Appendix C

Cultural Specialist Report

Resource: Cultural

Author: John Zancanella
Cultural Specialist
Prineville District BLM
Prineville, Oregon

Historic Environment

The exact state of the historic environment (i.e., the vegetation community) of the project area prior to the influx of gold miners to Canyon Creek in 1862 is difficult to ascertain. One must look at a number of different sources of information to even generalize about what may have been.

A paleoenvironmental study conducted in the Silvies Valley (Reid, Draper and Wigand 1989, pg 79-84), approximately 30 miles south of the project area, gives the first general clues. Based on a variety of evidence the report suggests a period of more effective moisture regime existed within the last 300 years. Given more effective moisture the authors propose an expansion of grasses and pine (including juniper). Whether these conditions can be extended to include the project area is problematic since there are many variables that affect the condition and distribution of various vegetation communities. It seems likely, however, that conditions would have been similar.

Burning selected areas of the forest or grasslands by Native American Indians to promote certain plant and animal populations has been documented for the Northwest and the Blue Mountains. In fact, the haze from Indian burning is implicated as the reason the mountains got their name. For the vicinity of the project area, Steward and Wheeler-Voegelin (1974) and Suphan (1974) indicate a number of winter villages located along Canyon Creek. It is likely, therefore, that burning practices may have been employed within the project area prior to 1862, though there is no direct evidence for it. If indeed burning did occur, it most assuredly would have affected the character and distribution of the vegetation. There are accounts, however, of Indian burning occurring after 1862 in the surrounding mountains.

A more focused picture of the study area begins to emerge with the historic period. Published literature on the events that led to the discovery of gold, its exploitation and the subsequent settlement of Canyon City and its surrounds are few. The few existing reports are surprisingly early (Lindgren 1901; Anonymous 1902) and are based on the memories of individuals directly involved. Details about the landscape, however, are not common in these reports. What details there are must be deduced from the sometimes anecdotal recounting of events of that golden era. The authors themselves warn the

reader of the unconfirmed and possibly embellished nature of the facts as presented.

What is revealed from these reports concerns Canyon Creek, Little Pine Creek and the lower north flank of Little Canyon Mountain. The recounting of the discovery of gold indicates a party of 60 men on their way to the Idaho mines camping on the west side of Little Pine Creek near where Marysville was later sited. "Their horses needed rest and feed, so they turned the horses loose to graze on the fine bunch grass (Oliver 1962, pg 18)." One of the individuals headed back to Canyon Creek, which they had just past, to explore for color. "At that time the bottom of the canyon was covered with a heavy growth of brush and grass (Anonymous 1902, pg 381)." Little else relevant to vegetation is discussed in this episode.

Other considerations that must be accounted for when trying to describe the vegetative condition include the isolated nature of the project area in 1862 and the mining and subsistence behavior of frontier miners in such a setting. These circumstances combined to produce immediate effects on the land. In essences, then, the vegetative state to be described is one influenced directly and significantly by Euroamericans.

The Canyon Mining District is known for its particularly rich placers. Placers must be worked by hydraulic methods. This involved developing water delivery systems (ditches and flumes) that were used to wash gold-bearing gravels through a sluice. This method was especially destructive to stream channels and adjacent landforms. One can visualize the removal of first the vegetation then the underlying layers of soil and rock. The soil would have been washed away down stream and larger rocks were piled to the side as tailings. The later use of monitors to hose down the slopes created large holes in the landscape with steep headwalls.

Sluices and flumes require milled lumber for construction. In the early days, rough plank lumber was produced manually using a whipsaw. Later, small mills were established to supply the growing demand. In any case, it can be assumed that the scale of logging employed at this time harvested mainly trees between 12-18" in diameter. Larger diameter logs would have been difficult to process with the available technology. Typically, timber closest to the mill or site of demand would have been used first. Gradually, as timber supplies diminished, the mills would be moved to new stands to save on costs. The first small mill (with a 1000- 1500ft per day capacity) in the area was established on Big Pine Creek in the fall of 1862. "A little later a mill was established on Canyon Creek above Canyon City…and the necessity of producing the lumber supply of the colony by the laborious whipsaw method was obviated (Anonymous 1902, pg 387-388)."

The initial settlement of Canyon City consisted of a community of tents. There was little or no infrastructure for support – supplies and materials were scarce. Food, fuel and construction material had to be produced manually with basic tools or acquired from the local environment. Several years after the discovery of gold a formal supply route was established from the Dalles, the main supply center for central and eastern Oregon. The distance was great (300 miles), however, and costs high. The first house is said to have

been built in the fall of 1862 and was constructed from cottonwood logs.

The first direct information on vegetation in a broader sense comes from the GLO survey notes. These notes are taken by land surveyors walking a grid system projected on the land surface while describing landforms, vegetation and water bodies on the various cardinal directions. The descriptions are necessarily brief and focus on aspects of economy, e.g., landform, vegetation and soil. There are two sets of notes relevant to this project. David, Pengra and Thompson (GLO 1869), conducted the first survey of the project area, seven years after the discovery of gold. Their notes describe a frontier environment for the project area. General descriptions include:

> "…the south boundary runs along the foot of rough and rugged mountains covered with scrubby pine timber. Most of this township is occupied by settlers and miners – Aug 23 1869"(David 1869 for T13S, R31E).
>
> "This Township is on south slope of mountain. The south half is rolling with soil 2nd rate and fine grass. The north half is on rugged steep broken hills and the soil is worthless."(David 1869 for T14S, R31E).
>
> "…The country is rolling Prairie covered with fine grass and is well watered and has large numbers of settlers. I think there are within 12 miles of the line on the south side near five hundred settlers with three considerable towns – Canyon City, John Day City and Dixie. (The first named place containing a population of about one thousand inhabitants, the two latter places from one to three hundred/ Canyon City is the County Seat of Grant County.
>
> There are many fine farms in this vicinity and the country since the termination of the American War (one year ago) is rapidly settling up. The Blue Mountains are to the east and south of the settlements and afford abundance of fine fir and pine timber for buildings, fences and fuel." (David 1869, general description including Ranges 31 and 32).

Specific descriptions along section lines relevant to the project area include:

> "Land rough and broken, Soil 2nd rate, fine grass, Aug 22 1869" (David 1869, from Canyon City east one mile).
>
> "Heavy pine timber. Dense undergrowth of buck brush, willows. The line runs close to Canyon Creek" (David 1869, along Canyon Creek on west side of project area).
>
> "Land rolling, Soil 1st rate, Aug 12 1869" (David 1869, from Little Pine Creek west one mile).

In a later survey of the same area, Robb (1880) provides general and more detailed descriptions.

> "General Description - This Township is mountainous and rough and broken. The narrow valley and foot hills toward the north are adapted to agriculture. The southern portion is covered with heavy timber pine, fir, tamarack and juniper and mahogany." (Robb 1880, for T14S, R31E).

For the northern and western portion of the project area (T14S, R31E), Robb (1880) details the following:

> "Country rough and mountainous, Soil 3rd rate, July 29 1880" (Robb 1880).
>
> "This line runs close to Canyon Creek is very rough ad was projected with much difficulty. Pine timber willows along creek. Buck brush on slopes. Soil 1st and 3rd rate" (Robb 1880).
>
> "This line runs along the north slope of Canyon City Mountain. The timber has all been cut off and there is a dense growth of brush and small pine. The country is very rough, rocky, mountainous and broken, Soil 2nd rate." (Robb 1880, south side section 1).
>
> "a pine 24 in dia"
> "Country fearfully rough broken mountainous and rocky. Soil 3rd rate. Pine timber. Dense buck brush and willows." (Robb 1880).
>
> "Cross Canyon Creek"
> "a juniper 14 in dia"
> "a juniper 8 in dia"
> "Country very rough mountainous and broken, Soils 2nd rate. Dense growth of buck brush, willow and sarves bushes. Line runs close along the breaks of Canyon Creek." (Robb 1880).
>
> "It being impossible to run the east boundary of Township 14S Range 31E on account of the line running along the west slope of Canyon Mountain which breaks off almost perpendicular towards Canyon Creek. I begin at the cor. to secs. 35 and 36 on the south boundary of the Township, and run north between secs. 35 and 36. Country very rough and rocky and mountainous, Soils 1st and 3rd rate." (Robb 1880).

For the middle and northeaster portions of the project area (T14S, R32E), Robb (1880) describes the following:

> "General Description – This township contains a small amount of land adapted to agriculture and a large amount of fine timber. The southwest portion is so rugged as to be inaccessible." (Robb 1880).
>
> "8in dia fir"

"6in dia pine"
"Wagon road"
"Country mountainous and broken. Scattering pine timber with dense undergrowth of small pines, Soil 2nd rate" (Robb 1880, just up slope from the Marysville Placers).

"Wagon road from Canyon City to Prairie City"
"Country mountainous with scattering pine timber, Soil 2nd rate" (Robb 1880, lower Little Pine Cr within project area).

"Pine tree 36 in dia"
"Pine 8 in dia"
"Pine 8 in dia"
"Country mountainous and broken. Heavy pine, fir and juniper timber. Dense undergrowth of wild cherry and buck brush, Soils 3rd rate." (Robb 1880, upper Little Pine Cr within project area).

"Pine 18 in dia"
"Pine 8 in dia"
"Pine 20 in dia"
"Pine 24 in dia"
"Pine 30 in dia"
"Country much broken and mountainous, Soils 3rd rate, Heavy Pine timber – dense undergrowth of buck brush" (Robb 1880, across top and east of Little Canyon Mtn.).

It is interesting to note that there is only one mention of cut timber in 1880 and that is in an area closest to Canyon City. This is not surprising given the need for lumber and fuel, though this condition doesn't appear to extend over a large area based on the survey notes. There is also a mention of scattered pine timber with small pine (6-8" dia) undergrowth on the lower north flank of the mountain. This could be accounted for in several ways. Much of the timber could have been cut in the early 1860's and the resulting new growth could have filled in due to moist conditions created by the aspect (north slope) and hydrologic conditions of placer mining (i.e., ditch and hydraulicking runoff). Tree diameters of 6-8" are not unreasonable to assume for a 20 year period in those conditions. Alternatively, the undergrowth could be explained as encroachment initiated by earlier climatic changes.

The most compelling evidence available for the vegetative history of the project area comes from a series of three photographs taken of Canyon City from the northwest with Little Canyon Mountain in the background. These three photographs were taken at 1875-1885, 1898-1904, and 1937. The earliest photograph depicts the lower, northwest flank of Little Canyon Mountain as a grass/shrub 'steppe' environment with stringers of timber in the drainages and patches of timber on the upper slopes. As one progresses up the

slope the timber increases in density, but doesn't appear to reach the thickness of today. One can actually see the snow on the ground at the top of the mountain. In many ways, the notes from the 1869 and 1880 surveys reflect this same image.

The photograph from 1898-1904 basically exhibits the same environment as 20 years earlier. Only in the latest 1937 photograph can one begin to see a slight increase in the density of vegetation at the lower elevations. This would have been shortly after active fire suppression methods were introduced.

In summary, the historic (post-1862) vegetation of the LCM project area appears to be one exhibiting a steppe environment that extends high on the lower flanks of the mountain, especially on the north side. To what degree the early mining influenced this portion of the vegetation community may never be known. It can assuredly be said that placer mining activities contributed to a changed landscape and may have added to the existing moisture regime of the setting given the number of small, young pines. From the upper lower slopes the vegetation gradually increased up slope to form a pine/conifer canopy typical of dryland forests east of the Cascades. The environmental picture presented of the project area, however, must always be understood temporally as only a "snapshot" of a much broader and dynamic scene – one that continues to change due to natural and human events, even today.

Past Management – Compliance

Knowledge of the cultural resources on and around LCM comes from small inventories conducted by federal archaeologists related to federally initiated actions. These actions include land exchange, wildland fire rehabilitation and salvage logging, firewood cutting, road improvement, and Wildland Urban Interface fuels reduction. As a result of these inventories numerous features and sites related to the historic and current mining eras were recorded or noted. Only one prehistoric archaeological site has been located and recorded on LCM. Most of the information pertaining to the history of Canyon City and the Canyon District is captured in several published references (David 1869; Robb 1880; Lindgren 1901; Anonymous 1902; Oliver 1961; and Brooks and Ramp 1968).

Past actions occurring within the LCM project area include:

- LCM Timber Sale 1996
- Little Canyon Salvage Timber Sale 1999
- Wildland Urban Interface Hazardous Fuels reduction 2002

Existing Environment/Condition

Little Canyon Mountain (LCM) is the source of gold that, in large part, caused the rush of 1862 at Canyon City. The primary impetus for the settlement of the John Day valley and much of NE Oregon was the discovery of gold at this location. The placer mines of the LCM were considered some of the richest in the state. LCM is the heart of the Canyon Mining District that also includes Miller Mountain, Prairie Diggings (Dog Creek), and the area between Canyon City and John Day. Thousands of California and Oregon

prospectors, including Chinese, poured into Canyon City between 1862 and 1864. Production from the placers was great in the first 10 years, but gradually slowed afterwards. There were brief 'booms' associated with dredging and lode mining around the turn of and early twentieth century (1890-1920). Since that time, most of the mining has been of a subsistence type.

As a result of the history of the mountain, there are varying degrees of placer and lode mining related disturbances across the landscape. These include tailings piles, large and small gouged-out washing pits from the hydraulicking, main and secondary water ditches, sluice water ditches, penstocks, adits, mines, glory holes, trenches and roads. The local landscape, particularly that associated with hydraulicking, have been changed dramatically, as evidenced by the 60 ft high headwalls of some of the pits.

The study area contains a number of sites and features related to different eras of mining. These include: 1) probably the site of Marysville (1862-ca.1900), both the residential area (no longer existing) and the mines, 2) the site of Mountain View (1898-1930, no longer existing), consisting of standing structures (Ike Guker and Millar place's), associated trash scatters, and most of the associated mines, 3) the patented claim of the Great Northern Mine, 4) the Millar Place 5) the head of Long Gulch and associated mines, and 6) the bulk of LCM and its mined landscape. Except for the patented claim of the Great Northern Mine, all locations mentioned above occur on BLM administered lands. Ditches, some associated with mining of 1862, are common throughout the lower north flank of LCM and Quartz Gulch. Lode mines are found from the top of LCM to the upper flanks on the north and east sides. Because mining activities have been continuous on LCM since 1862, most of the sites and features have had some type of impact or modification. Few if any of these sites or features retain a high level of integrity. At some point in the future, the Canyon Mining District should be assessed in its entirety to determine if features within the project area meet the criteria to be contributing factors for nomination to the National Register of Historic Places. During discussions with the Oregon SHPO (telephone conversation 10/22/02) about this project and its findings, it was determined that most of the mining features were not eligible for nomination. At this point in time, the BLM will consider the main ditch (the Hillas Ditch) segment in the project area as the most important to the mining history, due in part to its relevance to the early mining period.

Current uses of the mountain include lode mining, timber management, and recreation. Unauthorized uses documented on the mountain center around domestic dumping which appears to have been continuous since 1900, historic artifact collecting, and vandalism.

Environmental Affects of No Management Actions

The affects of the No Management Action will be limited. The individual features and sites existing within the project area do not appear to contain sufficient integrity or character to be significant within the scope of the project. A catastrophic fire would eliminate some isolated and degraded remnants of later mining activity, including the Ike Guker home complex, but it is not important structurally or relevant to the events

surrounding this colorful character. Continued artifact collecting can remove bits of information relevant to post 1900 mining activity but documentation is abundant for this period of time. Earlier trash is not evident within the project area and was probably removed or destroyed by subsequent and on-going mining activity.

Environment Affects of Management Alternatives (Common to All)

Regardless of the alternative chosen, the mitigation measures to protect cultural resources will be the same. Throughout the various alternatives (except for the No Action Alternative) fuels reduction activities are similar in their approach but different in their emphasis and distribution. Thus, the recommended mitigation of impacts by the Cultural Resource program will be the same across each of the alternatives. Foremost will be the protection of the most intact ditch systems. This will involve designing timber management activities in a way that avoids disturbing the ditches. This can involve avoiding skidding, scaring, dozing or yarding in the vicinity of the ditches and not cutting or falling trees growing in or immediately adjacent to the ditches. Standing structures, such as the Ike Guker home complex or the Millar Place, will be avoided until a formal assessment can be conducted. These structures may need to be removed for health and safety reasons, but only after it is determined that they are not significant. Active lode mines and associated structures and features will need to be avoided. Large hydraulic mined areas such as the Marysville Placers present a challenge. Though not considered significant at this time, they may be considered a part of the rural historic landscape of the early and later mining eras. All timber management activities within these areas will need to be designed to limit the impacts to tailings and ditch features. Creating log landings in previously disturbed areas and limiting skid trails to certain paths can accomplish mine feature protection. An archaeologist should be involved when designing the fuels reduction management actions.

Historic Environment

GLO Survey: Robb 1880

From the 1880 map of T14S, R31E:

"General Description – This Township is mountainous and rough and broken. The narrow valley and foot hills toward the north are adapted to agriculture. The southern portion is covered with heavy timber Pine, Fir, Tamarack and Juniper and Mahogany."

T14S, R31E, on north line (east boundary) btwn Secs. 1 and 6

"Country rough and mountainous, Soil 3rd rate, Jully 29, 1880"

T14S, R31E, North between Secs 1 and 2:

"This line runs close to Canyon Creek is very rough and was projected with much difficulty. Pine timber willows along creek. Buck brush on slopes. Soil 1st and 3rd rate."

T14S, R31E, East btwn Secs. 1 and 12:

"This line runs along the north slope of Canyon City Mountain. The timber has all been cut off and there is a dense growth of brush and small pine. The country is very rough, rocky, mountainous and broken, Soil 2nd rate"

T14S, R31E, North between Secs 11 and 12:

"a pine 24 in dia"
"Country fearfully rough broken mountainous and rocky. Soil 3rd rate. Pine timber. Dense buck brush and willows."

T14S, R31E, North between Secs 13 and 14:

"Cross Canyon Creek"
"a juniper 14 in dia"
"a juniper 8 in dia"
"Country very rough mountainous and broken. Soils 2nd rate. Dense growth of buck brush, willow and sarves bushes. Line runs close along the breaks of Canyon Creek."

T14S, R31E

"It being impossible to run the east boundary of Township 14S Range 31E on account of the line running along the west slope of Canyon Mountain which breaks off almost perpendicular towards Canyon Creek. I begin at the cor. to secs. 35 and 36 on the south boundary of the Township, and run north between Secs. 35 and 36."
"Country very rough and rocky and mountainous, Soils 1st and 3rd rates"

T14S, R32E, General Description:

"This township contains a small amount of land adapted to agriculture and a large amount of fine timber. The southwest portion is so rugged as to be inaccessible"

T14S, R32E, West on random line between Secs. 6 and 7 (just up slope of Marysville Placer):

"8in dia fir"
"6in dia pine"
"Wagon road"
"Country mountainous and broken. Scattering pine timber with dense undergrowth of small pines, Soil 2nd rate"

T14S, R32E, North betwn secs. 5 and 6 (Lower Little Pine Cr):

"Wagon road from Canyon City to Prairie City"
"Country mountainous with scattering pine timber, Soil 2nd rate"

T14S, R32E, North betwn Secs 7 and 8 (Upper Little Pine Cr):

"Pine tree 36 in dia"
"Pine 8 in dia"
"Pine 8 in dia"
"Country mountainous and broken. Heavy pine, fir and juniper timber. Dense undergrowth of wild cherry and buck brush, Soils 3rd rate."

T14S, R32E, North betwn Secs 7 and 12 (across top and east of Little Canyon Mtn.):

"Pine 18 in dia"
"Pine 8 in dia"
"Pine 20 in dia"
"Pine 24 in dia"
"Pine 30 in dia"
"Country much broken and mountainous, Soils 3rd rate, Heavy Pine timber – dense undergrowth of buck brush"

Historic Environment

GLO Survey: David, Pengra and Thompson 1869

T13S, R31E:

"General Description – The land in this Township is generally rolling. Soil 1st and 2nd rate, the south boundary runs along the foot of rough and rugged mountains covered with scrubby pine timber. Most of this township is occupied by settlers and miners – Aug 23rd 1869."

T14S, R31E:

"General Description – This Township is on south slope of mountain. The south half is rolling with soil 2nd rate and fine grass. The north half is on rugged steep broken hills and the soil is worthless."

T14S, R31E, West along Twsp line between Secs 1 and 36:

"Land rough and broken, Soil 2nd rate, fine grass, Aug 22 1869."

T14S, R31E, West on a true line betwn Secs 2 and 35:

"Road bears N & S, enter Canyon City"
"Middle of Washington Street, Canyon City bears E & W"
"Leave limits of Canyon City bears N & S"
"Land hilly Soil 2nd rate"
"This line runs through the famous Canyon City Gold Mines. It is estimated that there has been taken from the mines within one mile of Canyon City since 1862 Gold in the amount of Five Million dollars. These mines are extensively worked yet but are not so productive as formerly."

T14S, R31E, West on true line between Secs 3 and 34:

"Land level, Soil 2nd rate"

T14S, R31E, West on true line between Secs 4 and 33:

"Land rough and broken, Soil 2nd rate"

T14S, R31E, East boundary of Secs 11 and 12:

"Heavy pine timber. Dense undergrowth of buck brush, willows. The line runs close to Canyon Creek."

T14S, R32E, West along Twsp line between Secs 6 and 31:

"Land rolling, Soil 1st rate, Aug 12 1869"

General Description

"Through Ranges East ½ of 24, 25, 26, 27, 28, 29, 30, 31, 32, and 33. The country is rolling Prairie covered with fine grass and is well watered and has large number of settlers. I think there are within 12 miles of the line on the south side

near five hundred settlers with three considerable towns – Canyon City, John Day City, and Dixie. (The first named place containing a population of about one thousand inhabitants, the two latter place from one to three hundred/ Canyon City is the County Seat of Grant County.

There are many fine farms in this vicinity and the country since the termination of the American War (one year ago) is rapidly settling up. The Blue Mountains are to the east and south of the settlements and afford abundance of fine fir and pine timber for buildings, fences and fuel.

References

Anonymous 1902. An Illustrated History of Baker, Grant, Malheur and Harney Counties Part 2. University Microfilms, Ann Arbor, Michigan. Pp 379-398.

A general accounting of the history of Grant County (1862-1885) and the discovery of gold at Canyon City mostly through the anecdotal rememberances of some of the individuals who lived through that era. This is unusual in that it can be considered primary research, albeit nearly 40 years later. Glimpses of the culture and behavior of the populous, as well as land uses, can be gleaned from these accounts.

Brooks, Howard C., and Len Ramp 1968. Gold and Silver in Oregon. State of Oregon, Department of Geology and Mineral Industries Bulletin 61. Portland, Oregon. Pp 33-52, 144-147.

This report provides a general description of mining techniques and a more specific discussion of the Canyon mining district, both early placer locations and lode mines. Production figures are also given for the general area, as well as specific mines.

Curran, C. 2002. Personal Communications 10/22/2002. Chrissy Currran, Oregon State Historic Preservation Office, phone conversation.

Discussed the possibility of considering Little Canyon Mountain as a rural historic landscape, there was little intact built environment and limited integrity of existing features to support that determination, however.

David, John B. 1869. Government Land Office Survey for T13/14S and R31/32E. Microfische on file at Prineville District Office.

Section line survey describing features crossed or monuments placed, as well as general topography, soil, and vegetative conditions, and sometimes, other general or specific comments. These notes provide the most first-hand accounts of the project area at an early date.

Langston, N. 1995. Forest Dreams, Forest Nightmares: The Paradox of Old Growth in the Inland West. University of Washington Press. Seattle.

This book provides a view of changing human land use in the Blue Mountains (incorporating the LCM area) over time. Includes insightful discussion of the complexity of the ecological change in a forested setting due to differing human perspectives, socially, economically and politically. Lacks environmental perspective through time. More specific to the LaGrande/Pendleton area which was affected by different spheres of influence than the LCM area. For this reason, the publication was reviewed but not cited.

Lindgren, Waldemar 1901. The Gold Belt of the Blue Mountains of Oregon. United States Geological Survey, 22nd Annual Report, Part 2. Washington D.C. Pp 561-573, 712-20.

This report is primarily geologic in nature and focused on mining. It provides a somewhat detailed description of the Canyon mining district, including the types and location of the various mining activities and some information on production.

Oliver, Herman 1962. Gold and Cattle Country. Ed. E.R.Jackman. Binford & Mort, Publishers. Portland, OR. Pp. 17-39

A personal recounting of life on the Oliver Ranch. The author discusses characters and activities associated with the ranch and the John Day and Canyon City areas. There are discussions about the construction and use of ditches relevant to the project area and personal knowledge of individuals involved with the discovery of gold. Some of the information in this book seems to be taken from the earlier Lindgren (1901) and Anonymous (1902) publications.

Reid, Kenneth C., John A. Draper, and Peter E. Wigand 1989. Prehistory and Paleoenvironment of the Silvies Plateau, Harney Basin, Southeastern Oregon. Center for Northwest Anthropology, Washington State University, Pullman. Pp 79-84.

This study reports on a variety of paleoenvironmental evidence used to reconstruct past settings approximately 30 miles south of the project area. The last 6000 years is covered by the study, though the past 300 years is the most relevant to this project.

Robb, Bamford 1880. Government Land Office Survey for T14S, R31/32E. Microfische on file at Prineville District Office.

Section line survey describing features crossed or monuments placed, as well as general topography, soil, and vegetative conditions, and sometimes, other general

or specific comments. These notes provide the most first-hand accounts of the project area at an early date.

Steward, Julian H. and Erminie Wheeler-Voegelin 1974. The Northern Paiute Indians. In Paiute Indians III, edited by D. A. Horr, Garland Series in American Indian Ethnohistory, New York. Pp 24.

This report provides a map indicating relative locations for Northern Paiute winter villages.

Suphan, Robert J. 1974. Ethnological Report on the Umatilla, Walla Walla, and Cayuse Indians. In Oregon Indians II, edited by D. A. Horr, Garland Series in American Indian Ethnohistory, New York. Pp 132-133.

This report provides a map indicating relative locations for Umatilla, Walla Walla and Cayuse winter villages.