in this state. Some women insist they can use only plants that have been burned over, whereas others say the burning is not necessary. Georgia Orcutt says you cannot possibly use this grass unless it has been burned over the previous year." Schenck and Gifford in Karok Ethnobotany, 1952, p. 380
12. "Georgia Orcutt says there used to be more hazel nuts than now, and that the hazel shoots were better when the brush was burned down each year. Now the brush has grown up all around, and nothing is any good any more." Schenck and Gifford in Karok Ethnobotany, 1952, p. 382

13. "Mamie Offield says the trees are better if they are scorched by fire each year. This kills disease and pests. Fire also leaves the ground underneath the trees bare and clean and it is easier to pick up the acorns." Schenck and Gifford in Karok Ethnobotany, 1952, p. 382
14. "The young Deer Brush shoots that grow after a forest fire are used to make baskets, as are the young hazel shoots. Mamie Offield claims that before the Forest Service came in there was no dense underbrush and therefore, when a forest fire occurred, it burned only the annuals, grasses, and so forth, and did not harm the forest trees. She says that these yearly fires prevented disease from attacking the forest trees. The people used to set fires every year." Schenck and Gifford in Karok Ethnobotany, 1952, p. 386
15. "Madia elegans, Common Madia...This is not used as a food plant by the Karok, because not enough of it grows here, but they say the Hupa use it like 'oat-flour' (grass seed). It grows in quantities on the Bald Hills near Hoopa. The Hupa burn the hills while the plant is still green but after the seeds have matured. After burning they take their 'oat-baskets' (seed baskets) and gather the seed from the charred plants. It does not require further parching before being pounded. The flour is called maauk." Schenck and Gifford in Karok Ethnobotany, 1952, p. 390
16. "Ts'etalkaytanu...Klamath River Indian. She also says that this is the name given by the Applegate Indians to the way-down people. Means they set fire to the brush or trees and burn a nice little clearing and live there. This was their name, does not know if they had this custom but this was their name." Aneti Scott, informant for John Harrington Field Notes, Reel 28, Frame 483
17. "The best quality bear grass, gathered (by the Karok) in July on dry ridges between two and four thousand foot elevations, is found in areas which have been burned over the preceding year. Only new green leaves will then be on the plants, and it is more easily picked and worked in this state" Fields, 1985, p. 51 as cited by Kat Anderson in Before The Wilderness, 1993, p. 163
18. "The young shoots of deer brush that grow after a fire are gathered (by the Karok women) and utilized in a similar fashion to young hazel shoots." Fields, 1985, P. 49 as cited by Kat Anderson in Before The Wilderness, 1993, p. 166
19. "The California hazel nut bush provides the sticks preferred by most weavers because of its strength and resistance to pests. Ideally, new, young shoots are gathered from an area that had been burned two years previously. According to Emily Donahue, the best twigs came from a fir forest area on the side of the mountain rather than from the mountaintop where they were 'short and stubby.' " Bright 1957, p. 293 as cited by Fields in The Hover Collection of Karok Baskets, 1985, p. 47
20. "Taprivna—Special name for tanoak acorns after a fire has burnt the leaves off the ground. They are good eating, are kind of sour. A piece of dried salmon and a few of these acorns taste pretty good. They wait till these acorns have fallen from the trees and then set fire to the leaves and it roasts them thus...Taprivna, name of acorns roasted by burning brush, are ready to eat." Harrington Field Notes, Reel 6

YUROK

1. "Hazel sticks are conceded by the women of both tribes to be the best but are the most difficult to procure nowadays. New little shoots from a ground recently burned over are the ideal. This statement is followed, however, by the lament that fires cannot be set as they used to be by the old-time weavers, and by the regret that accidental burnings occur so seldom in places where they do basket makers any good. The lower Klamath people seem to be most fortunate in this matter of fires. Lucy Thompson recounts the burning over of the hazel nut flats as part of the program for their preservation...People on the lower Klamath went to burn the brush during a dry summer or in the early fall. The following spring the young shoots sprouted but were left uncut until their second year." O'Neale, 1932, p. 15, as cited in Lewis in Before The Wilderness, 1993, p. 96
2. "The term, prairies, for the clearings in the redwood forest areas of N. California is really inappropriate, since most of these clearings are very small(the largest one I ever saw was only about 1/4-mile wide and about 3/4-mile long, and most are much smaller than that). I really don't know what caused these clearings, but they appear to be entirely natural in origin. The Indians (here I include Tolowa, Tututni, Yurok, Karok, and Wiyot) did burn these areas over fairly often, and I think it would be fair to suggest that this burning helped to maintain these areas by inhibiting the growth of brush and trees. These 'prairies'—in all cases I have seen—did not contain any village or habitation sites, since they lie within a zone of extremely poor natural resources for that region. However, these clearings are frequented by elk and deer, which the Indians there hunted whenever they could." Richard Gould, Personal Communication to Henry Lewis cited in Before The Wilderness, 1993, p. 103
3. "When he was outside he set fire to the left side of the door. Then he turned and set fire to the right side. He went around the house and set fire to it all about. The two old women began to feel warm. 'Ihh! It is as he said. It will be warm today. I feel it. I am glad we shall have eyes.' More heat began to come into the house. After a time one said, 'I begin to smell something. They must be setting fire to the Bald Hills prairie. They are burning it over, I think...' (Burnt over annually to keep it open and favorable to the growth of the annual plants whose seeds were gathered there." A.L. Kroeber in Yurok Myths, 1976, p. 100
4. "...The long meadow after which Prairie Creek is named is on the stream's lower course, nearer Espeu than Orewk, and like all such open spaces must have been a productive hunting ground before guns were fired. The Yurok kept such 'prairies' cleared by burning, and they may have originated in fires set by man. They and the grassy hillsides tend to return to brush, since the U.S. Forest Service forbids burning over." A. L. Kroeber in Yurok Myths, 1976, p. 167
5. "...From there they always look out when they make the dam downriver, when they begin to make it on the hill opposite Kepel. When they begin to set the hillside opposite Kepel on fire, then in the evening they(upstream) always see much smoke coming up along the river. Then they know that they have started their fire downriver there and have begun to make the dam. They said, 'We shall leave it that way: that is how we shall always see it, smoke coming up in the river canyon, for we are leaving it to them to do like that, around the world.'" A.L. Kroeber in Yurok Myths, 1976, p. 396
6. "Thunder had a son. The boy went about on the hills. The Saal in the hills had never seen him: therefore they killed him. Then Thunder went over the world looking for his boy. That is why we see, in places on the top of hills, prairies in the woods: that is where he looked for his son. But he could not find him. Now he was about to destroy everything in this world. Then Small Money, Wetskat, said, 'I know who killed him.'He tried to talk to him; but Thunder would not listen.

Then Wetskak too became angry: he began to swallow this world. He swallowed half of it. Now Thunder said, 'Stop! Let it be! I will let it be.' Then Wetskak stopped." A. L. Kroeber in Yurok Myths, 1976, p. 445

7. "That is how the ocean comes to be as it is: they are the ones who made it. There was a prairie there; on it all (land creatures) lived. He is the one who made it as it is: Thunder. (For) he said, 'How will human beings subsist? They have nothing to subsist on! Let us try to make it so (that they may live).'" A. L. Kroeber in Yurok Myths, 1976, p. 465

TOLOWA

1. "Late spring, when the old fern was quite dry and the new growth just starting, is said to have been the time for burning off the hillsides to improve the hunting grounds." Philip Drucker in The Tolowa And Their Southwest Oregon Kin, 1937, p. 232.
2. "The densely wooded nature of the country renders stalking difficult. Informants maintain that near-by hills were kept clear of brush by annual burning; this also improved the grass, so that deer frequented such clearings and could be shot easily." Philip Drucker in The Tolowa And Their Southwest Oregon Kin, 1937, p. 233
3. "Tobacco (seliul)grown; burned off clump of brush, planted seed, covered with aromatic leaves, fir boughs, etc., to impart good flavor; patch sheltered by brush windbreak, to prevent wind from blowing away strength of leaves..." Philip Drucker in The Tolowa And Their Southwest Oregon Kin, 1937, p. 239
4. "From my informants, and from a limited amount of archival material and circumstantial mention in published sources, I have the impression that burning of the forested areas near the coast was regular (at least once every year) and widespread. Burning occurred throughout the redwood belt...and was intended (or so I was told repeatedly by my informants) primarily to enhance the growth of low, forest floor vegetation for the purpose of providing materials for basket-making (i.e., 5-finger ferns, spruce-root, and hazel). Repeated burning kept the undergrowth from choking out these plants, and it also made movement through this area easier. The Indians kept out of the redwood belt as much as possible since it was the most unproductive micro-habitat in their area, and it was easy to get lost there—but they did enter it, nevertheless, in search of raw materials like redwood and fibrous materials for making baskets." Richard Gould, Personal Communication as cited in Henry Lewis in Before The Wilderness, 1993, p. 99
5. "Before leaving an oak grove after the annual acorn collection, families set fire to the grass over the entire flat. Tolowa informants claim that this was done to reduce underbrush and keep the grass from growing too high so that it would be easy to see and pick up the fallen acorns during the next year's harvest, a practice similar to that reported for the Kacha Pomo of Redwood Valley." Richard Gould in Ecology and Adaptive Response Among the Tolowa Indians of Northwestern California, 1975, p. 156
6. "The use of fire by the Tolowa in maintaining the integrity of the oak groves from invasion by Douglas-fir was a major factor contributing to the composition of the plant communities found on the river terrace. Periodic burning greatly influenced plant life growing in the area by maintaining the integrity of the prairies and oak woodlands and by discouraging the invasion of conifers and the growth of brush species." National Register Nomination for Pappas Flat, Six Rivers National Forest, 1993, p. 7

7. "The most significant aspect of the cultural landscape is the existence of the Oregon oak woodland and grasslands vegetation community. The survival of this plant community since the end of the Xerothermic period, when it was much more widespread in this region, is primarily a result of periodic fire. Today the few remaining locations in Del Norte County with this type of vegetation community is directly associated with prehistoric sites (personal observation) . The use of fire helped to maintain the Oregon oak vegetation association and prevented culmination of the climax vegetation association most common in this region—Douglas-fir forests. In effect, burning was used by the Tolowa to improve habitat and maintain diversity in order to maximize availability of desired subsistence resources. Anthropogenic burning was as Henry Lewis notes not a fire management program, but rather a hunting and gathering management program." National Register Nomination for Pappas Flat, Six Rivers National Forest, pp. 13-14
8. "Burning under trees to make acorns drop off: also to kill parasites on or underneath trees." Driver, 1939, p. 382
9. "A promontory on the eastern shore of Lake Earl, Tletkwet, 'Smoke upon.' People used to make 'smokes' here, as a signal for someone in the village at Eteulet to come with a canoe and ferry them over. The name is said to refer to that." Waterman in The Athapascan Indians of Southwestern Oregon and Northwestern Oregon, 1921, p. 58

TUTUTNI

1. October 5 " ...this Countrey must be thickly inhabited by the many fiers that we saw in the night and culloms of smoak we would see in the day time but I think they can derive but little of their subsistence from the sea but to compenciate for this the land was beautifully diversified with forists and green verdant launs which must give shelter and forage to vast numbers of wild beasts..." Journal of Robert Haswell, with Robert Gray, October 1788 and cited by Zyback in The Great Fires Of The Oregon Coast Range, 1988, p. 65
2. October 6 "...the people were very ancious to come onboard they paddled after us an amazing distance...but we had at this time a good wind and pleasn't weather...appeared a delightful countrey thickly inhabited and Cloathed with woods and verdure with maney charming streamns of water gushing from the vallies most of the inhabitance as we passed there scattered houses fled into the woods while others ran along shore with great swiftness keeping abreast of us maney miles Cape Mendocin (Blanco) bore North distant about 5 leagues..." Journal of Robert Haswell, with Robert Gray, October 1788, and cited by Zyback in The Great Fires Of The Oregon Coast Range, 1988, p. 65
3. "They practice a sort of superstitious rite every spring and fall, by burning over the hills for the purpose, as they say, of inviting the salmon to enter the river. They think that if this offering is not made, the great spirit will prevent the salmon from appearing. For the same reason, they never allow a fish to be cut with anything except a sharp stone, during the running season." Dr. Lorenzo Hubbard, 1861, Bancroft Library Manuscripts Collection
4. "Brush is not burned to drive game. Ground burned over to produce a better crop of grass to attract wild game. Done at times hazel nuts are burned over." Cora DuBois in Tututni Field Notes, Notebook 6, Bancroft Library Manuscripts Collection

5. "Hazel Nuts (Suthxale) In about the middle of the summer, the headman of the village had to burn off the brush. All the hazel nuts fell off and the people went out to pick them up. The nuts are roasted by the burning of the brush." Cora DuBois in Tututni Field Notes, Notebook 6, Bancroft Library Manuscripts Collection
6. "Sugar Pine Nuts--Climb tree with ladder and gather nuts. Build fire and burn off pitch, tear cone in four pieces to get out nuts. Then dry nuts in sun and eat. Do not make them into meal. Do not eat pitch as candy." Cora DuBois in Tututni Field Notes, Notebook 6, Bancroft Library Manuscripts Collection
7. "Tobacco--Enclosed a small plot near dwelling with a brush fence. Ground broken with digging stick. Within it men scattered seeds at random. They weeded and cleaned the plot daily. The first and lower leaves were picked off and discarded. Tobacco sprinkled with water. Ground not burned over first." Cora DuBois in Tututni Field Notes, Notebook 6, Bancroft Library Manuscripts Collection
8. "Crossing the Rogue River at its mouth, Harrison Rogers claims that 'the Indians that run off raised smokes on the north side of the bay, I suppose, for signals to those that were absent, or some other village, to let them know that we were close at hand.'" Journal of Harrison Rogers, 1828, p. 263

COQUILLE

1. "On () thinks this village was on the (south) side of Coos (River). For the (Indians) always traveled along the (north) side. This (village) was at a nice open place, with a big slope of nice hazel nuts--growing nice. Why? Because they burn them every 5 years--in August." Coquille Thompson, informant for John Harrington Field Notes, Reel 26, Frame 143
2. "He describes wild-oats. It required 4 or 5 (Indians) to start the fire--they start the fire all around, and this just opened the seeds, did not burn the seeds. The next day about noon they get ready to gather those oats. They had a paddle like a canoe paddle 15" long and they knock the oats into the basket. The baskets were shallow....About 5 p.m. they quit, pack it home and put the oats on an elkskin blanket." Coquille Thompson, informant for John Harrington Field notes, Reel 25, Frame 180
3. "Everybody went to dig camas and get acorns--no one owned these things. Same with hazel nuts. Oh, we had lots of hazel nuts. Every year we'd burn it over. They got baskets and baskets full. They pounded with sticks and threw away outer skin. Then put nuts in sun--dry them nice. Now they take shells off--get deerhide sackfull and put berries in and hang upstairs, that's for winter and spring. A handful was a meal, they were so rich.
"They send word to have people come get meat and hazel nuts. Chief sends word--sends young men to all the towns. Sometimes a chief would invite the Umpqua people way ahead to come at that time....Indian oats used to grow high(sticky grass). They'd get hazel nuts--when done with them--just young people (no married people) they take fire. They notice which way wind is blowing at night. 4 or 5 young men go about 100 yards apart--set fire to it--oh, people watch--that stuff burns just like firs. They burn off all those stickers. Then get those black puffed out oats. Gather with it rake into basket with stick. The they dry, put it away. When they cook, they put it over oak coals on pans, just like popcorn and blow the shells away." Coquille Thompson, informant for Elizabeth Jacobs. Notebook 104, p. 101, University of Washington Manuscripts Collection

4. "Just old men know how to make paddle—only single young men did gathering; no woman helped. But women gathered all the hazel nuts and acorns and roots—just women popped it—parched it, only women did that kind of work, before its pounded. Men didn't sweat first. Any young man who knew how could help. Set fire, stalk doesn't burn. After gather, women spread it out to dry.....Young men carried pitch torches to light it. Lit it after dark—watched it burn—let it stand one day in sun—didn't usually dance after burning it." Coquille Thompson, informant for Elizabeth Jacobs, Notebook 104, p. 101, University of Washington Manuscripts Collection
5. "In fall, they burned over berry patches to make good patches. Always burn brush out of hunting places too—not every year, but every so often. Men did burning of berry patches, hunting places, and hazel nuts." Coquille Thompson, informant for Elizabeth Jacobs, Notebook 104, p. 110, University of Washington Manuscripts Collection
6. "Burning was once practiced to drive game. They had good rope with trap—put on deer trail—put stick maybe two feet high—deer go—step there—rope goes over neck. Fire was used to drive deer into such traps." Coquille Thompson, informant for Elizabeth Jacobs, Notebook 121, University of Washington Manuscripts Collection, University of Washington Manuscripts Collection
7. "A wild sunflower, grows 4 ft. high, used to grow where 'Indian oats' patches grew. Indian oats and sunflowers would be burnt together. The Indians would burn only an oat-patch and would not let fire spread. Then the next day they would gather the seeds up." Coquille Thompson, Informant for John Harrington, Reel 25, Frame 248

COOS

1. "Annual brush and forest fires (June, July) started by natives after hunting in order to leave the mountains free of underbrush for the next seasons' hunting. It was burned over, treeless country that the native hunters considered the loveliest of country." Frank Drew, informant for Melville Jacobs, Notebook 92, p. 66, University of Washington Manuscripts Collection
2. "Every year, in June or July, the natives set fire to the brush in the mountains in order to clear away the brush and jungles and so make hunting easier. From Hatch's house(north of Siuslaw North Fork) to Cape Mt. seven miles up the N.F. Siuslaw it was all ashes. The deer could be seen and caught in marshes. In those days, 'it was fine and beautiful open country, just a few scattered trees.' To Drew and the Coos hunters the nicest country was open, treeless, burned over land, where deer can be seen at a distance. When the natives finished hunting, they set fire to the mts. so they would not be thick with underbrush the next year." Frank Drew, informant for Melville Jacobs in Notebook 92, p. 66, University of Washington Manuscripts Collection

NATIVE AMERICAN CONCERN OVER USE OF FIRE

1. "The care with which the Indians used fire, to prevent its spread, is shown by the fact that at the present time nearly half of the magnificent forests of fir, spruce, and cedar from the Cascade summits to the sea, including the Willamette region, are destroyed, timber that would represent untold millions in the future and have been a source of vast wealth—could it have been saved—for the world will soon have use for it." Clarke, 1905 : Vol. 1, p. 91 as cited in Zyback in The Great Fires Of The Oregon Coast Range, 1988, p. 2
2. "There is another race in these forests. I lived with them nearly five years. A great sin it was thought then, indeed. You do not see the smoke of their wigwams through the trees. They do not smite the mountain rocks for gold, nor fell the pines, nor roil up the waters and ruin them for the fishermen. All this magnificent forest is their estate. The Great Spirit made this mountain first of all, and gave it to them, they say, and they have possessed it ever since. They preserve the forest, keep out the fires, for it is the park for their deer." Joaquin Miller, 1873, p. 5
3. "California Indians were highly accomplished practical botanists and zoologists, perhaps as knowledgeable about subtle differences in form, color, and behavior as some university professors who have spent their adult lives reading and making field observations, but they were also knowledgeable in a different way—a way directed at understanding nature in such a manner as to use it without destroying it." Robert Heizer and Albert Elsasser in The Natural World of the California Indians, 1980, p. 59
4. "All of nature was thought to be interconnected, so that anything humans did had to be considered in terms of what effects and reaction might follow from other elements of nature. Man was seen not as dominating nature but rather as sharing creation and life with the plant and animal forms around him. In search of food a sense of responsibility was felt for the plants and animals collected to eat, and a solicitousness of their feelings and welfare. There existed a kind of 'land etiquette' in relations between man and nature. Each form of plant and animal life had a soul, or spirit, rather like that of man's, so that there was believed to be a sharing of intelligence and feeling where each had a role to play. The animal's role was to supply food for men; the plant's role was to nourish both men and animals; and the human's role was to gather plants and hunt animals necessary for food." Robert Heizer and Albert Elsasser, 1980, pp. 210-211
5. "In the native peoples of California, who lived here for so very long before the whites appeared, we can see the true ecological man—people who were truly a part of the land and the water and the mountains and valley in which they lived. The environmentalists and conservationists of today feel a kinship with the Indians in their respect for nature, a feeling which at times rises to that of the sanctity of the natural world." Robert Heizer and Albert Elsasser, 1980, p. 220
6. "These fir groves had been found necessary by the Indians to induce deer and other wild game to stay in the valley. The groves were undisturbed by fire...The Indians burned right up to imaginary lines, but never was the fire allowed to go past or get out of hand. So some authority existed among them because biennially the prairies were burned." Lewis Judson as cited by Peter Boag in Environment and Experience, 1992, p. 14
9. "In spite of fire/burning being a necessity for the maintenance of a favorable environment for oaks, and despite the fact that oaks respond adaptively to fire damage by resprouting even after they have sustained a considerable amount of damage, fire can be a double-edged sword that is potentially very damaging to oaks" Helen McCarthy in Before The Wilderness, 1993, p. 224

10. "In the final analysis, since we know from numerous reports that the native peoples did in fact burn, and that the forest structure and composition at the time of contact required systematic burning to attain its characteristic (including more oaks than it would otherwise have supported), we must conclude that native groups had developed burning with low-intensity fires into a fine art, in order to promote the growth of oaks without endangering these most vital resources." Helen McCarthy in Before The Wilderness, 1993, p. 224
11. "When setting a fire, the fire setters said formula for a big fire, yet one which would do no harm. Then the formulist blows in all four directions to keep fire from spreading. The formulist is a fire setter who knows the proper medicine." Gifford in Karok Field Notes, Notebook 174, Bancroft Library Manuscripts Collection
12. "As stated earlier, bear grass needs burning annually. This burning will subsequently cause bear grass to generate new shoots that will be strong and pliable. It's necessary to gather the grass growing in the shade, so sometimes slash burning, which takes place in old logged units, will be fruitful for the basketmaker and sometimes not." Kathy Heffner in Following The Smoke, 1984, p. 20
13. "And sometimes they also burn where the tan oak trees are, lest it be brushy where they pick up acorns. They do not want it to burn too hard, they fear that the oak trees might burn." John Harrington in Tobacco Among The Karok Indians, 1932, p. 64
14. "Some kinds of trees are better when it is burned off; they come up better ones again. But some kinds of trees when it is burned off disappear, another never comes up again. The manzanita, another one does not come up, when it is burned off. An old tree bears way better, too. And the tan oak is not good when it is burned off, the tree dies. When they are burning, they are careful lest the trees burn." John Harrington in Tobacco Among The Karok Indians, 1932, p. 65
15. "Where logs have been burned the best ones grow. They never sow it in an open place. Upslope under the trees is where they sow it.
"Where the tanbark oaks are, near the foot of a ridge, where there are dead trees. Not under the trees, but near the trees, where the sunshine hits them, that's the place that they plant it. They don't plant it in a brushy place. Where the log has been burned, there the best ones grow, grow tall, the tobacco has wide leaves." John Harrington in Tobacco Among The Karok Indians, 1932, p. 76.
16. "A wild sunflower, grows 4 ft. high, used to grow where 'Indian oats' patches grew. Indian oats and sunflowers would be burnt together. The Indians would burn only an oat-patch and would not let fire spread. Then the next day they would gather the seeds up." Coquille Thompson, Informant for John Harrington, Reel 25, Frame 248

LIMITED EFFECTS OF NATIVE AMERICAN BURNING ON THE LANDSCAPE

1. "To what extent Indians, during their occupancy or use of the land of California for many thousands of years, caused an appreciable effect on topography or plant and animal distribution is not known. There are hints that repeated burning off of valley areas may have considerably reduced the growth of oaks and that these areas became parklands or even grasslands." Robert Heizer and Albert Elsasser in The Natural World of the California Indians, 1980, p. 183

2. "Although Burcham (1959), Clar (1959), and Heady (1972), as Lewis point out, are skeptical that the California Indians had sufficient numbers and technological skills to have any significant impact on the environment, such an impact need not have been massively widespread to have substantially improved the subsistence level of native populations in the coastal valleys. The primary effect of burning would be to greatly increase both plant and animal resources near villages, where hunting and gathering could be better organized and more efficiently concentrated over a smaller area, thus resulting in increased leisure for other pursuits." Lowell Bean and Harry Lawton in Before The Wilderness, 1993, p. 47

3. "Thus, the fact that fire must now be artificially employed to regain and maintain a woodland-grass habitat would indicate that Indians also employed it artificially to maintain a similar environment. This does not necessarily mean that the Indians would have burned all of the estimated 7,500,000 acres of California's woodland-grass belt, either consistently or (from the point of view of rangeland management) well. The actual impact in any particular area would depend upon a number of factors, not the least important being population pressures and the multiple effects that this could have upon local resources." Henry Lewis in Before The Wilderness, 1993, p. 86

4. "However, given the population densities and the extent of forest cover in the northern Coast Range (Baumhoff 1963), large areas of redwood and pine-fir forests must have remained unburned for much longer periods. Both the work of Fritz (1931) and research now in progress indicate that burning was not widespread and that large fires occurred only rarely, perhaps no more than two or three times every 100 years, even less in the wettest portions of the coastal forest (S.D. Veirs, personal communication). On the other hand, localized burning was apparently well distributed and frequent." Henry Lewis in Before The Wilderness, 1993, p. 100

5. "The degree to which the Indians of this area affected the overall environment is certainly debatable. As already noted, Fritz (1931) has claimed that large areas within the Redwood forest have gone unburned for long periods of time and current studies by the National Park Service seem to substantiate the fact that large fires were infrequent. Apparently burns were restricted to grass 'prairies' within the forest and to grass-lined ridges, such as Bald Hills near Hoopa (S.D. Veirs, personal communication). Questions regarding the frequency and distribution of fires are particularly intriguing given the fact that natural fires have played such a relatively unimportant role in the evolutions of plants and animals in this area." Henry Lewis in Before The Wilderness, p. 104

6. "Understanding the indigenous practices of maintaining ecotones may help answer the questions raised in the arguments which assert that Indians burned only small tracts of land, or those that maintain that the overall impact of Indian burning was negligible (e.g., Burcham 1959; Clar 1959; Heady 1972) As mentioned above, one of the most important aspects of aboriginal burning was that openings result in the local concentration and increase in resources.
 "Large scale burning would have reduced the complex of ecotones and, consequently, the total amount of plant and animal production. The natural pattern of fires, because of their relative infrequency and the greater intervening buildup of fuels, would select for much larger and older stands of fire climax succession. The very 'spottiness' and much higher frequency of very localized Indian burning seem to have effected a much more complex overall ecosystemic pattern than would have been the case with only natural fires.
 It is undoubtedly the case that Indians did not set all or even most of California to the torch in any given set of years. Despite a pre-contact population that is estimated to be among the highest in North America, they probably lacked sufficient numbers to burn all or even most of the vegetation on any regular and consistent basis, even had they so wanted. And in the end, the reduction in Indian populations due to disease and later genocide must have greatly restricted the areas burned

annually until, by the mid-nineteenth century, Indian burning was no longer a significant factor in maintaining the primitive wildlands of California. " Henry Lewis in Before The Wilderness, 1993, p. 114

7. "Vankat (1970) and Biswell (1968 and 1969) conclude that forests of California were more open historically as a result of frequent ground fires ignited by lightning and Indians. On the other hand, Cermak and Lague (1993) point to historic descriptions of areas with heavy brush and undergrowth, and suggest that Indian burning was not widespread. They assert that forests were similar to what exists today with one important exception; most of the original forest was composed of large, old trees while most of today's forest is a mix of young, mature, and old trees. The extent to which specific areas were affected by Native Americans burning forest lands probably did vary considerably. Induced fire would have been more frequent in locales close to human settlement and in areas they used more intensely for resource procurement—in general, more common at lower elevations, decreasing with a rise in elevation. More research is needed on the extent of Native American use of fire and its potential effects. However, most evidence points toward Native Americans' systematic use of fire and the consequent effects of that fire on forest vegetation." Linda Lux in A History of Human Influences In California's Wildland Ecosystems, Draft R5 EM Guidebook
8. "The historical (pre-European) forest of interior southwestern Oregon at low to middle elevations was probably a varied and healthy forest maintained in this condition by frequent light ground fires which served as periodic disturbances. Those 'frequent light ground fires' were mostly set by local Indian people (Shasta, Takelma, Karok) in order to enhance food/fiber production and gathering/hunting." Dennis Martinez in Winds of Change, 1993, p. 26
9. "In the old days, there were vast areas where the Indian women burned in the morning of late summer and early fall. These areas were like gardens, kind of like the Garden of Eden that was described by the early pioneer people who came from Europe to the land... the landscape that people saw when they came from Europe was a landscape that was literally an expression of the culture of the Indian people. When we talk about restoring the culture of the ten tribes I work with, we're talking about restoring the land as part of restoring the culture. There is absolutely no separation between the way the landscape looked in pre-contact times, the species composition and the structure of that forest, or that prairie, and the cultural needs and expressions of the Indian people. The land was an expression of the culture, as much as the arts and crafts and ceremonies." Dennis Martinez, 1993, in Winds of Change
10. "Different places were burned at different times, with varying intervals between fires. In this way a mosaic of vegetation types and plant communities was created. Only the arroyos and riparian borders and flats were heavily wooded and uniformly shady. On the slopes and ridges and in the valleys, the land was open and park-like. The full spectrum of sun to shade prevailed in most places. Since southwest Oregon was heavily populated with Indians and since Indians utilized hundreds of plants and animals from virtually every biotic type, most forest lands were burned at one time or another. Average burning intervals for each place was about eight years. Lightning-ignited fires were common in the high mountains, but the intervals between lightning fires at any given site were significantly longer than Indian fires. These fires enabled all stages of plant species succession to be present in one watershed or landscape." Dennis Martinez in Winds of Change, summer, 1993, p. 27
11. "Prior to the 1880's, low intensity fires, both lightning caused and those set by Native Americans, burned periodically through summer and early autumn. In the extensive, dry forests where ponderosa pine, and in some areas, western larch were the predominant species, fires burned every 5 to 30 years. These frequent fires maintained low levels of both standing and ground fuels, burning

mainly along the ground rather than in the tree crowns. These ground fires perpetuated open, parklike stands of fire resistant ponderosa pine and western larch with minor components of Douglas-fir and white fir. These open, mixed species stands were much more resistant to insects and diseases." Statement of Dr. Jack Ward Thomas, Chief of the U.S. Forest Service, before the Subcommittee on Agricultural Research, Conservation, Forestry and General Legislation, U.S. Senate August 29, 1994

12. "The ability and willingness of indigenous people to skillfully modify their environment through the use of fire is now generally accepted. The extent of the vegetational modification involved is still an open question, however, since in most regions it is difficult to separate intentional burning from the background of natural fires in the prehistoric past. In this area the natural fire interval has been estimated at about twenty years (Atzet 1982). It seems possible that vegetation patterns and distributions that were established by high fire frequencies during the xerothermic were maintained by Indian burning, in some areas, after this period of time had passed. In view of the analysis by Lewis (1973) it also seems possible that Indian burning was the primary factor influencing the vegetation of at least certain portions of this area while natural fires were of secondary importance." Donn Todt in Living With The Land, 1990, p. 77
13. "Consequently, and despite the relative dearth of information on southwestern Oregon, the information available on northern California and the Willamette Valley make it eminently reasonable to assume that habitat fires were no less important for the Shasta, Umpqua and other tribes of the south and southwestern part of the state. With fire used extensively and effectively by Indians of the two adjacent regions, it is extremely unlikely, given the technological and ecological advantages of using prescribed burning, that fire would, or in fact could, have been ignored. In that the different environments of southern and southwestern Oregon are geographical extensions of those found in northern California, Indian practices of burning must have been functionally equivalent to those described for such tribes as the Miwok, Hupa, Tolowa, and Wintun." Henry Lewis in Living With The Land, 1990, p. 82
14. "The fact is Indians regularly burned the landscape to create garden-like settings, which were quite clearly described by early white settlers. Indians used fire to create and maintain vast wildlife habitats, yet these habitats are not even being considered in today's ecosystem management discussion. Indian fires also minimized the amount of dead woody debris present in pre-settlement times, reducing the risk of catastrophic fire." Bob Zyback in Evergreen Magazine, March/April 1991, p. 17
15. "Forests were more open than they are now. There were islands of even-aged conifers, bordered by prairies, savannahs, groves of oaks, meadows, ponds, thickets and berry patches. Many of these forests were virtually free of underbrush and coarse woody debris that has been commonplace in forests for most of this century." Bob Zyback in Evergreen Magazine, 1991, p. 8
16. "Taken altogether the Indians of California do not seem to have appreciably changed the topography or the biota of California. No animal extinctions can be attributed to them, but some local distributions of plants or animals could have been slightly changed through their activities. Evidence of such change has not been carefully looked for by biologists, and so we should not at this time take too positive a position on the matter." Robert Heizer and Albert Elsasser in The Natural World of the California Indians, 1980, p. 184
17. "Atzet and McCrimmon note that fire in oak woodlands in the Umpqua River drainages was frequent prior to suppression. These fires burned with low intensity which confined fire to the woodlands, without entering the adjacent dense forested sites." Gregg Riegel, Bradley Smith, and Jerry Franklin, 1993, p. 75

DESIRED CONDITION OF THE ENVIRONMENT

1. "The claim that foragers consciously managed the distribution and relative abundance of plants and animals runs counter to the most basic of anthropological assumptions about the limited effectiveness and restricted scope of so-called primitive technologies. Until most recently, the argument that foragers actually manipulated environmental processes has been especially difficult for prehistorians to accept given the maxim that hunter-gatherers, having only the simplest of tools, could not influence the availability and increase the productivity of natural resources...." Henry Lewis in Living With The Land, 1990, p. 81
2. "A Chetco informant complained, 'That in-between zone has kind of disappeared, where it's like a prairie. A lot of species would grow in those places, like hazel nuts, mushrooms, the old blackberries, camas, and so forth'" Kenneth Liberman in Living With The Land, 1990, p 91
3. "We're talking about an historical forest structure, habitat quality, and species composition and distribution created by indigenous people. They accomplished this by keeping the forest in a state of 'arrested seral succession' through the use of controlled burning. That is to say, constant intervention by people produced a kind of precarious balance or ecological stability that acknowledged change as a fundamental feature of nature, and worked with and directed natural processes, especially fire." D. Martinez in Winds of Change, Summer, 1993, p. 27
4. Since hundreds of plants and animals were utilized by Native peoples for food, fiber, shelter and medicine, a wide variety of habitats were created and maintained—primarily by working with and directing natural processes like fire. Because different areas were burned at different times, for different reasons, a 'fire mosaic' was maintained, a kind of patchiness which tended to maximize ecological niches, ecotones and edge habitat. Instead of a uniform climax stage of ecological succession (the 'unmanaged ' model), subject only to interruption by natural disturbances like catastrophic fires, hurricanes and windthrow, all stages of succession were represented in the same watershed. 'Old growth' didn't necessarily equate with 'climax succession.' Instead, more shade-tolerant climax species mixed unevenly with early successional sun-requiring 'pioneer' species. In the Pacific Northwest where lightning-caused catastrophic fire cycles were relatively longer than in other parts of the continent (up to 500 years), the present relative uneven-aged structure of some old-growth forests in Oregon and Washington (a totally unexpected research result when these age studies were done) can be attributed to short-cycle (10-20 years) Indian burning as well as other natural disturbances." Dennis Martinez in "Back To The Future," a paper presented at the Watershed Perspective On Native Plants Conference, February 26, 1993
5. "Ta-khoo-pee – Applegate River -- The Indians used to say it was such a pretty place." Hoxie Simmons in Harrington Field Notes, Reel 28
6. "Site 35JA 77 is associated with seasonal upland resource use, it is suggested that these seasonal habitation sites will tend to cluster around the border areas between two of the primary ecological zones in this region, i. e. the Interior Valley Zone and the Mixed Conifer Zone." Satler 1979, p. 64 as cited by Lou Ann Nicholls et. al. in Archaeological Test Excavations of Ten Upland Sites on the Applegate Ranger District, 1983, p. 20
7. "By being able to freely hunt and gather in more than one life zone, the Indians could secure a much greater variety of plant and animal foods, and this is doubtless the reason why many of the tribes arranged their territorial domains to include portions of several zones." Robert Heizer and Albert Elsasser, 1980, p. 10

8. "Although tribal territories were carved out by occasional aggression, adjudication, and agreement with neighboring tribes in a process that may have taken centuries, there must have been an underlying awareness that there were great advantages in owning and being able to exploit two or more life zones and their varied products. Referring to this as 'ecological adaptation' is only one way of saying that Indians used common sense for their continued existence and comfort." Robert Heizer and Albert Elsasser, 1980, p. 112
9. "Secondly, as a consequence of living in a variety of zones, Indians were able to exploit the ecotones, the transitions or 'edges,' between forest and brush, between brush and woodland, between woodland and grass. As we know, it is a general principle of ecology that it is the ecotone areas in which the density and variety of life are the greatest. Like men everywhere—the pioneer who clears the forest or the farmer who plants trees on the prairies—the Indian did not simply take the habitat as he found it. Even though the overall environment already provided two and often more natural ecotones, the Indian was able to create a variety of local ecotones within vegetational zones. At the same time, even where natural ecotones already existed—e.g., between woodland-grass and chaparral zones—aboriginal burning pushed back the upper zones of brush or trees to favor a more productive cover of mixed trees, grass and shrubs." Henry Lewis in Before The Wilderness, 1993, p 113
10. "Lastly, all the sites, because of the canyon's configuration, occur on or near the edge of the two life zones which interfinger in the area: the Upper Sonoran and the Semi-Humid Transition. The preference for this combination of environmental features provides several advantages. The lower river terraces provide a rather flat, well-drained surface on which to live, which also places a village or camp near the river with its unique resources. Location near small permanent streams provides a source of fresh drinking water and access to a greater supply of fish (Chartkoff and Chartkoff 1975). Location of sites adjacent to shoals and in the area of mixed life zones provides access to several food sources, plant and animal, within a relatively short distance. These advantages exist not just for the Late Prehistoric Period but for earlier occupants of the canyon as well." Joanne Mack in Living With The Land, 1990, p. 15
11. "The point where two or more ecosystems—such as a prairie and a forest—intersect is a transitional zone ecologists call an edge or ecotone. Edges support the most diverse biological populations of the environment because plant and animal species native to both ecosystems and the transitional zone itself can be found there. At the edge between forest and prairie ecosystems, furthermore, waterflow from springs improves, and here, too, grow a profusion of transitional species of woody shrubs whose sprouts make up the primary food source for deer, which tend to be browsers rather than grazers." Peter Boag in Environment And Experience, 1992, p. 14
12. "Prior to settlement, deer seem to have occurred principally along 'edges' where forest and grassland met or on recent burns in the forest. Neither dense timber nor extensive prairie supported many deer. The woody shrubs and/or tree reproduction which constitute staple items of deer diet are characteristic of subclimax ecological conditions (in other words, of early stages in a forest successional cycle), such as occur even today on prairie borders where woody plants encroach on the grass only to be pushed back periodically by drought or fire...the borders of the Sacramento Valley were maintained in young brush by recurrent fires, some of them probably set by Indians for the specific purpose of producing more game." Leopold 1950, p. 572 as cited by Lewis in Before the Wilderness, 1993, p. 71
13. "The frequent, low intensity fires of the past created forests that were ecologically more stable than the forests of today." Statement of Dr. Jack Ward Thomas to the U.S. Senate Subcommittee, August 29, 1994

14. "At the same time, prescribed uses of fire involve a considerable measure of predictability for establishing and maintaining plant communities at early, more productive stages of ecological succession, managing ecosystems in a dynamic balance of what ecologists call 'pulse stability.' Henry Lewis in Living With The Land, 1990, p. 82
15. "An experiment has been carried out by foresters on the effect of planned burning. In dense, unburned chaparral areas the deer count was 30 per square mile. After the first burning of the study area the count of deer rose to 98 per square mile. This figure went up to 131 per square mile in the second year, presumably as the result of increased feed. By the fifth and sixth years the count had dropped to 84. Testimony from the Indians is clear on the point that they were well aware of the beneficial effects of burning off chaparral areas at intervals to increase the deer supply. The problem now is how to start the process again after a lapse of more than a century. In many areas today brush growth and accumulated fuel on the ground are so great that any fire soon gets out of control and consumes everything in its path. As land managers, the Indians were in some ways far ahead of us today." Robert Heizer and Albert Elsasser in The Natural World of the California Indians, 1980, p. 73
16. "By removing competing woody species, regular burning also favors the growth of a number of wild roots eaten by the Kalapuyas. These include the liliaceous species camas and wild onion as well as the tuber of the lupine and the rhizome of bracken fern. From Whidbey Island, the San Juan Islands and the Victoria there are ethnographic and historic accounts of burning open areas to encourage the growth of both camas and bracken fern. In the Willamette Valley the closest we come to a statement documenting that Indians burned to encourage growth of wild roots is George Colvocoresses' (1852) aforementioned suggestion that fire was necessary 'for the purpose of procuring a certain species of root.' John Minto's interpretive statement on the reason for burning might be useful here as well. According to him 'fire was the agency used by the Calapooia tribes to hold their camas grounds for game and (waterfowl)....'"Robert Boyd in Strategies of Indian Burning in Willamette Valley, 1986, p. 79
17. "Because geographical and climatological factors make lightning strikes in the Willamette rare, the valley would naturally have become overgrown with forest, and the camas would have become extinct. But the Kalapuya's intentional burning of the prairies at the end of each summer eliminated the camas's competition: shrubs and the seedlings of climax species such as Douglas fir and bigleaf maple. Since the bulb of the camas lies hidden underground and dormant at the end of summer, fire cannot directly affect this vital portion of the plant. During the following spring, the bulb multiplies and sprouts, sending up tall green shoots with spikes of purple, blue, and sometimes white flowers. Grass buds, also underground and thus also protected from fire, sprout in fall and grow during the mild winter and spring, but provide no competition for the camas." Peter Boag in Environment And Experience, 1992, p. 12
18. "Primitive peoples, because of their generally less intensive occupation of the land, have not been so destructive of aquatic life. But even in simple cultures it is possible for human activities on the land to affect fishery resources. While the cultivation of crops is the major cause of indirect depletion, fires set for hunting drives, or for clearings in which wild grasses or other plants may be encouraged to grow, are sometimes locally effective agents in the alteration of aquatic environments." Gordon Hewes in Aboriginal use of Fishery Resources in Northwestern North America, 1947, p. 17
19. October 30 "....Most parts of the country burned; only on little patches in the valleys and on the flats near the low hills that verdure is to be seen. Some of the natives tell me it is done for the purpose of urging the deer to frequent certain parts, to feed, which they leave unburned, and of course they are easily killed." Journal of David Douglas, 1826, p. 214

20. "In winter the Kalapuya congregated in seasonally permanent villages located among willow, maple, and cottonwood thickets that bordered large streams such as the Calapooia." Peter Boag in Environment And Experience, 1992, p. 16
21. "In addition to promoting a favorable distribution of oaks in the woodland community, the use of fire may positively affect individual trees and their yield. Karok women, for example, reported that 'the trees are better if they are scorched by fire each year. This kills disease and pests.'
"Fire also keeps an oak stand clear of undergrowth, so that it is protected from the effects of a large, intense fire, which might cause severe damage.
"An additional benefit of burning stems from the fact that the elimination of competitors such as brush and conifers means that more groundwater is available to oaks, which again has the effect of enhancing acorn production and favoring the growth of oak seedlings." Helen McCarthy in Before The Wilderness, 1993, pp. 221-223
22. "They used to burn for the wild potatoes. We used to go where it had burned and we'd find great big potatoes. Otherwise the potatoes are little. They'd set the fires about now in August or late in the fall about September. Then by spring the plants start coming back up. It would fertilize the ground—maybe the ashes do something." Ruby Cordero, Miwor/Chukchansi Yokuts, cited by Kat Anderson in Before The Wilderness, 1993, p. 169
23. "The most powerful, effective, and widely employed tool in the native repertoire for directly manipulating the environment was undoubtedly fire. Indigenous groups used fire for a variety of purposes, including stimulating new plant growth and inducing early stages of succession; creating and sustaining vegetational mosaics with numerous ecotones beneficial to animal life; controlling plant diseases and insect infestations; increasing the frequency and range of useful plant species; eliciting desirable plant growth characteristics; minimizing the severity and number of uncontrolled wildfires; and facilitating hunting by the reduction of undergrowth." Thomas Blackburn and Kat Anderson in Before The Wilderness, 1993, p. 19
24. "California's primitive forests were kept open and park-like by frequent surface fires set by lightning and by the Indians. The forests were in a stable equilibrium, immune to extensive crown fires." Biswell, 1968, p. 61 as cited by Lewis in Before The Wilderness, 1993, p. 75
25. "Two general features of the Indian pattern of burning are of particular importance. First, the patterns of fall and, secondarily, spring burning involve, not simply an intensification of the natural pattern of fires, since lightning fires occur during the summer and early fall, but, rather, a pronounced departure from the seasonal distribution of natural fire....This idea implies, of course, that Indians played a fundamental role in more than the maintenance of the chaparral belt; they were probably active, selective agents in the very evolution of California's chaparral.
"Second, the pattern of spot burning very strongly suggests a rather carefully managed environment of plants and animals, a pattern only now being recognized and promoted as ideal wildland management." Henry Lewis in Before The Wilderness, 1993, p. 94
26. "After spring new sprouts (on bushes) appear in three or four weeks and supply highly protein-rich browse for deer during dry summer months. However, after burns made in April, new seedlings do not appear until the next year, and by that time seedbed conditions are not favorable to them. The greatest number of new seedlings come in the spring after fall burning. Apparently spring burning favors sprouting shrubs over non-sprouting species. Since some of the better shrubs are non-sprouting species, perhaps a combination of spring and fall burning is preferable to burning only in the spring." Biswell, 1967, p. 81

27. "The use of fire by the Tolowa in maintaining the integrity of the oak groves from invasion by Douglas-fir was a major factor contributing to the composition of the plant communities found on the river terrace. Periodic burning greatly influenced plant life growing in the area by maintaining the integrity of the prairies and oak woodlands and by discouraging the invasion of conifers and the growth of brush species." Wilson, Six Rivers National Forest, 1993, p. 7
28. "The most significant aspect of the cultural landscape is the existence of the Oregon oak woodland and grasslands vegetation community. The survival of this plant community since the end of the xerothermic period, when it was much more widespread in this region, is primarily a result of periodic fire. Today the few remaining locations in Del Norte County with this type of vegetation community is directly associated with prehistoric sites (personal observation). The use of fire helped to maintain the Oregon oak vegetation association and prevented culmination of the climax vegetation association most common in this region--Douglas-fir forests. In effect, burning was used by the Tolowa to improve habitat and maintain diversity in order to maximize availability of desired subsistence resources. Anthropogenic burning was as Henry Lewis notes not a fire management program, but rather, a hunting and gathering management program." Wilson, Six Rivers National Forest, 1993, pp. 12-13
29. "Regarding broad interpretations that present-day forests are composed of 'older and more densified' stands than previously, one must be cautious when dealing with specific areas. There is little doubt about the greatly increased density of forests in the eastern Siskiyou. However, although stands may be older on average than a century ago, this is not the entire picture; it ignores the possibility that many stands of a century-and-a-half ago were much older yet. The once widespread, open, mature stands of pine in the region were harvested selectively but continuously after 1850, contributing to the 'young stands' of the 1890's-1900's." Jeff LaLande in An Environmental History of the Little Applegate River Watershed, 1995, p. 66
30. "These results seem to be consistent with the fact that as the fire return interval increases, fire severity increases." Thomas Atzet and Robert Martin in Natural Disturbance Regimes In The Klamath Province, 1991, p. 5
31. "Fire is overt, and the effects are somewhat more apparent. It is an important agent of change in the Klamath Province. While succession provides a predictably orderly change, and mortality assures that new and adapted individuals join the species competing for resources, the agents of disturbance seem to bring a random or even a chaotic element to the process. Each agent adds stress to the ecosystem with a different emphasis and accent. Further, the effects vary with intensity by agent. The overall result is a diverse complement of species, structures, and associated processes, where early seral elements often are integrated functionally with older, more stable systems at various temporal and spatial scales." Thomas Atzet and Robert Martin in Natural Disturbance Regimes In The Klamath Province, 1991, pp. 8-9
32. "The results of this fire regime was to promote ecosystem stability in the broad sense of the term. Due to the frequent, low intensity nature of fire, effects of individual fires on flora, fuels, and fauna were minor." James Agee, 1981, p. 3
33. "What T.I.P. is proposing in our "cultural landscape" restoration project is not really very experimental, it's how Native American's managed our lands for thousands of years. We will move slowly and cautiously in restoring a very old human-forest relationship, that seems to have been forgotten in our gridlock between industry and preservationists. We will include thinning, fuel load reduction, selective harvesting, planting of native species and prescription fire which will benefit both humans and wildlife. Ecological restoration based on pre-contact forest structure (oak/pine savannah), species composition and distribution (high in biodiversity and species

richness), natural processes (fire), and quality of habitat (fire and selective harvesting/outplanting).” Dennis Martinez in “T.I.P. Update”, November, 1994, Applegate Partnership Newsletter

34. “High Priority Burning Areas are: savannahs/prairies and any cultural/SFP species disappearing and/or not regenerating due to suppression. This includes areas of prehistoric ponderosa pine, sugar pine, Oregon white oak and California black oak stands currently being invaded by brush and shade-tolerant, fire-sensitive conifer species (Douglas-fir, incense cedar, white fir).” Dennis Martinez in Takelma Intertribal Project Management Recommendations

OTHER TYPES OF MANAGEMENT OR CONTROL

1. “When a Karok woman went out to collect pine roots, hazel stems, and bear-lily roots for her baskets, she moved in an animate and indeed passionate world. She gathered her basket materials from people—from a woman and her children who had once been dreadfully poor. By plucking roots and stems she was not harming these people but rather honoring them, transforming them into beautiful baskets that would be displayed during ceremonies, 'sitting in glory before the rich people.' The woman was thus helping the roots and stems fulfill their destiny. Her relationship with the pine tree, hazel bush, and bear-lily was one of partnership, friendship, even equality: after all, she and pine tree were both women, and could thereby understand and help each other very well.” Margolin 1981, pp. 78-79 as cited by Fields in The Hover Collection of Karok Baskets, 1985, p. 33
2. “They were living at Pt. St. George. They (the women) were digging small bulbs every day. There was one girl who never went among the people. An old woman told this girl that she should dig only those having one stalk and that she must not dig those having double stalks. The girl once thought, 'Why, I wonder, does she always tell me that? Let me try digging some. Let me dig where there are many growing together.' She thrust her stick down in the ground and pushed it way down under the clumps. When she was trying to tip over and take out the big piece, a little boy appeared on one side. She jumped up and ran home crying.” Tolowa Texts and Tales, Notebook 7. Bancroft Library Manuscripts Collection
3. “The Story About Across-Water Widower, How He Went Upriver Dropping Acorn Bread Crumbs—He just took down his basketry quiver. He put nothing but acorn bread and his pipe into his basketry quiver. Then he traveled. He was traveling along, he was walking upriver. All he was thinking was: 'I wonder where the flats are.' He rested everywhere at the people's resting places. Everywhere he rested, Tan Oaks came up from it, wherever he ate his acorn bread, wherever the crumbs of his acorn bread fell to the ground.” John Harrington in Tobacco Among The Karok Indians, 1932, p. 67
4. “And they never sowed any kind of seeds, they operated only with the tobacco seeds.” John Harrington in Tobacco Among The Karok Indians, 1932, p. 73
5. “But they knew indeed that where they dig cacomites all the time, with their digging sticks, many of them grow up, the following year many grow up where they dig them. They claim that by digging Indian potatoes, more grow up the next year again. There are tiny ones growing under the ground, close to the Indian potatoes.
“They also knew that it was good to drag a bush around after sowing.
“And they also knew that it is good to pull out the weeds. Root and all they pull them out, so they will not grow up again, and by doing this the ground is made softer.” John Harrington in Tobacco Among The Karok Indians, 1932, p. 73

6. "At Komen a girl used to go up back from the river to dig bulbs. Then the old woman (her mother) said, 'Do not dig bulbs in the middle of the prairie but along the edges,' 'Yes,' she said "Every day she went to dig. Then one day she thought, 'Let me go to the middle and merely look around.' So she went and looked. It was pretty there, as if something had been about, and the bulbs were thick. Then she returned to the house. In the morning she went out again. This time she went very near the middle. Close to it she found large bulbs and was glad. "Next morning she went and dug again. In the afternoon she was about to go home but could not (bring herself to start). She found too many bulbs; she liked them too well. So she came nearer and nearer the middle, finding very large ones. Now she thought, 'I will keep on digging and go home in the evening.' Then late in the afternoon, she found the one the old woman had spoken of (when she said,) 'Do not dig in the middle of the prairie.' When she dug it out, this one in the very middle, she saw what it was, and did not want to take it. It was as long as a hand; above, it was like a bulb with leaves; at the lower end it was different. But, after all, she thought, 'Well, I had better take care of him. I will carry him to the house.'" A.L. Kroeber in Yurok Myths, 1976, pp. 55-56
7. "At the end of a year, this married girl came back to visit her relatives. She had a baby boy. The people down south had given her lots of Indian-potatoes. She ate these Indian-potatoes, and as she ate, she dropped small pieces. That is why Indian-potatoes grow here even yet." Waterman in The Athapaskan Indians of Southwestern Oregon and Northwestern California, 1921, p. 67
8. "At Oka, a young man always went to hunt. He saw no deer. But he continued hunting. There was no grass there, nor any open prairie. He thought, 'Perhaps the reason I see no deer is that there is no grass here. They do not like it (as a place) to live because there is nothing to eat.' He liked to hunt, yet he never saw a deer. Then he wished to go far upstream where the river came from, because he found no deer where he was hunting. Then he started. When he arrived, he saw a bush. (ceonothus) The deer had been eating its leaves. Then he wanted to take it. The bush had seeds. He wanted to take the seeds home to plant. Then he took them. He planted them. The brush grew. The deer came to eat the leaves. Then he thought it was good." A.L. Kroeber in Yurok Myths, 1976, p. 199
9. "He grew at Komen. An old woman lived there with her daughter. The girl always went to dig bulbs. Her mother kept saying, 'Do not come home late. When you see that the sun is about to set, I want you to come before that. And if you see a bulb growing into a double stalk, do not take that one.' She tried to learn from her mother why she should not dig the double kind, but the old woman would not tell her. As it became late, the girl was always wanting to dig that sort of root. Then once she thought, 'Well, I will try it,' for she wished to know what she would find if she dug a (double-stemmed) bulb late. Now the sun set; then she dug it. Then she saw a little boy baby coming out of the ground. As soon as he emerged he called her mother. She ran off, but the boy followed. He came after her into the house, kept calling her mother, and she was ashamed." A.L. Kroeber in Yurok Myths, 1976, p. 293
10. "It is well established that native peoples planted tobacco prior to contact, and at least a few other plants were possibly sown as well; this is particularly likely in the case of soaproot, which was spread by corm and/or seed, and basket grass, which was transplanted as a whole plant." Helen McCarthy in Before The Wilderness, 1993, p. 217
11. "It is suggested that the characteristics of late maturity and unpredictable yield strongly diminish the probability that the planting of oaks could ever have been a systematic strategy employed by indigenous California people, although there may well have been other—as yet poorly understood—biological factors that prevented the predictable and successful planting of oaks." Helen McCarthy in Before The Wilderness, 1993, p. 217

12. "The Yurok, Hupa, and Tolowa still harvest the bulbs of *Lilium* spp. and selectively harvest the biggest bulbs, replanting the small bulbs for later harvest." Heffner 1984 as Cited by Kat Anderson in Before The Wilderness, 1993, p. 169
13. "Many plants, for example, store nutrients in underground vegetative reproductive parts that comprised an important element in the native diet. The selective harvesting of larger bulbs, corms, and tubers for food may have had the practical effect of 'thinning' the resource; the digging stick that was employed aerated the soil, separated and dispersed the smaller bulbs or corms, and activated their growth, thus essentially increasing the size of the tract and its potential productivity." Thomas Blackburn and Kat Anderson in Before The Wilderness, 1993, p. 20.

LIMITED USE OF THE LANDSCAPE

1. "The Indians derive but a small part of their sustenance from the country; they attach but little value to the surrounding mountains, for which reason their boundaries except along the coast and streams, are in many cases undefined, and in others vague and indefinite." J. L. Parrish Report to Congress, 1854
2. "Jacobs Geography--Draw a map and show how villages cluster around coves, bays and rivers up to tidewaters; show how 20 to 30 to 40 miles of hill, mountain, and forest interior, into the Coast Range, are devoid of villages." Melville Jacobs, Folder 97-1, University of Washington Archives.
3. "Accordingly, he took his people and fled to the mountains. He knew the power and number of the whites too well to think of sustaining a war with them; and, therefore, his chief object was to keep out of the way. But this was extremely difficult; for, during several months in the year, the mountains, being extremely bleak and covered with snow, offered nothing for subsistence." John Beeson in A Plea For The Indians, 1857, p. 67
4. "They took immediate possession of all the choice lands, and passed a law, allowing to each man and wife a section of 640 acres. This included much of the bottom land, from which the Indians had been accustomed to derive a large amount of their subsistence, in seeds, roots, and berries." John Beeson in A Plea For The Indians, 1857, p. 42
5. "...probably the most important factor in producing contradictory tribal boundaries was that each of the Indian groups in northern California, especially those in high elevation areas, claimed a nuclear territory which constituted their national homeland and in which their permanent villages were located. These tribal homelands seemed to be universally recognized by the various Indian nations, and mainly consisted of river valleys, basins, and lake-shores. The intervening uplands were exploited only seasonally in the warmer months and almost invariably two or more groups exploited these same territories. It is these broad overlapping peripheral exploitation zones which are the cause of many discrepancies in the literature concerning tribal boundaries." Jensen and Farber 1982, pp. 21-22, as cited by Gray in The Takelma and Their Athapascan Kin, 1985, p. 30
6. "Of the three significant tributary drainages south of the Rogue and west of Bear Creek (i.e., the Applegate River, Galice Creek and the Illinois River), each was reported ethnographically to be inhabited by Athapascan speakers. The intervening territory is steep mountainous terrain suitable for seasonal resource exploitation, but not likely as an area for semi-permanent settlement." Gray in The Takelma and Their Athapascan Kin, 1985, p. 40

7. "By accepting the thesis of Takelma nuclear territory essentially north of the Rogue River between the Applegate and Illinois Valleys, the territorial positions of the Applegate River and Galice Creek Athapascan cultures become more easily determined. Instead of isolated linguistic groups surrounded by an alien tongue, there would have existed Athapascan nuclear territories centered in prominent drainages, with intervening Athapascan peripheral exploitation zones." Gray in The Takelma and Their Athapascan Kin, 1985, p. 46
8. "It is apparent that mobility to exploit a variety of resources, either in the uplands or in the river valleys, was more indicative of the summer settlement pattern, and that sedentary village life near the major drainages was characteristic of winter life." Gray in The Takelma and Their Athapascan Kin, 1985, p. 76
9. "The regional settlement pattern, at least for the Applegate group, alternated between upland economic pursuits and the exploitation of riverine resources. In all, there were perhaps only three permanent winter villages in the Applegate drainage and none of them were on the Rogue River." Gray in The Takelma and Their Athapascan Kin, 1985, p. 109
10. "The steep slopes of the Klamath Mountains, in which the drainage lies, are covered by dense stands of Douglas fir. Although these forests have a high biomass, in terms of human need they provide comparatively small quantities of edible plant and animal resources. Nevertheless, the variety of animal and plant species is very high. The Klamath Mountain province is one of the most complex geological areas in North America. Consequently, it supports a highly diverse flora and fauna, with one of the highest numbers of species of any area of comparable size on the continent (Jepson 1963)." Chartkoff and Chartkoff in Middle Klamath Settlement in American Antiquity, 1975, p. 173

Appendix III

Native Environment, including historic references

VALLEY FLOOR/RIPARIAN VEGETATION

APPLEGATE VALLEY

1. "This feeling was heightened by the news of an engagement, the first of the war, between a party of whites under Lieutenant Burrell B. Griffin, of Miller's company, and a party of Indians under the redoubtable Old John. This fight occurred on the twelfth of August, on Applegate Creek, near the mouth of Williams' Creek (subsequently so named). The Lieutenant, with some twenty men, had reached the main Applegate, at the mouth of Little Applegate, and proceeding thence to Sterling Creek, destroyed an Indian village. Some little resistance was experienced, and Private George Anderson was wounded in the hip. Moving down to Williams' Creek the next day, an Indian band was found and followed, and when several miles up that stream, the men were ambushed by their wily foes and defeated with the loss of two, Lieutenant Griffin severely wounded in the right leg, and Private Francis Garnett killed. The engagement, which lasted three-quarters of an hour, was closely contested, and bravely and skillfully fought. The Indians, better sheltered than the whites, met with a heavier loss, as they acknowledged five killed and wounded." Walling, 1884, p. 216-217 *LITTLE APPLEGATE-STERLING CREEK
2. "A much regretted event occurred during the day; this was the killing of Martin Angell, of Jacksonville, who set out to accompany the regulars to Starr Gulch, the scene of the siege. When two and a half miles from Jacksonville, on the Crescent City road, Angell and Walker, who were about two hundred and fifty yards in advance, were fired on by Indians concealed in the brush beside the road." Walling, 1884, p. 259 *BETWEEN JACKSONVILLE AND RUCH
3. "I slipped out and caught a favorite saddle mule and saddled it and, armed with my Colt revolver, started for Jacksonville after the only doctor that was in Jackson County at that time. "The road ran for about three miles through pine timber and thick underbrush and it was very crooked, I could not see any distance ahead, and as I was going about as fast as the mule could travel, as I got about two miles from the store, I made a short turn in the road just as it was fair daylight and found myself surrounded by a band of Indians, all armed and with their war paint on." Daniel Giles Manuscript, 1946, p. 262 *NEAR RUCH
4. "After parting from the soldiers and their prisoners I traveled along as fast as possible, without a sign of danger until I got part way down the hill back of Jacksonville. This hill was covered with timber and brush and over a half a mile from the top to the bottom." Daniel Giles Manuscript, 1946, p. 264 *JUST SW OF JACKSONVILLE
5. "While going up the hill through the timber I was a little afraid but after I got on top my road ran along the banks of a small stream for about four miles and the country was pretty open. I could see pretty well all around me, so I did not feel much fear, but when I got near the crossing of the creek, which was about three miles from the store, I heard a number of volleys fired making the woods fairly ring." Daniel Giles Manuscript, 1946, p. 265 *FOREST CREEK

6. "They had met Chief George with about 30 warriors right at the crossing of the creek and got into a fight with them. They said they knew they had killed some Indians but did not know how many. There was only one lying right by the side of the road. They said the Indians had got into the brush and timber and they had retreated. There were none of the whites killed but several were wounded, none very seriously." Daniel Giles Manuscript, 1946, p. 265 *FOREST CREEK
7. "Knowing that if I could get across the creek I would be out of sight of the Indians in a moment, I rode along quietly until I was very near the ford. There I had to make a bend around a clump of willows and then would be in sight of the ford, and battle ground." Daniel Giles Manuscript, 1946, p. 265 *FOREST CREEK
8. "Just as he jumped across the creek for I do not believe he touched the water, I looked back across my shoulder and off about 50 yards from me and under some oak trees I saw a good many Indians raising up." Daniel Giles Manuscript, 1946, p. 265 *FOREST CREEK
9. "One night about a week after the war broke out, I was on guard some distance up the road from the store. About 10 o'clock I heard gun fire about 100 yards up the road where it crossed a deep ravine that was full of brush and a very dark place." Daniel Giles Manuscript, 1946, p. 266 *RUCH
10. April 8: "At 6 A.M. we started with the hopes of joining our trappers but at 10 A.M. the rain again obliged us to encamp...An Indian it is supposed stole a trap but from the dry grass and Stones his track could not be followed. Distance this day 8 miles stony road but not hilly course east." Peter Skene Ogden, 1827 in LaLande in First Over the Siskiyou, 1987, p. 106 *TOWN OF APPLGATE
11. "The 'stony road' must have referred to the numerous gravel bars and rock outcrops along the north bank of the Applegate. The nearly level floor of the Applegate Valley here is nearly half a mile in width." LaLande in First Over the Siskiyou, 1987, p. 106 *TOWN OF APPLGATE
12. "Going with the Indians they led us to Rogue River at the mouth of Applegate Creek. On our arrival at the river, we saw an Indian on the opposite shore mounted on a fine horse. There was a canoe tied to the willows. Our guides said we had to cross at that place and go up Applegate. This was about two in the afternoon and we would reach the gold fields by about nine. The next day we unpacked our animals and swim them by the side of the canoe. When the Indian on the opposite shore on horseback saw that we were intending to cross, he immediately galloped off up the Applegate. All hands over and packed up and went up Applegate a short distance and came to quite a large Indian village. Not a living thing to be seen except the Indian that we had seen at the river on horseback still setting on his horse some hundred yards away. He had taken shelter behind a large fine tree. This did not look all together right to us as there was evidence that they had all left on our approach. The fires was all burning." Cardwell Manuscript, 1879, p. 3 *JUST UPSTREAM FROM MOUTH OF APPLGATE RIVER
13. "On the opposite side of the creek which I think was some 30 yards wide, and in the deepest 18 inches. There was a heavy growth of willows covering several acres. The Indians had all taken shelter in this dense willow thicket. At the close of the guide's speech the chief of the village began to reply. I think from the sound of his voice that he must have been a hundred yards away in the thick brush.
"All made a present of something. He seemed to be high pleased and called all the village to come in, and it seemed that the surrounding woods was alive with Indians.
"Soon after our departure from the village, we could look back and see that all the Indians was coming after us. We traveled I think about 6 miles. The Chief halted us about the center of a small prairie and suggested that we camp there for the night, for, said he, the country is full of Indians."
Cardwell Manuscript, 1879, p. 4 *TOWN OF APPLGATE

14. "The Ocean Kept Coming (flood motif). Long ago, the ocean rose. The people were already (on the earth.) They said, 'The ocean is going to come.' Some people merely laughed at that. Everything that could walk, grizzly, deer, elk, cougar, panther, wolf, coyote came out (into the open prairies from the mountains). They were all around (close to the village) and one at a time they killed them." Notebook 126, Melville Jacobs Collection, University of Washington *UPPER APPLGATE RIVER
15. "Ta-khoo-pee = Applegate River. Indians used to say it was such a pretty place." Hoxie Simmons, informant. Harrington Field Notes, Reel 28 *GENERAL APPLGATE VALLEY
16. "A lot of people were right at that place at the mouth of the (Applegate) River. This is where they were dipnetting salmon. They lived there at that time (in a summer camp.) Now that is where they (the Shastas) shot he (at a formulist-shaman) who was seated in an open place that had a fire in the middle, all surrounded by a brush fence." Notebook 126, p. 3, Melville Jacobs Collection, University of Washington *CONFLUENCE OF APPLGATE AND ROGUE
17. "The campfire was in the center of a clearing that was surrounded by a brush fence." Notebook 126, p. 4 Melville Jacobs Collection, University of Washington *CONFLUENCE OF APPLGATE AND ROGUE
18. "A detachment of 30 men under Major Bruce left here on the 1st to attack a party of Indians reported to be in a cabin high up in Applegate Creek. Yesterday morning a detachment of Infantry under Lieut. Hazen having the Howitzer in charge, left here to join Maj. Bruce. Several citizens accompanied them, among whom was Martin Angel. The command had only proceeded as far as Poor Man's Creek (one and a half miles) when they were attacked by Indians lying concealed in the willows, and Angel, who was about 400 yards in advance, was instantly killed." Letter from C.S. Drew, January 3, 1856 *BETWEEN JACKSONVILLE & RUCH
19. "Tatmelmal--An Indian town a little below where the ferry boat crossed the mouth of Applegate Creek. Tatmelmal is an Indian winter town, a little below mouth of Applegate Creek on the bank of Rogue River. There is swamp land there. Informants mother said the French folks come to Rogue River first to catch Beaver. Tatmelmal was informant's father's mother's place." John Harrington Field Notes, Reel 28 *JUST BELOW CONFLUENCE OF APPLGATE AND ROGUE
20. "'Beaver place', the present Applegate Creek." Sapir, 1907a, p. 256 *GENERAL APPLGATE RIVER

ILLINOIS VALLEY

1. "Long ago, a young Applegate Creek Indian man knew how to hunt well. 'Lots of Camas' people (Illinois Creek Indians) were his brothers-in-law there. Notebook 126, p. 97, Melville Jacobs Collection, University of Washington *GENERAL ILLINOIS VALLEY
2. "When we got to the foot of the mountain, we found ourselves in a beautiful valley divided by a fine clear running stream well stocked with mountain trout. This valley was entirely unsettled by whites, but there were a good many Indians that made their homes there. We traveled down the stream to its mouth and found that it emptied into a stream that is now called the Illinois River, which stream we travelled up for a good many miles to where a stream emptied into it that at the time was called Althouse Creek." Daniel Giles Manuscript, p. 256 *DEER CREEK

3. "We, the undersigned citizens of Althouse and the adjacent country having been much aggrieved by the hostilities of small parties of Indians lurking through out the woods, and waylaying persons that have been by necessity compelled to pass from one place of abode to another....." Petition at Althouse, October 29, 1855 *ALTHOUSE CREEK
4. "I also heard by two of my men that they heard the Indians shooting and singing above Northcutt's house, which is at the head of Deer Creek Valley, some three miles from Mooney's. I immediately turned my course from the mountain and struck for Northcutt's house, and when I arrived there I found them in a great state of excitement. They said that they had just had a fight with the Indians and saw some fifteen of them. They also saw them run into the willows about one and a half miles from the house." Letter from Capt. S. A. Frye to Col. John E. Ross, Illinois Valley, Oct. 23, 1855 *DEER CREEK
5. "Just as we were entering the Deer creek bottom, a succession of rifle shots directly ahead us rang out. We halted, and before we could form any idea of what the firing could mean James Mills appeared, coming toward us from a thicket in the direction in which the firing had been heard. He had received two wounds in his side from which the blood was running.
"He told us the Indians had attacked his camp and his partner, a Mr. Philpott, had been killed. Captain Frye immediately ordered Jack Guess to go with the wounded man back to Kerby and told the rest of us to go to the rescue of another Mr. Philpott and his little boy, a little fellow of about four years, who lived on the opposite side of the brush, about a quarter of a mile distant.
"The trail through the thick underbrush was very narrow and it seemed like inviting death to venture upon the trail. Not one faltered." Story of Alex Watts, Grants Pass Daily Courier, 1923, as cited in Golden Anniversary Edition of the Grants Pass Courier, April 3, 1935 *DEER CREEK
6. "On the morning of the 16th, we left Rogue River and crossed the waters of the Illinois and followed that stream down to the mouth. During the whole distance we found quite a good trail with an abundance of game and water at intervals from three to ten miles. I believe this will be found the most, if not the only, practicable trail from this vicinity to upper Rogue River Valley." Letter from Capt. A.J. Smith to General Chambers, April, 1856 *ILLINOIS RIVER BETWEEN KERBY AND AGNESS

UPPER ROGUE VALLEY

1. "During the night of Sunday, the main body of assailants approached as near to the Indians, on, or near the Reserve, as they could without being perceived. They were found in several Ranches on the banks of the River. Three companies crept on their hands and knees through the chaparral, so as to obtain advantageous positions.....
"Being thus unprepared for war, and taken by surprise, the Indians fled for shelter to the surrounding chaparral, while their assailants continued, with their revolvers, to despatch all they could reach." Beeson, 1857, p. 53 *NEAR UPPER TABLE ROCK
2. "When gold was discovered in California, in 1850-'51, large companies of men started from Willamette, through the Umpqua and Rogue River Valleys, and all along the route to Sutter's Fort. Whenever they saw a straggling Indian, they made a point of shooting him. On one occasion they came to a high bluff, overhanging a running brook, and seeing an aged Indian and a boy catching fish, they fired, and the bleeding victims hid themselves in the brush." Beesen, 1857, p. 43 *GENERAL ROGUE VALLEY

3. "South of this, upon Rogue's River, are several other very extensive and unusually rich valleys. The principal of them is found upon that river, about sixty miles from the ocean. It is about eighty miles long, and averages from ten to forty miles in width, on each side of the river. For beauty of scenery, richness of soil, abundance of timber, and vegetation; and for its peculiar adaptation to both grazing and agricultural purposes, this valley much surpasses all others, in any part of Oregon." Hastings, in To Oregon and California, 1932, p. 41 *GENERAL ROGUE VALLEY
4. Sept. 19 "Raw cold weather,-pursued our journey down the river 9 miles-The country here has been lately overrun by fire, it is difficult to find good grass for our horses... *TABLE ROCK
Sept. 23 "Fair weather.-Continued our route 8 miles down the river. Saw several Indians but none of them came near us.-The road was good today, but in places lay through points of woods, yet two horses were lost." John Work in Fur Brigade to the Bonaventura, 1943, pp. 78-79 *GRANTS PASS TO GRAVE CREEK
5. "About twelve o'clock, while we were in a stony and brushy pass between the river (Rogue River) on our right, and a mountain covered with wood on our left, firing and yelling in front announced an attack. Mr. Young, apprehensive of an attack at this pass, had gone in advance to examine the brush and ravine, and returned without seeing Indians.
"Having another brushy place to pass, four or five of us went in advance, but were not molested. Camped at the spot where Turner and party were attacked two years ago. Soon after the men on day guard said they had seen three Indians in a small grove about three hundred yards from camp. About half of the party went, surrounded the grove, some of them fired into it, other passed through it, but could find no Indians." Edwards Diary, cited in Walling, 1884, p. 186 *BETWEEN GOLD HILL AND VALLEY OF THE ROGUE PARK
6. "Early in the morning we set out (soldiers and civilians together), proceeding down the river, and on Thursday morning crossed about seven miles from the ferry. We soon found an Indian trail leading up a large creek, and in a short time overtook and charged upon a party of Indians, killing one. The rest made their escape in dense chaparral." General Joseph Lane, cited in Walling, 1884, p. 198 *GALICE CREEK OR GRAVE CREEK
7. "A detachment of Lamerick's company, embracing mainly the settlers who had proffered their services, was appointed to go down the river, cross and gain the top of upper Table Rock, whence they could command the vicinity. The main body, under Lamerick, rendezvoused at Ambrose's ranch and at night returned to the scene of the fight and crossed in the darkness at a very dangerous and difficult ford near the rancheria. When across they stopped until it grew light, and then moved toward the Indian stronghold which was surrounded by thick shrubbery, interlaced and nearly impervious to man or beast." Walling, 1884, p. 203 *NEAR UPPER TABLE ROCK
8. "A detached party of his band, under sub-chief Sambo, being temporarily encamped on Neil Creek at the time of the Edwards-Wills-Nolan murders, excited the suspicion of the white men newly settled in the upper part of Bear creek valley and on tributary streams, who united to the number of twelve and proceeded to the Indian camp. The whites being armed, fired on the savages, who took refuge, as is their invariable custom, in the brush, whence they fired at the whites...." Walling, 1884, p. 214 *UPPER BEAR CREEK VALLEY
9. "The scene of the collision was some two miles northwest of Table Rock, and about the same distance from the mouth of the stream which flows into Rogue river at the village now called Woodville. It was on the seventeenth of August; the men had picketed their horses in the flat and sat down to enjoy dinner; sentries were stationed, but soon left their posts and gathered with the rest around the smoking viands. Just at this blissful moment there came a volley of bullets from a fringe of willows close by, that killed and wounded ten of their number. Leaving their horses they

rushed to cover 250 yards away, and gaining a strong position in the brush and amid fallen trees, they kept the savages at bay." Walling, 1884, p. 218 *EVANS CREEK

10. "Late in the afternoon, having crossed a high mountain, the command reached a branch of Evans' Creek and halted for the night. The horses were allowed to feed on the bulrushes which grew by the side of the stream and which alone had escaped the forest fires. Indian 'sign' had been noticed, it being small patches of ground left unburned, recently killed game, etc., thus indicating the proximity of the enemy. On the morning of the twenty-fourth, a shot was heard, which was known to come from the Indian camp. Scouts came in directly afterward and reported the enemy encamped in a thick wood filled with underbrush, and apparently impenetrable to horses." Walling, 1884, p. 219 *EVANS CREEK
11. "It was on a narrow bench of a long, gently-sloping hill lying over against the noted bluff called Table Rock. The ground was thinly covered with majestic old pines and rugged oaks, with here and there a clump of green oak bushes." Walling, 1884, p. 223 *TABLE ROCK
12. "After riding a couple of miles we came to where it was too steep for horses to ascend, and dismounting, we proceeded on foot. Half a mile of scrambling over rocks and through brush brought us into the Indians' stronghold, just under the perpendicular cliff of Table Rock where were gathered hundreds of fierce and well armed savages." J. W. Nesmith in Walling, 1884, p. 223 *TABLE ROCK
13. "On returning they arrived within two miles of Vannoy's, when they were fired on by concealed Indians, and Frizzell was instantly killed. Mungo, wounded, took refuge in a thicket and with his rifle kept the enemy at bay for hours until a relief party came to his aid." Walling, 1884, p. 229 *BETWEEN GRANTS PASS AND MOUTH OF APPLGATE RIVER
14. "After the departure of the savages, the heroine with her daughter left the house and sought refuge in a thicket of willows near the road, and remained there all night." Walling, 1884, p. 246 *EVANS CREEK
15. "After crossing, we turned up the river, and the Indians in large numbers came out of the thickets on the opposite side and tried in every way to provoke us." Lindsay Applegate, 1846 Diary in Walling, 1884, p. 304 *GOLD HILL
16. "On the morning of June 29th, we passed over a low range of hills, from the summit of which we had a splendid view of the Rogue River Valley. It seemed like a great meadow, interspersed with the groves of oaks which appeared like vast orchards. All day long, we traveled over rich black soil covered with rank grass, clover, and pea vine, and at night encamped near the other party on the stream now known as Emigrant Creek near the foot of the Siskiyou Mountains" Lindsay Applegate, 1846 Diary in Walling, 1884, p. 304 *ROGUE VALLEY BETWEEN LOWER TABLE ROCK AND ASHLAND
17. Feb. 10, 1827 "...This morning fine warm weather. We started at 8 A.M. and proceeded on until 2 P.M. when we encamped on a large fork form'd by a number of small streams which we crossed in our travels this day and in many of them not long since there were Beaver...this is certainly a fine Country and probably no climate in any Country equal to it, the Indians inform us the winter is now over and I am almost inclined to believe them from the singing of Birds of all kinds, grass green and at its full growth Flowers in blossom certainly entitles them to be credited but we are yet in February with the exception of Mountains which appear at some distance from us the Highest Hills are without snow if we may judge from the heat at present how it is in Summer certainly then it must be great from the dry state of the roads it does not appear as they are annoyed with

rain but probably all seasons are not alike be it so but at present it is certainly fine weather and certainly a country well adapted from its Soil and timber (Oaks and Pine) for cultivation. The natives inform us that Deer are abundant in the hills and Mountains... Peter Skene Ogden, 1827 in LaLande in First Over the Siskiyou, 1987, p. 60 *NEAR ASHLAND

18. Feb. 15 "A large River equal in size to the Willamette.....a fine looking Stream well wooded with Poplar, Aspine and Willows...this River I have nam'd Sastise River." Peter Skene Ogden, 1827 in LaLande in First Over the Siskiyou, 1987, p. 66 *DOWNSTREAM FROM MOUTH OF BEAR CREEK
19. Feb. 23 "...Our road followed the banks of the River. It certainly looks well being well lin'd with willows and wood of different kind. Stream deep and rapids not numerous." Peter Skene Ogden, 1827 in LaLande in First Over the Siskiyou, 1987, p. 72 *NEAR TABLE ROCK
20. March 2 "...Some distance below there is a large Fork which from appearances we are in hope of finding Beaver the Country on the opposite side is also less woody and hilly and Grass more abundant" Peter Skene Ogden, 1827 in Lalande in First Over the Siskiyou, 1987, p. 80 *GOLD HILL
21. "Camped on the south side of the Rogue, Ogden mentioned the marked difference in vegetation between the drier, grassy, south-aspect slopes across the river from him and the forested, north-aspect hillsides that rose behind his camp." LaLande in First Over the Siskiyou, 1987, p. 80 *GOLD HILL
22. March 7 "...This River or Sasty Fork is almost from its sources or from where we returned more or less one continued rapid well wooded may average an eighth of a mile in width—deep banks—low and in many parts stony soil at least from our separation encampment to here gravelly Country particularly our two last encampments—woody, Oaks and Pines of different kinds and a few Cedar Trees well stock'd with Black Tail Deer and no doubt in the Mountains Red Deer...in a word it is a bold Stream containing a few scattered Beaver a fine Country rich in Timber and Animals good Pasture for Horses..." Peter Skene Ogden, 1827 in LaLande in First Over the Siskiyou, 1987, p. 82 *BETWEEN EVANS CREEK AND GRANTS PASS
23. March 13 "...This day we passed over three small plains well stock'd with Camass Roots in one of them we saw several Men and Women employed in drying roots.....All along our track this day wood of different kinds and the White Pine of an extraordinary size." Peter Skene Ogden, 1827 in LaLande in First Over the Siskiyou, 1987, p. 85 *MERLIN
24. September 24 "...We traveled seven hours and halted on Youngs River in a burned prairie. Little or no food for the horses. Along the creek were numerous signs of Indians, piles of mussel shells." Titian Ramsay Peale Diary, 1841 *GRAVE CREEK
25. September 25 "Started at 9 A.M. and continued on course over burned woods and small patches of prairie abounding in Blacktail deer." Titian Ramsay Peale Diary, 1841 *DOWNSTREAM FROM GRANTS PASS
26. September 26 "The night passed without alarm. The woods here consist of () and a long broad prairie between two species of oak, one lambert pine. We saw a few cones..." Titian Ramsay Peale Diary, 1841 *VALLEY OF THE ROGUE PARK
27. September 27 "...cutting off our passage across a rocky promontory covered with brush." Titian Ramsay Peale Diary, 1841 *LOWER TABLE ROCK

28. September 27 "...Though we saw but one, a squaw who was so busy setting fire to the prairies around that she seemed to disregard us..." Titian Ramsay Peale Diary, 1841 *ASHLAND
29. June 11 "We soon unpacked on the bank of Rogue River. This stream is about 100 yards wide, running rapid over a generally rocky bottom. The country we passed over was generally poor, gravelly, hard and dry, the valley () and uneven, the mountains dry, parched and covered with scrubby pine and several kinds of evergreen shrubbery, some of a beautiful appearance and would grace a walk in any city." James Clyman Diary, 1846, Bancroft Library Manuscripts Collection *ROGUE RIVER ABOVE GRAVE CREEK
30. June 11 "So far the valley of this stream is thickly covered in pine, cedar, and oak. A new species of pine is found here, having sweet terpine oil oozing from it." James Clyman Diary, 1846, Bancroft Library Manuscripts Collection *BETWEEN GRAVE CREEK AND GRANTS PASS
31. June 11 "These hills rise in a succession of rounded knolls one above another, generally covered with grass." James Clyman Diary, 1846, Bancroft Library Manuscripts Collection *BETWEEN GRAVE CREEK AND GRANTS PASS
32. June 11 "The nations of this valley seem to have a hard way of living, there being no game and few roots, and when the Oak fail to bear, they live on clover not unlike the pigs or domestic animals, but when the Oak bear acorns, they are plentifully supplied for the time being." James Clyman Diary, 1846, Bancroft Library Manuscripts Collection *BETWEEN GRAVE CREEK AND GRANTS PASS
33. "On the morning of the 18th, when the company entered that part of the country where Turner, Gray, and Bailey had been attacked, Indians were discovered running along the mountain side as if to intercept them in some defile. It was nearly noon, and they were passing between the banks of the Rogue River, when suddenly from the thickly wooded mountains yells were heard, and arrows showered upon those in advance." Bancroft, History of Oregon, 1886, Vol. 1, p. 148 *GOLD HILL
34. "...This left us exposed and an open plain to cross before passing into a thicket, which the Indians discovered and recrossed the river with the purpose to ambush us there. Fortunately, a gentleman by the name of Clugget, knowing the locality and danger to us, took shelter in the thicket and killed the foremost Indian..." Steele Manuscript, 1873, p. 5 *LOWER PART OF BEAR CREEK
35. "Daylight found us at the head of the river, or nearly so and above the Indians, and we commenced beating the brush and forcing them down until they were forced upon the company below, where the Indians called for a talk which was had and satisfactory terms made without more bloodshed." Steele Manuscript, 1873, p. 5 *BETWEEN TRAIL AND PROSPECT
36. "After the straits to which a six-months' land journey across the most desolate part of North America had brought them, how welcome to their vision must have been the sight of the grassy plains, the wooded slopes, and tree-fringed water courses of Southern Oregon." Walling, 1884, p. 334 *GENERAL ROGUE VALLEY
37. "If we may believe those pioneers, the country was one of primitive wildness, yet of obvious fertility and productiveness. The wild grasses grew in profusion, covering everywhere the land as with a garment of the softest and most luxuriant verdure. The hillsides were concealed beneath this marvelous plant growth which hid nature's ugliest scars from view. The rich soil, as yet unimpaired in fertility, sent up the stalks to the height of a man or of a horse. Wild berries flourished; the beautiful mountain streams, clear as glass and of most refreshing coolness, ran, unpolluted by the dirt from mines. The wild deer and elk grazed undisturbed in the open meadow,

or sought the shade of their leafy coverts and gazed out upon their quiet world. The hill tops, now mostly covered by dense thickets of manzanita, madrone, and evergreen brush, were then devoid of bushes and trees because of the Indian habit of burning over the surface in order to remove obstructions to their seed and acorn gathering." Walling, 1884, p. 334 *GENERAL ROGUE VALLEY

38. "The country is composed of narrow valleys and mountains covered with timber, and an undergrowth so dense that they can conceal themselves within a few yards of persons passing or pursuing, shoot them with impunity, and make their escape unseen and almost certain. The valleys are narrow—so much so that the Indians can quit their hiding-places in the shade of evening, have time to reach any of the settlements, do their work of destruction, plunder, and perhaps murder, and return to their secure retreat before morning." Samuel Culver letter to Joel Palmer, July 1855. Cited by O'Donnell in Arrow in the Earth, 1991, p. 224 *GENERAL ROGUE VALLEY
39. "They had now reached the country of the Klamath Indians, better known as the Rogues, or Rascals, which name they have obtained from the hunters, from the many act of villainy they have practiced. The place of encampment was only a short distance from that where Dr. Bailey was defeated.
"On the 25th, they continued their journey over a country resembling that traversed the day before, with the exception that the wood was not as thick. The *Pinus Lambertiana* was more common; the trees of this species are not beyond the usual size of the pine tribe, but their cones were seen fifteen inches in length. Some of the sugar produced by this tree was obtained; it is of a sweet taste, with a slightly bitter and piny flavour; it resembles manna, and is obtained by the Indians by burning a cavity in the tree, whence it exudes. It is gathered in large quantities. This sugar is a powerful cathartic and affected all the party who partook of it; yet it is said that it is used as a substitute for sugar among the trappers and hunters. The soil passed over was loose and light, apparently a sandy loam.
"In the afternoon they entered on the plain of Rogues' or Tootootutna's River, and encamped on its banks. This is a beautiful stream, upwards of one hundred yards in width, with a rapid current, flowing over a gravelly bottom at a rate of three miles an hour; it abounds in fish, on which the Indians principally subsist; the banks are low and overgrown with bushes for some distance from the stream; the soil is poor and sandy." Wilkes Narrative, 1845, p. 122 *GRAVE CREEK AND CONFLUENCE WITH ROGUE
40. "The 26th, they passed along the bank of the Rogue's River, which runs on in a westerly direction; upon it the Indians were seen spearing salmon from their canoes." Wilkes Narrative, 1845, p. 123 *GRANTS PASS
41. "A few miles beyond they left the banks of the Rogues' River, taking a more easterly route, over a rolling prairie which is bounded by low hills, resembling the scenery of the Willamette Valley." Wilkes Narrative, 1841, p. 125 *BEAR CREEK
42. "A species of rabbit or hare was seen in great numbers on the high prairie; their large ears had somewhat the appearance of wings. The Indian mode of capturing them is by constructing a small enclosure of brush, open on one side, and having a small hole through the opposite side, into which they are driven." Wilkes Narrative, 1841, p. 125 *AGATE DESERT-ASHLAND
43. "I knew that law had lost its supremacy, and human life its sacredness; and for weeks I never stepped from my door but I realized the probability of being saluted by the rifle's crack, and the bullet's whiz, from the thick brush that fringed the creek, within a few rods of my house." Beeson, 1857, p. 84 *BEAR CREEK-WAGNER CREEK

44. "The lands purchased of the Rogue River Tribe, according to the best information received, includes about three thousand, five hundred square miles—one third of which is well adapted to agricultural purposes and susceptible to a high degree of cultivation, and much of the remainder may be regarded as a pastoral country, but mountainous, abounding in numerous fertile valleys, heavy forests of valuable timber, and nearly all rich in gold—being emphatically a gold region." Letter from Superintendent Joel Palmer to George Manypenny, Commissioner of Indian Affairs, October 8, 1853 *GENERAL ROGUE VALLEY
45. September 25, 1841 "Came to what is called Joes River 20 ft. wide. At 3 P.M. cross'd Rogue River, so named from the Rascally Indians that live on its banks. The country around is hilly with numerous Oaks & Pinus Lambertiana growing on them. Several of the Cones of this species that we examined, measured 15 3/4 in length by 18 1/2 in circumference,—that is when the scales were reflexed." The Brackenridge Journal For The Oregon Country, 1931, p. 62 *CONFLUENCE BEAR CREEK-ROGUE RIVER
46. September 26, 1841 "Left our encampment on Rogue River at 8 A.M. its breadth I estimated at 120 yds: 2 feet deep: banks generally low and bushy. The land on both sides for a considerable distance back is poor and sandy rising into hills from 6 to 800 feet high, thinly covered with Pine trees. At 2 P.M. brot. up at what is called Turner's encampment, being the place where he and his party were defeated by the Indians and compelled to return to the Willamette with the loss of three of their men. In the affray they killed a number of the Indians whose bones we found bleaching in the sun." The Brackenridge Journal For The Oregon Country, 1931, p. 63 *GOLD HILL
47. September 27, 1841 "On starting this morning we had the river on the one hand, a range of high rough rocks on the other. Ahead of us on both sides of the river we heard the Indians a shouting to each other, although we could not see them, and this being the place where former parties had been attacked, about 15 of the party dismounted, and leaving their horses to come on behind with the packs, —ranged the bush for 1/4 mile on both sides of the road for several miles." The Brackenridge Journal For The Oregon Country, 1931, p. 63 *GOLD HILL-VALLEY OF THE ROGUE PARK
48. September 28, 1841 "The hilly or mountainous character of the country today was similar to that of yesterday, with perhaps a larger quantity of Oaks, which were of the prickly and plain lobed species." The Brackenridge Journal For The Oregon Country, 1931, p. 63 *GRANTS PASS-GRAVE CREEK
49. "The wood of the valley is mainly pitch pine, fir, cedar and burr oak. This pine cannot be split at all...it however makes our lumber, while a mammoth pine of the mountain summits, called the sugar pine, makes our shingles and the shakes with which frame houses are generally covered. Our rail timber is the cedar and fir. The oak is a short, tough, gnarled tree like your burr oak, used only for fuel. The poplar and poorer species of elm flourish along the streams...The yew tree grows here and there on the mountains and so does the laurel (madrone). The alder grows to a tree 18 inches in diameter...the mapparel, (chaparral) the crookedest, ugliest and most obstinate bush you ever saw, forms the upland undergrowth." S. H. Taylor, 1853, as cited by Atwood, 1995, p. 47
50. "On the southern slopes of the mountains, grass, much of it clover, takes the place of timber, while the northern slopes are covered with pine, (mainly pitch pine) fir and yellow cedar..." S. H. Taylor, 1853, as cited by Atwood, 1995, p. 47

ROGUE AND ILLINOIS RIVERS BELOW GALICE CREEK

1. "We were encamped on a narrow bar a short distance below the mouth of Galleese Creek, on what is known as Skull Bar.....Our camp was at the base of the mountain on the south side of the river. The mountain was covered with dense groves of fir and thickets of hazel. We had cleaned away the brush from some distance from our camp, also had thrown up a breastwork of logs on one side, which proved a great protection for us." Letter from Wm. B. Lewis to John E. Ross, Nov. 21, 1855 *ROGUE RIVER BELOW GALICE CREEK
2. "From Port Orford came Captain A. J. Smith, with his company of the first dragoons, sixty men in uniform, an imposing and unfamiliar sight to the people of the valley. These had slowly and laboriously toiled through devious trails, over fallen trees and through the almost impenetrable wildwood tangles along Rogue River to where their assistance might be needed, but only to find their services useless, unless it was to awe the haughty savage whose heart was yet divided in its councils." Walling, 1884 *ROGUE RIVER BETWEEN GOLD BEACH AND GRANTS PASS
3. "A day or two later, dates differing, they encamped at the mouth of Whiskey Creek, and found traces of Indians. Proceeding down the river the next morning, keeping along the high lands back a mile or two from the stream, they found the Indians in strong force in the woods bordering the river. The country, as before mentioned, is exceedingly rough, covered with tangled underbrush, broken up into deep canyons, precipitous descents, and impenetrable gorges.....Indians within the dense cover of the trees along the south bank began firing, and the whites hurriedly left the bar and sought shelter in the brush." Walling, 1884 *BELOW WHISKEY CREEK ON ROGUE RIVER
4. "On the 27th the two battalions were ready to attack. A reconnaissance by General Lamerick in person had discovered their camp on a bar of Rogue River, where the mountains rise on either side high and craggy, and densely timbered with manzanita, live-oak, chinquapin and chaparral, with occasional bald, grassy hillsides relieving the sombre aspect of the scene. A narrow strip of bottom-land at the foot of the heights, covered with rank grass and brambly shrubs, constituted the meadows, where all winter the Indians had kept an ample supply of cattle in good condition for beef. Upon a bar of the river overgrown with willows the Indians were domesticated, having their huts and personal property." Bancroft in History of Oregon, 1886, Vol. 2, p. 402 *WINKLE BAR-BATTLE BAR
5. November 26 "The river runs here in a deep canyon. The side on which the Indians were is covered with fir timber and brush so thick that we could not see them. The side on which we were was open with the exception of a few scattering trees." Harvey Robbins in Journal of Rogue River War, 1855, p. 353 *BLACK BAR
6. "Many Indians had not yet got out of their huts. The soldiers poured a heavy fire on them. Men, squaws and children were all together in great confusion--nothing saved them but the river. The enemy took positions behind rocks and trees (and fired). The squaws and children disappeared in a dense growth of fir. The enemy lined themselves behind trees above their camp..." Col. Kelsey report to Gen. Lamerick, April 27, 1856 *WINKLE BAR-BATTLE BAR
7. "...and just at the point where the river contracts again, a small stream puts in from the mt., having in its course worn out a deep gorge, which narrows as it approaches the mt., but where it enters the river a plot of level ground has been formed by the shifting of its bed, containing a number of acres of alluvial soil, shaded by the flowering maple, myrtle, manzanita, and mt. laurel. The honeysuckle and woodbine ornament the trees, while vines and flowers everywhere beautify the ground. The deer and the hare feed in security in this sequestered spot, and the fox

squirrels sport in great numbers, unmolested in the branches of the myrtle." Lorenzo Hubbard, 1861, Bancroft Library Manuscripts Collection *AGNESS-CONFLUENCE OF ILLINOIS AND ROGUE

8. March 26 "Started 8 AM 112 men Jones & my companies Lieutenant Drysdale & Dr. C.A. Hillman with us—he is good fellow—had an awfully hard march 11 miles to McAnootny—village on pretty river bottom backed by timbered hills, in front the Rapid River, on one flank willows on other spur of the mountain with timber on it..." Diary of Edward Ord, 1856, P. 5 *QUOSATANA CREEK
9. "On the first appearance of the troops at the mouth of the Illinois, the friendly Indians took to the thicket, but were finally all got in. They reported that the hostile Indians had moved with their families up the Illinois." Diary of R. Glisan, 1856, p. 281 *AGNESS
10. "The Indians fled across the Illinois in canoes. When they got across the river in the thick timber...." Diary of R. Glisan, 1856, p. 296 *AGNESS

KLAMATH VALLEY/SCOTT VALLEY

1. "The next morning we started on our march, which still lay up the river and near its bank. We soon came to a mountain torrent that empties into the river. Its bank was fringed with trees on either bank." Autobiography of General George Crook, 1960, p. 19 *NEAR WHERE I-5 CROSSES KLAMATH RIVER FROM NORTH
2. "We pushed far up the valley in the direction of Yreka, and there pitched camp, for the old man wanted to recruit his horses on the rich meadows of wild grass before driving them to town for market.
"We camped against a high spur of a long timbered hill, that terminated abruptly at the edge of the valley. A clear stream of water full of trout, with willow-lined banks, wound through the length of the narrow valley, entirely hidden in the long grass and leaning willows." Joaquin Miller in Life Among the Modocs, 1873, p. 18 *NEAR WHERE I-5 CROSSES KLAMATH RIVER FROM NORTH
3. "It was early in the morning. The rising sun was streaming up the valley, through the fringe of fir and cedar trees." Joaquin Miller in Life Among the Modocs, 1873, p. 19 *NEAR WHERE I-5 CROSSES KLAMATH RIVER FROM NORTH
4. "...I also remember thinking that when I got to the first bank of willows I would turn and fire, for I had laid hold of the pistol in my belt, and could have fired, and should have done so, but I was thoroughly frightened, and no doubt if I had succeeded in reaching the willows I would have thought it best to go still further before turning about." Joaquin Miller in Life Among the Modocs, 1873, p. 19 *NEAR WHERE I-5 CROSSES KLAMATH RIVER FROM NORTH
5. "The Indian camp was a small one, and made up mostly of women and children. It was in a vine-maple thicket, on the bend of a small stream called by the Indians Ki-yi-mem, or white water. By the whites I think it is now called Milk Creek." Joaquin Miller in Life Among the Modocs, 1873, p. 21 *MILK CREEK-SOUTH SIDE KLAMATH VALLEY
6. "It was as near a life of nothingness down there in the deep forest as one well could imagine. There were no birds in the thicket about the camp, and you even had to go out and climb a little hill to get the sun.

This hill sloped off to the south with the woods open like a park, and here the children and some young women sported noiselessly or basked in the sun." Joaquin Miller in Life Among the Modocs, 1873, p. 22 *MILK CREEK-SOUTH SIDE KLAMATH VALLEY

7. "The wood seemed very, very beautiful. The air was so rich, so soft and pure in the Indian summer that it almost seemed that you could feed upon it. The antlered deer, fat, and tame almost as if fed in parks, stalked by, and game of all kinds filled the woods in herds. We hunted, rode, fished and rested beside the rivers.
What a fragrance from the long and bent fir boughs, what a healthy breath of pine! All the long sweet moonlight nights the magnificent forest, warm and mellow-like for sunshine gone away, gave out odors like burnt offerings from censers swinging in some mighty cathedral." Joaquin Miller in Life Among the Modocs, 1873, p. 25 *MILK CREEK-SOUTH SIDE KLAMATH VALLEY
8. "The country they saw was a broad prairie valley, dotted with oaks and pines, with a serpentine line of trees marking the edge of the streams till they are lost in the distance. This valley lies in the midst of hills, clothed with a forest of evergreens, and through this the waters of the Klamet flow, passing beyond it, through a narrow valley on the west." Wilkes Narrative, 1845, p. 127 *NEAR WHERE I-5 CROSSES KLAMATH FROM NORTH
9. "Each morning, just before daylight, one or more old women went about the village looking through the surrounding brush to see if any war party lay in ambush." Catherine Holt in Shasta Ethnography, 1946, p. 339 *NON-SPECIFIC, ON UPPER KLAMATH RIVER
10. "Powers noted some years ago that the Yurok towns are situated for the most part on the northern bank of the river. This is indicated clearly on the map. Where the course of the river is north and south there is little difference observable, but where the river runs approximately east and west the towns lie on the north bank, in the proportion of three or four to one. I think Powers is correct in his explanation that the Indians preferred sunny situations. The south slopes are timbered with oaks and varied timber, interspersed with fine grass fields. The northern slope of the hills, which would form the southern bank of the river, is, on the contrary, almost uniformly covered with pines and other conifers, and the places which might otherwise be village sites are in the shadow of these somber forests." Waterman in Yurok Geography, 1920, p. 204 *LOWER KLAMATH RIVER

SOUTH FORK COQUILLE RIVER

1. "In a couple of days we had made about 25 miles, over a very rough country, when we descended a long spur of the mountain to a narrow valley of prairie and timber land, alternating through which a stream of 75 or 80 feet in width was flowing northwesterly..." Captain L.L. Williams Manuscript, 1851, p. 6 *POWERS
2. July 23 "The great difficulty to persons unacquainted with the precise location of these trails is the prairies. The grass is from one to three feet high all over them, and as the trails have not been travelled for a year or more, the grass meets over them; and in addition to this the trail made by the elk cross them in every direction, and are quite plain and are easily mistaken for trails made by travellers. Camped at 6-1/4 p.m. The timber today along the bottom of the river has been principally sweet wood, its leaves being very odoriferous, also white maple a few scattering oak and fir, white and other cedar and hemlock. The prairie ridges are free from timber, except perhaps a few scattering white oaks." Dr. John Evans Journal, 1856 *LOWER SOUTH FORK COQUILLE RIVER

3. December 10 "Engaged a guide for the main channel, where we found a foot path on the west bank of the south branch, which we followed and seasonably came to the river—past three small plains abounding with fine grass in full verdure." Journal of Alexander McLeod, 1826, p. 196 *BROADBENT
4. December 11 ".....As soon as day light enabled us to see our way we moved forward, after passing a short belt of wood we opened into a fine plain at the extremity of which, we came to a village of five dwellings rather unexpectedly." Journal of Alexander McLeod, 1826, p. 196 *GAYLORD
5. "...It was late in the afternoon when they emerged from the brush into an open prairie, tired and weary, but the beautiful sight relieved their difficulties and the quarter of a mile to the cabin that Dement and Yoakum had built the year before was soon traveled. There were some squaws at the place digging camas, but as soon as they saw the whites they secured their large baskets to their backs with the strap heretofore mentioned and traveled away to their rancheries as fast as possible with their heavy loads....." Hermann Narrative, 1859, in Pioneer History of Coos and Curry County by Orville Dodge, 1898, p. 335 *BROADBENT
6. "The hills south of Dement's house were rolling hills, denuded of timber by forest fires, and they were called prairies. They afforded a heavy growth of grass which was green and thrifty, every month in the year. Deer and elk were roaming over these hills in large bands..." Hermann Narrative, 1859, in Pioneer History of Coos and Curry County by Orville Dodge, 1898 p. 337 *BROADBENT
7. "Immediately, I perceived that we were in the close proximity of about 200 Indians. They raised the war-whoop, and for 15 minutes contested the ground with us, when the deliberate fire of the men proving too galling, they abandoned their ground and fled in every direction. In the meantime, Lt. Stoneman being detained by the impracticable nature of the thickets from ascending the stream, took a broad trail which he supposed would lead to the position of the enemy." Silas Casey report to Lt. Col. S. Hooker, November 24, 1851 *HOFFMAN WAYSIDE TO BROADBENT

COW CREEK/UMPQUA VALLEY

1. July 27 "...We are now fairly out of mountains, but in a valley of hills. If the traveller will notice the valley of the Umpqua from some high summit in the Calapooya Mountains, he will form a pretty good idea of a scene we witnessed from Bald Mountains, as the first named is a valley of hills, the latter is a valley of mountains covered with timber, occasionally a peak rising sharp and angular against a sky on bold outline, Around this valley of mountains is a higher range of singular grandure; here and there dotted over the lesser elevations are small mountain prairies covered with luxuriant grass, and in some intervening glens lovely little prairies of rich mellow soil suitable for cultivation...." Diary of Dr. John Evans, 1856, p. 9 *NORTHERN UMPQUA VALLEY-YONCALLA
2. "At that time Cow Creek valley looked like a great wheat field. The Indians, according to their custom, had burned the grass during the summer, and early rains had caused a luxuriant crop of grass on which our immigrant cattle were fat by Christmas." Riddle in Early Days in Oregon, 1953, p. 37 *COW CREEK
3. "Late that summer Charley, with a small family, including two boys, Sam and John, who were grandsons of the old chief Miwaletau, were camped on the south bank of Cow creek near the south approach of the steel bridge at the town of Riddle. The camp was enclosed with willows, leaving an opening for entrance." Riddle in Early Days in Oregon, 1953, p. 47 *COW CREEK

4. "I never participated in one of these drives, but I have seen their fences and the manner of making the drives was explained to me by the Indian boys. They also set their snare ropes around salt licks and watering places. I remember at one time a great antlered buck came across the field with a rope around his neck with a piece of root on the end. The deer in plunging through the brush at the river's edge—entangled the rope and being in swimming water was unable to pull loose." Riddle in Early Days in Oregon, 1953, pp. 42-43 *COW CREEK
5. November 8 "We drove our horses off into the mountain about 3 miles to grass. The grasshoppers destroyed nearly all the grass out here last summer, and the Indians burnt all the grain so our feed has to be brought from the Willamette." Harvey Robbins in Journal of Rogue River War, 1855, p. 349 *COW CREEK
6. "He said that on the south side of his, one was vacant and just suited as it was most all prairie, and his part timber and right along the river or creek. The valley was a beautiful valley some five or six miles from the mouth of Cow Creek up to a canyon. There were some ten or fifteen claims taken at that time. Timber (stood) along Cow Creek, and the mountains on each side were covered with pines, firs, and cedars." Herman Reinhart in The Golden Frontier, 1962, p. 40 *COW CREEK
7. March 16 "We again this day cross'd over a Fork small but signs of Beaver—at one p.m. we reached a fine large one deep and well wooded and encamped.....well I venture to assert no Country can produce such a variety of Wood of all kinds nor finer timber suitable for all purposes." Peter Skene Ogden, 1827 in LaLande in First Over the Siskiyou, 1987, p. 87 *COW CREEK
8. March 20 "...but from its now rapid descent altho wide and well wooded there is no appearance of Beaver....We had not advanced fifty yards when we were surrounded by strong woods and our progress was slow..." Peter Skene Ogden, 1827 in LaLande in First Over the Siskiyou, 1987, p. 88 *COW CREEK
9. "With the exception of Climate which is at this season is very rainy this is certainly a fine Country—the soil is from the variety of flowers grass Clover and trees of all kinds very rich and by culture no doubt would produce well...from the number of new Graves I have seen lately I am of opinion starvation has been the cause of their death..." Peter Skene Ogden, 1827 in LaLande in First Over the Siskiyou, 1987, p. 101 *CONFLUENCE OF COW CREEK WITH SOUTH UMPQUA
10. October 16 "On reaching the summit of the last hill the desired sight of the Umpqua River presented itself to our view, flowing through a variable and highly decorated country—mountains, woods, and plains." Journal of David Douglas, 1826 p. 223 *CONFLUENCE OF ELK CREEK WITH UMPQUA
11. October 18 "...took my course due south through a broken varied country and crossed the river five miles from our encampment, where there were two lodges and about twenty-five souls..." Journal of David Douglas, 1826, p. 224 *UMPQUA BETWEEN ELKTON AND ROSEBURG
12. October 20 "River circuitous, woody banks, and very rocky, principally sandstone; country very hilly. Raised one very large male small Deer which escaped from us although eight shots were fired at him, and some with effect. At three passed over a high, thick-wooded hill, very steep and difficult both to ascend and descend, at the foot of which we came to a small stream and then a low point of thick woods, full of fallen timber and large shattered rocks with numerous mountain-rills." Journal of David Douglas, 1826, p. 226 *UMPQUA BETWEEN ELKTON AND ROSEBURG

13. October 21 "...Passed two bad gullies thickly wooded, and before the horses could pass a road had to be cut, which occupied considerable time. After passing two fine small rich plains, camped shortly before dusk at the west end of the third, at the foot of some high mountains covered with pine." Journal of David Douglas, 1826, pp. 226-227 *UMPQUA BETWEEN ELKTON AND ROSEBURG
14. November 9 "River la Bische, which we found on our journey outward rarely above 4 or 5 feet deep, was now quite unfordable and the hill so slippery that we had to make a new path, which was very difficult from the immense quantity of low brushwood that we found over all the woody parts of the country." Journal of David Douglas, 1826, p. 235 *ELK CREEK
15. "Three hours' hard toil in ascending and descending brought us to the foot of the mountain on the opposite side, and passing through a dense thicket, we found ourselves again on the bank of the river." Rev. Gustavus Hines in A Voyage Round the World, 1850, p. 114 *ELK CREEK
16. "Gathering up the wreck of our pack, we again mounted, and traveling about twelve miles, encamped on the bank of a beautiful rivulet which is one of the tributaries of the Umpqua. We traveled during the whole day the distance of twenty-five miles, over as fine a country as can be found in any part of the world. An agreeable variety of hills, plains, and groves of pine, fir, and oak, constituted scenery of the most picturesque beauty, and the eye was never weary in gazing upon the ever varying picture. In addition to this, the soil is good, the grass abundant, and the country well-watered; but as we proceeded up the valley of the Umpqua, the timber became scarce. A few pine on the hills, with a few scattering oak, are the principal kinds." Rev. Gustavus Hines in A Voyage Round the World, 1850, p. 117 *BETWEEN ELKTON AND ROSEBURG
17. "Passing over a number of high hills, and fording the Umpqua three times, where the bottom was very rocky and the water up to our horses' backs, we camped at night on the bank of a small rivulet, under the shelter of a grove of fir. We had traveled about twenty miles; The country traversed that day, though mountainous, is tolerably well adapted to grazing purposes, the land on the hills, and in many of the valleys, being covered with a spontaneous growth of the most nutritious grass. The timber grows less and less abundant as we proceed up the river; some of the fir trees, however, are most magnificent. We measured one with our lasso as high up as we could reach, and found it to be thirty-six feet in circumference. We judged it to be three hundred feet high. In the lowest valleys next the streams, grows a kind of timber, the like of which I have never seen in any other country. It appears to be of the laurel family, and is so strongly scented, that the air in the groves where it is found, is strongly impregnated with its aromatic odors. The elk abound in this country, and afford a fruitful source whence the Indians derive a subsistence." Rev. Gustavus Hines in A Voyage Round the World, 1850, p. 112 *SOUTH UMPQUA
18. "The country in the southern part of the Willamette Valley, stretches out into wild prairie-ground, gradually rising in the distance into low undulating hills, which are destitute of trees, except scattered oaks; these look more like orchards of fruit trees, planted by the hand of man, than groves of natural growth, and serve to relieve the eye from the yellow and scorched hue of the plain. The meanderings of the streams may be readily followed by the growth of trees on their banks as far as the eye can see." Wilkes Narrative, 1845, Vol. 5, pp. 221-222 *SOUTH OF EUGENE
19. September 17 "...from daylight to ten a.m.. hunting the horses in the smoke...through valleys...principally oak trees with grass growing under them...The prairies mostly today are on fire, winding its course slowly with the wind across the plains and up the hills...our route lay directly through where it was burning but the grass is not thick enough to render it very dangerous, and we crossed without injury; it is well the grass is not more than it is or our route assumedly would be extremely perilous, it is probably owing to the fact that the prairies are burned every

year that the grass is so thin." Eld, 1841, as cited by Boyd in Strategies of Indian Burning in Willamette Valley, 1986, p. 72 *YONCALLA

20. "September 18--...the flats between the rising ground is deep rich soil with Clumps of Ash and dogwood, the grass had all been burnt up by a fire which we saw raging ahead of us and were compelled to urge our horses through it...." Brackenridge, 1931, p. 216 *YONCALLA
21. September 20 "smoky atmosphere still...Encamped on the bank...(of) the South Fork of the Umpqua...on a piece of very narrow prairie ground with very little vegetation or grass, and that very dry & burnt, affording an exceedingly scanty allowance for animals...Those of the Umpqua Mountains we have passed to day are probably from 12 to 1500 ft in height with grass extending to their summits and their tops scattered with pines and oaks." Eld, 1841, as cited in Robert Boyd in Strategies of Indian Burning in Willamette Valley, 1986, p. 73 *SOUTH FORK UMPQUA
22. September 20 "...the Country consisted of low rolling Mts. covered with Pine & Oak trees...plants: Madia sp: (1) leaves linear. flos: yellow, plant 2 ft. Lupinus sp: (1) flos: yellow, solitary on plains...Vitis. A kind of Fox Grape, fruit edible, in considerable abundance here...the Laurus was found here in large masses." Brackenridge 1931, pp. 217-218, as cited in Robert Boyd in Strategies of Indian Burning in Willamette Valley, 1986, p. 73 *SOUTH FORK UMPQUA
23. September 21 "...encamped near the south fork of the Umpqua..headwaters & at the foot of the Umpqua mountains. Country burnt all round, having noticed that the Indians had taken particular care to destroy all the grass within the neighborhood of the present camping places... I selected intermediate places...where there was some food for the horses." Emmons, 1841, as cited in Robert Boyd in Strategies of Indian Burning in Willamette Valley, 1986, p. 73 *SOUTH FORK UMPQUA
24. September 22 "Atmosphere getting smoky again...ascent of the Umpqua ridge of mountains...lately set on fire (doubtless to obstruct us) and large trees had fallen over our path, so that we were in many instances obliged to cut our way through or around them...as long as the atmosphere...continues in its present state I feel that I am groping my way along half blindfolded." Emmons, 1841, as cited in Robert Boyd in Strategies of Indian Burning, 1986, p. 73 *MOUNTAINS SOUTH OF UMPQUA
25. Sept. 1, 1841 "The banks of the river are steep and thickly lined with Cornus, Dalibardia, Ash, Lonicera, Alder, and Hazel bushes. We came upon two Indians in the bush mounted with Bows & Arrows, who wished to visit the camp, but as they were forbid approaching that, we made signs for them to return." The Brackenridge Journal For The Oregon Country, 1931, p. 61 *NORTH OF UMPQUA DRAINAGE

UPLAND VEGETATION

APPLEGATE MOUNTAINS

1. "The day before reaching the summit of the mountain where we met them, twelve o'clock of the same day we then took the trail, followed it over the mountain, down on to a tributary of Applegate in a brushy deep and steep canyon, the trail fresh. Night come on us, we had to camp in there for the night. The morning of the 31st, took the trail bright and early, followed it a half mile, came to their camp fires on the steep mountain side of the canyon of heavy timber. The trail was difficult following." Letter from William Martin to General Drew, June 8, 1856 *YALE CREEK

2. "...Found that the Indians had left that part of the mountains and started down Applegate, and on 21st, Major Bruce with Capt. Alcorn and about twenty five men, started on the trail of the Indians which looked about two days old, and Lieut. Armstrong was to follow on with about fifteen or twenty men, and Capt. O'Neil to remain and bring up the train. While the Major was trailing the Indians, he unexpectedly came up on two Indians a horse back which he gave chase and followed them so close that one had to leave his horse and take to the brush, and the other made straight for their camp, and the Major followed on, thinking the forces would know where he was gone, which gave the command busy work until it was too dark to shoot with any certainty, and as the Indians were so scattered in the brush it was thought imprudent to advance on them, so each man took his post for the night with the intention of resuming the fight as soon as it was light." Letter to Editor of The Sentinel, 1856 *MURPHY CREEK
3. "Accordingly, on the morning of the 22nd of January, 1856, I rode down to Jacksonville, and found the town in the greatest commotion. News had just arrived that Captain Bruce and company, in pursuing a party of Indians, had dismounted and entered the Timber on foot. The Indians had managed to surround the men, and get possession of their horses; and volunteers were now being mustered to go to the rescue." Beeson Manuscript, 1857, p. 75 *MURPHY CREEK
4. Referring to an incident involving Topsy Tyee, who lived in the mts. between Applegate River and Bear Creek, "This is certainly a case of forbearance on the Indians' part, as he had ample opportunity for escape to his brushy kingdom in the hills." Walling, 1884, p. 211 *UPPER APPLGATE RIVER-WAGNER BUTTE
5. "A young man taken slave by Klamaths escaped and returned home via a trail along a mountain ridge...I don't know how many days he was traveling. Then he recognized a big mountain where the Applegate people always hunted (elk). That's how he got back to his own country without trouble. (his garments were worn out from the brush he had to make his way through)." Galice Creek Notebook 3, p. 61 in Melville Jacobs Collection, University of Washington *RED BUTTES

ILLINOIS MOUNTAINS

1. "As soon as the express arrived, Capt. O'Neil proceeded with what force there was, numbering some thirty or thirty five men, and on arriving at the place where the Indians were, Capt. O'Neil sent Lieut. Armstrong with twenty men up on the mountain where the Indians were firing down on Major Bruce, and the Capt. took the remaining portion of the men and went up the creek to assist the major, but the Indians were so scattered around in the brush that it was almost impossible to find him, as night came soon after his arriving on the battle ground." Letter to Editor of The Sentinel, 1856 *EIGHT DOLLAR MOUNTAIN
2. "On the morning of the 16th, we left Rogue River and crossed the waters of the Illinois and followed that stream down to the mouth. During the whole distance we found quite a good trail with an abundance of game and water at intervals from three to ten miles. I believe this will be found the most, if not the only, practicable trail from this vicinity to upper Rogue River Valley." Letter from Capt. A.J. Smith to Gen. Chambers, April 8, 1856 *ILLINOIS BETWEEN KERBY AND AGNESS
3. "I went as far as I could with my arrival that way and found that the Indians had divided; part of them had gone up the mountain to cross over to the coast, but our track was leading to Winhook. I therefore followed the others to the ridge and got on top of the mountain and it was flat, grassy land and it was very foggy. I rode along and I thought I had discovered something ahead in the fog

and sure enough I had discovered the Indians." Tichenor Manuscript, 1883, p. 105 *CREST OF KALMIOPSIS BETWEEN WINCHUCK AND ILLINOIS RIVERS

4. May 11 "In camp quartz hill...jagged mountains-sticking heads up in all sort of confusion--mostly timbered--wildest and most forbidding scene from top of Ridge near-snow still in spots.... Ord, 1856, p. 13 *PEARSOLL PEAK
5. "Keeping pretty well back from the Rouge river, generally through heavily timbered mountains, following dividing ridges and often crossing deep canyons, in due course of time we reached a point on the river again, perhaps 30 miles in a direct line, from the ocean. From a high and prominent point near by, we had a fair view of the country to the East, and a magnificent sight it was, but not very encouraging to us as explorers. A solid range of mountains rising one above the other till they were lost from sight in the dim distance, was all that was visible to us.
"The mountains generally appeared to be heavily timbered, but occasionally a bald hill or a high rocky pinnacle might be seen shooting up tower-like towards the sky, rendering this a beautiful place to study the wonders and mysteries of nature, and anything but a pleasant place for explorers on short rations." L.L Williams Manuscript, 1851, p. 3 *ILLAHEE
6. "While on top of a high mountain near the mouth of the Illinois River, I was out hunting that afternoon when I came on a fresh trail of Indians. The country was brushy, and the ravines were steep over which the trail led. I followed for some time. It became very fresh, and although I fully realized the danger I was in, I could not resist the temptation.
"While following them through a thick, brushy ravine, just the place of all others I didn't want to see them, I saw a black pair of eyes peering at me through the brush." General George Crook Autobiography, 1960, p. 33 *LAWSON BUTTE
7. "On Illinois Creek and its tributaries, there is considerable good farming land, and few claims are already taken from this creek to Smiths River. The country is mountainous and barren, with a growth of scrubby pine and a variety of underbrush, and wholly unsuited for agriculture." Annual Report of Supt. Joel Palmer, 1854 *ILLINOIS VALLEY AROUND DEER CREEK
8. "I continued there and some of the Indians would come into the fort occasionally and some of their families were made permeant at the fort but the larger number of them were engaged in gathering their acorns which is their chief article of food, they making their bread from them. They began to steal away their families there and to secret them in the forests high in the mountains and I concluded that I would get them out of that. I didn't leave until the 1st of December taking with me two of my men, just two of them, and I was determined that I should bring them in or that I would pursue a more vigorous course with them. I went then as far at the Illinois River and there was our band..." Tichenor Manuscript, 1883, p. 84 *PEARSOLL PEAK AREA
9. "A mountain spirit subordinate to her was Aldauyakwadis; the four fir-trees that surmounted its summit were termed the ceremonial feathers of the mountain spirit, the mountain itself and its presiding spirit being, as usual in such cases, more or less commingled in one conception. Still other such mountain spirits were another Aldauyakwadis, near Illinois River, in sight from the summit of the former, and referred to as his brother; Alsawentadis, next to the first of the two mountain brothers and covered with oaks and tubal bushes (about three feet in height and of a yellowish color), used by the somloholxas in the cure of fever; and Aldankoloida, in the vicinity of the present town of Jacksonville." Edward Sapir in Religious Ideas of the Takelma Indians of Southwestern Oregon, 1907, p. 45 *MOUNTAIN PEAKS BETWEEN ILLINOIS AND APPLIGATE DRAINAGES

10. "This, and some slighter injuries perpetrated the same day on other parties, were the first hostile acts of the Illinois Indians, who until then had shown a tolerably peaceful disposition. This was in the absence of nearly all the fighting portion of the white community, who were with Captain Williams on the Rogue river. On their return a party was made up to pursue certain Indians who had stolen some property from the Hunter brothers, including quite a number of mules. The thieves were followed for three days, over rough mountains, across creeks and through jungles, and at last traced to an Indian Village on Illinois River." Walling, 1884, p. 229 *DEER CREEK
11. "A hundred or more of the readiest fighters ever known among the Indians of this continent held with determination the hill and the thick woods and successfully barred the way." Walling, 1884, p. 265 *EIGHT DOLLAR MOUNTAIN
12. "—place is a big turn just above the old schoolhouse, 1 mile above Higgins. This is the old Irondale place, owned by Irondale 20 years ago. Above there was all brush and little frequented by Indians. This was on the south side, and the Indians used to go up to this to catch eels. Norm used to go up there to catch eels." Harrington Field Notes, Reel 26, Frame 1005 *OREGON MOUNTAIN AREA

NORTH ROGUE MOUNTAINS

1. "We had not proceeded far until we met Capt. Smith, who had returned from the Hungry Hill fight with his wounded. There I met old Dutch Kautz for the first time since we parted in 1852 in San Francisco. It seemed he had started out from Fort Orford to find a road to the Rogue River country. He met some Indians in the woods, and saluted them with compliments of the season, when they answered his salute with a volley at close range...As it was a thick, bushy country he had no trouble in getting away." General George Crook Autobiography, 1960, p. 29 *HUNGRY HILL
2. "Towards the latter end of September, these poor people, with their wives and little ones, came to within ten or twelve miles of the head of the Valley, to a favorite spot for gathering berries. Some of the settlers had ascertained their presence; and as a horse was missing, it was directly charged upon the Indians. A company of sixteen men, armed with rifles, traveled in the night, so that their approach might not be perceived; and on arriving, at early dawn, before the camp, and finding the occupants on the watch, they retreated a few rods. Meanwhile the women and children hid themselves in the brush." Beeson Manuscript, 1857, p. 45 *PROSPECT
3. "The country threatened and partially occupied by the hostiles was the northern part of Josephine county—a land of canyons, narrow valleys, steep mountain sides and thick woods. Into this almost inaccessible retreat they had thrown themselves, and from there they issued forth at will to burn, plunder and murder." Walling, 1884, p. 250 *HUNGRY HILL
4. "The regulars descended into a deep gorge, climbed up the other side and directly were engaged with the Indians, who advanced to meet them. The savages paraded in true military style, but directly fell back to a ledge of rocks or to the brushy crest of a hill. From the crest of the hill for a mile or more in the rear of the Indians, was a dense thicket; on the right and left were precipitous descents into a gorge filled with pines and undergrowth, in which the natives concealed themselves almost perfectly from the view of the whites, who possessed no resources sufficient to dislodge them." Walling, 1884, p. 252 *HUNGRY HILL

5. "...the savages finding all avenues to the eastward closed, broke camp at Bloody spring and went down the Rogue river, taking refuge in the almost inaccessible country bordering that stream. The mountains thereabouts presented almost insuperable obstacles to the transportation of troops and supplies by reason of their steepness, the number of deep gorges which intersect them, and the dense forests by which their sides are clothed. Underbrush of the densest kind abounds; not roads nor even trails existed then, and scarcely do now exist...." Walling, 1884, p. 255 *HUNGRY HILL
6. "Yesterday we came in sight of a few who had robbed Mr. Bogart's house on Antelope Creek, but it was near night and the Indians were in a place inaccessible to us on account of the undergrowth and a deep canyon." Miles Alcorn Letter to Col. J.E. Ross, October 23, 1855 *AGATE DESERT
7. "The hour come and the forced march commenced at near twelve o'clock at night over rough mountains and deep dark canyons through thickets, across streams. Winding our way through the darkness of the night--all in silence to try if possible to surprise the enemy." John E. Ross Letter to Charlie Drew, August 23, 1856 *HUNGRY HILL
8. "It was 'hurrah boys, yonder is the Indians.' The men broke in disorder down the mountain through the thick brush, everyone striving who should be able to get to the top of the mountain first to engage the Indians. Volunteers and regulars, all striving to get the first shot. The attack was commenced by Capt. Rinearson and Welton, with a portion of them from various companies, some regulars. It was on the summit of high mountain, the south side being bald with some underbrush. The north side of the mountain being heavy timber and thick underbrush in which the Indians fell back." John E. Ross Letter to Charlie Drew, August 23, 1856 *HUNGRY HILL
9. "They had taken a position on the top of a high mountain, which was covered with timber and a thick growth of chaparral and manzanita brush. The thickness of the brush would not admit of a charge and whenever attempted by the whites they were repulsed with a heavy loss." Harvey Robbins in Journal of Rogue River War, 1855, p. 348 *HUNGRY HILL
10. "On arriving at the edge of a ravine in front of their position, instead of planting the howitzers and shelling the Indians as was intended, a charge was made, in which Reardon and Welton led with their companies, augmented by portions of several others, and a part of the regulars rushing in disorder down into the ravine, through the thick bushes, and up the ascent on the other side, volunteers and regulars all eager for the first shot. The Indians occupied a mountain, bald on the side by which the troops were approaching, and covered with heavy forest on the opposite or north side. Ross had directed Bailey and Gordon to flank on the north, that when the men in front should drive the Indians to this cover, they might be met by them and engaged until the main force could come up. The attempt was made, but they found it impossible to pierce the tangled undergrowth which covered the steep acclivity, with the Indians fortified above them, and after having had several men wounded, returned to the point of attack." Bancroft, in History of Oregon, 1886, Vol. 2, p. 377 *HUNGRY HILL
11. "God only knows, writes a correspondent of the Statesman, when or where this war may end...These mountains are worse than the swamps of Florida." Bancroft, in History of Oregon, 1886, Vol. 2, p. 384 *MOUNTAINS NORTH AND WEST OF ROGUE VALLEY
12. March 16 "On starting our Course due West which we followed to our encampment over certainly a most hilly and woody Country..." Peter Skene Ogden, 1827, as cited by LaLande in First Over the Siskiyou, 1987, p. 87 *WOLF CREEK
13. "The whites mining at Big Bar and other places on the Rogue River, and industriously prospecting the numerous streams which flow into it, were in constant danger. Lt. Irwin, of the Regular Army,

was kidnapped by two savages (Shastas, probably) and a frenchman, removed to the trackless woods, tied to a tree, and subjected to many sorts of personal indignity." Walling, 1884, p. 200
*MOUNTAINS SURROUNDING ROGUE RIVER BELOW GALICE CREEK

14. "The next morning the dead were buried with the honors of war. Scouts sent out reported that the Indians had retired a long distance into the mountains, setting fire to the woods in their rear, and almost obliterating their trail.
Scouts reported later in the day of starting that the Indians had taken to the mountains west and north of Evans' Creek; hence the General ordered a halt and the forces encamped for the night. Early on the following day (Aug. 23), the line of march was taken up and the Indian trail was followed through a very difficult country, mountainous, precipitous, and brushy, where there was constant prospect of going astray, as the trail left by the savages was very dim and nearly obliterated by fire. Late in the afternoon, having crossed a high mountain, the command reached a branch of Evans' Creek and halted for the night. The horses were allowed to feed on the bulrushes which grew by the side of the stream and which alone has escaped the forest fires. Indian 'sign' had been noticed, it being small patches of ground left unburned, recently killed game, etc., thus indicating the proximity of the enemy. On the morning of the Twenty-Fourth, a shot was heard, which was known to come from the enemy camp. Scouts came in directly afterward and reported the enemy encamped in a thick wood filled with underbrush, and apparently impenetrable to horses." Walling, 1884, p. 219 *UPPER EVANS CREEK
15. September 24, 1841 "Resumed our journey at 7 o'clock A.M. had in the early part some difficult passes to make with dense thickets of brush wood on all hands. The country was of mountainous nature, well wooded, with tracts of Prairies between. Observed several Indians lurking behind trees, was ready to pay these rogues in round numbers had they made themselves troublesome, pitched our Tents for the night on Youngs creek." The Brackenridge Journal For The Oregon Country, 1931, p. 62 *MOUNTAINS NORTH OF GRAVE CREEK

SISKIYOU--KLAMATH MOUNTAINS

1. "Oh, ye citizens on the Atlantic side of our continent-you that dwell in marble, stone, brick and frame palaces...could you but for one single hour, stand upon the pinnacle of one of these giant sentinels of the skies, reared and made perfect by the Grand Architect of the Universe, then behold the silvered stream, sweeping around their base, penetrating the green and verdant valleys...until in the distance, she is hidden amidst mountain chains whose sides are covered with gigantic firs and chaparral forming a wreath of perpetual green...while at higher altitudes you will behold (the mountains) enrobed in a spotless mantle of snow." Anonymous, 1856, p. 6, cited in Rogue River Forest Cultural Resource Overview, 1980, p. 25 *SISKIYOU SUMMITS BETWEEN APPLGATE AND KLAMATH RIVERS
2. "After casting about for many days in the various neighboring localities, the Prince finally decided to pitch his tent on the Humbug, a tributary of the Klamath, and the most flourishing, newly-discovered camp of the north. It lay west of the city, a day's ride down in a deep, densely-timbered canon, out of sight of Mount Shasta, out of sight of everything-even the sun; save here and there where a landslide had ploughed up the forest, or the miners had mown down the great evergreens about their cabins, or town sites in the camps." Joaquin Miller in Life Among the Modocs, 1873, p. 68 *HUMBUG CREEK CONFLUENCE WITH KLAMATH RIVER
3. "This canon was as black as Erebus down there-a sea of sombre firs; and down, down as if the earth was cracked and cleft almost in two. Here and there lay little nests of clouds below us, tangled in

the tree-tops, no wind to drive them, nothing to fret and disturb. They lay above the dusks of the forest as if asleep. Over across the canon stood another mountain, not so fierce as this, but black with forest, and cut and broken into many gorges—scars of earthquake shocks, and sabre-cuts of time. Gorge on gorge, canon intersecting canon, pitching down towards the rapid Klamath – a black and boundless forest till it touches the very tide of the sea a hundred miles to the west.” Joaquin Miller, 1873, in Life Among the Modocs, p. 72 *HUMBUG CREEK CONFLUENCE WITH KLAMATH RIVER

4. “Any one who frequents the mountains of the north will soon notice that on all the hill-sides facing the sun there is no undergrowth. You may ride there, provided you do not wedge in between the trees that grow too close together to let you pass, or go under a hanging bough, the same as in a park. But if you get on the north side of the hill, you find an undergrowth that is almost impassable for man or beast. Chaparral, manzanita, madrono, plum, white thorn, and many other kinds of shrubs and trees, contribute to make a perfectly safe retreat from men for the wild beast of those regions.” Joaquin Miller in Life Among the Modocs, 1873, p. 179 *MOUNTAINS EAST OF YREKA
5. “The pole itself and the ten elder-sticks are carried by the shaman to the summit of some ridge near by, and there leaned against a tree, in the thick brush.” Roland Dixon in The Shasta, 1907, p. 488 *MOUNTAINS BETWEEN KLAMATH AND APPELEGATE
6. “Late in fall afterwards, I was sitting near the top of the mountain back of my then house, witnessing a deer drive by the Scotts Valley Indians on the surrounding hills, when I heard a cap crack behind me in a clump of small trees. Getting up and immediately running into the thicket, I discovered an Indian running down the opposite slope of the mountain.” Steele Manuscript, 1873, p. 7 *SCOTTS VALLEY
7. February 8 “...Following a small Stream for three miles i encamped—all here looks like summer—grass green and four inches in length and from the size of the wood the Oak here being nearly double the size of any I have seen this season induces me to suppose the Climate is milder...Peter Skene Ogden, 1827, as cited by LaLande in First Over the Siskiyou, 1987, p. 53 *SISKIYOU SUMMIT
8. September 26 “On our right, the mts. were burning, and sent up immense clouds of smoke...on descending, we had to cross rugged sandstone ridges covered with red cedar and buckthorn timber-soil barren and arid.” Journal of Titian Ramsay Peale, 1841 *SISKIYOU SUMMIT
9. June 18 “followed around the rough brush and up a few miles and again descended to a small prairie, where we now encamped, having traveled 15 miles of unaccountable difficulty. Now faced a high steep mountain covered with brush and logs, fir and cedar timber....the mountains, steep, rugged and brushy...descended the mountains, not quite as high as the first, but very difficult on account of the logs and undergrowth...some parts of these mountains have beautiful groves of pine, fir and cedar but apparently too remote to be useful...at the bottom of which opens a small valley of handsome prairie....we ascended a mountain of no great elevation, but very brushy...” Journal of James Clyman, 1845 *OREGON-CALIFORNIA TRAIL BETWEEN KLAMATH AND ROGUE VALLEYS
10. September 14 “The Indian ran about 20 paces and fell down the hill. Some of the scoundrels now shouted “shoot the boy! shoot the boy!” The little fellow however turned a point of a rock, plunged into the brush and as he was not pursued, he escaped.” Journal of Philip Edwards, 1837, p. 39 *OREGON-CALIFORNIA TRAIL BETWEEN KLAMATH AND ROGUE VALLEYS

11. September 15 "Moved before sunrise. Road brushy and difficult. Had much difficulty in ascending the brushy hill...we now had much difficulty in driving through the dense wood. down the brushy hill for about a mile. we then gained a prairie and as there was a gentle declivity nearby for all the afternoon we traveled without much further difficulty...my station was beyond the brook on which we were camped to prevent the Indians from firing into camp or among the horses from the brush in that quarter...about 2 p.m. as we were facing a difficult place between the mts on our left covered with dense brush and a thick wood on our right.....about an hour after I had taken my place, the moon having just risen, I observed about 5 Indians stealing along the woods around a small hill to the east, seemingly with the intention of getting into the brush near camp..." Journal of Philip Edwards, 1837, p. 41 *OREGON-CALIFORNIA TRAIL BETWEEN KLAMATH AND ROGUE VALLEYS
12. "Various methods were employed for hunting deer. Two sorts of deer drives were made in the fall. For one, brush fences, broken by a number of openings, were constructed. The deer were driven toward these fences, where they were caught in nooses concealed in the openings and then were clubbed or shot. This was the method of the Scott Valley Shasta, the Gamutwa, and a few villages on the south side of the lower (Shasta) part of the Klamath. The north side, where most of the villages were situated, was too open for such a method, which was only feasible in the more rugged country on the south side with its low brush which forced the deer to head into trails. These fences were set up after the mating season, about November, and were left until spring. The second method was used on the more open hills of the north side of the river, where the oak trees grow. When the oak leaves began to fall fires were set on the hills. The ends of the curved lines forming the circles of fire did not meet, and in this opening the women stood rattling deer-bones, while men concealed in the brush were ready to shoot the deer as they rushed out." Holt in Shasta Ethnography, 1946, p. 310 *MOUNTAINS BETWEEN KLAMATH AND APPELEGATE RIVERS
13. "...Spending most of the day in examining the hills about the stream now called Keene Creek, near the summit of the Siskiyou Ridge, we moved on down through the heavy forests of pine, fir, and cedar, and encamped early in the evening , in a little valley, now known as Round Prairie." Lindsay Applegate, 1846, as cited by Walling, 1884, p. 305 *SISKIYOU SUMMIT
14. "The mountains also bear evidence of a poorer soil in the diminished luxuriance of the forest, and the absence of those prairies which form so marked a feature south of the Trinity. The woods are much more open, and of a variety of timber; firs and pines being intermixed with various species of oak, the well-leafed chestnut, the bay, and the madrona. Of the oaks there is a great variety; several of them evergreens, including the chestnuts and live-oaks. The acorns, bay-nuts, and pinones, or nuts of the edible pine, all contribute to the subsistence of the Indians, who use them in various forms, roasted whole, or pounded into flour, and made into bread or porridge. Piles of the husks are to be seen round every lodge." Journal of Col. McKee, edited by George Gibbs and included in Schoolcraft, 1853, Vol 3, p. 152 *MOUNTAINS NORTH OF KLAMATH RIVER ABOVE HAPPY CAMP
15. "Leaving the river, we ascended a long spur of mountain to the top of the dividing ridge between it and Redwood creek, through alternate forest and prairie land...prairies of rich grass (*Xerophyllum tenax*) lie on their southern slopes...The Indians (Chilula in northern California) used the stalks in their finer basketwork...late in the season, however, the grass is often burned, and dependence cannot always be placed upon the usual grounds (for animal feed)." Journal of Col. McKee, edited by George Gibbs and included in Schoolcraft, 1853, Vol. 3, 133 *LOWER KLAMATH RIVER MOUNTAINS

16. September 29, 1841 "We were now at the base of the Shasta mountains, which are in general considered the boundary line between the Oregon & California Territories, though densely covered with brush wood the ascent was very easy & as we expected every step as we advanced, to have a Skirmish with the Indians, our exertions otherwise passed off easy." The Brackenridge Journal For The Oregon Country, 1931, p. 64 *SISKIYOU SUMMIT

UMPQUA MOUNTAINS

1. March 20 "...at ten we started turning our backs to the River and taking a due West Course—we had not advanced fifty yards when we were surrounded by strong woods and our progress was slow..." Peter Skene Ogden, 1827, as cited by LaLande in First Over the Siskiyou, 1987, p. 89 *COW CREEK-BIG DUTCHMAN BUTTE
2. April 1 " ...It is as far as they proceeded one continued mountain of Rocks and strong woods..." Peter Skene Ogden, 1827 as cited by LaLande in First Over the Siskiyou, 1987, p. 103 *SHIVELY CREEK-SOUTH UMPQUA
3. "The two scouts probably ascended south up Shively Creek or some other nearby tributary of the South Umpqua. They would have encountered the dense, often brush-choked, conifer forest of the steep, north-aspect slopes, and turned back after a day's hard going." LaLande in First Over the Siskiyou, 1987, p. 103 *SHIVELY CREEK-SOUTH UMPQUA
4. September 22 "Crossed the Umpqua Mountains. They are about 300 ft. elevation from the plains, very steep and covered with spruce and lambert pine trees, with a thick growth of arbutum, dogwood. Journal of Titian Ramsay Peale, 1841 *MOUNTAINS BETWEEN CANYONVILLE AND WOLF CREEK
5. September 24 "Started soon after sunrise, crossed rolling prairie land bordered by round hills covered by () and long pacific pines, yew, spruce, cedar, and arbutum trees, with a thick undergrowth. Saw frequent signs of Indians.....and in crossing a mountain covered with thick brush....the country was mostly burned by the Indians." Journal of Titian Ramsay Peale, 1841 *MOUNTAINS BETWEEN CANYONVILLE AND WOLF CREEK
6. "The exploring party proceeded south by the California Trail. On arriving at the canon of the Umpqua River, where trappers and travelers had formerly taken to those high, wooded ridges, where drought, chaparral, and savages had so ravaged the soul of P.L. Edwards, and tried the firmness of Ewing Young in 1837, finding that no wagon-road could be made over them, they returned to explore the canon, which they found to be a practicable pass, though rocky and filled with a thick growth of scrubby trees and underbrush requiring much labor to cut away." Jesse and Lindsay Applegate Expedition, June, 1846, as cited by Bancroft in History of Oregon, 1886, Vol. 1, p. 545 *MOUNTAINS BETWEEN CANYONVILLE AND WOLF CREEK
7. "on the 22nd, they began their route across the Umpqua Mountains. The ascent was at first gradual and easy; the path was quite narrow, and lined with dense underbrush, through which they were at times obliged to cut their way. The party was obliged to follow each other, and formed a line of nearly a mile in length. The path was continually rising and falling, until they came to a steep bank, ascending very abruptly to the height of one thousand feet. This occasioned many of the pack-horses to stumble, but without any material accident. On the top was a small grassy plain, along which they traveled for a short distance, after which they descended rapidly into a valley where water was found. The most difficult part of the day's journey was the ascent from this

valley, to effect which they toiled for three hours. The woods had been lately on fire here, and many of the trees were still ignited. This fire had evidently been lighted by the Indians for the purpose of causing the trees to fall across the path; they had also tied some of the branches together, and interlocked others. Everything was charred, and the more annoying on that account, as our people were completely covered with charcoal dust. From the summit of this ridge, a view is had of a confused mass of abrupt ridges, between which lie small and secluded valleys. The whole range is thickly wooded, with a variety of trees, among which are the *Pinus Lambertiana* (the first time it has been met with it), Oaks, *Arbutus*, *Prunus*, *Cornus*, Yew, Dogwood, Hazel, *Spirea*, and *Castanea*. In different directions, dense smoke was seen arising, denoting that these savages were on the watch for the party, and making signals to muster their forces for an attack, if a favorable opportunity should offer." Wilkes Narrative, 1845 *MOUNTAINS BETWEEN CANYONVILLE AND WOLF CREEK

8. October 13 "...After smoking with a few straggling Indians belonging to the Umpqua tribe, we resumed our route on the banks of the small stream; track mountainous and rugged, thickly covered with wood in many places; and in some parts, where *Acer circinnatum* forms the under-wood, a small hatchet or large knife like a hedge-bill is indispensably necessary..." Journal of David Douglas, 1826, p. 221 *ELK CREEK
9. October 16 "Passed two miles of open hilly country, intersected by several small streams, where we entered the thick woods. Passed three ridges of mountains, the highest about 2700 feet. Mr. McLeod and I took the lead and were followed by Baptist Mackay and two hunters, hewing the branches down that obstructed the horses from passing. The whole distance not so much as a hundred yards of ground on the same level, and the numerous fallen trees, some of which measured 240 feet long and 8 feet in diameter—I am aware that it could hardly be credited to what a prodigious size they attain. The rain of the two days before rendered the footing for the poor horses very bad; several fell and rolled down the hills and were arrested by trees, stumps, and brushwood.....In the deep valleys on the margin of rivulets a very large fine tree is to be seen, to me perfectly unknown: I think it belongs to the *Myrtaceae*...." Journal of David Douglas, 1826, p. 222 *ELK CREEK
10. October 20 " At three passed over a high, thick-wooded hill, very steep and difficult both to ascend and descend, at the foot of which we came to a small stream and then a low point of thick woods, full of fallen timber and large shattered rocks with numerous mountain-rills." Journal of David Douglas, 1826, p. 226 *UMPQUA BETWEEN ELKTON AND ROSEBURG
11. October 21 "...passed two bad gullies thickly wooded, and before the horses could pass a road had to be cut which occupied considerable time. After passing two fine small rich plains, camped shortly before dusk at the west end of the third, at the foot of some high mountains covered with pine." Journal of David Douglas, 1826, p. 227 *UMPQUA BETWEEN ELKTON AND ROSEBURG
12. October 23 " The road being very hilly, woody, and difficult to pass over, I did not think it necessary to accept of any more horses than what would carry my blanket and paper, which were two...." Journal of David Douglas, 1826, p. 228 *UMPQUA BETWEEN ELKTON AND ROSEBURG
13. October 24 " Left my camp at daylight, and passed a low level rich plain four miles long, along the banks of the river, where I entered a thick wood five miles broad and came again on a bend of the river, where I stayed a short time to refresh my horses, being noon; and although having only made nine miles they were much fatigued by the last five being through deep gullies, rocky and obstructed by fallen timber.....I entered a second point of wood three miles, broad, hilly, and an almost impenetrable thicket." Journal of David Douglas, 1826, p. 228 *UMPQUA BETWEEN ELKTON AND ROSEBURG

14. "In the afternoon we passed over the mountain 'La Beache,' (Elk mountain), which consists of a vast assemblage of hills thrown together in wild confusion, and covered with a heavy forest of fir and cedar trees. The latter is the most stately and majestic timber of the kind I have ever seen. Some of the trees are from ten to fifteen feet in diameter, and towering to an incredible height. On beholding them, one is reminded of the scripture account of the cedars of Lebanon. It required three hours to cross this mountain, and as we descended it to the south, we found the fire making sad havoc with the fine timber with which its sides were adorned. " Rev. Gustavus Hines in A Voyage Round The World, 1855, p. 98 *ELK CREEK
15. "Night began to set in, and as we left the scene of our disaster, we entered a dense forest of fir, and the gloom continued to thicken around us until we were enveloped in total darkness. We were leading our animals by the bridle, and feeling our way among the trees, in the midst of darkness, so dense that it was impossible to see a white horse, though within a foot of one's nose, when we became so entangled among the logs, ravines, and brush, that we found it was impossible to go either forwards or backwards, to the right or to the left, and colloquising a little through the darkness, we came to the conclusion to tie our horses to the trees, and make the best of the night we could. " Rev. Gustavus Hines in A Voyage Round The World, 1850, p 116 *UMPQUA BETWEEN ELKTON AND ROSEBURG
16. September 20, 1841 "We had been compelled the previous evening to tie our horses to stakes, to keep the Indians (who are notorious thieves), from stealing them. Got started at 8 A.M. The Country consisted of low rolling Mts. covered with Pine & Oak trees, with very small patches of good land in the hollows." The Brackenridge Journal For The Oregon Country, 1931, p. 60 *SOUTH FORK UMPQUA
17. September 22, 1841 "Began to ascend the Mountains at 8 A.M. which at first was gradual and easy the path being narrow through masses of brush and loose rocks, so that we had to follow each other, forming a line at least one mile in length, we descended occasionally nearly as much as what we had risen, till we came to a steep bank at least 1000 feet high, in rising which several of our pack horses tumbled backwards, on gaining the summit we kept along the ridge for a short way and descended rapidly into a valley where we found some water, soon after this came to the highest and most difficult pass of all, which took us at least three hours to accomplish, the woods lately been on fire and before we got over were as black and as unchristian like as so many Negroes from the coast of Africa. At 5 PM. arrived at small prairie where we camped. (distance today 15 miles, but 50 on the plains would be shorter) height of highest ridge 2500 feet above plains. Rock a kind of Talco-Slate. The whole range is densely wooded with the following trees & Shrubs. Pinus Lambertiana--120 feet in height; Pinus sp.: an P. ponderosa; Quercus 2 sp: large trees--; Andromeda sp: same found at Nesqually; Arbutus sp: frt. red, fol: glaucous, a bush 6 to 8 feet high; A Shrub like Beurhamia, 20 feet high; Gaultheria Shallon; Prunus sp.; Cornus Nuttalliana; Mahonia sp: perhaps new; Yews, Dogwoods. Hazel. Spiraea & L. Castanea formed the vegetation." The Brackenridge Journal For The Oregon Country, 1931, pp. 61-62 *MOUNTAINS BETWEEN CANYONVILLE AND WOLF CREEK

LOWER ROGUE-WESTERN MOUNTAINS

1. "As we were descending a ridge near the mouth of Illinois river on the 20th of March, where we expected to find the Headquarters of the District, Indians were discovered on the flat below. Leaving the pack train in charge of Lt. Switzer, with Co. 'E', I moved a party forward with the advance guard and my Co. through thick brush and timber to the point that made out at the junction of the river and found from the appearance of the Rancheria, that the Indians had made a precipitate retreat." Letter from Capt. A.J. Smith to Gen. Chambers, April 8, 1856 *RIDGES WEST OF ROGUE-ILLINOIS MOUNTAINS

2. "While we were occupying the exposed front, several shots were fired at us from across Illinois River by Indians concealed in the thick brush and timber on the side of a mountain, wounding one Private of Co. 'E', in the neck." Letter from Capt. A.J. Smith to Gen. Chambers, April 8, 1856 *RIDGES WEST OF ROGUE-ILLINOIS CONFLUENCE
3. "I increase my (guard) on the left brow of the hill, that is steep and covered with timber and heavy brush with orders not to fire the first gun, by this time they had entirely surrounded the hill & their movements seemed hostile." Report of A.J. Smith on the Battle of Big Bend, May 30, 1856 *FOSTER BAR-BIG BEND
4. March 26 " Started 8 AM 112 men Jones & my companies Lieutenant Drysdale & Dr. C.A. Hillman with us-he is good fellow-had an awfully hard march 11 miles to McAnootny-village on pretty River bottom backed by timbered hills, in front the Rapid River, on one flank willows on other spur of the mountain with timber on it." Edward Ord's Diary, 1856, p. 5 *QUOSATANA CREEK
5. "In course of time they came within view of the Indian village, hid away in a quiet and peaceful nook. Steep hills and thick jungle shut it in on three sides, the fourth being covered by the river, sixty yards broad, running with a rapid current." Edward Ord in *Soldiering in Oregon*, 1856, p. 525 *QUOSATANA CREEK
6. "So throwing out flankers, and advance parties, as well as the nature of the country would permit, for we were marching through dense timber, we moved along briskly, but cautiously, until we got opposite the Macanutenneey village, which was seen to be burnt." Journal of Rodney Glisan, 1856, p. 304 QUOSATANA CREEK
7. May 10 "Started about 8-took along ridge among dwarf pines & wild rocky knobs-course S E by E and bent off to north and Eastward down said ridge into a wooded valley-up a steep slope among dense bushes." Edward Ord's Diary, 1856, p. 12 *QUOSATANA BUTTE
8. May 27 " This camp is the one near grass pond broke camp top of River and Hunters Creek Ridge & at 8 AM took up line of march high Mountain East and passed between two high rocks--then turned North East down mountain into woods-one mile North East through woods across small stream & up brushy hill, along same East 1/2 miles turned south East & down into valley across run up long spur course south for 1 mile-& then turned East again-along side of hill for 1 mile then four or 5 miles East & by South & South East-through woods most of way-& good trail-to turn off then north for 7 or 8 miles to camp." Edward Ord's Diary, 1856, p. 15 *QUOSATANA BUTTE-SEVEN MILE PEAK
9. "The mountains were rough, ragged, heavily timbered, thick and bushy, and much cut up by canyons and deep gorges, making progress very slow and tedious." L.L. Williams Manuscript, 1851, p. 4 *SAWTOOTH ROCKS
10. "After traveling down stream a day further, we were pleased to find that the Indian guide was ready to leave the river and pursue a more northerly course into the burnt timbered mountains." L.L. Williams Manuscript, 1851, p. 7 *RIDGES BETWEEN MIDDLE AND SOUTH FORKS OF COQUILLE RIVER
11. "The proposed journey, however, would be the supreme test of courage. The distance to be traveled was about 60 miles by the shortest route. The way was over rugged mountains and through dense forests, infested by savage beasts and possible by more savage men. Only at wide intervals were there openings in the great woods." *Oregon Native Son*, 1899, Vol. 1, No. 5, p. 105 *MIDDLE FORK COQUILLE RIVER

12. "It was about the middle of the afternoon when he left the settlement and entered the forest; and such a forest only those who have visited the timbered regions of the Pacific coast can imagine. It was early summer, and not a cloud flecked the infinite blue, but so thickly stood the gigantic trees that barely a gleam of sunlight reached the ground. Such forests are grand, but the darkness of them soon becomes depressing." Oregon Native Son, 1899, Vol. 1, No. 5, p. 107 *MIDDLE FORK COQUILLE RIVER
13. "You may reckon up what the whole thirty-two companies now on the coast will cost at the end of the year-when this miserable Oregon War will hardly have begun! No one who has traveled there can imagine the wilderness of mountains, jungles, and forests that cover all the country for hundreds of miles between the valleys of the Sacramento and the Willamette and the Pacific coast." Edward Ord in Soldiering in Oregon, 1856, p. 526 *NORTHWESTERN SISKIYOU MOUNTAINS
14. "With the exception of the valleys of the upper part of Rogue river, of the Umpqua, and of the Coquille, to which I have already made allusion, the whole country represented on map No. 9 is extremely forbidding to the eye of the farmer. Immediately on the coast the ground is covered with a dense forest of cedar, inferior pine, (called Oregon pine), spruce, fir, etc., of trees of such gigantic size as to preclude the idea of clearing the land for cultivation. Further inland the background of this natural amphitheatral picture, viewed from the sea, is a succession of hills, then mountains of volcanic origin, rising one above the other, presenting their rocky fronts and sharp summits in beautiful shapes and variety of color, and showing their well defined crest line in clear relief against the sky as far as the eye can reach; and, as long as it can endure to observe, as we steam along the coast of Oregon, it will meet pretty nearly the same picture. The forest lands and mountain slopes of this coast will never be brought under cultivation. They are fit only for lumbering, and mining, perhaps, in some places. To the botanist, the florist, horticulturist, mineralogist, and geologist, they afford fields of interest, and, if explored, would probably yield many new and valuable specimens to their respective cabinets." Captain Thomas Cram in Topographical Memoirs, p. 34 *NORTHWESTERN SISKIYOU MOUNTAINS
15. "Though much of this area is taken up by mountains too steep and stony for cultivation, yet they are not entirely without their value to civilized man. In the northern and eastern portions, a growth of valuable timber covers the valley and summit whilst along the coast and winding to the southward, the timber is displaced by a most luxuriant growth of rich nutritious grass forming a region of grazing purposes scarcely surpassed. Stretching along many of the streams are found prairies of the richest alluvial formations, as well as plains of considerable extent, well adapted to cultivation of grain and vegetables." Indian Agent Josiah Parrish's Report to Congress, 1854, p. 3 *NORTHWESTERN SISKIYOU MOUNTAINS
16. "The fact is, the troops have insurmountable difficulties to contend with in fighting Indians in Southern Oregon. The country is so mountainous and thickly timbered, that the Indian can take their position where-ever they please, which is generally impregnable, and if pushed too hard are sure to find a way of retreat. Journal of Rodney Glisan, 1856, p. 277 *NORTHWESTERN SISKIYOU MOUNTAINS
17. March 15 "We came about fifteen miles yesterday over an exceedingly rough trail. The first three miles of our way lay through thick fir timber--then seven miles of dense undergrowth of chinkapin, whortleberry, large or true laurel, and rhododendron--the remainder of the trail ran through a dense growth of fir, with the exception of half a mile of peculiar species of oak, on the south hill of Euchre Creek." Journal of Rodney Glisan, 1856, p. 294 *RIDGES BETWEEN EUCRE AND LOBSTER CREEKS

18. March 17 "We left the Bark Shanty camp this morning at 10 o'clock, and reached our present one at 3:30 p.m. The ascent on the side of Lobster Creek is about three miles, and so steep that pack animals can scarcely climb it. We have come eight miles, most of the way through a forest of fir timber." *Journal of Rodney Glisan, 1856, p. 295* *LOBSTER CREEK
19. March 19 "Camp on north side of Rogue River, opposite the mouth of the Illinois. We arrived here yesterday at 4 p. m., having traveled fourteen miles, the most of the way through timber and dense undergrowth." *Journal of Rodney Glisan, 1856, p. 296* *AGNESS
20. "Rough and impassable ranges of heavily wooded mountains cover almost the entire surface of the country and approach so near to the coast as to almost cut off travel by the sea shore. On the east these mountains penetrate to the Illinois, the Applegate and Cow Creek. Among their defiles meander streams to whose beds the sunlight never penetrates. Steep hillsides and bushy canyons block the path of the adventurous explorer who would fain force his way among them, and roaring streams, swollen by winter's rains to an impassable height, impede the progress of man or animal. Among these mountains roamed the elk, deer, bear and smaller game in profusion. In the open glades and by the sides of the cool streams grew the salmon berry, and many edible roots. In such a region existence was an easily solved problem, and a numerous race of Indians gave proof of its solution." Walling, 1884 NORTHWESTERN SISKIYOU MOUNTAINS
21. July 18 "The ridge on which we are travelling, must be at least 1,000 to 1200 feet above the ocean. Camped at a small spring surrounded by hills. The grass at least two feet high; along our route for the last six miles all through the tall fir, cedar, and hemlock trees, the ground was covered with this luxuriant growth of grass, mingled with wild flowers. Blackberries and other berries were plenty on the slopes of the ridges..." *Diary of Dr. John Evans, 1856, p. 2* *COPPER MOUNTAIN-IRON MOUNTAIN
22. July 19 "...Our route for eight miles was along ridges covered with the fine grass and flowers mentioned yesterday. On the different slopes every variety of spring and fall flowers. Passed through a chain of prairies, some of them several miles in extent, which like the open woodlands were covered with grass three and half feet high—timothy and other grasses..." *Diary of Dr. John Evans, 1856, p. 2* *COPPER MOUNTAIN-IRON MOUNTAIN
23. July 19 "Crossed two or three small creeks, forks of Sixes River, camped at 5 p.m. on a small creek tributary of Salmon River. The prairie in which we are camped is three quarters of a mile long by half mile wide, and very rich sandy loam; the grass, a kind of wild oats, is in places six to eight feet high and other grasses going to seed six or seven feet high. Timothy (wild) is very abundant in this and other prairies passed through, and is from three to five feet high; other grasses filling up the prairie and so dense as to render walking difficult is from two to two and a half feet, this is a fair example of the luxuriant growth of grasses; not only in the chain of prairies through which the trail passes, but on the ridges and intervening slopes between them. The climate is delightfully cool and bracing. The woods are filled with elk, deer, and black bear, and there is not want for meat..." *Diary of Dr. John Evans, 1856, p. 3* *COPPER MOUNTAIN-IRON MOUNTAIN
24. July 20 "...This prairie is nearly surrounded by high mountains, but there are other similar prairies hidden by tall trees in the immediate neighborhood; in fact the whole route is through a chain of prairies, some of them several miles long, along ridges covered with the grass in the deep woods, and occasionally in passing from ridge to ridge over high mountains. Noticed to day a tree called chestnut (), it had acorns like the white oak, but the foliage was more like a chestnut..." *Diary of Dr. John Evans, 1856, pp. 3-4* *COPPER MOUNTAIN-IRON MOUNTAIN
25. July 21 "...passed along two prairie ridges and woodland to a high and steep mountain estimated at two thousand feet in elevation.....The descent to the gold mines of Johnson and others on the

Fork of the Coquille R. Abbott's branch, also occupied and hour and half. The descent is much more gradual. The creek at the mines runs through steep mountains covered with timber. Saw a new species of laurel with rare and beautiful flowers..." Diary of Dr. John Evans, 1856, p. 4 *SOUTH FORK COQUILLE RIVER

26. "Men did not wear moccasins when "they went into the brush to hunt." Cora DuBois, Tututni Field Notes, Notebook 6. Bancroft Library Manuscripts Collection *HILLS ALONG LOWER ROGUE
27. "In conclusion, I will only say that I do not wish to be understood as making a complaint, for it is not my habit to do so, but it is my imperative duty to place the general in possession of facts which have so important a bearing on the operations of the campaign and to assure him that a change in the situation of affairs is essential to its success. There are 400 Indians to be whipped, and 450 square miles of country, high, rugged, and densely timbered to hunt them in. The work is just begun." Letter from Robert Buchanan, April 1, 1856 *NORTHWESTERN SISKIYOU MOUNTAINS
28. "The coast country in this district is a succession of high rolling prairies interspersed with valleys and belts of timber and brush, while a few miles back the country is generally covered with brush and timber and gradually gives way to more and more mountains, but in many places forming flats and tablelands. This is the character of about all of our vacant land." Port Orford Post, March 30, 1882 *NORTHWESTERN SISKIYOU MOUNTAINS
29. "The rumor that had reached the general of a party of volunteers having left this place for the scene of the murders was a mistaken one. It most probably originated in the fact that a party did leave for the purpose of discovering a road to the Oregon trail (Williamson expedition). After proceeding about 90 miles, they returned without accomplishing their object, having fell short of provisions. They are of the opinion that they were not far from the trail at the time they turned back. The country in the immediate vicinity of this place is densely wooded, principally with Fir, Spruce, and Cedar." Silas Casey Report, October 24, 1851, National Archives, Washington, D.C. *NORTHWESTERN SISKIYOU MOUNTAINS
30. "No one who has not traveled there can imagine the wilderness of mountains, jungles, and forests that covers all the country for hundreds of miles between the valleys of the Sacramento and the Willamette and the Pacific coast." Ord, 1856, p. 526 *NORTHWESTERN SISKIYOU MOUNTAINS
31. "The forest we were entering extends along the Oregon coast from Rogue River to Washington Territory, except where broken by rivers or belts of other timber. It is composed of spruce, fir, and yellow and white pine, and forms a mass of motionless woods of giant growth and dark as a Gothic cathedral." Wells, 1856, p. 596 *NORTHWESTERN SISKIYOU MOUNTAINS