

Cultural Assessment¹

Introduction

The ethno historic and ethnographic data presented below have a degree of application far greater than the Upper Joseph Creek Watershed (UJCW), which is but a tiny fraction of territory occupied by the Nez Perce Indians. Although rather general, this information sets the stage and or provides a backdrop for the late prehistoric and early historic Nez Perce occupation of the Joseph Uplands and Wallowa County in general. Where possible, this information will be focused at the watershed level. The discussion of the archaeological resources will be more specific, and will be based on previous archaeological investigations within and adjacent to UJCW. In order to understand the prehistory and archaeology at the watershed level, it will be necessary to look at broader, regional patterns. For this reason, adjacent archaeological resources may refer to sites twenty-five miles distant, particularly those located within Hells Canyon. Wherever possible and or appropriate the ethno historic, ethnographic and archaeological data will be brought to bear on the future management of significant cultural resources located within UJCW. Much of the discussion which will follow, will be based in part, on over twenty years of archaeological field experience, by the author, within and adjacent to the UJCW.

Ethnohistory

In the summer of 1806, on their return trip east, the Lewis and Clark expedition would spend more than a month with a group of American Indians near what is now Lewiston, Idaho. Referring to this group as the Chopunnish or Nez Perce, the expedition interviewed a number of Indian informants. From these interviews Lewis and Clark identified seven bands or divisions of the Nez Perce, one of which was referred to as (5) Wil-le-wah Band on the Wallowa River in Oregon, population 500, (Thwaites, Reuben Gold, ed., 1905: Vol.8). Based this information, the expedition developed a crude map displaying the general locations of the various Nez Perce bands. The Wil-le-wah band is depicted as being located on a long, straight river flowing directly northeast into the Snake River. Per Chalfant (1974:6), this may be either the Imnaha or Grande Ronde River. Spinden (1908:174) identifies over forty divisions or bands of Nez Perce. Those most germane to the UJCW include those bands at the Imnaha River; Wallowa Valley; mouth of the Grande River; near Zindels, on the Grande Ronde River; mouth of Joseph Creek; and, above Joseph Creek on the north side of the Grande Ronde.

In the winter of 1834, the expedition led by Captain Benjamin Bonneville reached the breaks of the upper Imnaha River. Based on information gained from previous contacts with The Upper Nez Perce, Bonneville was aware of the existence of the Indian group known as the Joseph

¹ The Cultural Assessment was prepared by Bruce R. Womack, retired USDA Forest Service Archaeologist, Wallowa Whitman National Forest. The Assessment is titled “The Culture, History, and Archaeology of Upper Joseph Creek Watershed.”

Band, also referred to as the Wallowa or Imnaha Band. Proceeding down stream, the expedition finally encountered the Joseph Band occupying a winter village on the Lower Imnaha River. Referred to by Ray (1974:5) as the most isolated of the subdivisions of the Nez Perce, Bonneville's encounter would be the first meeting between whites and the Wallowa Nez Perce to occur on the Indian's home ground. Already conversant to some degree in the Shahaptia dialect, Bonneville was able to converse freely with members of the band. Per Ray (1974:6):

Among the early explorers Bonneville was one of the better ethnographers and in the present instance he was to record data of great value about the band now known as the Joseph's during the many days he was to spend with them. Particularly, he noted the range of territory they occupied, the economic pattern with summer use of the uplands, winter occupation of the wooded lower valleys, and the location of the villages and the nature of band leadership.

With Joseph/Wallowa/Imnaha Band Nez Perce as his guides, the Bonneville expedition reached Fort Walla Walla on March 4th 1834. The ethnographic data collected by the Lewis and Clark expedition, 1805-6 and that of Captain Benjamin Bonneville, 1834 would come to have a profound impact in delineating the aboriginal territory of the Nez Perce Indians, in which the study area lies, and serve as the base line, ethnographic data for future Nez Perce ethnographers and ethno historians.

By 1850, white migration into Nez Perce territory had increased dramatically and trouble was on the horizon. In 1855, a treaty was concluded between the Nez Perce, including the Joseph Band. Negotiated by Issac I. Stevens, Governor of the Washington Territory and Joe Palmer, Superintendent of Indian Affairs for the Oregon Territory. The Treaty of 1855 reduced the aboriginal territory of the Nez Perce by almost fifty percent. However, due to the persuasiveness and insistence on the part of Old Joseph all of the aboriginal territory of the Joseph band was retained. This included all of the Imnaha, Grande Ronde and Wallowa River basins. Other than Indian Agency personnel, all non-Indians were excluded from Joseph band territory. The treaty was ratified in 1859 and in 1860, gold was discovered on the Clearwater River.

By 1861, a tent city with over a mile of streets had sprung up in what is now Lewiston, Idaho. As occupation of reservation lands continued unabated, white miners and settlers began to pressure public officials for the removal of the Indians. The results would be the Treaty of 1863. Negotiated by Superintendent Calvin H. Hale and S.D. Howe and Charles Hutchins representing the United States, the territory controlled by the Nez Perce would be reduced dramatically. Indian participation in the negotiating process was led primarily by Chief Lawyer of the Northern Nez Perce. The Treaty of 1863, concluded on June 9th, 1863 would reduce the size of the Nez Perce Reservation created under the 1855 treaty by approximately ninety percent or over 90,000 square miles. The majority of the ceded lands constituted the aboriginal territory of the Joseph band. When all was said and done, there were fifty-one Indian signatures to the 1863 treaty. Vehemently opposed to the treaty, not a single one of the fifty-one signers was a Joseph Band member. Old Joseph tore a copy of the treaty to shreds and destroyed his long-treasured New Testament, and departed for the Wallowa (Ray, 1974:21-23)

At the time of the 1863 treaty, white encroachment was limited primarily to the Clearwater basin in the northern portion of the reservation. The Wallowa country was for the most part untouched

by white settlement, but this was soon to change. Within a few years, white settlers began to make inroads into Joseph Band territory. Although relatively few in number, hostile contacts between whites and Indians did occur and were reported to Indian agents in Idaho. The growing tension between Indians and whites led to the appointment of an investigation commission consisting of Agent Monteith and Oregon Indian Superintendent T.B. Odoneal. In March 1873, Monteith and Odoneal held a joint meeting with white settlers and members of the Joseph Band. The original intent of the meeting was to bring about removal of Joseph and his people from the Wallowa Valley to the reservation at Lapwai. It quickly became apparent to Monteith and Odoneal that such a move would be both impractical and undesirable (Ray 1974:30). This observation was based on a series of factors, the most important of which was that neither believed that the 1863 Treaty was binding on Joseph, since he was not a party to it. Further, the white bureaucrats could not help but notice that:

While Joseph, and most of his people seem very friendly, and well disposed, they manifest a very strong determination to hold the valley...The Band is composed mainly of young men, who are well armed, and mounted, and whose bravery is unquestionable. It would require a strong force to remove them. We did not feel authorized to say to the Indians that they must do anything in particular, so we confined our efforts to ascertaining their views, and, wishes, and facts upon which their claims are based. (Ray, 1974:33)

The investigation findings, along with a recommendation that the Joseph Band be allowed to remain in the Wallowa Valley and that whites be prohibited entering or settling therein, was submitted to Secretary of the Interior Delano. Further, that an Executive Order be requested, setting apart the Wallowa valley for the exclusive use of the Joseph Band. The submission also included a proposed reservation with meets and bounds. On June 11th 1873, Secretary Delano presented these recommendations to President Grant, and on June 16th, the President set aside the Wallowa Reservation for the roaming Nez Perce Indians and supposedly withholding these lands from entry or settlement by whites. The Reservation would consist of approximately half of the aboriginal territory of the Joseph Band. In essence, the new reservation included the rugged, deeply dissected Grande Ronde and Imnaha River basins and excluded the Wallowa Valley, opening the heart of Joseph Band territory to white settlement. In the end, it would not matter. The prohibition against white settlement of the new reservation would not be enforced and due political pressure, the Wallowa Reservation would be withdrawn in 1875, only two years later. By 1877, the Joseph Band would be at war with the United States. While they would put up a valiant effort, fighting a running battle that would last for months and inflicting heavy losses on the US Army. Finally, the Nez Perce were forced to surrender on October 5th 1877, at what would become the Bear Paw Battlefield in Montana. Approximately 400 Nez Perce, including the Joseph Band, surrendered and would be sent to the Indian Territory in what is now Oklahoma. More than one fourth of those Nez Perce would die either en route to or within Indian Territory. Only women and children and those deemed to pose no future threat would ever return to Idaho. The political, most of the Joseph band including Joseph would eventually be sent to the Colville Reservation in Washington. The now famous Chief Joseph died at Nesplem, Washington on September 21, 1904.

The Indian Claims Commission/Aboriginal Territory of the Nez Perce Indians

On August 13th 1946, Congress created the Indian Claims Commission, (60 Stat. 1049; 25 U.S.C. 70 et seq.):

By the 1946 Act, Congress created a special judicial tribunal to hear and determine claims by Indian tribes in an effort to settle once and for all, the claims of the Indians.... The Congress imposed one important limitation: The Commission could render only a money judgment in favor of the tribes. It could not return any land to them, which might have been taken wrongfully, nor could it give them any land to supply a land base. (*Ralph A. Barney*: preface to Chalfant and Ray 1974)

Occupancy necessary to establish aboriginal possession is a question of fact to be determined as any other question of fact. If it were established as a fact that the lands in question were, or included in, the ancestral home of the Walapais in the sense that they constituted a definable territory occupied exclusively by the Walapais (as distinguished from lands wandered over by Many tribes), then the Walapais had "Indian title." (United States v. Santa Fe Pacific R. Co., 314 U. S. 339 345, 1941)

The primary purpose of the Indian Claims Commission was to determine the value of monetary awards owed to the Indian tribes in question. A key to settlement of most Indian claims would be the determination of the extent of the ancestral homeland of the tribes in question. A crucial test would be the best approximation of the areas occupied by the various tribes aboriginally or "for a long time". Further, there was a distinction between lands occupied exclusively by a particular tribe as opposed to lands occupied jointly, by two or more tribes. There would be no monetary remuneration for losses involving jointly occupied territory. In the case of the Nez Perce, Spinden (1908:173):

There are no traditions of migration, and so far as can be determined, the tribe has dwelt within these boundaries from time beyond memory. The meaning of most of the place names has been forgotten.

Based on the ethnographic information collected by Lewis and Clark (1805-06), Bonneville (1834), Spinden (1908) and the ethnographic data provided by Stuart Chalfant (1974), Verne Ray (1939), Joel Berreman (1937) and others, the aboriginal territory, the lands occupied by the Nez Perce Indians would be defined and accepted by the Indian Claims Commission, Defendant's Exhibit 24-A, Docket No. 175 (Map). The UJCW lies wholly within those lands occupied exclusively by Nez Perce Indians.

Settlement and Subsistence

The UJCW lies within the aboriginal territory of the Joseph Band of the Nez Perce (Chalfant and Ray, 197; Ray, 1938; Spinden, 1908). While there are no documented, ethnographic, Nez Perce sites with the watershed, there are numerous, documented, ethnographic Nez Perce camps and villages within close proximity to the study area (Chalfant and Ray, 1974:Exhibit 24-A (map);

Fletcher, 1892:35-38; Schwede, 1966; 42-44).

Schwede (1966): recognizes two types of Nez Perce settlements, the village and the camp. The village is defined as the smallest group of people that live on a seasonal basis in a given named geographical area they are thought to own. A camp is defined as the smallest group of people that live on a seasonal basis in a given named geographical area they are thought to own by use right only. They only own it when they are in the area. Marshall (1977: 159) notes that villages are found primarily at or near salmon fishing stations. Further, he indicates that the smallest residential groups were found on hunting grounds and small root grounds, which would correspond with a camp, rather than a village. Schwede's (1966:9) analyses were based on the location of 295 settlements, 132 villages and 26 settlements, which are probably camps. Villages occur at lower elevations than camps. Schwede's analysis found that 98% of all villages were located below 2500 ft, and that the majority of camps occurred between 2500 and 6500 feet in elevation. Within the UJCW, elevation ranges from 3250 at the confluence of Crow and Chesnimnus Creeks to 5200 feet near the northern boundary of the study area. Of the two settlement types, the camp and/or sites associated with camps are most likely to be represented within the UJCW. Both Marshall (1977:139) and Schwede (1966:3) indicate that the locations of camps and or villages are determined by biophysical factors, primarily the availability of resources, i.e. energy necessary to sustain the group. Both agree that the primary sources of the energy would be fish, roots, game and water.

Both Marshall (1977), and Schwede (1966), recognize only two settlement types, the Village and the Camp. There is a minor problem with applying this model too tightly to the study area, because in this case, that would leave out the majority of the black andesite, lithic resource procurement areas which make up about 90% of the sites within the watershed. Binford, 1980: 9-11 recognizes five settlement types rather than two. Binford recognizes the residential bases (villages) and field camps of Marshall and Schwade, but includes **Caches, Locations and Stations**.

Caches as the term implies, refers to the storage or concealment of goods, valuables, e.g. excess supplies of fish, meat, roots, tool-stone etc. for latter use. Caches generally occur near camps or stations. **Locations** are sites at which extractive activities such as collection of lithic raw material are the focus of the subsistence activity. In the case of the UJCW, most locations would occupy waterless, exposed, near ridge top positions in open scabs, not a particularly suitable location for extended or even short term camping. Locations represent the bulk of the sites within the watershed. In some unique situations such as that which exists at the Starvation Springs, a site where water, tool stone and some protection from prevailing winds occur in unison. It is important to note, that the small and large ridge top scabs, which contain lithic raw material, also contain some amounts of culturally significant plants, particularly, lomatium coos. **Stations** are sites at which special purpose task groups gather information, such as monitoring the movement of game or other humans. The physical manifestation of a station could include a hunting blind or an observation post, usually located on a prominence such as Findley Buttes. Neither Marshall, Schwade, nor Binford include a category for religious or spiritual sites (vision quest). Like stations, religious or vision quest sites would likely be located on landforms offering panoramic views, such as Buckhorn Lookout, Poison Point, Red Hill, and of course, the Findley Buttes.

The periodicity, length of availability and extent of resource would have a significant bearing on

the overall size and importance of the village or camp and therefore the importance of the people occupying it. Villages in the lower end of river systems like the Snake or Columbia would have access to more and better fish. These villages could and did support larger numbers of individuals and often had higher status as a result. It would be extremely important for villages located further up the system to maintain strong trade ties and or trading partners within the lower, or more well off villages. Per Marshall (1977:37), the food resources most important to the Nez Perce were fish, a wide variety of plants and large game mammals. Anadromous fish are thought to have comprised 50 % of the Nez Perce diet prehistorically 25-40% of the diet was derived from plant resources and the remaining 10-25% from big game.

Fishing

The fisheries most important to the Nez Perce were the anadromous salmonids, Chinook, silver and blue back salmon and steelhead. These were followed by the non-anadromous fish, whitefish, chiselmouth, suckers and trout. Both anadromous and non-anadromous fish were targeted when they were most vulnerable, during spawning season. Of the three anadromous fish species, Chinook were the most important, spawning in August and early September. Hewes (1947; 1973) estimates that as much as 330 pounds of salmon was consumed by every person, every year. Based on Nez Perce population densities thought to exist in pre-contact times, Hewes believes that the Nez Perce may have caught upwards of 1,200,000 pounds of salmon per year.

Edible Plant Resources

Per Marshall (1977:46) plant resources were the second mainstay of the Nez Perce diet and made up approximately 25-40% of the Nez Perce diet. Plants were collected for both medicinal and industrial purposes, but edible plants were by far the most important. Marshall (1977:47) identifies 34 plant species consumed by the Nez Perce. Marshall's list of plant resources was reviewed by Jerold Hustafa, USDA FS, North Zone Botanist, for fit with the UJCW. Hustafa identified twenty plants from Marshall's list as having a high probability of occurring within or adjacent to the watershed. Those plants will be shown in bold. They are as follows:

The plants will be identified by common English name and scientific name. Plant names follow Hitchcock and Cronquist (1973). Voucher specimens for many have been deposited in the Marion B. Ownbey Herbarium at Washington State University and were identified by Joy Mastrogiuseppe (personal communication 12 II 1974).

Lomatium dissectum--refers to the ultimate potato shaped root of this plant. The upper root of the plant is very oily and consequently not eaten. It is abundant on the slopes of the major river canyons where fine textured soils are well drained. It was not a preferred food because of its poor texture and bad taste. Moreover, the root is difficult to gather: each sample I attempted to collect was over 2 feet deep. My informants called it starvation food, and said that it was gathered in January and February. It was difficult to locate because the above ground parts were deteriorated, leaving only a small dry stock.

Lomatium salmoniflorum--is the earliest blooming food plant in the region. It first appears in late January to late February in the Lewiston area, growing in very rocky soils, inactive talus slopes, and in shallow soils. Both the herbaceous above ground parts and the stout root were eaten. The leaves served "as a kind of garnish" while the roots, though not tasty, were fresh food in the spring. They were especially prized when stores were depleted.

Lomatium canbyi--this was the most valued spring plant. It is especially common in "lithosolic" habitat types as discussed by Daubenmire (1970:39). Relatively dense stands occur on the gentle slopes of ridge tops, which are most common in the Lapwai-Lewiston area. They ripen latest and in least profusion towards Kamiah. The Kamiah area residents rarely stored them but the downstream groups did dry them for winter use. It tastes like kerosene to many people, but this seems to be an attribute of *Lomatium gormanii*, a plant very similar in appearance and habitat. The root of *L. canbyi*, unlike *L. gormanii*, is bald.

L. gormanii is distinguished from *L. canbyi* by the presence of many fine rootlets on the bulb. Both plants apparently occur in the same habitat. In my experience, one dominates the other. What leads to this dominance is unknown, but it seems related to the intensity of soil disturbance.

Yellowbell (*Fritillaria pudica*)--blooms shortly after *Lomatium canbyi*, but at lower elevations. It is common on steep slopes where the soil is relatively deep, moist, and stable. It was primarily a supplementary food plant because its bulb is small.

Lomatium grayi--unlike other *Lomatium* species, which were prized for their roots, the stems were eaten in March or April since, after blooming, the plants become hard and woody. It is very abundant in some limited areas, and grows singly throughout the canyons.

Balsamroot sunflower (*Balsamorhiza sagittata*)--balsamroot sunflower was collected from April to May. The root was baked and the stems were eaten fresh. It is sometimes profuse on relatively high ridges within the canyons; in such cases, it borders a plant community rich in *Lomatium grayi*, which generally grows just downslope. This was primarily a seasonal food.

Hackberry (*Celtis douglasii*)--is especially abundant on the low alluvial fans of the primary streams. It is a primary floristic feature of a distinct habitat type (Daubenmire, 1970:73). The large seeded fruit was crushed and dried for winter use. It was collected in late April or May.

Serviceberry (*Amelanchier alnifolia*)--grows throughout the region, but it is best known from the canyons. It was not preferred to *A. utahensis*, which is generally found at higher altitudes. Serviceberry blooms in March to April, and matures in May or June.

Golden currant (*Ribes aureum*)--is also known as a canyon plant. It bloomed in late March or April, and its fruits were available from May to June. It was less preferred than serviceberry.

Wild hyacinth (*Brodiaea douglasii*)--is a common, though not abundant, plant. It grows in moist, deep soils in both the canyons and plateaus; consequently, the bulb was gathered over a long period. Partly because it does not grow closely bunched together, and partly because it has a relatively small bulb, it was primarily a supplement to other plant foods. It was nevertheless

highly valued.

Elderberry (*Sambucus cerulea*)--is a common shrub, which carries great numbers of flowers and berries. This lowland elderberry produces as many as three generations of flowers between June and September. Presently shrubs are found in well watered, generally protected spots in the canyons and plateaus of the region. In the Clearwater area elderberries were commonly stored for winter use.

Biscuitroot (*Lomatium coos*)--was one of the most intensively gathered food plants. It is found on well-drained soil, generally ridge tops. It grows in great profusion in the canyons, on the plateaus, and in restricted areas of the Clearwater River bottoms. On the river bottoms it blooms earliest, but does not produce large roots. May and early June is the main collection season, after the seed had matured. This root, along with camas, formed the bulk of the plant foods stored for winter use. A good digger gathered 50-75 pounds of biscuitroot in a single day. As the specific epithet implies, Whites commonly call it coos.

Wild onion (*Allium spp.*)--blooms from May through June. They are found in shallow rocky soils or soils subject to frost heaving. It was not generally collected for winter storage, but was a supplement during their season. Spinden (1908) reports that some Nez Perce cooked it like camas.

Lomatium triternatum var. triternatum--also was a supplementary source of vegetable food. It, too, grows in rocky soils, which are well drained or subject to frost heaving. It grows at roughly the same elevations as *L. coos* and seems to have been collected at the same time.

Frasera (Frasera fastigiata)--grows both in the lower ponderosa pine forests and in wet meadows within the pine forest. My informants say it also grew in wet prairie meadows, which are now farmed. It was thus a plateau resource. It was collected as a supplementary plant food in late June and early July while the Nez Perce were at the great root grounds of Camas prairie.

Gooseberry (*Ribes spp.*)--were plateau and foothills resources. They were collected while still green in late June and early July as well as when ripe in August. They were eaten fresh and dried and stored for winter use.

Chokecherry (*Prunus virginiana var. melanocarpa*)--is found both in the canyons and plateaus. They bloom from May through June, and have an equally long period during which the fruits are ripe. They were eaten fresh, and ground, including the stone, for drying and storage.

Elk thistle (*Cirsium scariosum*), a 3 to 4 foot high thistle, is solitary, and grows throughout the area's plateaus and mountain meadows. Both the stalk and root were eaten, but the root was especially favored. They were gathered before the flower had set seed in late July or early August. It was a seasonal supplement, and the roots were not generally stored for winter use.

Sego lily; mariposa lily (*Calochortus eurycarpus; C. nitidus; probably others*)--is found in seasonally dry marshes and flood plains from the canyons into the mountains. However, it is known primarily as a prairie and mountain plant. In the mountains it is found mostly on the terraces of rivers, especially near McCall, Idaho. It was collected from late June through August

as a seasonal supplement.

(*Lomatium spp.*)-- is found on dry open slopes in the lower portion of the ponderosa pine zone. This plant, though often abundant, was not preferred and was rarely stored. The root is slightly smaller than a pencil and is somewhat bitter. It was collected in June.

Spring beauty (*Claytonia lanceolata*)--is now confined to open ponderosa pine forests and mountain stream terraces. Formerly it grew on the prairies near Craigmont, Idaho. There the roots of this perennial were an inch or more in diameter. These were dug in late June or early July, and formed a supplementary part of the diet.

Camas (*Camassia spp.*, especially *Camassia quamash var. quamash*)'--is the best known of the roots used by the Nez Perce. Their territory was especially well known for the vigor and abundance of the camas growing there, and numerous other groups came to exploit these grounds. The most famous of the camas meadows was at Weippe, Idaho. The Camas Prairie, too, was well-known, and even today small "lakes" of camas bloom near Grangeville. Less well-known were the small "holes" of the mountains and the large, well-used grounds near Moscow, Idaho and Pullman, Washington. These different locations had camas marshes, which matured at different times; the lowest, warmest ones were exploited in early to mid-June; the highest, coolest ones could be worked until September. As Daubenmire noted (1970:78) the disturbance caused by digging may have aided the establishment of seedlings. Further, he felt there was no evidence to indicate "overexploitation" of these grounds.

Camas was, along with biscuitroot, the primary root stored for winter use. A winter supply could be gathered in 4 to 5 days. A good digger could gather 80-90 pounds per day of hard labor, while less intensive work would yield 40-50 pounds easily. A week of hard, undivided labor would produce about 500 pounds of cooked roots suitable for winter use. Many other activities were undertaken when people were living at these main grounds. My informants estimate that women gathered camas for two to three weeks.

Sunflower (*Balsamorhiza incana*)--this plant is found in dry soils during middle and late July, especially in the plateaus. Its root was not favored, and though some may have stored it, it was primarily a supplementary food at the time it was collected

Wild carrot (*Perideridia gairdneri*)--was a highly favored food plant. The roots, which have the size, texture, and flavor of young carrots, were gathered in July before they set seed. Afterwards, the root becomes hard and flavorless. These grow over the prairies and in open pine forests. It is not, at least, abundant. It was stored for winter use

Rose hip (*Rosa nutkana var. hispida*; *R. woodsii* and other species)--was not a favored food. Fertile plants producing rose hips grew in thickets throughout the moist grasslands of the area, but they were especially abundant south of the Snake and Clearwater Rivers. Rose hips were collected as a supplement, except in years when other fruits were in short supply. Then it was gathered and dried in quantity for winter use. Late July and early August was the collection time.

Thimbleberry (*Rubus parviflorus*)--grows throughout Nez Perce territory. Those found in the mountains, however, were favored. It is particularly abundant in the early stage of post-fire forest

succession. They apparently were not gathered in quantity by many people, though some were dried and stored for winter use.

Serviceberry (*Amelanchier utahensis*)--is common throughout the Nez Perce region. Again, those that grew in the mountains were most favored, and great quantities were gathered and stored for winter food. They ripen first in the canyons, about late June, and are ready at their highest elevations during August and early September. Like other berries found in the forest, it is favored by fire and becomes most productive 10 to 15 years after a burn.

Mountain elderberry (*Sambucus racemosa* var. *melanocarpa*; *S. cerulea* ?)--was also favored over elderberries found in the canyons and plateau. However, it was rarer. This food was collected in August and September in the foothills of the Bitterroot Range. This plant is also favored by fire: those I have seen were all in small openings of the forest.

Huckleberry (*Vaccinium globulare*)'--was the only huckleberry species I collected, although others are found in the area (e.g. *V. membranaceum*). These berries were collected in the *Abies lasiocarpa* zone. They were picked in August and September. Along with *Amelanchier utahensis*, huckleberry was the major berry collected by the Nez Perce and was highly valued. The huckleberry's productivity increases as a result of fire.

Little fire; fireberry; Grouseberry (*Vaccinium scoparium*) --was another valued high altitude plant. It is found in secondary growth timber stands or in openings on high mountain ridge tops. Its production from year to year seems more variable than other berry crops, however. In years of high production the berry patch is bright red, hence the Nez Perce name. The berries are small, and the Nez Perce made wooden combs to rake the berries from the plants into baskets. These berries were dried for winter use when abundant. Fire favors the growth of *V. scoparium* through the removal of taller plants, which suppress its growth.

Pine moss (*Alectoria jubata*)--lichen, is found throughout the forests of the Nez Perce area. The preferred plants are found in the high mountains. "Pine moss" grows on a variety of tree species, but those found on larch were especially favored. Those of pine are also edible; on the other hand, lichens growing on fir trees are considered inedible. It has been called famine food (Spinden, 1908:205; Haines, 1955:14). Both sources cite Lewis and Clark's journals that report the Nez Perce using lichens from pine trees during famine. The identification of the lichen is uncertain, however, since they were gathered in the winter at relatively low elevations. Given the amount of labor required in obtaining pine moss, and the fact that it is gathered in summer at high altitudes, and requires considerable effort to prepare, it seems unreasonable to assume that it was a famine food.

Hawthorn (*Crataegus columbiana*)'--and (*C. uvuglasii*)'--were collected late in the summer in the canyons and plateaus. As noted in the previous section, hawthorns are so abundant along streams that they form their own peculiar habitat type. Hawthorn fruits were ground and dried for winter use. Marshall (1977:48-59).

Citing Skirmisher's (1967:64-69) data, Marshall notes that some of the plant foods collected by the Nez Perce had higher nutritional values than fish. Of the two primary root crops, camas had the highest nutritional values, possessing 5.4 ounces of protein, or 1695 calories per pound.

Steelhead trout possesses only 3.4 ounces of protein, or 885 calories per pound. It is estimated that a Nez Perce family would require approximately 450 pounds of stored camas per year, assuming it was the only source of plant food (Marshall, 1977:62-63).

Intentional or not, while collecting plant resources, the Nez Perce were manipulating the environment. Most roots, particularly camas and coos were not collected in quantity until their seeds had ripened. In the process of digging roots, soil disturbance would be extensive. Most of the above mentioned plants thrive in disturbed soils. By digging roots after the seeds had ripened, the Nez Perce insured that plant seeds would be distributed in prepared seedbeds, therefore furthering the survival and/or propagation of culturally significant plants (Marshall, 1977:61).

Since the Nez Perce villages were located with respect to primary salmon fishing sites, movement away from the village was in response to the maturation of the above plants, through spring and summer. If the village represents the smallest group that live on a seasonal basis at a given geographical location, then movement to a primary root ground such as Weippe Prairie would constitute one of the largest aggregations of the Nez Perce. Per Chalfant (1974:100) the Joseph band often traveled to Weippe for the purpose of digging camas.

Chalfant (1977:99) notes that the inner bark of the lodgepole pine was sometimes used as an emergency food. There are hundreds of peeled ponderosa pine trees (cambium peeled trees CPTs) within and adjacent to the UJCW, primarily within the northeast portion of the study area near Thomason Meadows. Marshall (1977) makes no reference to the use of inner bark and the purpose for peeling these trees remains unclear. Based on the age class of the trees and the tree ring dates obtained from a few of the trees, ca. 1850, it is highly likely that they were peeled by none other than the Nez Perce. This resource will be discussed in more detail below.

A Cultural Ecoclass Perspective on plants and archaeological resources significant to the Nez Perce

The National Forest portion of the watershed has been subdivided into 25 ecoclasses or plant associations that contain the bulk of the edible plants identified by Hustafa. Fifteen ecoclasses, dominated by grass associations contain the majority of the root resources, particularly camas and coos (biscuit root). Included are biscuit scabs. Four ponderosa pine ecoclasses, consisting of the pine and grass associations and particularly the ponderosa snowberry ecoclass contain the majority of the cambium peeled trees. The Thomason Meadows and Indian Village groves of CPT lie predominantly within the ponderosa pine, snowberry association. Per Hustafa (personal communication) the level of ecoclass mapping currently available may be too coarse to identify narrow grassland stringers, which are known to contain culturally significant plants, particularly roots.

The ability to predict archaeological site location based on ecoclass mapping is similar to that of the twenty culturally significant plants identified by Hustafa. Most sites within the UJCW are found on or near ridge tops, which are characterized by grassland and ponderosa pine, plant associations. The majority of the black andesite, lithic resource sites occupy these same near ridge top settings. The Wallowa-Whitman National Forest (WWNF) cultural resource inventory program is based on a survey design known as S.I.P.S, or Stratified Inventory Probability Sample. This survey design is based on over twenty-five years of cultural resource survey within the

forest, the ethnographic pattern and the geomorphology, geography and geology of the WWNF. The survey design stratifies the Forest into High, Medium and Low potential areas based on the probability of discovering prehistoric and historic cultural resources. S.I.P.S. generally works better for prehistoric than historic cultural resources and tends to fit the north end of the Forest better than the south. It is no accident that the bulk of the black andesite lithic scatters, campsites and now, culturally significant plants occur within the High probability stratum, Major Ridge Systems, Water Courses and Springs.

Game Resources

Approximately 15-30% of the Nez Perce diet was obtained through hunting. They categorized game species into three sub-classes, hoofed animals, pawed furry animals and flying animals. Only hoofed animals were hunted extensively. The other animals constituted a much smaller portion of the subsistence economy and when they were collected, it was often due to serendipity (they were caught or killed in hunting activities in which hoofed animals were the primary target, or for ritual purposes). Pawed animals were occasionally eaten, but were not usually hunted for food. Per (Marshall 1977:63), the major food animals of the Nez Perce consisted of six species, elk (*Cervus canadensis*), whitetailed deer (*Odocoileus virginianus*), mule deer (*Odocoileus hemionus*), mountain sheep (*Ovis canadensis*), mountain goat (*Oreamnos americanus*), and moose (*Alces alces*). Two additional species, bison (*Bison bison*) and antelope (*Antilocapra americana*) are referenced as being hunted on the Great Plains, however, both appear to have been present within the study area. All of the above species were hunted either by ambush or driven into traps.

Marshall (1977:67) places considerable emphasis on elk as a primary prey species and down plays the importance of mountain sheep in the subsistence economy. Within and adjacent to the Joseph Creek Watershed, the opposite appears to have been the case. The faunal assemblages obtained from archaeological excavations in Hells Canyon, located only a few airline miles from the northern portion of the watershed, contain significant quantities of mountain sheep bone and are notable for their lack rather than the presence elk remains. In many of the sites in Hells Canyon, particularly the southern portions of the canyon, mountain sheep appear to be the predominate prey species. As one moves north towards Pittsburg Landing, deer takes the lead, but mountain sheep runs a close second. Within the faunal assemblage obtained from Downey Lake, bighorn sheep and pronghorn antelope represent 80% of the identifiable elements (Reid, 1988:60).

The occurrence of bighorn sheep within or adjacent to the study area is not surprising given the name of Big Sheep Creek. According to Horner, (Bartlett, N.D.), this creek was named in the early 1880's for the many mountain sheep that roamed on its breaks. In the winter these sheep would come in droves out on the high point between Imnaha and Big Sheep Creek.

The excavations at Downey Lake also yielded a large molar, which may be that of a bison. According to Fern Warnock, several bison skulls were found along the upper Imnaha River. These skulls were unearthed during a bridge construction project (Gildemeister, 1992). Gildemeister also refers to several undocumented bison finds in Union county. In 1985, one these sites near the town of Union, Oregon was surveyed for the presence of prehistoric cultural materials. An extensive bone bed, entrapment area and drive lanes were identified. The bone bed

is contained within a semicircle of stones, which may have once been a stone fence. The bone bed and enclosure lie at the base of a cliff. A stone fence, or drive lane extends away from the top of the basalt cliff. Bone specimens collected from the bone bed were collected and submitted to the University of Washington for analysis. They were positively identified as bison, or modern bison (Womack And Francy, 1985). Temporally diagnostic artifacts recovered from the site suggest that the kill occurred between two and three thousand years ago, about the same time that the Downey Gulch site was occupied.

By the mid 1870's, the Joseph Band of the Nez Perce had also acquired extensive cattle herds. Per 1876 US Census data, the treaty Nez Perce possessed 9,000 head of cattle in 1876, or 3.2 cattle/person. Applying this same value to the Joseph Band, they would have possessed approximately 1,600 head of cattle. The degree to which domestic livestock (cattle) contributed to the historic Nez Perce diet and therefore hunting and gathering activities is unknown. However, if the 1876 US Census estimates for cattle herds among the treaty Nez Perce is correct, and can be extrapolated to the Joseph Band, the impacts would have been significant.

Introduction of the Horse

Acquisition of the horse by the Nez Perce ca. 1730 (Haines, 1938:429-436) had a profound impact on Nez Perce socio-political organization and other cultural systems. Within a few generations, the Nez Perce had become horse pastoralists. According to Chalfant (1974:110), in post horse times, the Nez Perce traveled extensively outside their aboriginal range. The horse increased the range of the Nez Perce and other Plateau groups to the maximum. Trade networks were increased by hundreds of miles, and, by hunter-gatherer standards, huge quantities of goods could be transported with relative ease.

At the time of the Nez Perce War in 1877, each family was thought to possess between 50 and 100 horses. U.S. census figures for the year 1876 indicate that the treaty Nez Perce in Idaho maintained 14,000 head of horses and 9,000 head of cattle. This equates to a horse, person ratio of 5:1. At the time of their surrender at Bear Paw in Montana in 1877, the Joseph band numbered approximately 450 individuals. If one allows for approximately 50+ casualties resulting from the various battles leading up to the Bear Paw Battle, the numbers would have been around 500 individuals in the pre-war setting. Given 5.0 horses/person per the above model, the Joseph Band of the Nez Perce would have had approximately 2500 head of horses.

Maintenance or reliance on large herds of horses probably had a significant impact on prehistoric settlement and subsistence patterns. Many Nez Perce village sites, particularly those within the more rugged portions of the Hells Canyon, which contains numerous village sites, appear to have been abandoned around the time of acquisition of the horse. These areas were simply too rugged and precipitous to be accessible to horses without a heavily constructed trail system which did not exist prior to Euro-American settlement. This tends to be substantiated by the almost total lack of European trade items or artifacts (coppers, gun flints, trade beads etc.) in archaeological assemblages recovered from numerous Hells Canyon sites. The few items that have been found are associated with sites in the lower portion of the canyon, such as the Pittsburg Landing area, which would have been accessible to horses, as well as providing forage for horse herds.

The mobility afforded by the horse had brought the Nez Perce into more intimate relationships with Plains cultures, stimulating trade. Initially, the prolonged trips to the plains were for the purpose of buffalo hunting. Eventually the Nez Perce would return with more than buffalo robes and meat. Repeated contacts with Plains Indian groups resulted in the adoption of plains cultural traits, clothing, house style, and plains tribal structure, which was much more centralized. Per Chalfant (1974:34), tribal Organization in the eastern Plateau, which includes the area occupied by the Nez Perce is not of great age and is largely a result of plains contacts made possible by the horse. Prior to these contacts and or acquisition of the horse, the Nez Perce social structure operated at the band level, rather than the tribe. Per Chalfant (1974:37):

...Nez Perce history exhibits a change from an earlier, plateau-type political organization comprising loosely associated bands, each with its own chief, and functioning more or less independently; to a late Plains-like tribal organization characterized by the uniting of geographically grouped bands into larger, tribe-like entities, each coming under more and more control from a prominent band or war chiefs...

Per Marshall (1977:112), groups much larger than the village or band had little more than a vague reality to most Nez Perce. Larger, regional groupings may have been recognized, but consisted of other, distant peoples such as the Shoshoni or Piate or simply the downstream or upstream people.

Aboriginal Use of Fire

Most Indian groups are thought to have used fire to manipulate the environment for various reasons. Those most likely to have been employed by the Nez Perce are as follows:

- **Hunting:** Burning of large areas to drive big game into smaller unburned areas.
- **Crop Management:** The Nez Perce relied heavily on various root crops, the majority of which grow in wet meadow or scab environments. Burning would retain or enhance both the extent and condition of open areas.
- **Fireproof Areas:** The Nez Perce may have burned around winter villages and seasonal camps to help reduce threat from wildfires.
- **Improve Growth and Yields:** Fire may have been used to improve forage for big game (deer, elk, antelope, bison and eventually horses), root crop production seed plants, berry plants, (especially huckleberries).
- **Clearing Areas for Travel:** Fires may have been started to clear trails for travel through areas that were overgrown with grass or brush.
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In 1979 a cooperative study was initiated between the USDA Forest Service's Inter-Mountain Forest and Range Experiment Station and the University of Montana. The purpose of this study was to determine the relationship of Indian caused fires to the ecology of western Montana forests (Barrett, 1981). More specifically, the study focused on forests characterized by the presence of ponderosa pine, Douglas fir and grand fir. The researchers utilized fire scar data to determine fire

frequency for selected stands. Stands were selected based on proximity to major, Indian travel routes and zones of occupation. Control stands were identified in areas of similar habitat type, but located away from high use zones. Not surprisingly, the researchers found that fire frequencies were much higher in areas adjacent to major travel routes and zones of occupation. They also found that fire frequencies were much higher prior to 1860, the approximate time after which Indian life-ways were interrupted by white settlement.

Specific reference to the use of fire by the Nez Perce is lacking within the ethnographic literature. However, historic accounts of Indian use of fire, e.g. those of Lewis and Clark, Peter Skene Ogden and others are abundant. One such account by a pioneer on Smith Mountain, northwest of the town of Wallowa notes as follows:

In the late 1800's and early 1900's, much wild hay was cut. The Indians had been hunting and berry-picking the mountain for ages. Every fall when they left they'd set everything afire that would burn, then hunt on that ground next year. There was a heavy growth of pine timber all over, but they kept it burned. There was no brush of any kind. You could take a mower and mow for days among the trees. (Riggle, 1983:37)

Given the location within Wallowa County, it is highly likely that the "Indians" referred to in Riggle's account were Nez Perce.

The purpose of the above discussion involving Native American livestock and burning is to elucidate the often-held misconception that Euro-American settlers encountered a pristine landscape unaffected by other humans. Scientists are beginning to understand that the opposite is more likely the case. At the time of entry of the first white settlers, the grassland forest mosaic of the Blue Mountains and more specifically, the Wallowa country, was in large part a managed landscape. The Indians, or first Americans as they are often called, were the managers. They were an integral part of the ecosystem and to some degree this has probably been the case for the last 8-10,000 years. According to Shinn (1980:415):

Broadcast burning by the peoples of the inland Pacific Northwest was widespread and persisted over an extended period primevally. It may have dominated, perhaps largely pre-empted, natural burning in shaping aboriginal environments. The entry of European culture to the region interrupted native traditions in the use of fire, altered their role in nature, and distorted their prior relation to grazing phenomena, causing fundamental shifts in nature, which continue to this day.

European settlers entered the Wallowa country in the 1860's. By 1870, their numbers had increased to the point that conflict developed between homesteaders and the Indians. By 1877, any meaningful interaction between the Indian community and the forest grassland ecosystems of Wallowa County had ended. From this point on, the dominant cultural force on the landscape would be that of white homesteaders.

Prehistory and Archaeology

The UJCW consists of 75,892 acres of National Forest (NF) land, 504 acres of Bureau of Land

Management lands and 98,278 acres of private holdings, for a total of 174,647 acres of watershed. Largely as a result of the USDA Forest timber sale program, the NF lands have been intensively surveyed for heritage/cultural resources. As a result of these surveys, over 143 archaeological sites have been identified within or immediately adjacent to the NF segment of the watershed to archaeological testing and evaluation and only one of these sites yielded a radiocarbon age estimate. If the archaeology and prehistory of study area are to be understood and or discussed within the framework of the regional prehistory, the watershed cannot be viewed in isolation.

As noted in the in the description of the Environmental Setting, the UJCW can be characterized as a gently dissected basalt plateau. However, to the north and east of the study area lie the Imnaha and Snake River Canyons. They are anything but gently dissected, and represent some of the most rugged topography in western North America. Nonetheless, they contain some of the most significant archaeological resources in Eastern Oregon. The Hells Canyon Archaeological District contains well over 600 prehistoric archaeological sites. As the crow flies, most of these sites are less than twenty-five miles from the UJCW. They have contributed significantly to our understanding of the regional archaeological patterns. It is quite possible, even probable, that the occupants of some of these sites may have visited the study area. For this reason, they will be discussed below.

Since stone tools and the transport and trade of tool stone is a facet of every site discussed below, it is therefore necessary to discuss the bedrock geology of the areas in and around UJCW. The bedrock geology of the Joseph Uplands is dominated by the Miocene, Columbia River Basalts to the extent that no other pre-Quaternary geological formations are present. The basalt flows are poorly expressed within most of the watershed. The rock types associated with the basalt flows, primarily basalts and andesite/basalts are exposed as outcrops on steeper slopes or as jointed bedrock in ridge top scabs. Sub-angular basalt/andesite cobbles and boulders can be found in low energy alluvial environments along Elk Creek and its tributaries.

The basalts flows in and around the watershed are noted for the occurrence of extremely fine-grained glassy materials often referred to as glassy basalts. Although jet black, these materials are in fact andesite/basalts. They occur primarily as cobble sized nodules and are most often found in ridge top scab environments. Although bedrock exposures of this material are unusual, it does outcrop on the ridge immediately south of Forest Rd. 46 near Starvation Springs.

The source of the glassy andesites is probably Elk Mountain, which lays approximately four miles southeast Starvation Springs. Elk Mountain is the largest of eighteen Pliocene shield volcanoes collectively referred to as the Joseph Volcanoes (Kleck, 1976:35). To most people, they are simply known as The Buttes. Beyond Elk Mountain, notable volcanoes within or adjacent to UJCW, (north to south), are Roberts Butte, Haskins Butte, Greenwood Butte, Brumback Butte and Findley Buttes. The above volcanoes cut diagonally through the heart of the watershed. Other buttes include Nedham, Harl, Morgan and Miller Buttes located southeast of Wallowa Lake, in the Upper Imnaha Watershed. Elk Mtn, and Roberts Butte located within or immediately adjacent to UJCW, and Harl Butte located approximately eight miles southeast of Enterprise, are the buttes best known for their association with fine grained, andesite tool stone. The material associated with Elk Mtn. and Roberts Butte is jet black while those from Harl Butte consist of reddish orange andesite. While the black andesites predominate, the reddish orange material is present in most excavated sites.

The glassy andesite/basalt deposits were a major source of lithic raw materials for prehistoric hunters and gatherers. Consequently, the area in and around the UJCW area contains one of the highest densities of lithic scatter sites on the Wallowa-Whitman National Forest.

Summary and Conclusions

The UJCW lies within the aboriginal territory of the Nez Perce Indians, more specifically, lands exploited exclusively by the Nez Perce. Prehistorically, the Nez Perce consisted of a loose confederation of independent bands. The band, consisting of several or more extended families was the key to Nez Perce social structure. Historically, the Joseph, Imnaha and Wallowa bands probably interacted the most intensively with the UJCW.

At the time of white encroachment into the Wallowa country, ca. 1860, the Nez Perce may have already played a significant role in shaping the physical environment of the watershed. With thousands of head of horses and cattle, the range was already being managed and or impacted by livestock. Add to the mix the aboriginal use of fire and the mechanics of harvesting plant resources over thousands of acres, the UJCW and surrounding area, has been a culturally managed landscape for thousands of years.

Archaeological investigations conducted within and adjacent to the study area place people within the watershed for the last 8,000 years and possibly longer. There are hundreds of significant cultural resource sites within the watershed. Most if not all of these sites, lithic scatters, cambium peeled trees etc., can be attributed to hunter-gatherer bands operating out of winter villages and seasonal camps located within the northern portion of UJCW and adjacent to it.

The location of seasonal camp sites, lithic workshops and cambium peeled trees are determined by the availability and or location of specific resources, water, food resources, tool stone and in the case of the cambium peeled tree groves, ponderosa pine trees. Campsites are almost always found adjacent to surface water, springs or streams, however numerous other factors, such as proximity to food resources, slope and aspect also play a role in site selection. One thing that all campsites share in common is that they all seem to be located within or adjacent to ecotones or edges. This is most commonly the forest grassland ecotone. Probably 99% of all the prehistoric sites within the UJCW are located accordingly.

The most significant campsites located within or adjacent to the UJCW are three sites in the southern portion of the watershed. They have contributed significantly to our understanding of the development of lithic procurement and reduction strategies in the Joseph Uplands, and probably hold the key to understanding ethnographic Nez Perce settlement and subsistence strategies within the watershed.

The groves of CPTs in the watershed were no doubt peeled by the ancestors of today's Nez Perce Indians. While we know that the UJCW was occupied seasonally by hunter gatherer populations for the last 8000 years and that they were probably the early ancestors of the Nez Perce, the extensive groves of CPTs, probably peeled from the mid 1700s through the late 1800s are living

examples of Nez Perce interaction with the watershed. If the USDA FS interpretive sign located at the Indian Village grove of CPTs is accurate, and it probably is, the Nez Perce were busily peeling trees right up until they were evicted from the Wallowa Country by the US Army.

The CPTs within and adjacent to the UJCW are an incredible resource, both from an aesthetic and scientific perspective. There is yet much that can be learned from these trees. While there are hundreds of them, they are a relatively fragile and finite resource. Within a few generations, Indian or White, a significant number of these trees will succumb to old age, insects and fire and will eventually disappear. That is the eventual future for all of the CPTs. The forest needs a well thought out management plan for this resource, developed in conjunction with the Nez Perce Tribe

Edible plant resources important to the Nez Perce occur in significant quantities through out the watershed. Hustafa (2003), identified 20 edible plants that occur within the UJCW. Among them are camas and coos, both mainstays of the Nez Perce diet at the time they would have occupied the watershed as hunters and gatherers. For the majority of these plants, and particularly camas and coos, Forest Service land management activities do not appear to have significantly degraded this resource. In an attempt to better understand the distribution and condition of the edible plant resource, the national Forest portion of the watershed was subdivided on the basis of ecoclass. Twenty-five ecotypes were identified. In short, the grassland and grassland shrub and ponderosa pine communities contain the bulk of the plant resources and are also where the archaeological resources are concentrated.

Lithic resource sites and workshops are all found in near ridge top settings where tool stone is present, and as far as the UJCW is concerned, that tool stone is black andesite. Given the extent and distribution of black andesite resource sites within the UJCW, together, they must have played a significant role in the distribution of black andesite tool stone across the North Zone of the WWNF and probably much of eastern Oregon. Unlike the CPTs, the lithic scatters are in no immediate danger of disappearing. As noted above, all lithic scatters are not created equal. The majority of these sites possess limited data potential beyond defining or refining the lithic technology of the Joseph Uplands. Forest Service land management activities are not likely to significantly degrade the data potential of these sites.

There is however, another type of significance, which does not always mesh well with scientific values and USDA Forest Manuals and Handbooks, PMOAs etc. That would be the intrinsic value placed on the resource by the American Indian community, in this case the Nez Perce. They do seem to believe that all sites are created equal and that all have a value greater than that which can be measured, weighed, dated etc. Just how intrinsic values can be woven into USDA FS land/resource management decisions is beyond the scope of this report. There is one thing for certain; it can not happen without intensive, ongoing, person to person, American Indian involvement in the planning process, especially planning at the watershed level.

The greatest gap in our understanding of the culture, history and archaeology of the UJCW is the un-surveyed Zumwalt Prairie, which constitutes approximately 60% of the UJCW. Based on the bedrock geology and the presence of several Joseph volcanoes, there is no reason to believe that site density would be much different than the NF portion. The Zumwalt Prairie desperately needs some level of archaeological survey before the culture history of the watershed can be truly

understood.

As for the most pressing archaeological research and management priorities, in the author's opinion, they are as follows. They are presented in order of priority:

1. Significantly increase the involvement of the Nez Perce, including the Joseph Band in the management of archaeological resources, CPTs and culturally significant plants.
2. Develop a management/research plan for the Thomason Meadows and Indian Village groves of CPTs.
3. Develop a management plan for the Starvation Springs site. This plan should include direction for reducing fuel loads within the most significant portions of the site as defined by Jaehnig (1992). This could be accomplished by a combination of a low ground pressure thinning system such as a forwarder and hand piling and mechanical chipping. The site/spring also functions as a major, stock water development. The current stock tank is located within the boundaries of the site and should be relocated outside the site.
4. Conduct archaeological survey and testing of the Indian Village and Steen ranch sites.
5. Conduct a stratified, archaeological survey of the private portions of the watershed, namely, the Zumwalt Prairie.